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What Methods Will California Law Enforcement Use to Identify and Inform Technology Developers of Their Needs by the Year 2004?

A Technical Report

by

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This Command College Independent Study Project is a FUTURES study of a particular emerging issue in law enforcement. Its purpose is NOT to predict the future, but rather to project a number of possible scenarios for strategic planning consideration.

Defining the future differs from analyzing the past because the future has not yet happened. In this project, useful alternatives have been formulated systematically so that the planner can respond to a range of possible future environments.

Managing the future means influencing the future--creating it, constraining it, adapting to it. A futures study points the way.

The views and conclusions expressed in the Command College project are those of the author and are not necessarily those of the Commission on Peace Officer Standards and Training (POST).

DEDICATION

The study is dedicated to my wife, Susan, for all those times I said to her, "I can't, I have to work on my paper."

Chester H. Panique, Jr.

PREFACE

Initially this project was undertaken as a result of new technology displayed in workshops at the Command College. Several technologies looked interesting and it was quite difficult to choose just one of them as a subject to explore. After some thought, however, it became readily apparent that this would be too narrow a focus. The "big picture" seemed more appealing. What will California law enforcement do to drive the technological changes needed to make it more effective in providing for the public safety rather than simply following the lead of the major vendors and developers.

There will have to be some process or conduit in place to make this whole thing come together. This will have a major impact on California law enforcement, a project certainly worthy of becoming a future's issue to be examined in a Command College paper.

At the onset of this project little was being developed in this area, but as the research progressed, the process and the agency selected to be the conduit began changing rapidly. Initially, the Department of Justice was selected because of the fact that they were a statewide agency involved in training, law enforcement and prosecution of criminals. Then, because of the Commission on Peace Officer Standards and Training's work with technology transfer, POST was selected as the

agency to focus on. The POST Mission in this area is very focused; technology transfer related to training. Neither POST, the legislature, nor the field wants to see POST involved in wholesale technology transfer. In January of 1995, this author became aware of the conceptualization of the Consortium for Crime Control and Public Safety Technology (C_3PST). This was a concept being developed by Dean Susan Hackwood of the Bourns College of Engineering at the University of California, Riverside. Although the C_3PST is still in the embryonic stages of development, Dean Hackwood has already enlisted former State Senator Robert Presley, and former Riverside County Sheriff Cois Byrd to work on it. She obtained initial funding in excess of $60,000 for the project. The concept appears sound, and this author has enthusiastically embraced it as the appropriate conduit to effectively deal with issues put forth in this paper. Sheriff Byrd and Dean Hackwood have both been interviewed and are ready to take on the challenges that are ahead.

There will be many successes to point to as a result of this process if it is instituted properly. California law enforcement, the public, technology developers, vendors and the University of California will be able to drive the technological changes that will envelope our future instead of being dragged along behind it.

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INTRODUCTION:

Technological advances are occurring at a much more rapid pace than ever before in history. As John Naisbitt and Patricia Aburdene write in Megatrends 2000, "By identifying the forces pushing the future, rather than those that have contained the past, you possess the power to engage with your reality."[1] Historically, law enforcement agencies in California have not been organized in a way that allows them to take advantage of these opportunities. Mid-sized and smaller departments have such a small amount of buying power that they are often placed in a position of purchasing old technology off the shelf in response to an identified need. It is not unusual for the purchase to become obsolete very quickly and only partially address the identified need anyway. Most agencies are not aware of this fact, and are doing little or nothing to prepare to take advantage of advances in technology. This, coupled with estimates by today's criminologists that laws and law enforcement generally lag four years behind criminal elements with regards to applying new technology, points to the urgent need for rapid technology transfer to law enforcement uses.[2]

As stated in a previous Command College Technical Report written by Samuel L. Spiegel, "The current emphasis in law enforcement today is to **spend smarter.** Law enforcement managers strive to creatively reallocate resources and personnel, but continue to be challenged by increasing demands for additional services. Given the

potentially significant cuts in future capital outlay funding, technological resources need to be explored and developed if law enforcement is to continue to provide effective police service."[3]

Jared Du Fresne, from the Livermore National Laboratory, in an address at a Command College graduation, stated that since the end of the Cold-War, there has been a large cutback in military weapons. Because of the economy, there have been major cutbacks in funding for the space program. Weapons laboratories, the aircraft industry, the electronics industry, and NASA are looking for other ways to market their technologies. One market they have identified as a possible outlet for their technology is law enforcement.[4] Although these corporations and agencies have state-of-the-art technology, they do not completely understand the needs of California law enforcement. This has frustrated their ability to develop and distribute their technology. Following are several illustrations of how some of these problems manifest themselves.

One good example is vehicle pursuits. Law enforcement agencies continue to develop policies and discuss the liabilities that accompany this issue. They speak of the tragic loss of life of innocent bystanders and the jeopardy that officers and the public at large are exposed to every time an incident occurs. Existing technology is available that could eliminate most vehicle pursuits immediately. This technology utilizes microwaves to disrupt the central processing unit in the onboard computers

located in almost all of the newer vehicles. This process will cause these vehicles to stall and thus terminate the pursuit close to the onset.[5]

Another illustration is the concern over the issues that revolve around the use of non-lethal force. Most of the efforts in this area that are currently being undertaken by law enforcement agencies have a very narrow focus, such as newer and better batons to strike people and a better way to shock them. The military has been looking at this issue for a long time. Jared Du Fresne, from the Livermore Laboratory, said in a recent lecture that they have been looking into this problem for years and believe they have several answers available.[6] Remedies he discussed included the use of a "Goo Gun" that covers an individual with a taffy like substance, which makes it extremely difficult for that person to move. They are also looking at a weapon that fires tennis balls at approximately one hundred miles per hour, about the speed of a serve from a professional tennis player.

The Los Alamos National Laboratory and other defense laboratories are developing a diverse arsenal of nonlethal or disabling weapons that may enable the United Nations and other peacekeeping forces to defend themselves without triggering full-scale conflict. One such weapon under development is an acoustic weapon which could produce sound at frequencies and volumes capable of breaking windows, incapacitating humans, or even damaging internal organs at short range. The weapon would leave it to the enemy's own volition to flee and escape injury or to stay and be

incapacitated.[7] What would have been the result if this had been employed in Waco against David Koresh and his followers?

In a recent address to a Command College audience, Fred Mintz from the Pasadena Jet Propulsion Laboratory talked about miniaturization and how the laboratory now has the ability to send in a small remote controlled vehicle capable of recording and photographing an average size room. The vehicle would be about the size of a small beetle and could be used to gain intelligence information in hostage or barricaded felony situations. Mintz also spoke of a small radar gun-type device built from spare parts he had in the lab at a cost of under ten dollars, and one which is capable of sniffing out four different types of narcotics.[8] How much money is spent training dogs and their handlers to locate narcotics?

Both Mr. Mintz and Mr. Du Fresne have been designated by their employers as liaisons to law enforcement. Although they receive various requests from law enforcement agencies, it is difficult for them to develop anything very sophisticated for individual departments because of the cost involved. Most agencies are operating with very limited budgets.

Other technologies being pursued both by the military and private sector include extensive work with virtual reality, new and more complex computers, global positioning systems, smart card technology, and work with DNA, just to mention a

few. The February issue of Defense Electronics contains an article, "Police Use Advanced Vision Devices to Take Back the Night" that gives several examples of military technology being utilized by law enforcement against criminals. One example cited in the magazine was the following:". . . . officers in a patrol car, using a night vision device, observe two men in a park. As the police car nears them the officers note that one of the men is carrying a hand gun in the pocket of his coat".[9] This is a good example of dual use technology.

In June 1993, Charles W. O'Neal and Gary L. Wistrand, from NASA wrote, "While the 21st century may be a few years away by the calendar, but as far as crime is concerned, it is already here. Today's criminals are not only more sophisticated in the commission of traditional crimes, but have used state of the art technology to devise new computer-based crimes. To be effective against these criminals, law enforcement agencies must also adopt and learn to exploit the technological advances that have become available in recent years."[10]

Criminals are becoming more sophisticated in the types of crimes they are perpetrating. Criminals are stealing software, breaking into bank and credit computers to make illegal transfers and change credit ratings. Child pornography is also alive and well on some computer bulletin boards. It is imperative for law enforcement to stay current with technology in order to combat these crimes.

A recent United States study quoted in the February 27, 1995 issue of Newsweek found that fifty five per cent of those surveyed showed some signs of technophobia. There are many in law enforcement that could be referred to as technophobes. Technophobes are those over 45 who did not grow up with the devices they are now expected to master. Technophobes will force science to make things more user friendly. One illustration of this is the automatic transmission for automobiles. Early motorists were intimidated by the manual transmission. Automotive engineers were tasked with finding a user friendly solution. The solution to make people more comfortable with the automobile was the advent of the automatic transmission. The challenge for law enforcement will be to design technological products that will be simple enough to overcome technophobia.[11] The challenge will be to accomplish this at an affordable cost.

The military utilizes a concept that they call a force multiplier. It allows them, as in "Desert Storm," to take on an enemy of much larger force, suffer few casualties, and inflict unacceptable losses to their adversary. This was done at a distance, through the application of advanced technologies. Because of their technological advantage, they were able to take their objectives, take tens of thousands of prisoners, devastate the armored divisions sent against them, and end the war in about a week. Private industry has for years embraced a similar concept. This allows them to reduce the size of their workforce and increase their production through the use of robots and other forms of automation. Force multipliers would be utilized in

law enforcement to allow officers to be more effective and productive through the use of technology. The concept of a force multiplier is one that law enforcement would do well to explore, particularly with the current thrust toward providing more personalized service to the public - a thrust that is likely to prove very labor intensive.

Law enforcement agencies are moving into community oriented policing; many are already there. The tendency with community oriented policing is to hire more police officers and provide more interaction between the police officers and the community. However desirable this may be, it is just not practical given the dwindling funds available to law enforcement. If the desired outcome is to allow the officers more time to interact with the community, then the increased application of appropriate technologies may be one way to accomplish this. Technology can help officers be more productive, thus reducing the need for more new officers. Technological advances can be developed to take over redundant tasks performed by the officer, and it can be made to enhance the officer's ability to identify and apprehend criminals, while increasing the safety of the officers when involved in dangerous activities. Fingerprinting, photo lineups, and composites of suspects are areas where technology could be used to increase the productivity of officers.

Personnel costs should also be taken into consideration as they continue to escalate due to such developments as the rising cost of health care, retirement benefits, sick time, and other benefits, the cost of technology continues to fall. For

instance the annual salary of one officer would buy twelve state-of-the-art personal computers. In addition unlike personnel costs, recurring costs for technology are minimal.[12] There can be significant cost savings by investing in technology while reducing the need for additional officers.

California law enforcement agencies have been asked to economize, down-size, to right-size, to tighten their belts, and to do more with less. Some agencies have responded by putting a freeze on their hiring and not replacing personnel as they retire, while other departments have had significant layoffs such as the San Bernardino Sheriff's Department. The Police Hiring Supplemental Program, a federal program, will be issuing grants totalling about $50 million. These grants were awarded to 74 local law enforcement agencies and will help to hire 658 police officers.[13] The declaration of bankruptcy by Orange County with their superfund will create layoffs in law enforcement. It is clear that law enforcement is under heavy pressure. At the same time, technology is clearly in a position, as indicated above, to offer ways that law enforcement can do more, and perhaps better, with less manpower. With technology speeding down the information super highway, with the development of interactive technologies, with improved computers and advances by the military in the use of non-lethal force, it seems irresponsible not to become involved and tap into these technological advances.

California law enforcement has multiple voices speaking to the legislature. These include, but are not limited to, California Peace Officers' Association, Peace Officers Research Association of California, and California Police Chiefs Association and the California State Sheriffs Association. These, as well as other organizations, try to affect the legislation that is developed in Sacramento. California law enforcement has the Commission on Peace Officers Standards and Training to maintain standards and training that are consistent throughout the state. Their efforts are recognized worldwide. They have developed the Supervisory Leadership Institute and Command College, both of which have taken an active role in determining the future of law enforcement in California. Though California law enforcement is in a position to exert considerable political clout, it lacks both unity and a significant voice in the area of technology. There is a strong need to unite and to pursue a path that allows for California law enforcement to embrace its destiny.

California law enforcement must develop a process to identify its technological needs. The needs list should at least address the use of technology in the following areas: records management, case management, communications, investigations, the administration of justice, personnel, education, training, weapons, vehicles, and traffic. Many obstacles such as lack of funds, the rapid obsolescence of technology, legal issues, operational security, fear of technology, technological illiteracy, inadequate research and development, and especially the lack of unity between the various agencies on what technology to purchase, must be overcome.

To be effective, California law enforcement will have to promote itself as an attractive market to private industry. It will have to be appealing to private industry to spend the time and resources necessary to make appropriate technologies available. This may be accomplished through government grants which specifically target various identified needs. It would be beneficial to assist private industry in providing a specialized marketing plan where many of the applications that are developed for it may be adapted.

A process is required that will act as a conduit to blend and facilitate the needs of California law enforcement with the technology developers; one that will create a future in which California law enforcement will be part of the driving force that will dictate the development of appropriate technologies that will assist it in its mission to secure the public's safety. This conduit must make the process a successful venture for all those involved, In particular it must benefit California law enforcement, technology developers, the vendors and most importantly the public at large. The application of advanced technology adapted to the needs of California law enforcement, will render it more effective in responding to the challenges of the future.

OTHER RESEARCH:

A futures wheel was completed to develop the issue question and sub issues. Other meaningful considerations, that would result in a substantial contribution to

California law enforcement's ability to identify and adapt state of the art technology and bring it to bear with the demonstrated needs of the California law enforcement community were also identified. (see Illustration #1)

THE ISSUE QUESTION FOR THIS RESEARCH PROJECT IS:

"WHAT METHODS WILL CALIFORNIA LAW ENFORCEMENT AGENCIES USE TO IDENTIFY AND INFORM TECHNOLOGY DEVELOPERS OF THEIR NEEDS BY THE YEAR 2004?"

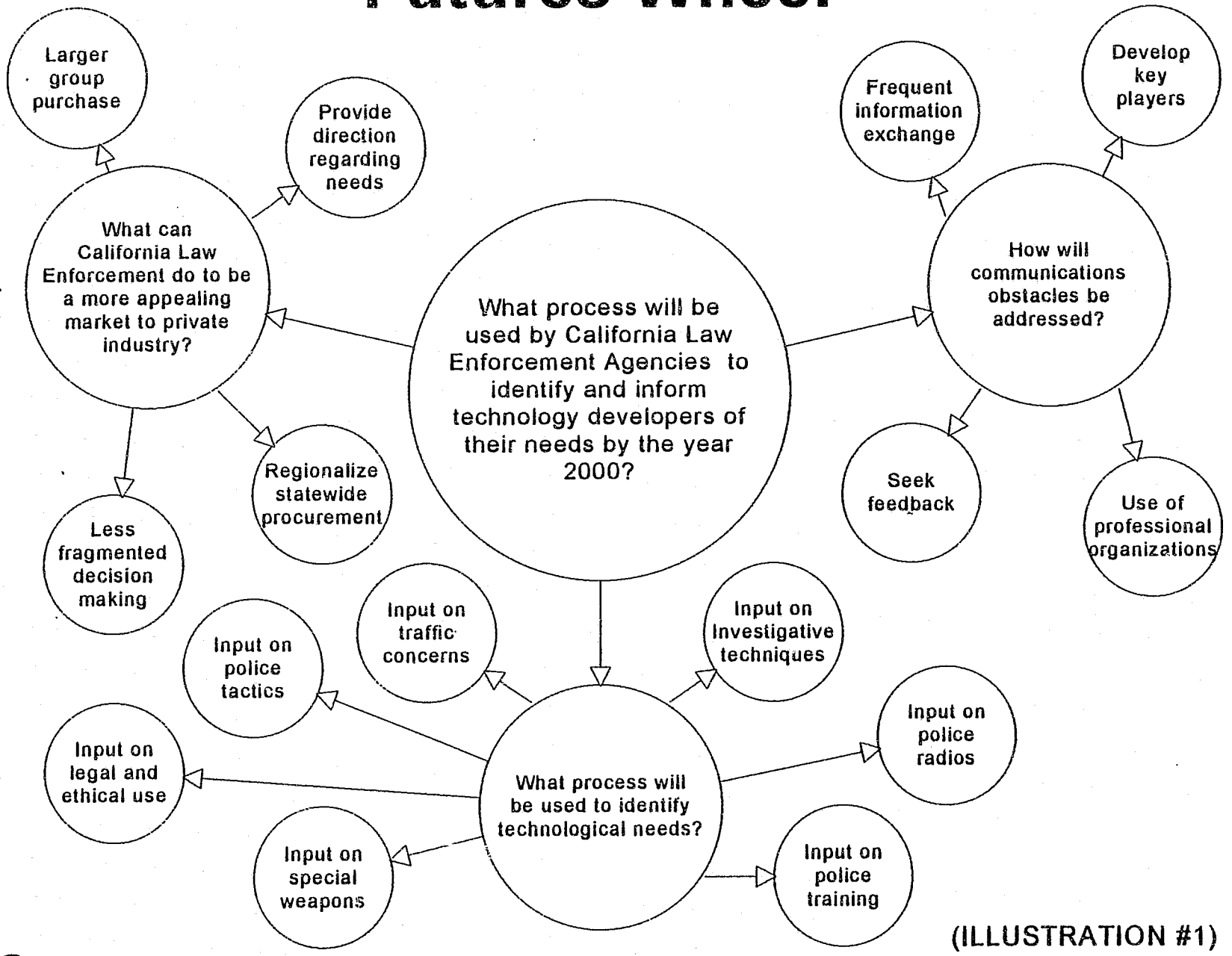
Sub-issues:

1. What process will be used to identify technological needs?

2. How will communication obstacles be addressed?

3. What can California law enforcement do to promote itself as an appealing market to private industry?

Futures Wheel



(ILLUSTRATION #1)

The introduction and future's wheel demonstrate a strong need for law enforcement to be involved in the development of technology related to California law enforcement. In the future's methodology this will be explored in more depth.

Forecasting Methodology

The Nominal Group Technique (NGT) was utilized to develop a list of trends that relate to the issue question and a list of events that may impact the issue or other events. The NGT panel was made up of representatives from two national laboratories, large and small technology developers, a representative from a state senator's office, a PhD from a state university, a vertical slice from the law enforcement community, and Command College graduates. This combination was brought together to provide a very comprehensive perspective toward the issue question. The panel was made up of the following members:

David Carlock has worked for the Brea Police Department for 16 years and is currently a sergeant assigned to the special enforcement detail. He has an AA degree from Fullerton Community College, Bachelor of Arts degree from Cal State Fullerton and is currently attending a graduate management program at the University of California at Riverside. He is an instructor at the Orange County Supervisor's course sponsored by the Orange County Sheriff's Department.

Jared W. DuFresne has an undergraduate degree from the University of Washington in criminology. He also has a Masters degree in International Affairs. He has worked with the Central Intelligence Agency at the Hartford Nuclear Facility. Dufresne is currently working in non-proliferation arms control for the International Security Directorate and is the law enforcement liaison for the Livermore National Laboratory in California.

Donald L. Forkus has served 28 years in law enforcement. He has since retired after serving for the last 18 years as Chief of Police for the City of Brea. He is a past president of the California Peace Officer's Association. He is a past member of the POST Advisory Committee and a past member of the POST ACR 58 Committee. He has been a member and past president of the Orange County Chief's Association Communication Committee working on the development and implementation of the countywide 800 mhz radio system. He has also served as the former City of Brea representative to the National Science Foundation Technology Exchange Consortium.

Lee Kersten has been the legislative aide to California State Senator John Lewis for the past two years in the 33rd Senate District, comprised of La Habra, Brea, Fullerton, Orange, and parts of Buena Park and Anaheim. She has a Bachelor of Science degree from Cal State Fullerton and is currently studying for her Masters degree in public administration.

Richard Leever has a Bachelor of Science degree in zoology and a Masters degree in computer science. He has 13 years of experience in heart valve engineering, research and development. He spent 2 years consulting in software development. He is currently working as a traffic officer for the Brea Police Department.

William C. Lentini has served in law enforcement for 23 years and is currently a police captain in charge of the uniform division at the Brea Police Department. He has a Bachelors degrees in law and history and a Masters degree in law. He also earned his Juris Doctorate from the Western State University of Law. He is a graduate of the Command College (class 10).

Trudy K. Overlin has a Bachelors degrees in political science, in criminology, and forensics. She has also earned a Masters degree in public administration. Ms. Overlin has been employed for the past 5 years with the Idaho Engineering Laboratory in the Human Factors Engineering Group. She has been working as a functional operations specialist on the National Institute of Justice programs. She is also a liaison for the National Securities Program in Analytical Chemistry and Biological Sciences. She has done work in advanced transportation and human reliability assessments, a facility designed for correctional systems, Human-Machine user interface with law enforcement and others.

Bob Schassler has a Bachelor of Science degree in electrical engineering from the State University of New York at Birmingham. He obtained his Masters degree in business administration from San Diego State University. He is currently an engineering manager for Motorola. He has had prior experience as a communications system design engineer for Consolidated Edison Company of New York.

Norman Thorn is the president of NOROC Technology. He has 25 years of experience in computer system management and programming. NOROC Technology provides consulting and software development. He has previously served as a consultant for the San Francisco Police Department and the Federal Bureau of Investigation on computer performance issues. He has served as a volunteer for 10 years with the American Red Cross in various functions including information and planning for major disasters.

Larry Woessner has an Associate of Arts degree from Rio Hondo College, a Bachelor of Science in criminal justice from Cal State Fullerton. He is currently enrolled in the Command College (class 20) and is participating in Cal Poly Pomona's Masters program in business management. He has served the law enforcement community for the past 21 years; the last 19 years with the Westminster Police Department. His current assignment is lieutenant in charge of the detective bureau.

Tom Christian has a Bachelor of Science degree from Cal State Fullerton in sociology and psychology. He earned his Masters in public administration from Pepperdine University and was accepted as a candidate at University of Southern California in their doctoral program for public administration. He is a graduate of Command College (class #5). He has been a peace officer for the past 25 years and is currently a captain with the Brea Police Department.

Dr. James Farris received his Bachelors and Masters degree in criminal justice from Cal State Long Beach. He received his PhD in government with majors in criminal justice and public administration from Claremont College. He spent 2 years as the crime analyst for the Pomona Police Department. He is a graduate of the Air Force's Command and Staff College. He served in the U.S. Air Force for 20 years in the office of Special Investigations as a special agent. He retired with the rank of Lt. Colonel. He has been teaching for the last 14 years and is a full professor at Cal State Fullerton.

Sam Guerrero obtained his Bachelor of Arts degree in history from Cal State Hayward. He received his Masters degree in telecommunication from Golden Gate University. He has received special training and is an expert in the area of digital networking. He is an account executive with Pacific Bell. He has worked for the Bell system for the past 16 years. He has spent his entire career with the Bell systems involved in marketing. He has worked exclusively with the public sector since 1986.

Bob Singer has a Bachelors degree in electrical engineering from Rensselaer Polytechnic Institute. He received a Masters and PhD in electrical engineering from Stanford University. He has been published over twenty times in applied industry journals. He is the manager of the new business development program office, sensors and communications systems division of Hughes Aircraft Company. He has been the manager of the advance program office, communications division of Hughes, the manager of Army systems office, systems division of Hughes, chief system engineer, Navy ship point defense system, systems division of Hughes.

NGT PROCESS

On March 15, 1994, the panel met at the Brea Civic and Cultural Center. Three of the panel members, Jared DuFresne (Livermore National Laboratory), Trudy K. Overlin (Idaho Engineering Laboratory) and Bob Schassler (Motorola) gave presentations of emerging technologies and stimulated a short discussion between panel members to help focus the panel. The discussion was vigorous, candid, and revealing. It was clear that the subject matter was familiar. Varied perspectives were well represented.

To facilitate the evolution of meaningful trends and events, a development question was presented. There was a silent generation of trends and events. Lists were collected and were copied onto flip charts for further discussion. There was a

need to eliminate duplication, to refine the meaning of the listed trends and events, and to receive differing perspectives as to their relevance. A voting process was employed to select the top ten trends and events.

Trend Definition

A trend is a series of events by which change is measured over time. In other words, it is a sequence of occurrences that are related, occur over time, and can be forecasted.

Trends

The NGT Panel generated 37 trends (see Appendix A). They were placed on a flip chart and through discussion, each trend was examined for duplication and relevance.

The panel was instructed to vote for the top twenty of the 37 listed trends. The panel was told they need not be rank ordered. The results were tabulated.

The trends were discussed and further defined. The panel took on the formidable task of picking their top ten and placing them in rank order, 1 being the most important and 10 being the least important. The results were then tabulated and a top ten list of trends was developed for the group. The following table of trends

represents the top ten trends picked by the group in rank order, 1 being the most significant and 10 being the least significant:

Top 10 Trends

NR	ORIG#	Trend	VOTE
1	5	Development of technology specific to law enforcement.	9
2	31	Regionalization of resources.	9
3	13	Level of technological literacy of law enforcement officers.	8
4	15	Manufacturing focus change (military v. civilian).	8
5	33	Public concern for public safety.	8
6	1	Amount of money available to acquire technology.	8
7	14	The cost of housing prisoners.	7
8	19	Cooperative partnerships to solve tech. issues.	7
9	24	Technologically literate criminals.	7
10	30	Change of court decisions on privacy issues.	7

Table #1

Definitions of Forecasted Trends

1. **Development of technology specific to law enforcement**

   The panel described this as the trend of manufacturers to create technology that would have specific uses for law enforcement. Examples of this would be special fingerprint systems, records management systems, special equipment for police cars, etc.

2. **Regionalization of resources**

The trend of law enforcement agencies to combine and share resources, such as canines, polygraphs, helicopters, etc.

3. **Level of technological literacy of law enforcement officers**

The trend of the level of technical literacy of police officers. This includes entry level as well as those who are learning on the job.

4. **Manufacturing focus change (military vs. civilian)**

The trend of manufacturers who have been primarily focused on the military to focus on the civilian market.

5. **Public concern for public safety**

The trend of the public to care about the general safety of society.

6. **Amount of money available to acquire technology**

The trend of funds available for California law enforcement agencies to spend on technology.

7. **The cost of housing prisoners**

The trend of the cost of housing a single prisoner in the correctional system. (includes city and county jails and state prison)

8. **Cooperative partnerships to solve technological issues**

The trend of cooperative partnerships to solve technological issues, such as the national laboratories working with vendors to develop technology for law enforcement that may have application to the private sector.

9. **Technologically literate criminals**

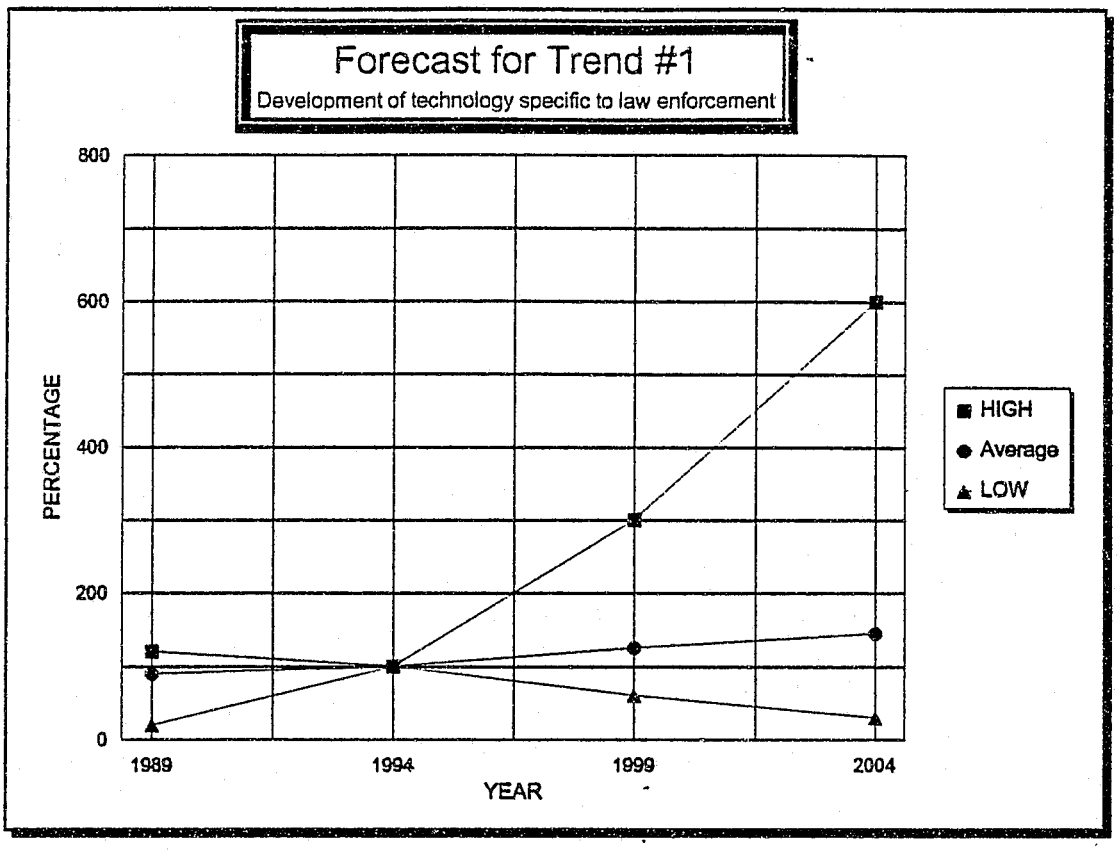
The trend of criminals to use technology to conduct criminal activity or their ability to utilize to enhance a particular criminal venture.

10. **Change of court decisions on privacy issues**

The trend of the courts to create new law regarding privacy issues that affect technology related to law enforcement.

Forecasting of Trends

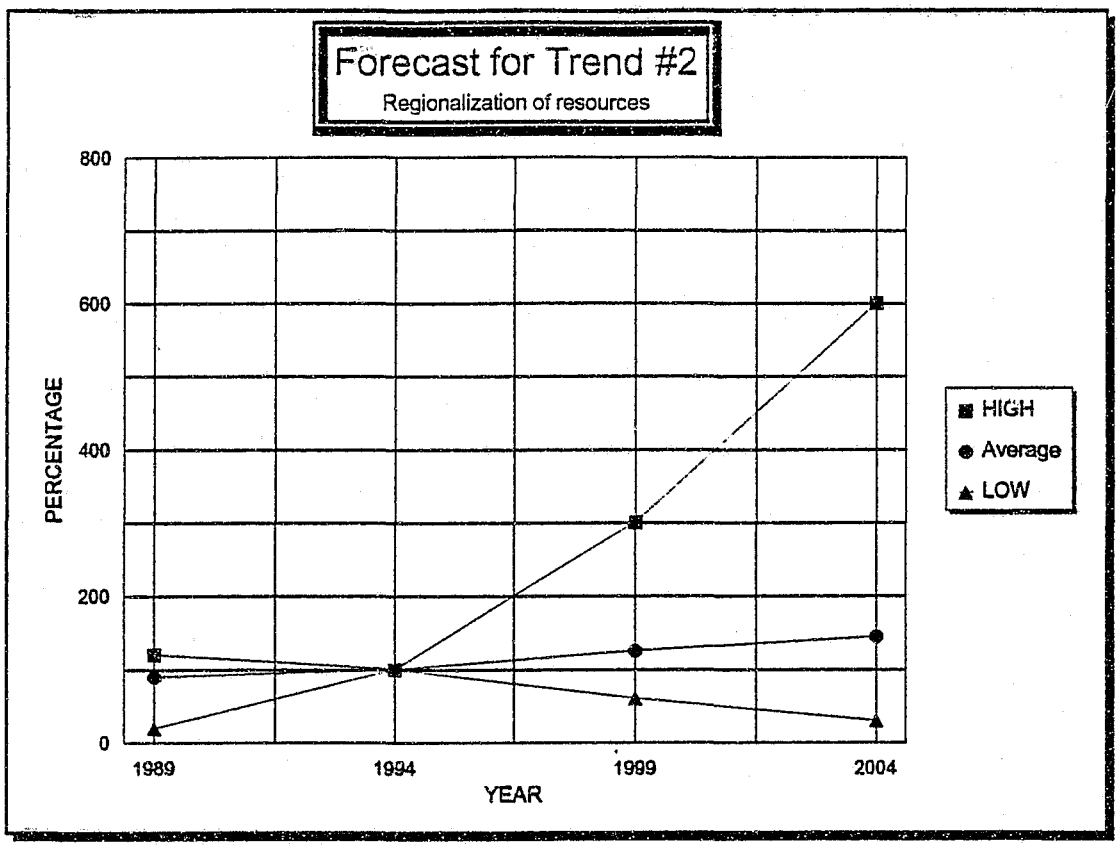
A trend evaluation instrument was utilized to forecast trends. The panel was told that if today equalled one hundred, what number would they give to this trend representing where it would have been five years ago and then to forecast five and then ten years into the future. After collecting these numbers they were tabulated to determine a high, low and median projection from the group at each of the points of time. In the following pages there will be a graph of each of the top ten trends. They will show the high, low, and median projections of the panel, and will include an explanation of the results.



[ILLUSTRATION #2]

TREND 1

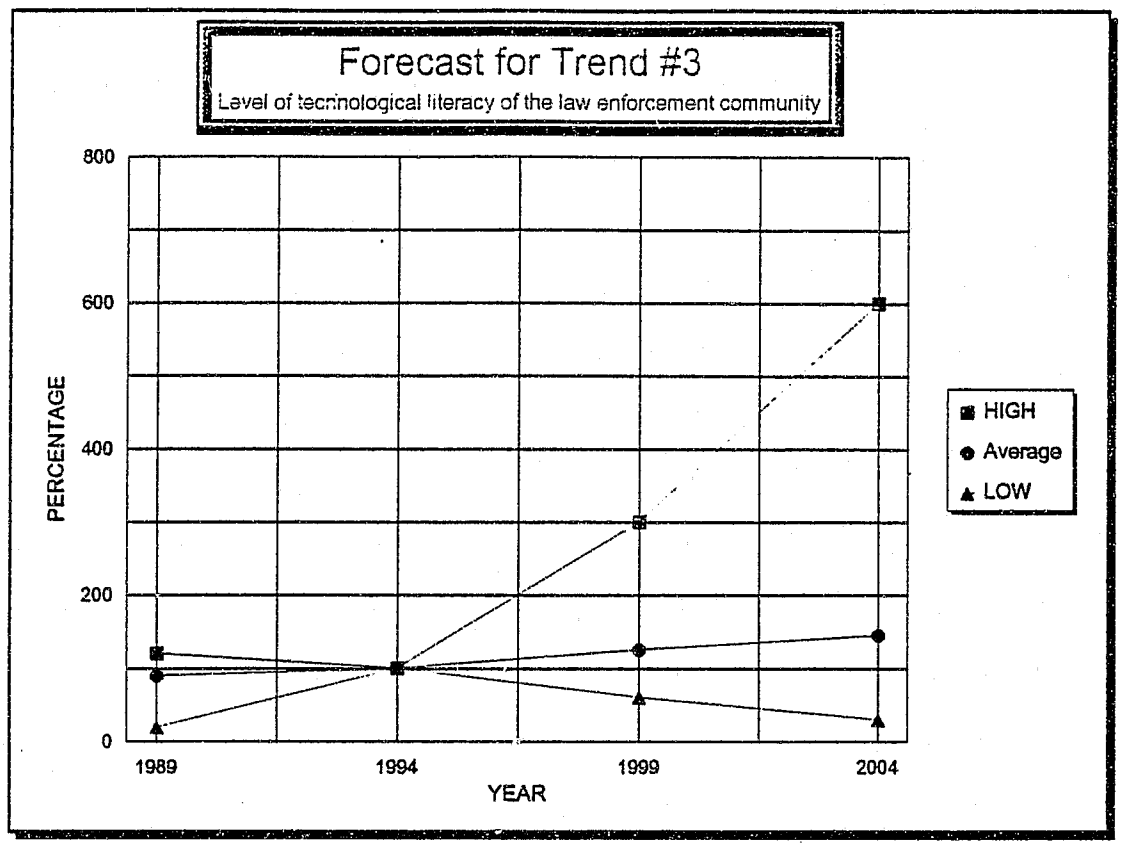
All members of the panel felt that development of technology specific to law enforcement was less five years ago than it is today. Five years from now it would be the same or there would be an increase as high as two hundred percent. There was a diverse opinion as to where the trend would go in 10 years. The panel felt that government budgets would continue to tighten. Whether that would precipitate increased or decreased funding levels for specific law enforcement technology to augment manpower was the reason for the significant difference of opinion. The median of the panel demonstrated a consistent moderate increase.



[ILLUSTRATION #3]

TREND 2

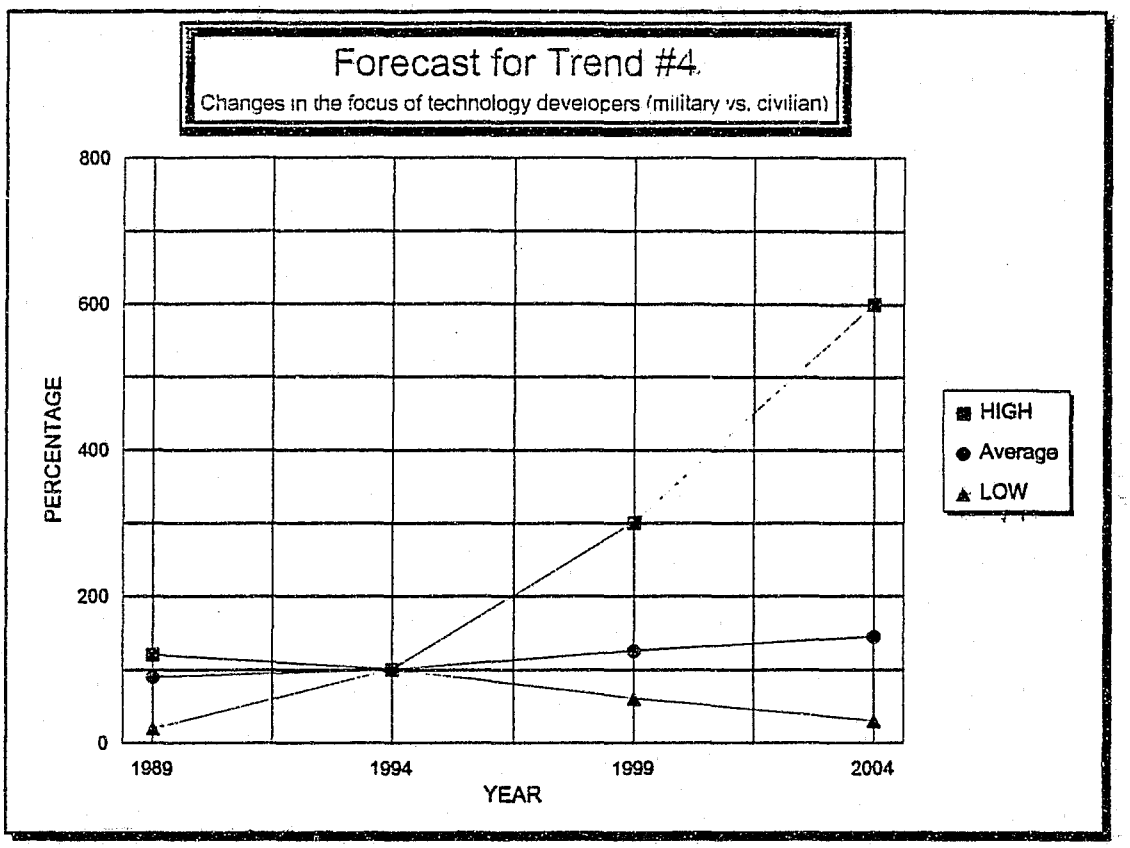
The panel felt there had been an increase in the regionalization of resources over the past 5 years. This was due to increasing pressure to do more with less. The majority of the panel felt that this would be an increasing trend for the next five to ten years. A few member of the panel felt that this would become a decreasing trend because there are only so many resources that can be regionalized. It was their opinion that we have probably already regionalized most of what can be. Some of what has been regionalized might not be equally beneficial, which would lead to reduced regionalization.



[ILLUSTRATION #4]

TREND 3

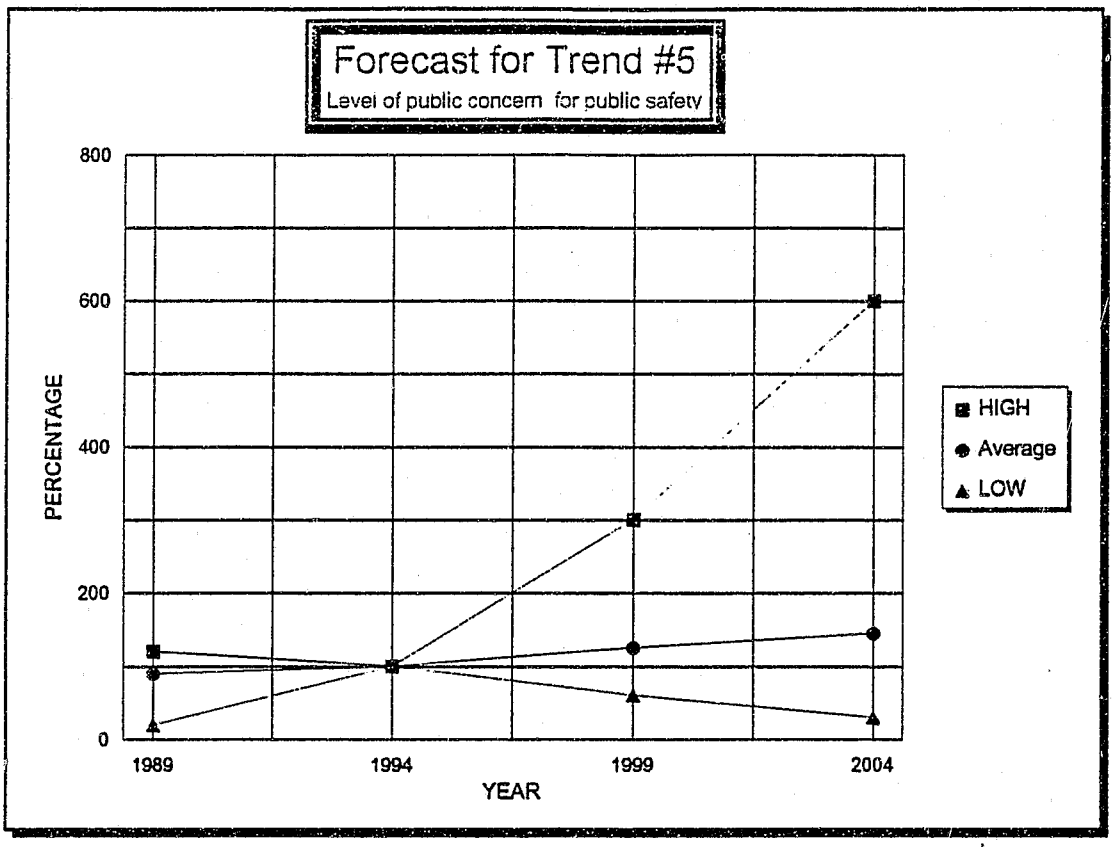
All but one of the panelists felt there has been a significant increase in the technological literacy of the law enforcement community over the past five years. All but one of the panelists saw this trend continuing to increase over the next five to ten years. The one dissenting panelist cited rapid change of technology for his reasoning. It was his opinion that, because of the tremendous increase in new technology hitting the marketplace, that the law enforcement community would not be able to keep up with the changes and would fall behind the curve.



[ILLUSTRATION #5]

TREND 4

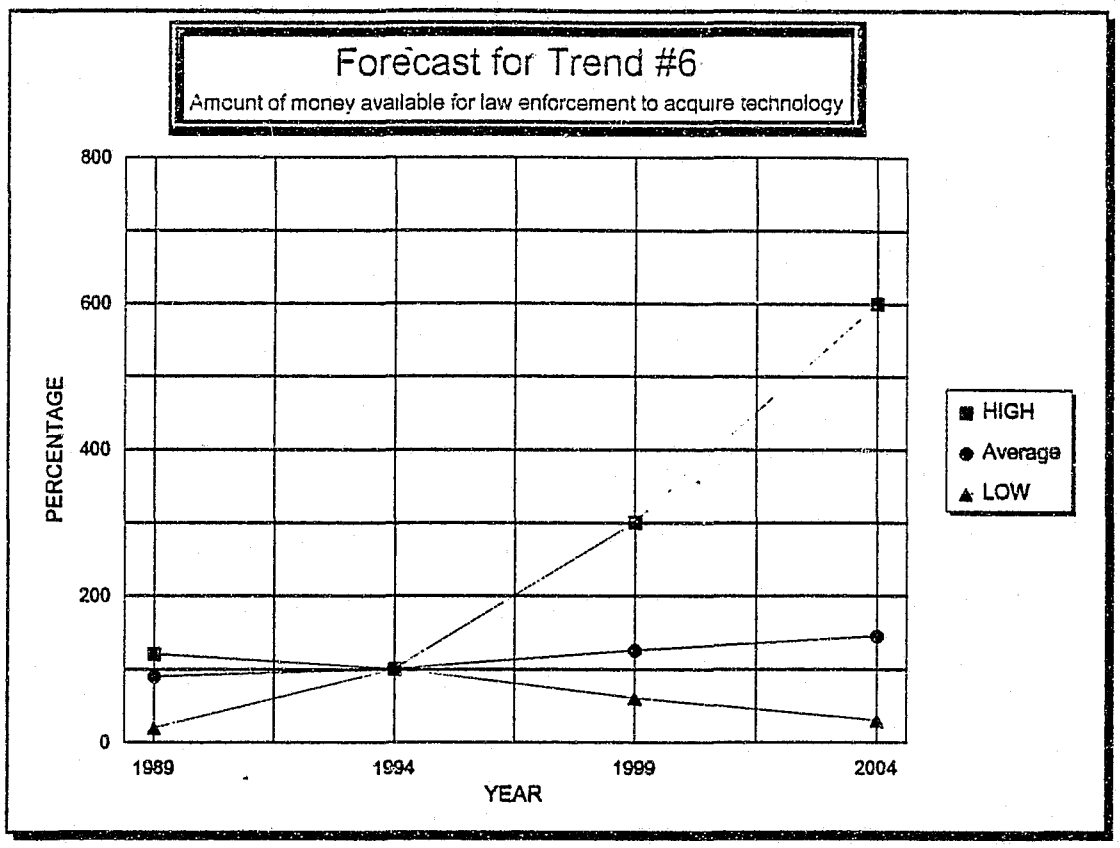
All panel members have seen an increase during the past five years in the focus of technology developers to move away from the military market towards the civilian market, of which law enforcement was considered to be a part. All but one of the panelists saw a continued moderate increase in this area through the next five years, and all but four see it continuing for the next ten years. The dissenting panelists feel that world conflicts and a change in leadership in Washington will lead to renewed focus on the military market.



[ILLUSTRATION #6]

TREND 5

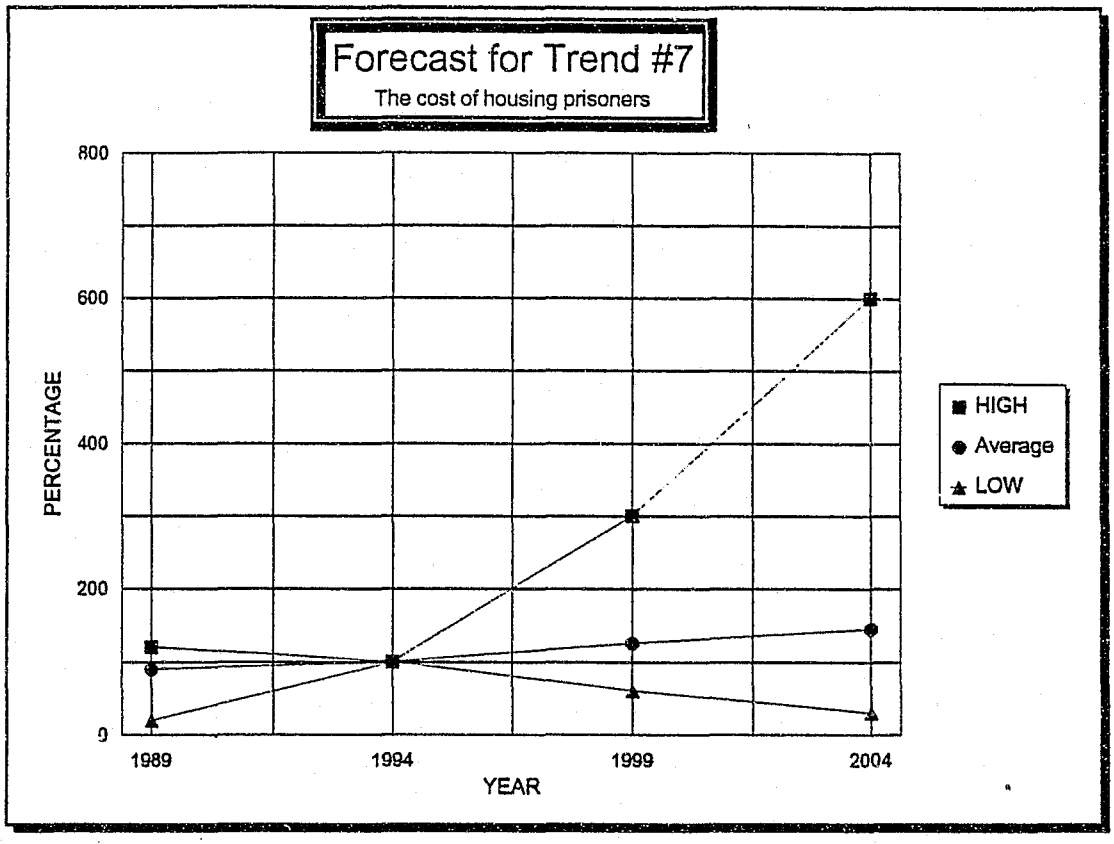
All but one of the panelists felt that the public's level of concern for their own safety has increased over the past five years. This is due in large part to the increased media focus on violence. As this focus is expected to continue, it will likely continue to produce an increase in the public's concern for its own safety. The dissenter on the panel felt that this continued focus would tend to de-sensitize the public and the continued focus on violence would actually have a reverse affect, causing the public to be less concerned for their own safety.



[ILLUSTRATION #7]

TREND 6

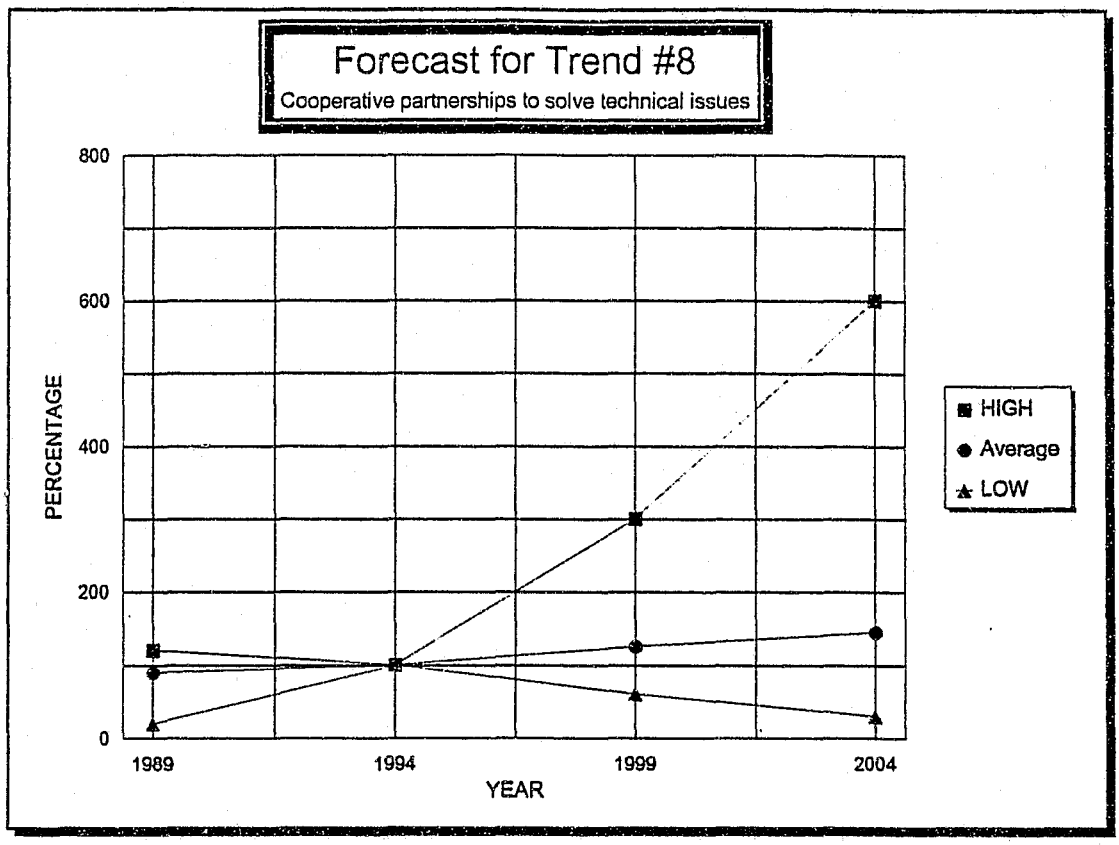
This turned out to be one of the more difficult trends to forecast. Although it was generally felt by the panel that the total funds available to law enforcement would continue to decrease, there was a wide spread difference of opinion as to whether this would force agencies to spend more on technology to supplement what is expected to be an overall decrease in personnel, or whether the decrease in funds would also translate into the reduction in funds available for technology.



[ILLUSTRATION #8]

TREND 7

This trend should be interpreted as meaning the total cost of housing all of the prisoners in the criminal justice system and not the single cost of housing one prisoner. The panel felt there has been an increase in the cost of housing prisoners. All agreed there would be an increase in five years, but ten years from now two of the panelists forecasted that it would level out. Those two panelists felt that there are technologies available that if implemented could cause the cost of housing prisoners to flatten out.



[ILLUSTRATION #9]

TREND 8

All panelists agreed that five years ago the level of cooperation was certainly less than it is today. It was felt by one of the panel members that it was non existent five years ago. Due in large part to the end of the cold war and subsequent military reductions, the national laboratories are in a much better position to share research and development in technology with private vendors. This kind of partnership could prove to be very useful to law enforcement. All but one member of the panel felt this trend would continue to increase for the next five years, and only two saw a decrease for the next five to ten years.

What Methods Will California Law Enforcement Use to Identify and Inform Technology Developers of Their Needs By the Year 2004?

C.H. Panique, Jr.. Sponsoring Agency: California Commission on Peace Officer Standards and Training (POST). 150 pp. Availability: Commission on POST, Center for Leadership Development, 1601 Alhambra Blvd., Sacramento, CA 95816-7053.
Single copies free: order #20-0418.
National Institute of Justice/NCJRS Microfiche Program, Box 6000, Rockville, MD 20850.
Microfiche fee. Microfiche number NCJ _____.

ABSTRACT

The California law enforcement agencies will need to develop a process to identify and inform technology developers of their needs. Historically, law enforcement agencies in California have not been organized in a way that allows them to take advantage of technological opportunities. As a result of the cold war ending national laboratories are looking toward law enforcement as a possible recipient of their considerable research and development. The study finds California law enforcement agencies to be a very fragmented market. There are too many decision makers on too many levels. The bureaucratic process takes so long that technology could become obsolete while waiting to make it through this process. A new concept is being developed on the University of California, Riverside Campus called the Consortium for Crime Control and Public Safety Technology. This is explored by the author as a solution to the problem by combining; technology developers, law enforcement, and vendors to meet the future technological needs of California law enforcement agencies. Futures forecasting methods identify current trends and projected events which are analyzed and reveal the need for such a process. Future scenarios, graphical depictions of trends and events, bibliography and references are included.

Journal Article

What Methods Will California Law Enforcement Use to Identify and Inform Technology Developers of Their Needs By the Year 2004?

By
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Peace Officer Standards and Training (POST)
Sacramento, California
May, 1995

20-0418

This Command College Independent Study Project is a FUTURES study of a particular emerging issue in law enforcement. Its purpose is NOT to predict the future, but rather to project a number of possible scenarios for strategic planning consideration.

Defining the future differs from analyzing the past because the future has not yet happened. In this project, useful alternatives have been formulated systematically so that the planner can respond to a range of possible future environments.

Managing the future means influencing the future--creating it, constraining it, adapting to it. A futures study points the way.

The views and conclusions expressed in the Command College project are those of the author and are not necessarily those of the Commission on Peace Officer Standards and Training (POST).

Introduction

Initially this project was undertaken as a result of new technology displayed in workshops at the Command College. Several technologies looked interesting and it was quite difficult to choose just one of them as a subject to explore. It became apparent that this focus would be too narrow. The "big picture" seemed more appealing. What will California law enforcement do to drive the technological changes needed to make it more effective in providing for the public safety rather than simply following the lead of the major vendors and developers?

There will have to be some process or conduit in place to make this whole thing come together. This will have a major impact on California law enforcement; a project certainly worthy of becoming a future's issue to be examined in a Command College paper.

Technological advances are occurring at a much more rapid pace than ever before in history. As John Naisbitt and Patricia Aburdene write in **Megatrends 2000**, "By identifying the forces pushing the future, rather than those that have contained the past, you possess the power to engage with your reality."[1] Historically, law enforcement agencies in California have not been organized in a way that allows them to take advantage of these opportunities. Mid-sized and smaller departments have

such a small amount of buying power that they are often placed in a position of purchasing old technology off the shelf in response to an identified need. It is not unusual for the purchase to become obsolete very quickly. Sometimes it only partially addressed the identified need. Most agencies are not aware of this fact, and are doing little or nothing to prepare to take advantage of advances in technology. There are estimates by today's criminologists, that laws and law enforcement generally lag four years behind criminal elements with regards to application of new technologies. This points to the urgent need for rapid technology transfer to law enforcement uses.[2]

As stated in a previous Command College Technical Report written by Samuel L. Spiegel, "The current emphasis in law enforcement today is to **spend smarter.** Law enforcement managers strive to creatively reallocate resources and personnel, but continue to be challenged by increasing demands for additional services. Given the potentially significant cuts in future capital outlay funding, technological resources need to be explored and developed if law enforcement is to continue to provide effective police service."[3]

Recent Developments

Jared Du Fresne, from the Livermore National Laboratory, in an address at a Command College graduation, stated that since the end of the Cold War, there has been a large cutback in military weapons. Because of the economy, there have been

major cutbacks in funding for the space program. Weapons laboratories, the aircraft industry, the electronics industry, and NASA are looking for other ways to market their technologies. One market they have identified as a possible outlet for their technology is law enforcement.[4] Although these corporations and agencies have state-of-the-art technology, they do not completely understand the needs of California law enforcement. This has frustrated their ability to develop and distribute their technology. Following are several illustrations of how some of these problems manifest themselves.

One good example is vehicle pursuits. Law enforcement agencies continue to develop policies and discuss the liabilities that accompany this issue. They speak of the tragic loss of life of innocent bystanders and the jeopardy that officers and the public at large are exposed to every time an incident occurs. Existing technology is available that could eliminate most vehicle pursuits immediately. This technology utilizes microwaves to disrupt the central processing unit in the onboard computers located in almost all of the newer vehicles. This process will cause these vehicles to stall and thus terminate the pursuit close to the onset.[5]

Another illustration is the concern over the issues that revolve around the use of non-lethal force. Most of the efforts in this area that are currently being undertaken by law enforcement agencies have a very narrow focus, such as newer and better batons to strike people and a better way to shock them. The military has

been looking at this issue for a long time. Jared Du Fresne said in a recent lecture that they have been looking into this problem for years and believe they have several answers available.[6] Remedies he discussed included the use of a "Goo Gun" that covers an individual with a taffy like substance, which makes it extremely difficult for that person to move. They are also looking at a weapon that fires tennis balls at approximately one hundred miles per hour, about the speed of a serve from a professional tennis player.

The Los Alamos National Laboratory and other defense laboratories are developing a diverse arsenal of nonlethal or disabling weapons that may enable the United Nations and other peacekeeping forces to defend themselves without triggering full-scale conflict. One such weapon under development is an acoustic weapon which could produce sound at frequencies and volumes capable of breaking windows, incapacitating humans, or even damaging internal organs at short range. The weapon would leave it to the enemy's own volition to flee and escape injury or to stay and be incapacitated.[7] What would have been the result if this had been employed in Waco against David Koresh and his followers?

In a recent address to a Command College audience, Fred Mintz from the Pasadena Jet Propulsion Laboratory talked about miniaturization and how the laboratory now has the ability to send in a small remote controlled vehicle capable of recording and photographing an average size room. The vehicle would be about the

size of a small beetle and could be used to gain intelligence information in hostage or barricaded felony situations. Mintz also spoke of a small radar gun-type device built from spare parts he had in the lab at a cost of under ten dollars, and which is capable of sniffing out four different types of narcotics.[8] How much money is spent training dogs and their handlers to locate narcotics?

Both Mr. Mintz and Mr. Du Fresne have been designated by their employers as liaisons to law enforcement. Although they receive various requests from law enforcement agencies, it is difficult for them to develop anything very sophisticated for individual departments because of the cost involved. Most agencies are operating with very limited budgets.

Other technologies being pursued both by the military and private sector include extensive work with virtual reality, new and more complex computers, global positioning systems, smart card technology, and work with DNA, just to mention a few. The February issue of Defense Electronics contains an article, "Police Use Advanced Vision Devices to Take Back the Night" that gives several examples of military technology being utilized by law enforcement against criminals. One example cited in the magazine was the following:". . . . officers in a patrol car, using a night vision device, observe two men in a park. As the police car nears them the officers note that one of the men is carrying a hand gun in the pocket of his coat".[9] This is a good example of dual use technology.

In June 1993, Charles W. O'Neal and Gary L. Wistrand, from NASA wrote, "While the 21st century may be a few years away by the calendar, but as far as crime is concerned, it is already here. Today's criminals are not only more sophisticated in the commission of traditional crimes, but have used state of the art technology to devise new computer-based crimes. To be effective against these criminals, law enforcement agencies must also adopt and learn to exploit the technological advances that have become available in recent years."[10]

Technophobia

Criminals are becoming more sophisticated in the types of crimes they are perpetrating. Criminals are stealing software, breaking into bank and credit computers to make illegal transfers and change credit ratings. Child pornography is also alive and well on some computer bulletin boards. It is imperative for law enforcement to stay current with technology in order to combat these crimes.

A recent United States study quoted in the February 27, 1995 issue of Newsweek found that fifty five per cent of those surveyed showed some signs of technophobia. There are many in law enforcement that could be referred to as technophobes. Technophobes are those over 45 who did not grow up with the devices they are now expected to master. Technophobes will force science to make things more user friendly. One illustration of this is the automatic transmission for automobiles. Early motorists were intimidated by the manual transmission. Automotive engineers were tasked with finding a user friendly solution. The solution

to make people more comfortable with the automobile was the advent of the automatic transmission. The challenge for law enforcement will be to design technological products that will be simple enough to overcome technophobia.[11] The challenge will be to accomplish this at an affordable cost.

Force Multiplier

The military utilizes a concept that they call a force multiplier. It allows them, as in "Desert Storm," to take on an enemy of much larger force, suffer few casualties, and inflict unacceptable losses to their adversary. This was done at a distance, through the application of advanced technologies. Because of their technological advantage, they were able to take their objectives, take tens of thousands of prisoners, devastate the armored divisions sent against them, and end the war in about a week. Private industry has for years embraced a similar concept. This allows them to reduce the size of their work force and increase their production through the use of robots and other forms of automation.

Technology and Community Oriented Policing:

Law enforcement agencies are moving into community oriented policing; many are already there. The tendency with community oriented policing is to hire more police officers and provide more interaction between the police officers and the community. However desirable this may be, it is just not practical given the dwindling funds available to law enforcement. If the desired outcome is to allow the officers

more time to interact with the community, then the increased application of appropriate technologies may be one way to get there. Technology can help officers be more productive thus reducing the need for more new officers. Technological advances can be developed to take over redundant tasks performed by the officer and can be made to enhance the officers ability to identify and apprehend criminals while increasing the safety of the officers involved in dangerous activities. Fingerprinting, photo lineups, and composites of suspects are areas where technology could be used to increase the productivity of officers.

Personnel costs should also be taken into consideration as they continue to escalate due to such things as the rising cost of health care, retirement benefits, sick time, and other benefits. The cost of technology continues to fall. For instance the annual salary of one officer would buy twelve state of the art personal computers. Also unlike personnel costs, recurring costs for technology are minimal.[12] There could be significant cost savings by investing in appropriate technologies, possibly reducing the need for additional officers.

Technology and the Economy

California law enforcement agencies have been asked to economize, down size, right size, to tighten their belts, and to do more with less. Some agencies have responded by putting a freeze on their hiring and not replacing personnel as they retire, while other departments have had significant layoffs such as the San

Bernardino Sheriff's Department. The Police Hiring Supplemental Program, a federal program, will be issuing grants totalling about $50 million. These grants were awarded to 74 local law enforcement agencies and will help to hire 658 police officers.[13] The declaration of bankruptcy by Orange County with their superfund will create layoffs. With the information highways zooming by, interactive technologies, computer advances, and advances by the military in the use of non-lethal force, it seems irresponsible not to become involved and tap into these technological advances.

Leadership

California law enforcement has multiple voices speaking to the legislature. These include, but are not limited to: California Peace Officers' Association, Peace Officers Research Association of California, and California Police Chiefs Association and the California State Sheriffs Association. These, as well as other organizations, try to speak toward the legislation that is developed in Sacramento. California law enforcement has the Commission on Peace Officers Standards and Training to maintain standards and training that are consistent throughout the state. Their efforts are recognized worldwide. They have developed the Supervisory Leadership Institute and Command College, both of which have taken an active role in determining the future of law enforcement in California. California law enforcement has no such unity or voice in the area of technology. There is a strong need to unite and to pursue a path that allows for California law enforcement to embrace its destiny.

Needs Assessment

California law enforcement should develop a process to identify its technological needs. The needs list should at least address the use of technology in the following areas: records management, case management, communications, investigations, the administration of justice, personnel, education, training, weapons, vehicles, and traffic. Many obstacles such as lack of funds, the rapid obsolescence of technology, legal issues, operational security, fear of technology, technological illiteracy, inadequate research and development, and especially the lack of unity between the various agencies on what technology to purchase, must be overcome.

To be effective, California law enforcement will have to promote itself as an attractive market to private industry. It will have to be appealing to private industry to spend the time and resources necessary to make appropriate technologies available. This may be accomplished through government grants which specifically target various identified needs. It would be beneficial to assist private industry in discerning a special market where many of the applications that are developed for it may be adapted.

Process

A process is required that will act as a conduit to blend and facilitate the needs of California law enforcement with the technology developers; one that will create a future in which California law enforcement will be part of the driving force that will

facilitate the development of appropriate technologies that will assist it in its mission to secure the public's safety. This conduit must make the process a successful venture for all those involved, California law enforcement, technology developers, the vendors and most importantly the public at large. Through the application of advanced technology, adapted to the needs of California law enforcement, it will be more effective in responding to the challenges of the future.

Strategic Planning

California law enforcement agencies should put together a combined strategic plan to address what methods they will use to identify and inform technology developers of their needs for the future. The rapid progression of technology has diminished the ability of law enforcement to remain current with the latest in technological developments. California law enforcement agencies are confronting reduced budgets. Most departments are struggling to avoid layoffs.

Situational Analysis

A modified delphi process was conducted utilizing some of the panel members from the NGT. Those participating were Dr. James Farris, from California State University at Fullerton, Lt. Woessner from the Westminster Police Department, Captain Christian, Sgt. Carlock, and officer Leever from the Brea Police Department. Because of rapidly unfolding events near the conclusion of this project, Bureau Chiefs Holly Mitchum, and Ken Whitman from the California Commission on Peace Officer

Standards and Training were added to the panel. Both bureau chiefs have been involved extensively in technology transfer issues for POST. Holly Mitchum was also consulted in the very early stages of development for the C_3PST. Their participation significantly enhances the relevance of this project because of their experience with technology transfer and training.

Organizational Analysis of the California law enforcement community

Strengths:

California law enforcement is in a dynamic state of transition. Community Oriented Policing is becoming popular. Officers are working more with community leaders, and there is a stronger tie between officers and the community they serve. There has been a strong trend in developing superior executives and first line supervisors through the Command College and Supervisory Leadership Institutes sponsored by POST. It is not business as usual, as many changes are occurring. It is an exciting and challenging time. California law enforcement is preparing to move into the twenty first century as leaders in the field of law enforcement.

Historically, California has been progressive in respect to new ideas. This has been demonstrated in many ways such as satellite training, Cal-ID, computer systems and communications equipment. Ken Whitman said that representatives from other states say that California is looked upon by other states as a proving ground for new programs.

There is an opportunity for California to continue in its leadership role in the acquisition of state of the art technology by combining its desire to embrace technology with an equally strong commitment toward fiscal responsibility.

The need to enhance the delivery of services during financially lean times will cause law enforcement to look toward technology as a possible way to do more with less.

Weaknesses:

Public policy makers have been under a great deal of pressure from competing interests. As they strain to listen to each of these differing interests, it will be very difficult for law enforcement to make its point effectively.

There is no coordinated statewide needs analysis on technology development. Each jurisdiction has traditionally wanted to maintain its autonomy. Vendors have to deal with more than five hundred agencies, one at a time. This results in frustration for the vendors. Each jurisdiction makes independent decisions on technological purchases based on its own limited information. Since in many areas standards have not been set, agencies have purchased various computer programs, radios, optical scan fingerprint systems, etc., that do not interface with other jurisdictions' equipment.

Law enforcement personnel may be leery of moving forward with technology. They will weigh what has worked for them in the past against unproven technologies with little or no track records.

It will be difficult to convince the public of the tangible benefits of technology to replace street officers. Because of the riots, gang violence, immigration issues, the homeless, and massive media attention given to violence, people have an increased concern for public safety.

Strategy

Dean Susan Hackwood, PhD, from the Bourns College of Engineering, University of California, Riverside, is in the process of developing a Consortium for Crime Control and Public Safety Technology (C_3PST). The college is in a unique position to broker the technology transfer because it can provide reliable and impartial expertise to:

1. Conduct an assessment of California law enforcement needs.
2. Identify and evaluate existing and emerging technologies to meet the needs of California law enforcement.
3. Assist in the transfer of existing technology and development of new technologies.

4. The ability to inform and educate as to the technological needs of California law enforcement agencies and resulting benefits from the application of existing and emerging technologies.
5. The ability to acquire funds to promote the project.
6. Through the Presley Center a research program in the Department of Sociology at UCR, it can provide a social-ecological and legal-ethical structure through which technological solutions can be evaluated.

Because of her knowledge, abilities, and significant involvement in this arena, Dean Hackwood would be an ideal program manager. A transition management plan should be developed and implemented quickly.

Advantages:

The following concepts will create a more attractive climate for the vendors and will provide law enforcement with better technology in a more efficient way.

- The consortium should represent most of California law enforcement.
- There should be one decision maker at the consortium. (The C_3PST)
- The consortium should have its own budget.
- The consortium could secure bulk purchases and see that the acquired technologies are promptly distributed to agencies within the state.
- A commitment should be obtained from as many agencies as possible that purchases would be made through this consortium whenever practicable.

Whenever a concerted effort has been made similar to those made to institute 911, Cal ID, and POST training by satellite, major accomplishments resulted. Individually, law enforcement agencies present a very perplexing and sometimes difficult market. There is a significant need to focus the efforts of California law enforcement. This will provide major dividends.

Disadvantages:

This is a long term solution. California law enforcement agencies have been successful in the past working toward mutual goals. It would be an extremely difficult task to build a consortium truly representative of the entire state and get a complete buy-in from all agencies. Funding for the consortium will be difficult to obtain without successes to point toward. The program manager will have to contend with many competing interests to make the consortium work.

Several obstacles will have to be overcome. These obstacles include, but are not limited to, legal issues, operational security, fear of technology, technological illiteracy, and lack of expertise in emerging technologies.

Management Structure

The program manager, Dean Hackwood, must gain the respect of the law enforcement community, she must utilize effective personal skills. She should be the voice of the consortium on all issues of technology transfer related to law enforcement.

This strategy calls for a steering committee to be chaired by the program manager. The program manager should select executive managers who are representatives of small, medium and large sized departments that have demonstrated an interest in technology transfer to sit on the steering committee. Consideration should be given to Command College graduates because of their futures orientation toward law enforcement. The Attorney General for the State of California and representatives of professional law enforcement agencies should also be provided information and asked to provide a representative to the law enforcement committee.

A meeting should be arranged with the program manager to meet with California delegates to U.S. Congress and members of the California legislature on committees that would impact the project, provide information and ask for their support. The U.S. Attorney General, and the Secretary of Defense, should be contacted by the program manager and provided information. A request should be made, of the secretaries, by the program manager to assign a representative who would act as a liaison with her.

She should conduct a meeting with designated personnel from interested federal laboratories, provide information, and request personnel to be placed on a national laboratories advisory committee to provide a resource for the consortium. A request to vendors such as Westinghouse, Pac-Telesis, Motorola, General Electric,

American automobile manufacturers, IBM and others, should be made, asking for executives to form another advisory committee as an additional resource.

Society is dynamic and as it moves toward the future, change is inevitable. The challenge is to manage and benefit from change. Law enforcement should embrace technology as a friend.

The Bourns College of Engineering, University of California, Riverside, must take the initiative to make this project a reality. It will have to commit to allowing Dean Hackwood to assume the role as the program manager. Initial funds for the project have been obtained through her efforts and California State Senator Bob Presley. As the project progresses, more funds will have to be secured through the state and federal legislatures.

Conclusion

The subject matter for this project moved very rapidly while research was being conducted. It was obvious to the author that this is a very dynamic area, and abundantly clear that law enforcement should be involved in the process of technology transfer. It should be an active partner, driving the change and not being pulled along as an unwilling participant.

The conclusions reached regarding the issue and sub-issues identified in this technical report are as follows:

Issue: "What methods will California law enforcement agencies use to identify and inform technology developers of their needs by the year 2004?"

Law enforcement agencies, individually and through their professional organizations, will have to consolidate their interests and develop one voice. The C_3PST is an independent, objective entity that can help them to accomplish this goal. It can work with them to develop an on-going needs analysis process that will not only collect the information and help to prioritize data, but also work with the national laboratories, the vendors, and law enforcement, to develop strategies for the best way to produce the appropriate technology for the identified need.

Currently there are optical scanners being used for fingerprint identification. The type of unit selected by an agency, determines the database they will be using. They each operate using different technology. There were no standards when they were being developed. If there had been standards, California law enforcement would be working from one database. Standards should be set by weighing the best technology, the most cost effective method to produce, and how it addresses the identified needs with it. The C_3PST is in a position to set those standards by coordinating all of the competing interests.

The products that will be used by law enforcement will need to be ethically and legally suitable for their identified use. Technological advances in surveillance, weapons, and computers may well represent issues that need to be addressed in these areas. The Presley Center on the University of California campus is in a unique position to work with the C_3PST on these issues.

There are several research projects that can be undertaken by the C_3PST. Examples of these are:

- Visual Recognition, e.g., fingerprint, face prints, tire tread, shoe prints;
- Image Databases, e.g., forensic databases for automated matching and recognition;
- Alternative Forms of Detention, e.g., improving home arrest technology to efficiently monitor criminals under detention;
- Location Devices, e.g., practical devices for locating property or people over a large area;
- Damage Assessment Image Analysis, e.g. incorporated with a Geographical Information System and cellular communications for faster more precise, prioritized damage assessment; and
- Advanced Computer Imaging and Animation for Crime Scenes

California law enforcement agencies are not able to stay current with advanced technologies. They need a consortium such as this to act as an advocate and be a

conduit to successfully address their identified and prioritized needs to the technology developers.

Sub-issue #1: "What process will be used to identify technological needs?"

The C_3PST appears to have the most promise for successfully developing a thorough needs analysis. The academic committee can develop comprehensive instruments to conduct the analysis. At least once a year agencies will be contacted to ascertain their needs and priorities. An evaluation of how the process is working, and what can be done to improve it should also be conducted. When the instruments are returned, the academic committee will work with the law enforcement committee to refine the information into a workable list.

It is important for all California law enforcement agencies to participate. This will enhance the process and make it truly reflective of the entire law enforcement community in California.

Sub issue #2: "How will communications obstacles be addressed?"

When C_3PST is fully operational it will act as a central processing unit for California law enforcement agencies. It will focus their energy into one centralized location. This will enhance the ability of agencies to find answers to questions.

The consortium will communicate with professional organizations and agencies on a regular basis through a newsletter and be accessible through the Internet.

Representatives selected for the steering and law enforcement committees will be working with agencies in their areas to develop on-going lines of communication. All involved in the consortium should understand their roles to include the task of developing these communications with their constituents. This can be done by phone, fax, computer, or in person. It is necessary that this be a conscious effort by all those involved.

If communications are to be fruitful, they will have to be considerate of differing perspectives. They will need to make themselves accessible to each other and address competing interests in an open and forthright manner.

Sub issue #3: "What can California law enforcement do to promote itself as an appealing market to private industry?"

The C_3PST will help law enforcement to become an appealing market to private industry. California law enforcement is a very fragmented market. It is very difficult to market technological products to law enforcement because of a lack of technical expertise and the lack of standards. The C_3PST will provide standards and endorsements for technological products. Vendors will be able to market their products more easily if they have the endorsement. Law enforcement will be able to regionalize, and in many cases go statewide with various databases such as fingerprints, voiceprints, etc., because of the standards set by the consortium. This should produce a synergistic result.

Research and development costs will be borne in many instances by the national laboratories and licensed to vendors. This will cut the costs normally incurred by vendors. The vendors, in many cases, may also be able to utilize much of the technology for civilian markets.

Dual use technologies can be a benefit to both the military and law enforcement. There are many applications such as conflict management software that may readily lend itself to dual use. This could be a significant cost saving measure for law enforcement agencies.

Recommendation

This study has focused its concerns on a process for identifying the needs of California law enforcement. There may be additional benefit in looking at the issue as part of a public safety approach, including fire departments, communications, and other public safety entities. Benefit could be obtained in making this more of a national effort.

The consortium is involved in discussions to move the Riverside County forensic laboratory to a site on campus. They will be working to increase the capabilities of the laboratory and make it a state-of-the-art facility. It has been well documented in the O.J. Simpson trial that it was necessary to send several items of evidence to the

east coast because the laboratories on the west coast were not adequate. The C_3PST is in an ideal position to coordinate a state of the art laboratory on campus that could coordinate forensic resources from the California Department of Justice and the Federal Bureau of Investigation to provide a significant resource to law enforcement agencies located in the west.

This is the tip of the iceberg. There will be many technological advances that will literally change the way law enforcement operates. Everything from the elimination of pursuits to the technological advances made with non-lethal weapons will produce dramatic changes for the future of law enforcement.

An additional benefit derived from utilizing the University of California to develop the consortium will be the training of a whole host of specialties focusing on law enforcement. There will be scientists, lawyers, judges, criminalists, teachers, police officers and others that will graduate with a much stronger background in police technology.

Other issues discussed during this study should also be considered for future research. They include:

1. Technology transfer from a national perspective.
2. Technology transfer from a public safety perspective.
4. The impact of the C_3PST on law enforcement.
5. The impact of technology on the court system.

At the onset of this project little was being developed in this area, but as the research progressed, the process and the agency selected to be the conduit began changing rapidly. First the Department of Justice was selected because of the fact that they were a statewide agency involved in training, law enforcement and prosecution of criminals. Then because of the Commission on Peace Officer Standards and Training's work with technology transfer, they were selected to provide the necessary conduit. In January of 1995, this author became aware of the conceptualization of the Consortium for Crime Control and Public Safety Technology (C_3PST). This was a concept being developed by Dean Hackwood of the Bourns College of Engineering at the University of California, Riverside. Although the C_3PST was still in the embryonic stages of development at the time of this writing, Dean Hackwood has enlisted former State Senator Robert Presley, and former Riverside County Sheriff Cois Byrd assist with the project. She obtained initial funding in excess of $60,000 for the project. This study was developing along a very similar path and would have recommended that a similar entity be developed had C_3PST not materialized.

There will be many successes to point to as a result of this process if it is instituted properly. California law enforcement, the public, technology developers, vendors and the University of California will be able to drive the technological changes that will envelope our future instead of being dragged along behind it.

End Notes

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11.. Marriott, Michael and T. Trent Gegax, "Putting Your Best Fear Forward." Newsweek, February 27, 1995, p.53.

12.. Ricucci, Captain Ronald A. and Vice Chairman Michael McKeehan, "The Role of Technology in Community Policing." Police Chief, May 1993, P.41.

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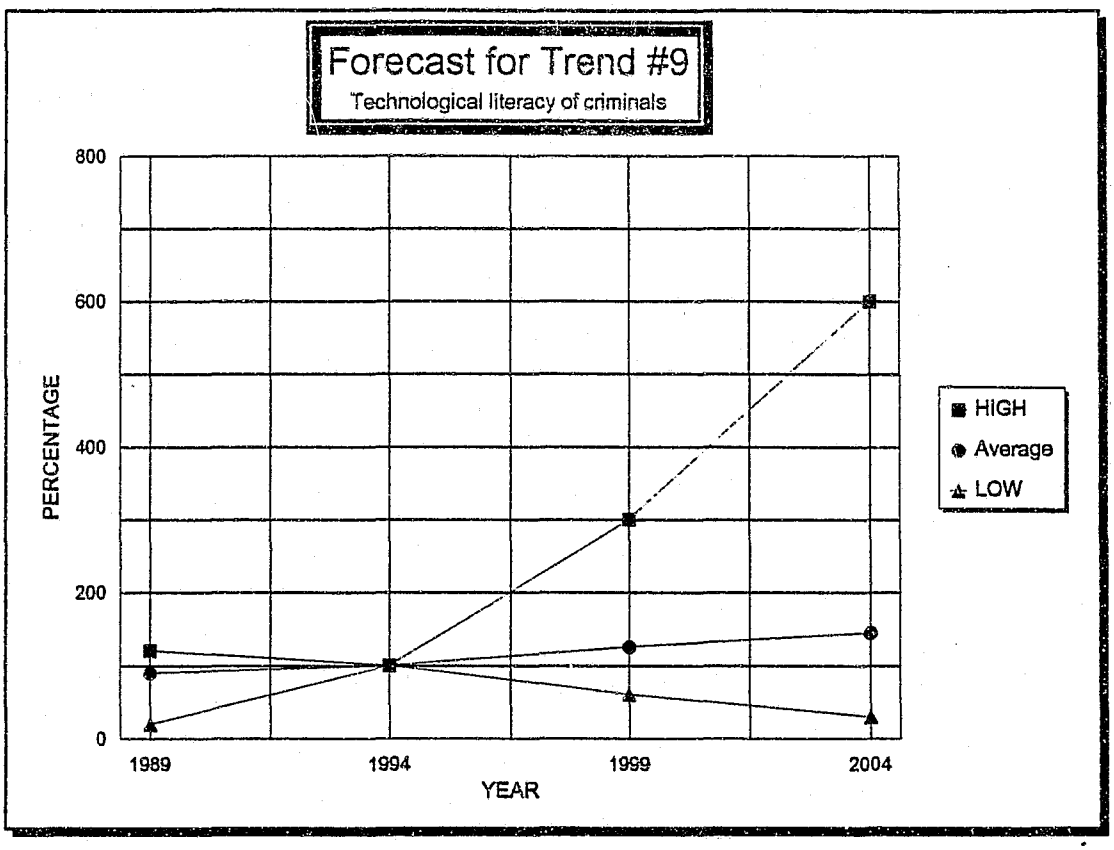
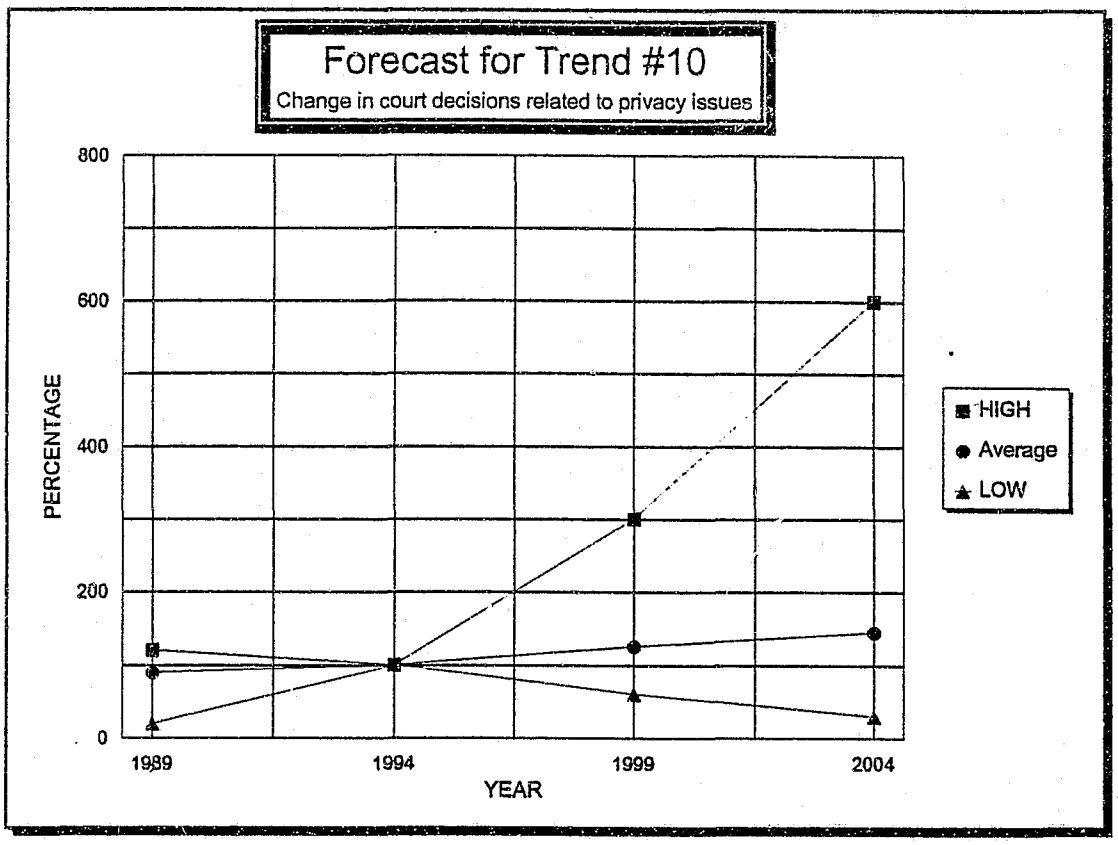


[ILLUSTRATION #10]

TREND 9

This trend was very difficult to pin down. Those rating it high did so because new technology is bringing with it "high tech" crime, and as the general public is becoming more technologically literate so is the criminal. Those rating it low did so because typically criminals who are arrested often have very little technological knowledge, and most of the time their crime has nothing to do with technology. Generally speaking the majority of the panel forecasted a steady increase in this area.



[ILLUSTRATION #11]

TREND 10

Those panelists who rated the level high on this trend did so basically because they believe most people are becoming tired of random violence and the proliferation of narcotics. They feel that as time goes by there will be an increasing trend to reduce individual privacy rights. Those rating it lower feel that changes will have to come from legislation or constitutional amendments. It was their feeling that courts have already gone as far as they will. Technology may trigger most of the changes that happen in the future.

Event Definition

An event is a specific, one-time occurrence that can have an impact on the issue. The panel was asked for a silent generation of events that would impact the issue question.

The panel generated 43 possible events through a process similar to that which was utilized with the trends (see Appendix B). The panel was asked to select their top twenty of the 43 listed events and again were told that they did not have to place them in rank order. The results were tabulated. The group now had to pick their top ten and were told they should rank order them with 1 being the most significant and 10 being the least significant.

The following table is a list of the panel's top ten in rank order;

Top 10 Events

(Rank Order)

NR	ORIG#	EVENT	VOTE
1	10	Supreme Court decision limiting privacy rights.	10
2	21	Major media coverage of horrific gang violence.	10
3	39	State prison system exceeds capacity.	10
4	6	A major terrorist incident in the United States.	9
5	3	Implementation of 3 strikes and you are out law.	8
6	8	Major criminal event that captures the public eye.	8
7	15	Decision made to cut social services across the board due to lack of funds.	8
8	32	Supreme Court rules use of lethal force by law enforcement - Unconstitutional.	8
9	41	Collapse of the U.S. economy.	8
10	43	Major media focus on lack of progress in criminal justice system.	8

Table #2

Definition of Forecasted Events

1. **Supreme Court decision limiting privacy rights**

   A specific case decision handed down by the U.S. Supreme Court limiting privacy rights particularly as they apply to the use of technology.

2. **Major media coverage of horrific gang violence**

   A specific event that displays horrible violence that was committed by a gang and subsequently exploited by the media.

3. **State prison system exceeds capacity**

   A specific event where the correctional system declares that it no longer has any place to legally house convicted criminals. Mass release of prisoners by the state is imminent.

4. **A major terrorist incident in the United States**

   This would be a terrorist event of major proportions similar to the bombing of the World Trade Center.

5. **Implementation of the 3 strikes and you are out law**

   The event of actual implementation of the 3 strikes and you are out law.

6. **Major criminal event that captures the public eye**

A criminal event of major proportions that is placed in the public view.

7. **Decision made to cut social services across the board due to lack of funds**

The event of cutting social services across the board due to financial troubles suffered by the government. Social services were defined as those welfare services provided by the government, such as food stamps, social security, medicare, etc.

8. **Supreme Court rules use of lethal force by law enforcement - Unconstitutional**

The U.S. Supreme Court renders a decision that the use of lethal force by law enforcement is cruel and unusual punishment and as a result prohibits the use in the future.

9. **Collapse of the U.S. economy**

The U.S. economy fails and the government is unable to pay its debts.

10. **Major media focus on the lack of progress in the criminal justice system**

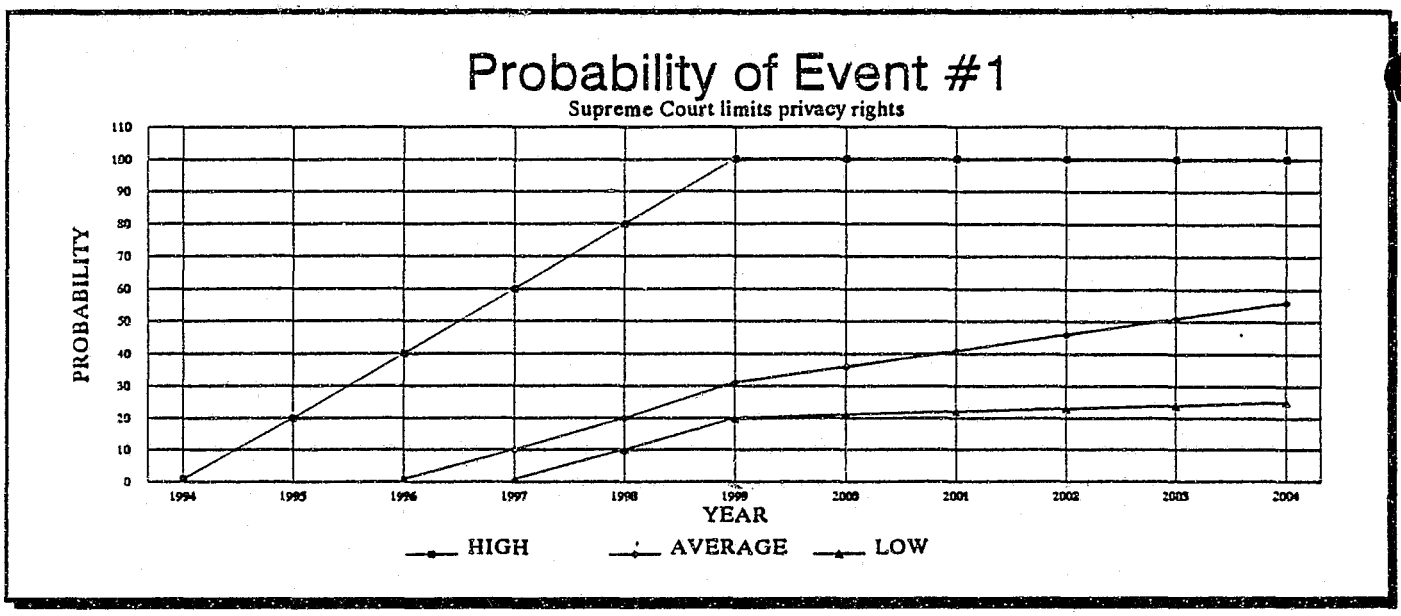
The media focuses on all of the problems and failures of the criminal justice system in a media blitz.

Forecasting of Events

This process differed from that of the forecasting of trends. The panel was given an event evaluation form. The panel was asked to forecast the probability of each event happening and what year it would first occur. They were then asked to determine when the probability of the event would first exceed zero. They were then asked to forecast what the probability of the event occurring would be five and ten years from now.

The panel was further directed to evaluate the possible impact of each event on the issue using a ten scale, one being the least impact and ten being the most impact. The panel was informed that a particular issue could be rated as high as a ten positive and a ten negative impact or as low as a zero - zero impact or any other combination between one and ten.

These forecasts were calculated to show the minimum, average, maximum, probability of occurrence, and the estimate of when the event might happen. Since a zero would mean that it could never happen, panelists were instructed that they had to give it at least a five percent chance of occurring. The positive and negative impact of each event were also calculated. In the following pages there are graphs of each of the top ten events with a definition and an explanation of the results;



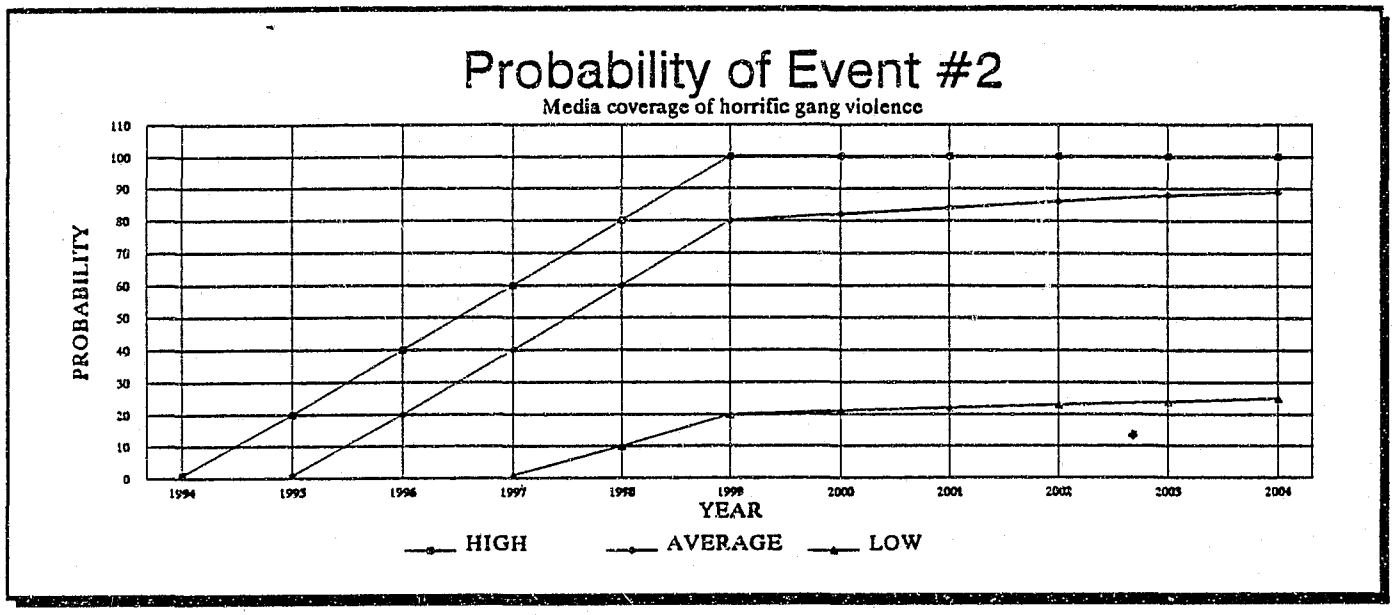
[ILLUSTRATION #12]

EVENT #1

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	10	10
AVERAGE	1996	31	56	5	3
LOW	1999	5	10	0	0

[TABLE #3]

This event was described as a major Supreme Court decision which significantly limits the right of privacy as it exists today. One of the panelists felt that it was absolutely going to happen within the first five years. Two felt that it absolutely would happen within ten years. The majority of the panel felt that it had a relatively low chance of happening within the first five years, while they give it a much stronger chance in the following five years. The positive impact was that this would create greater latitude to utilize technology with less need for it.



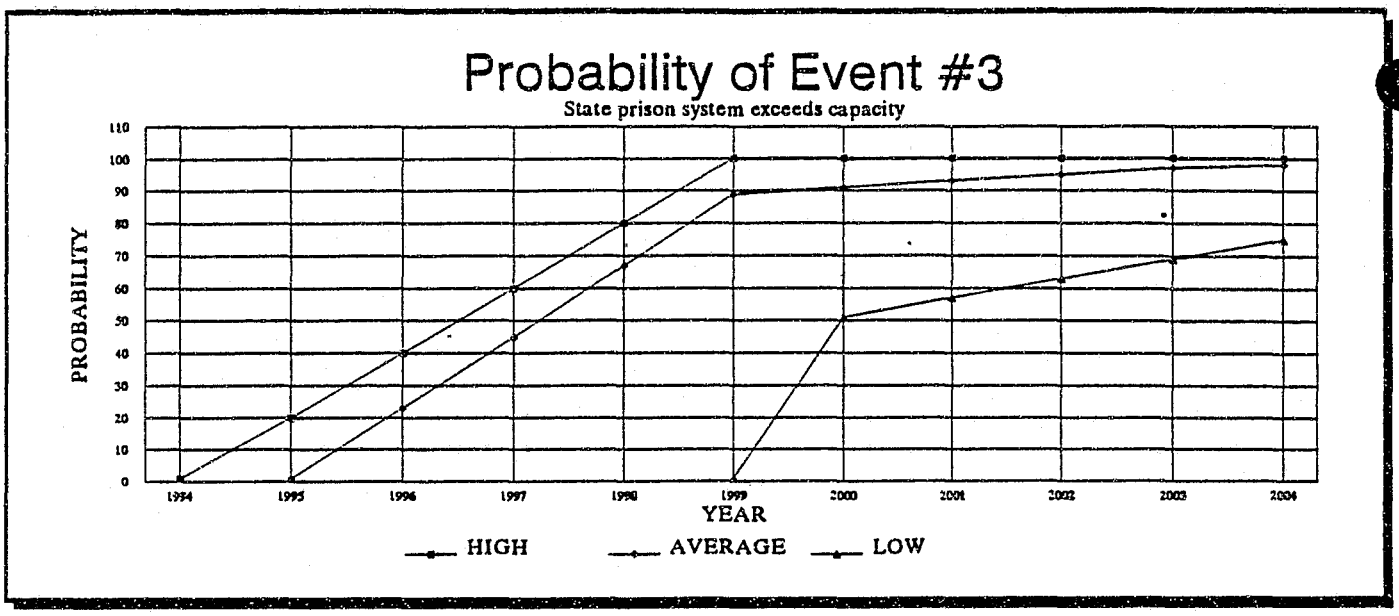
[ILLUSTRATION #13]

EVENT #2

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	10	10
AVERAGE	1995	80	89	5	2
LOW	1997	20	25	0	0

[TABLE #4]

This event was described as major media coverage of an event of horrific gang violence. This would be something that would shock most of the general public. It was generally felt by the panel that this would probably occur within the first 5 years. The difference of opinion between panel members was whether or not anyone would really be shocked by gang violence or whether they would be de-sensitized due to the coverage that has already been disseminated by the media. The majority felt that the impact would be more positive than negative impact in regards to the development of technology.



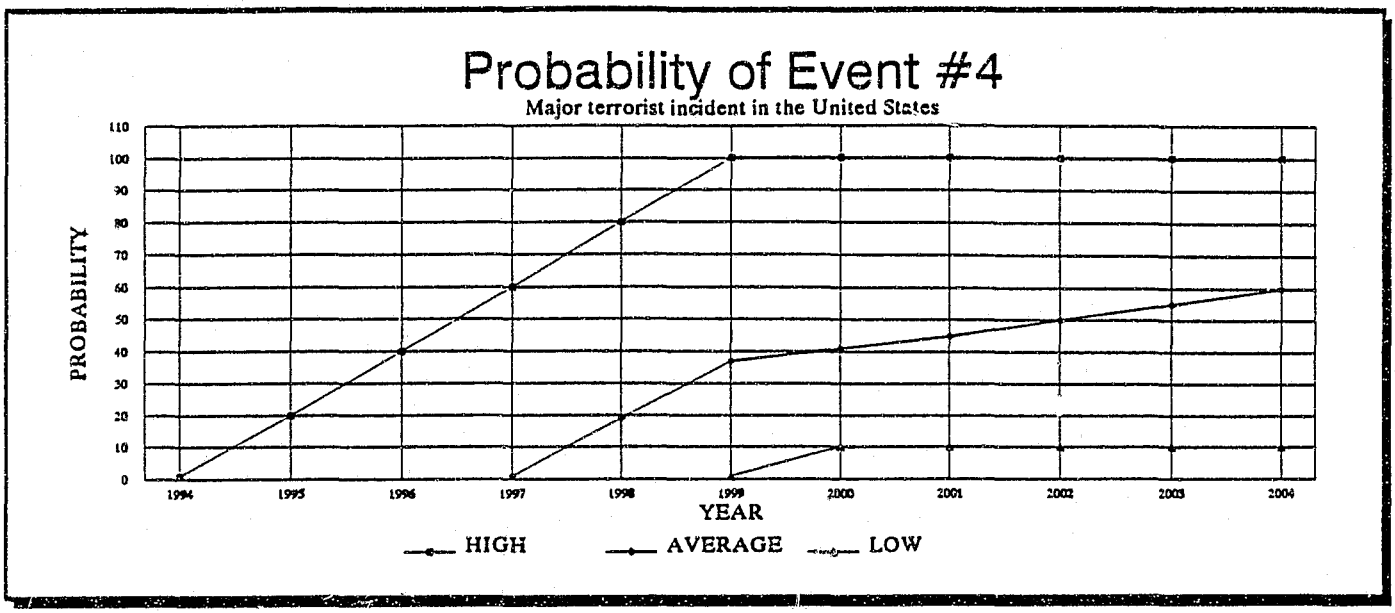
[ILLUSTRATION #14]

EVENT #3

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	10	10
AVERAGE	1995	89	98	5	3
LOW	1999	50	75	0	0

[TABLE #5]

This event is described as one where the state prison system exceeds its capacity to house prisoners. All of the members of the panel felt this had a 50 percent or better chance of occurring within the next five years. All but two of the panel members felt that it had a 100 percent probability of occurring within the next ten years. The positive impact was essentially based on the opportunity to develop technological alternatives to housing the prisoners within prisons. The negative impact was the way this would impact the state budget.



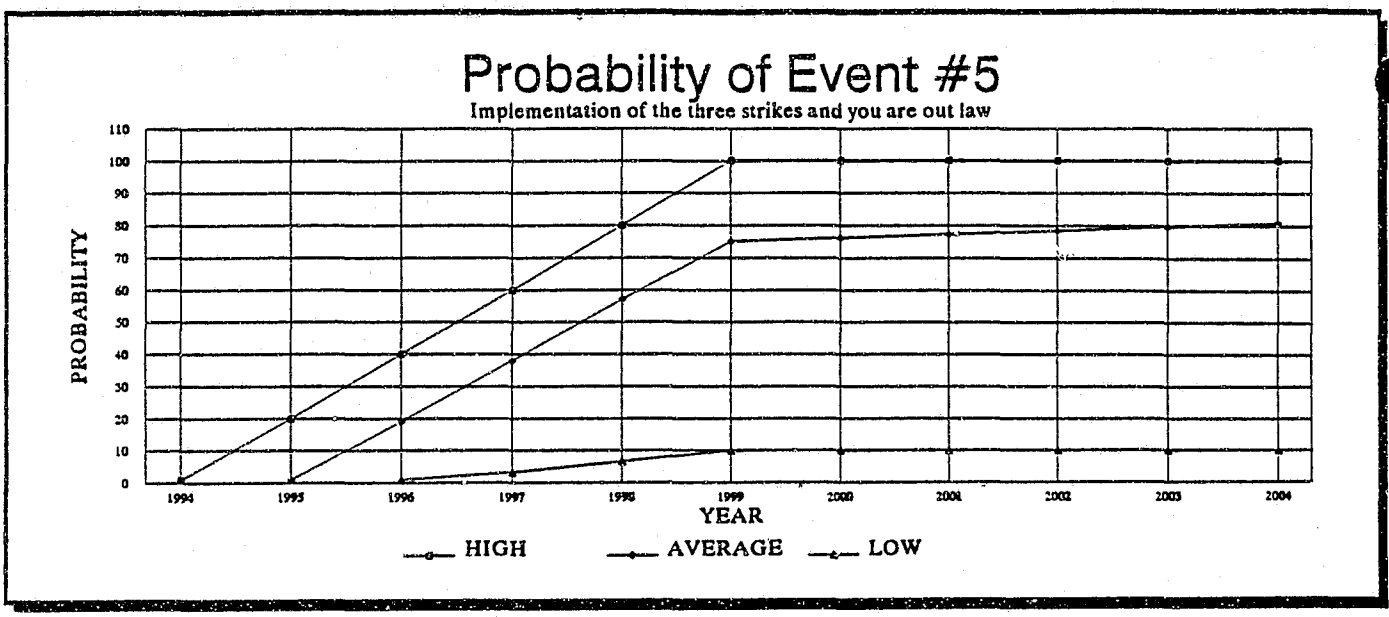
[ILLUSTRATION #15]

EVENT #4

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	10	10
AVERAGE	1997	37	60	5	2
LOW	1999	10	10	0	0

[TABLE #6]

This event was described as an event that would cause a major loss of life. The majority of the panel forecast that it would be possible within next five years, though with a much improved chance of occurring five to ten years from now. The majority of the panel believed this would probably have a more positive impact on the development of technology because of the public's need to see something tangible in order to prevent further incidents. The negative impact was that this technology would go toward development of equipment which would not necessarily be helpful to middle sized law enforcement agencies.



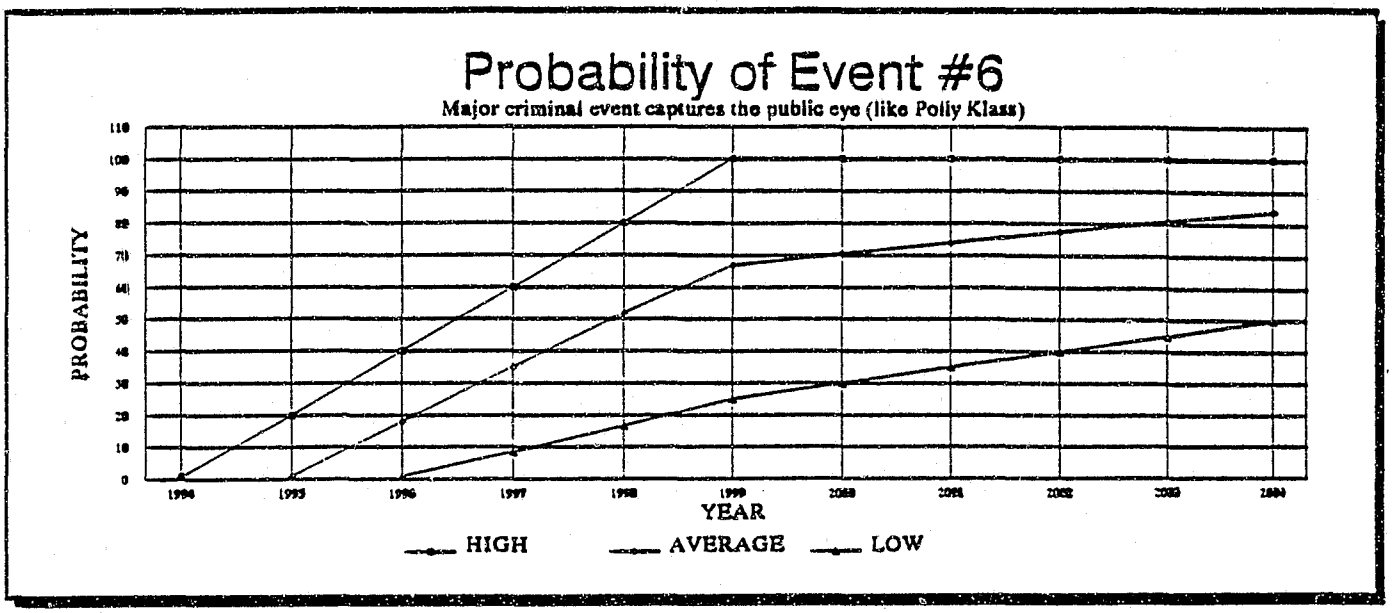
[ILLUSTRATION #16]

EVENT #5

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	10	8
AVERAGE	1995	75	81	4	2
LOW	1996	10	10	0	0

[TABLE #7]

This event was described as the actual implementation of the three criminal violations law, whereby the felon is put away for life. It was felt generally by the majority of the panel that this would be implemented in the very near future. It was the opinion of the panel that it would have a significantly positive impact on the development of technology because of the housing issues raised for a vast number of prisoners. The negative impact was the concern that this would not necessarily equate to technology development which would be useful to middle sized law enforcement agencies.



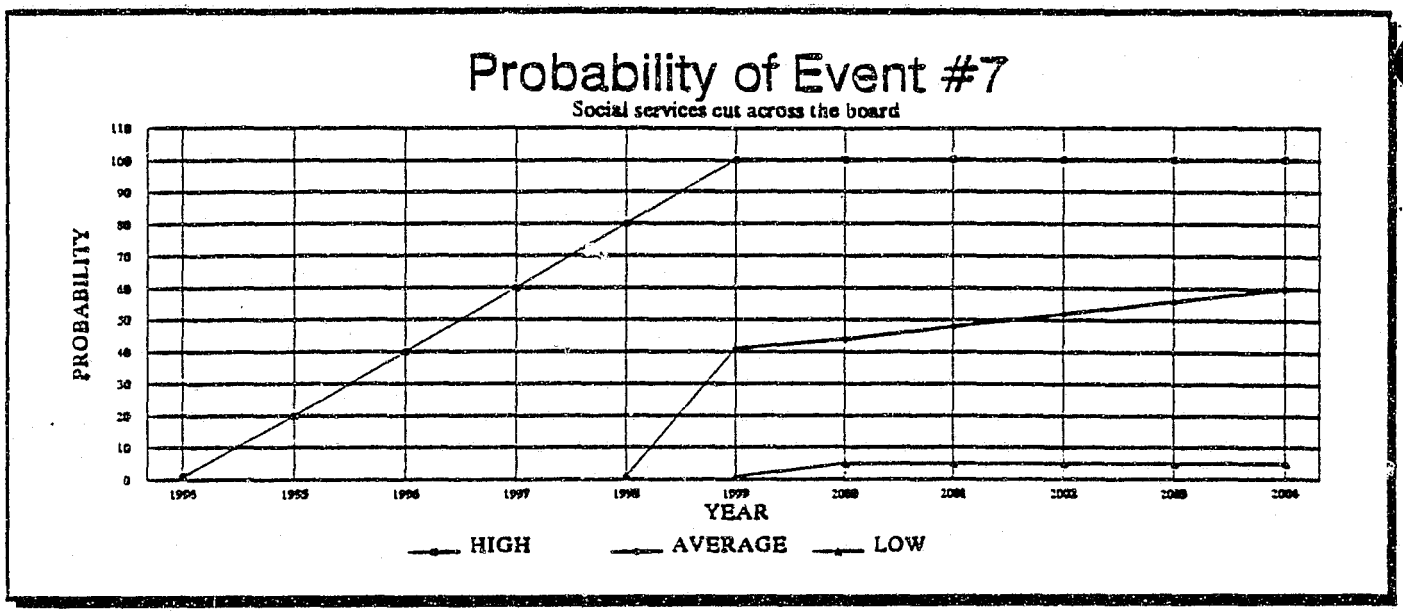
[ILLUSTRATION #17]

EVENT #6

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	10	8
AVERAGE	1995	67	84	6	2
LOW	1996	25	50	2	0

[TABLE #8]

This event was described as a major event that captures public emotion. The panel felt that there was a strong probability that the event would occur within five years and an even stronger probability that this would occur within the next ten years. There was a strong opinion in the forecast that this could trigger the expenditure of more funds to develop equipment that could be used by middle sized law enforcement agencies to decrease the probability of similar events occurring in the future. The negative impact was founded out of the belief that most of the public is being de-sensitized by the media.



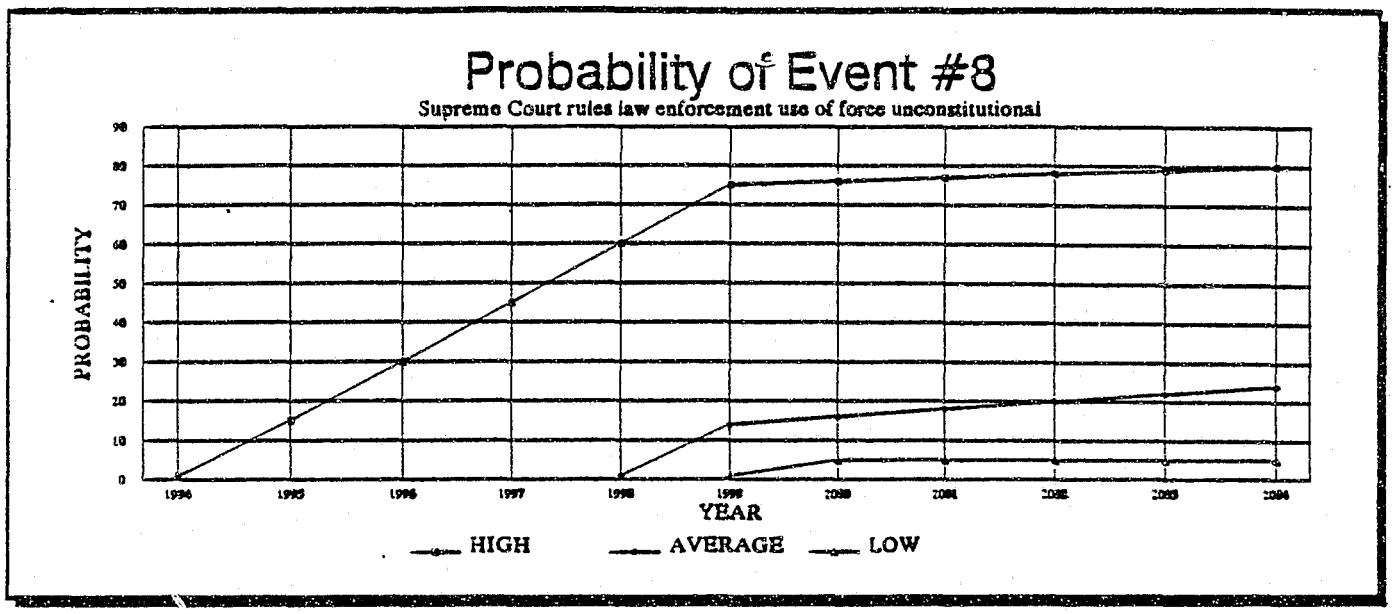
[ILLUSTRATION #18]

EVENT #7

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	100	100	7	10
AVERAGE	1998	41	60	2	3
LOW	1999	5	5	0	0

[TABLE #9]

This event was described as social services being cut across the board due to a lack of funds. There were two members of the panel that felt that this event had almost no chance of occurring. The rest of the panel forecasted that its first chance of exceeding 0% probability would occur within the first five years. It would have 41% probability within the first five years and 60% probability during the subsequent five year period. The positive impact was aimed at technology that could reduce personnel costs and the negative was that there would not be funds available to develop technology.



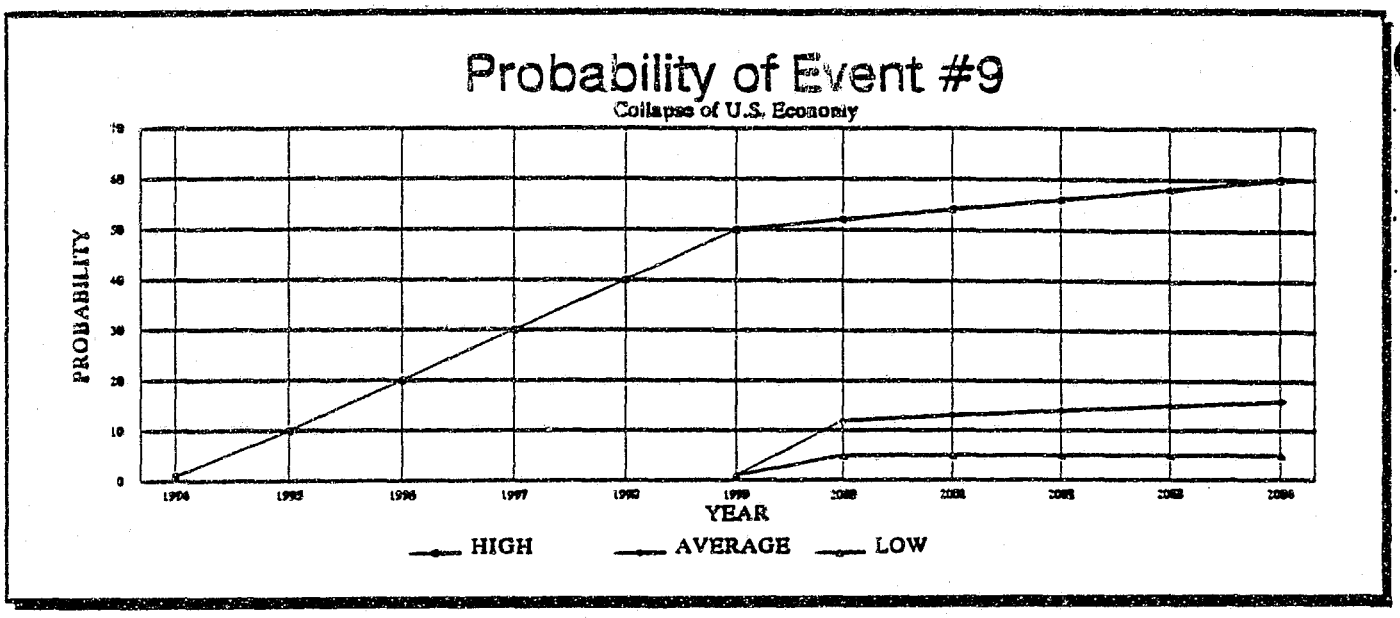
[ILLUSTRATION #19]

EVENT #8

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1–10]	NEGATIVE IMPACT [1–10]
HIGH	1994	75	80	10	10
AVERAGE	1998	14	24	6	3
LOW	1999	5	5	0	0

[TABLE #10]

This event was described as a Supreme Court ruling that use of lethal force by law enforcement would be considered unconstitutional. One of the panel members felt that there was almost no way that this could occur within ten years. The majority felt the probability was very low. The group that rated the possibility higher believed that as law enforcement developed more alternatives to lethal force, it would increase the probability of this occurring. The panel believed that a decision like this would generate a strong interest in non lethal technology, while resulting law suits would also reduce available funds.



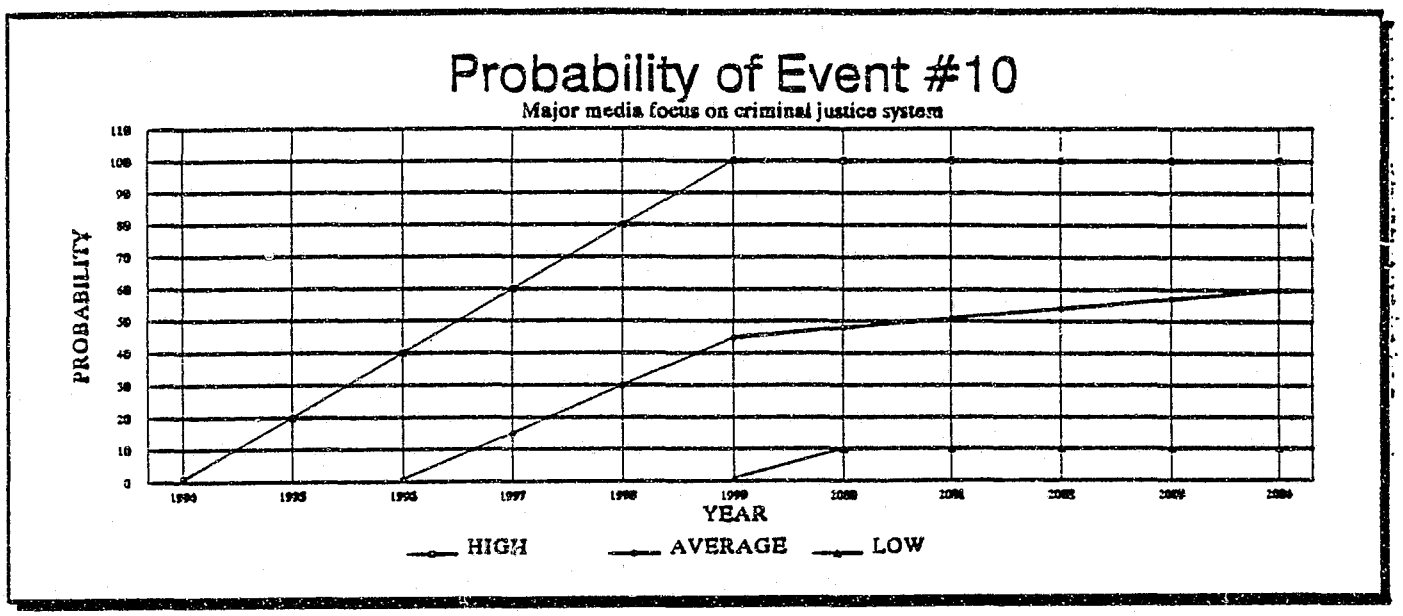
[ILLUSTRATION #20]

EVENT #9

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1-10]	NEGATIVE IMPACT [1-10]
HIGH	1994	50	60	4	10
AVERAGE	1999	10	16	1	7
LOW	1999	5	5	0	0

[TABLE #11]

This event was described as the collapse of the U.S. economy. This was described as a catastrophic blow to the economy, such as unemployment above 25%, a drop in the stock market of 50% or more in a month, or some equally devastating event. The majority of the panel felt that this had a very low probability of occurring. The positive impact was derived from the savings that could be developed by reducing personnel through the advent of new technologies. The negative impact was that available funds would have to be spent on more essential items.



[ILLUSTRATION #21]

EVENT #10

PROBABILITY	FIRST YEAR EXCEEDS 0	AT 5 YEARS	AT 10 YEARS	POSITIVE IMPACT [1 – 10]	NEGATIVE IMPACT [1 – 10]
HIGH	1994	100	100	10	10
AVERAGE	1996	45	60	5	2
LOW	1999	10	10	1	0

[TABLE #12]

This event was described as the major media focus on the lack of progress in the criminal justice system. The panel felt that there was a reasonable probability that this type of event would happen. The majority felt that there would be a stronger positive impact because this is the area where it would be easier to best demonstrate to the public significant changes. The negative impact was derived from the concept that this type of interest would create disenchantment with the public and would produce apathy for funding future development of technologies to be used by law enforcement.

EVENT TO EVENT

CROSS IMPACT ANALYSIS

After completing the NGT, calculating and graphically depicting the events, panel members (Richard Leever, David Carlock, and Tom Christian) met again as a working group to consider the impact that each event would have on the other. Each event could have either a positive, negative or no impact on the other events. The original panel's results were provided to the working group. Each impact was discussed between the members of the working group, and a consensus was reached. A cross impact matrix (Table 13) was constructed. It shows the percent of change between and the adjusted probability of each event as affected by the occurrence of the other events.

Events #4 (Terrorist incident in the United States) and #8 (U.S. Supreme Court rules lethal force is unconstitutional) did not appear to have a significant impact on the other events. After Event #5 (Implementation of the three strikes and you are out law) was implemented, it would produce a significant impact on several other events because of the need to house prisoners for longer terms and the potential for removing some career criminals from the streets. Event #9 (The collapse of the U.S. economy) had a significant effect on Event #7 (Decision to cut social services across the board) and Event #10 (Media focus on lack of progress in the criminal justice

system) had a significant impact on Event #4 (A criminal event that captures the public eye). Event #2 (Media coverage of a horrific act of gang violence) was significantly impacted by most of the other events.

The final probabilities were developed by factoring the impacting events into the original probabilities developed by the NGT panel.

EVENT-TO-EVENT
CROSS IMPACT ANALYSIS

	Impacting Event	Initial Probability ↓ →	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Final Probability ↓	
			56	89	98	60	81	84	60	24	16	60		
E1	Supreme Court decision to limit privacy	56	x	-	-	-	10	-	-	-	-	-	64	E1
E2	Media coverage of horrific gang violence	89	-	x	+5	-	-15	+15	+5	-	-	-5	94	E2
E3	State prison system exceeds capacity	98	+5	+3	x	-	+5	-	+5	-	-	-20	99	E3
E4	Terrorist incident in the United States	60	-2	-	-	x	-	-	-	-	-	-	59	E4
E5	Implementation of 3 strikes and you are out law	81	-	-	-	-	x	-	-	-	-	-	81	E5
E6	Criminal event captures the public eye (like Polly Klass)	84	-	-	+5	-	-5	x	+5	-	+5	-	89	E6
E7	Social services cut across the board	60	-	-	-	-	-	-	x	-	+20	-	63	E7
E8	Supreme Court rules law enf. use of lethal force unconstitutional	24	-	-	-	-	-	-	-	x	-	-	24	E8
E9	The collapse of the U.S. economy	16	-	-	-	-	-	-	-	-	x	-	16	E9
E10	Media focus on lack of progress in criminal justice sys.	60	-	+5	+5	-	+5	-	-	-	-	x	73	E10

(TABLE #13)

Future Scenarios

The following three scenarios were produced with the aid of a SIGMA Scenario Generator provided by The Policy Analysis Co., Inc. in Washington, D.C. in cooperation with the California Commission on Peace Officer Standards and training (POST). The ten events identified by the NGT panel were entered into the program along with the positive and negative impacts of each event. One hundred random scenarios were generated as a result of four runs of twenty five utilizing four different seed numbers. All scenarios were run for a ten year interval which begins in 1995. It is of some significance to note the panel felt that some of the events would occur in 1994.

It was necessary to reduce the one hundred random scenarios to three. All scenarios that included fewer than seven events were eliminated. This reduced the number by forty-four. There were four events the panel felt had better than an 80% chance of occurring, those scenarios not containing all four of these events were eliminated reducing the number left by another eight. All scenarios that did not have these four events occurring by the year 2000 were eliminated, further reducing the number by another forty, leaving eight scenarios. The three most plausible scenario generations, those that would result in all of the events being contained in at least one of the scenarios, were selected. The four key events with an eighty percent or higher probability were:

1. State prison system exceeds capacity.

2. Major media coverage of an event of horrific gang violence.

3. A major criminal event that captures the public eye.

4. Implementation of the three strikes and you are out law.

Three major trends will be found in all three scenarios. They are:

1. The development of technology specific to law enforcement.

2. The regionalization of resources.

3. The level of technological literacy of law enforcement officers.

These were selected because that is the way they were rank ordered by the NGT panel. The remaining ten trends will be found at least once in at least one of the scenarios.

Selected Site

The Brea Police Department was chosen for the three scenarios. It is a mid-sized law enforcement agency with 106 sworn officers. It serves the North Orange County cities of Brea and Yorba Linda, with a combined population of approximately ninety thousand people. Two major freeways go through the two cities, which border on seven other jurisdictions. All sergeants are encouraged to attend the POST Supervisory Leadership Institute and all Lieutenants and higher ranking officers are

encouraged to attend the Command College. The department is a progressive one and enjoys a good reputation.

Three scenarios were developed. The first scenario dealt with a future demonstrating what might be experienced in a future where technology had not been a major player. The second scenario shows how a future where technology plays a part, but because it is not directed or focused, there are many problems that subsequently arise. Scenario three utilized the new Consortium for Crime Control and Public Safety Technology (C_3PST) concept helping to focus and direct California law enforcement in their endeavor to drive their future with technology and not be dragged along behind it. It was chosen as the best scenario to transition into the strategic plan as it appears to have the most promise for California law enforcement.

SCENARIO ONE

MAGAZINE ARTICLE

THE LAST DECADE IN LAW ENFORCEMENT

WRITTEN BY ROSS HUNT

The last ten years has been difficult for the law enforcement community. It started a decade ago when in January of 1995, terrorists from the middle east set off bombs in the Arco towers in Los Angeles. Event #4 A major terrorist incident in the United States. The bombs went off at about noon on Martin Luther King's Birthday, killing 317 people and injuring 123; the worst catastrophe of our time. This incident

was criticized for years. People said, after the bombing at the World Trade Center in New York, law enforcement should have been on alert, and have taken precautions. Trend #5 Public concern for public safety.

This event along with the end of the cold war, helped change the focus of the manufacturers from military applications to civilian. Trend #4 Manufacturing focus change from military to civilian. Although massive efforts were made to locate and prosecute the subjects involved, police still have not been able to identify the actual perpetrators.

Not enough money was being spent on technology. Trend #1 Development of technology specific to law enforcement. California law enforcement agencies, now as a direct result of the this tried to regionalize resources. Although this was certainly more cost effective, it often meant that resources were not available when needed. Trend #2 Regionalization of resources. February 1996, two years after the implementation of the "three strikes and you are out law," there still were no new prisons being built. Event #5 Implementation of three strikes and you are out law. This created a concern that, if no new prisons were built to house these criminals, eventually the system would be overloaded. The same old obstacles kept appearing not the least of which was the "not in my backyard" (NIMBY) group. Studies were made, politicians made speeches, but not very much was done.

Because of the deficit and the state of the economy in October 1996, the President along with Congress made a decision to cut social services across the board. Event #7 Social services cut across the board. Law enforcement budgets were also cut. Now there were no funds available to acquire new technology. Trend #6 Amount of money available to acquire technology. Many agencies discovered that, no matter what problems were created, they had to try to pool their resources. Trend #2 Regionalization of resources. It became necessary to lay off large numbers of law enforcement officers. Crime rates rose quickly. Sophisticated criminals were hacking into computers across the country. Trend #9 Technologically literate criminals. California law enforcement agencies were not able to deal with these crimes very effectively and it became necessary for congress to declare them a federal crime. The FBI made a special branch to track down these sophisticated criminals but, because of the widespread problem and the lack of funds, they were only able to go after the biggest offenders. They did not deal with the problem effectively in the beginning. They should have worked with Congress and the manufacturers to require special safeguards like the "Clipper" chip that they were talking about in 1993 but never implemented. The "Clipper" chip would have given government agencies instant access to almost any computer through a special trap door created by this chip. This would have severely limited the ability of the criminals to commit computer crimes.

In March 1997, the media became focused on the lack of progress in the criminal justice system. Event #10 Major media focus on the lack of progress in the criminal justice system. The media was unrelenting and this caused the men and women who worked in the criminal justice system to take a long hard look at themselves. They knew it was important to streamline their computer systems and make them more efficient because this would help them to locate criminals more quickly but there were no funds available. They wanted to develop a remote fingerprint "ID" module that connected to mobile digital terminals in the police cars. When they placed the suspect's hand over a special plate it converted it into a digital computer language and transmitted it to a central data base in Sacramento. The system gave them complete information about the subject. Due to the lack of funds, and the need to put more police officers in the field, many agencies that had originally put them into their cars had them removed. This system could also have been utilized in booking areas. The end result was a significant decrease in the ability to apprehend wanted persons. Trend #1 Development of technology specific to law enforcement. They also began combining agencies to reduce overhead and duplication. The California Highway Patrol received special taxes from cities and counties and took over traffic control for the whole state. No longer did each city have its own traffic divisions. Revenues received from fines were split between city, county, and state. All of the marshals' departments in the state merged with sheriffs' departments. The counties began collecting fees for all jailed subjects. Those who were convicted of minor offenses and had property or an ability to pay were charged a fine and released

at the end of their sentence. Those who could not pay the fine worked on road crews run by Caltrans to repay their debts. Trend #2 Regionalization of resources.

Since the implementation of the three strikes and you are out law, with the new and more efficient criminal justice system, the state prison system which had been receiving increasing numbers of prisoners without any successes in building new prisons finally exceeded its capacity in October of 1998. Event #3 State prison system exceeds capacity. The cost of housing prisoners had been steadily rising to the point where there was not sufficient money in state's budget to both house the prisoners and build new prisons. Trend #7 Cost of housing prisoners. Because their was no other answer, the state legislature was forced to repeal the law and release criminals early. They started with the criminals that were in for property crimes, but it was not long until they found it necessary to release rapists and molesters. It later became somewhat of a joke as criminals actually spent about ten percent of their sentences actually incarcerated. Trend #7 Cost of housing prisoners.

April 1, 1999, was the famous "April Fool's Day Massacre." The California State Basketball Tournament was being played at the Brea Olinda High School in the peaceful and tranquil city of Brea. Event #2 Major media coverage of an event of horrific gang violence. Event #6 A Major criminal event that captures the public eye. Two teams from the Los Angeles area were playing in the final game for the tournament championship. Rival gangs attended the high school and were present at the game. With three seconds left in the game the Eagles were ahead of the

Mountain Men by one point. The Mountain Men had the ball and one of their players was about to shoot a basket when one of the gang members, who was rooting for the Eagles, stood up in the bleachers and shot the player with the ball. Gang members from both sides pulled out weapons and began shooting. By the time they were through eight people were dead and five were wounded. This was so horrifying to the general public that they demanded something be done to make the schools safe. They voted people into office only if a commitment had been made to aggressively attack the problem. Law enforcement agencies and school boards were constantly being taken to task for not doing enough to make the schools a safe place for kids. Make Our Schools Safe (MOSS) was developed by PTA groups to be a watchdog at the courthouses, and to lobby Congress. Trend #5 Public concern for public safety. They were constantly in the media. School districts were finally mandated to hire more security guards because the police were unable to do anything about the problem. Violence in the schools continued to rise.

"Gloomy June" in 2004, just a year ago, was when the U.S. economy collapsed and sent everyone into a panic. Event #9 U.S. economy collapses. Within just a few months following the collapse, all government agencies were forced to lay off large numbers of personnel. Services were cut back drastically. Officers were only dispatched if suspects were present or if there was evidence to be collected. Traffic collisions were no longer investigated by California Highway Patrol; they were left to the insurance companies to resolve. Management levels were reduced. This

significantly reduced the number of personnel needed to maintain the law enforcement agencies.

In December, 2004 there was a significant decision handed down by the U.S. Supreme Court. Event #1 U.S. Supreme Court limits right to privacy. Trend # 10 Change of court decisions on privacy issue. A student in the Brea Olinda Unified School District was appealing a conviction of a weapons charge to the U.S. Supreme Court. He was caught by a security guard carrying a small switchblade knife in his backpack. He appealed the conviction on the basis that this was a violation of the fourth amendment, was an unreasonable search and was a violation of his privacy. The U.S. Supreme Court in a five to four decision stated in the majority opinion that it was necessary to weigh the damage that violence and narcotics cause with a person's privacy. The intrusion was significant enough for the defendant to prevail in its claim of violation of his fourth amendment rights. It was the Court's opinion that this would be a violation of privacy. If school security was acting in place of law enforcement, then the rules should be as stringent. The Court noted in its decision giving the five million dollar award to the student, that similar cases would create a restrictive atmosphere in the schools that would not be conducive to the students.

The decision is only three months old and already most districts have released their security staffs. Crime rates have been significantly impacted. This could not

have come at a worse time for law enforcement agencies, as they are still reeling from the blows dealt out as a result of Gloomy June.

Some say that technology could help. Since there is no directed emphasis in this area, the focus will remain on trying to increase the amount of officers on the street. The next decade should prove to be a great challenge for law enforcement agencies across the nation.

SCENARIO TWO

Chief Jan Fitzpatrick's Eulogy at Chief James Arnold's Funeral

We will surely miss Chief Arnold, and his contributions to California law enforcement. It was just about ten years ago when he became chief of police in the city of Brea. He had just finished Command College and had a very bright future in front of him. He had been a police helicopter pilot and had been in charge of the aero bureau at another department before coming to Brea. He was certainly no stranger to technology.

It was February of 1995 when the U.S. Supreme Court issued the Lentinie decision. Event #1 U.S. Supreme Court limits right to privacy. Trend # 10 Change of court decisions on privacy issue. You will recall William Lentinie the railroad engineer

who was tested with the new eye sensor. The alcohol sensor, developed by Idaho National Engineering Laboratory and manufactured by Motorola, was placed over the eye and subsequently read the alcohol content of the subject's blood. He was fired for reporting to work with a high blood alcohol level. He contested the firing and went all the way to the U.S. Supreme Court trying to get the court to reinstate him. He felt this to be a violation of his fourth amendment rights, as it was done without his consent. The Supreme Court, in a seven to two decision, noted that this technology had accomplished an accurate reading of his blood alcohol level and was not found to be intrusive to any significant degree. The court felt that the public's safety should not be placed at jeopardy.

Chief Arnold recognized the public's rightful concern for their own safety as it related to the Brea Police Department. Trend #5 Public concern for Public Safety. He was the first police chief in the state to institute a mandatory blood alcohol test to all his officers at the beginning and end of every shift. He did not institute the practice because of an existing problem; rather, instituting the practice reduced the possibility that a problem would occur. Although at first some of the officers objected to the testing, it is now being done all over the state.

In September of 1995, the state prison system exceeded its capacity. Event #3 State prison system exceeds capacity. No prisons had been built for several years prior as a result of the NIMBY (not in my backyard) groups and even more significant

at that time was the recession and tight budgets. Because of the cost of housing prisoners, the state had no additional funds to build new prisons. They were not prepared for this calamity, and although the technology for housing prisoners in their homes was available, it had not been developed sufficiently for that purpose. This caused a wholesale release of criminals onto the streets. This situation even attracted criminals from other states.

The public had lost confidence in law enforcement's ability to protect them. Trend #5 Public concern for public safety. In November of 1995, there was a crime spree in Orange County known as the "Turkey Holiday Robberies." Fourteen banks had been robbed and six people were killed, with a loss of over five million dollars and it all happened in just one day. Event #6 A major criminal event that captures the public eye. The robberies were done randomly and were not part of any organized effort by any group. Law enforcement arrested twenty five of the robbery suspects but was faced with no where to put them. Several of those arrested said that they had no fear because they knew nothing would happen to them. The public was both terrified and furious. That's when Chief Arnold got together with other heads of agencies in the criminal justice system, and working within the framework of the California Peace Officers Association, formed the committee on prisoner housing. Six months later, as a result of the incredible energy of this committee, a super prison near the Salton Sea was constructed. The prison was built to house thirty thousand, but could readily be expanded to house several times that amount. Trend # 2

Regionalization of resources. The committee got together with Hughes Aircraft Co., the Livermore National Laboratory, and Pacific Bell to develop technology to allow prisoners to be housed in their own homes. An implant called the "Messinia Ear Bug," named after the inventor, was developed. It was placed behind the prisoner's ear and with the aid of the global positioning system, and a triangulation system on the ground, the prisoner would receive a small jolt of about five hundred volts that would render him unconscious any time he wandered out of a specified area. This would set off an alarm and law enforcement would respond to his location and take him to jail. Trend #1 Technology developed specific to law enforcement.

It was really unfortunate that there was not enough emphasis placed on the legal, and ethical considerations of such technology. The ACLU brought a lawsuit against the government, charging that the application of the "Messinia Ear Bug" was cruel and unusual punishment. Millions of dollars were lost in this debacle. If some process had been developed which routinely handled these matters this would probably not have occurred.

In May 1996, the pin head skinheads (PHS) took over the Nixon Library in Yorba Linda while the President of a small African nation, Mooho Ohoo was present. Event #4 A major terrorist incident in the United States. They demanded a helicopter for transportation and ten million dollars. Luckily for Chief Arnold, he had as a result of his work on the CPOA committee, learned of a micro-miniature sized version of the

lunar rover. This could be equipped with a miniature camera and microphone. It could then be slipped into the library covered with a plastic shell that resembled a beetle. While not readily identified by terrorists, it retrieved information that saved the day. Trend #1 Development of technology specific to law enforcement. It was discovered that there were only two pin heads. Further, it recorded a conversation between the pin heads about their intended plan. The pin heads were going to tie Ohoo to a chair that had a remote controlled bomb attached to it. The helicopter was to land on the roof, they would get into the helicopter and once they had left the scene they would detonate the bomb. Because of the intelligence information received, swat teams moved into position and were able to apprehend both pin heads prior to their getting to the helicopter. The Orange County Sheriff's bomb squad disabled the bomb. President Ohoo survived the ordeal. Chief Arnold was decorated by both the Governor and the President for his actions on that one.

In May of 1997, Chief Arnold faced another major catastrophe. Four members of the Westside Brea gang, students at Brea Olinda High School, armed with AK-47'S and high on PCP they had stored in their lockers, stormed the girls locker room. Event #2 Major media coverage of horrific gang violence. They took seventy five girls and six gym teachers hostage. They had a branding iron with them. They built a fire out of the benches in the gym and after getting the branding iron very hot, branded most of the girls. Some of the girls tried to run away and seven were shot. Five girls died and six made it to freedom. Four of the girls were raped. Through the use of the

beetle technology utilized a year earlier at the Nixon Library, swat teams were able to take all four gang members into custody. This received world wide coverage by the media. The public was horrified. Immediate steps were taken to use scanners on everyone entering the campus. Dogs were utilized to check lockers and surprise inspections of lockers were done daily in almost every school in the nation from that day on. It is a sad commentary that it took an incident such as that to make law enforcement serious about removing violence and drugs from the schools.

A few months later, in November of 1997, three years after implementing the "three strikes and you are out law," crime in California had been significantly reduced. Event #5 Implementation of three strikes and you are out law. It was again necessary, in spite of the court ruling, to proceed to modify Chief Arnold's earlier efforts and to supplement the formation of the Super Prison and a modified more subdued version, of the "Messinia Ear Bug" by monitoring at-home prisoners and having police respond whenever the prisoner exceeded his allowed boundaries. This significantly reduced the overcrowding impacts of the "three strikes and you are out law".

Chief Arnold in January of 1999, implemented a helicopter program in Brea. This was to be a very aggressive program. Trend #1 Development of technology specific to law enforcement. Event #8 Cooperative partnerships to solve technological issues. It was to include narcotics surveillance, general patrol, rescue on some of the

nearby hillsides, a certain amount of fire protection and eventually a shared use concept with neighboring communities. Unfortunately for Chief Arnold, that is when the President had made a decision to slash social services across the board. The national debt had become so large that there was nothing else he could do in the short term. Within six months, the federal government had removed funds from state projects. The state had to balance its books and subsequently removed funds from cities and counties. Within the first year after implementation, the helicopter program it had to be shut down. This also dealt a large blow to the development of technology. Until social services could be restored, it was considered frivolous to spend funds on technology.

For the next few years budgets were really tight. It was a difficult time for Chief Arnold and other law enforcement officials across the nation. Most were faced with having to lay off many officers. They were understaffed. It was at this time that Chief Arnold rose to the occasion, and once again working through the California Peace Officers Association, brought media pressure to bear on the politicians. The resulting media blitz in May of 2002, brought Governor Tim Christian to champion the cause for the entire criminal justice system. Event #10 Major media focus on lack of progress in the criminal justice program. This really turned things around. Somehow politicians found money to develop technology to offset the lack of personnel in the criminal justice system. A California task force was put together to develop some type of consortium that would allow California law enforcement to take advantage of

technology. The current system, though now it was much leaner and more efficient, was in extreme need of this sort of conduit. The officers of the Brea Police Department were very proud that their chief had been a major player in bringing about the changes.

During the past three years, since the changes have been implemented Chief Arnold has been very active in state politics. He was just planning to make a run at the Governor's job when he had his heart attack and died. He will be missed by his family, his city, his department, and the entire law enforcement community.

SCENARIO THREE

COMMAND COLLEGE GRADUATION FOR CLASS 41

SPEECH BY

CHIEF LARRY WOESTNER

It has been ten years since I graduated from Command College in class 20. Many things have happened during the last decade. I remember after the old Soviet Union dissolved and the cold war ended, our national laboratories went to work with other technology developers in partnership with various law enforcement organizations, and created many technological advances specific to law enforcement through the Consortium for Crime Control and Public Safety Technology (C_3PST).

Because of my involvement on this issue while working on my Command College project, I was asked to participate on the steering committee.

Technological advances developed by this center have helped law enforcement through the hard times. Trend #1 Development of technology specific to law enforcement. Trend #8 Cooperative partnerships to solve technological issues. Manufacturers began to change their focus from the military to the civilian sector and targeted the law enforcement community as a viable market for advanced technology. Trend #4 Manufacturing focus change from military to civilian.

Because of this change in emphasis, and great work by the C_3PST, a whole series of non-lethal weapons were developed. California law enforcement, through the C_3PST, voiced a need for more non-lethal weapons. The national laboratories were tasked with creating these new weapons. One example of this non-lethal weapons technology was the development of the "Neuron Disrupter". They discovered that sending a microwave at a specific frequency they would cause a person to lose complete control of their muscles, which incapacitated them for several minutes. They also perfected the "Goo Gun". It could cover a person with a taffy-like substance that hardened quickly, and subsequently immobilized them. Several other weapons were developed such as the "Tennis Ball Gun" which fired tennis balls accurately at a speed of about one hundred miles per hour, and the "Zapper"

electronic darts which were wireless and could produce a charge of fifty thousand volts.

It was about this time in January of 1995 that the U.S. Supreme Court ruled it was cruel and unusual punishment for law enforcement officers to use lethal force. Event #8 Supreme Court rules use of lethal force unconstitutional. The court's opinion stated that with the available arsenal of non-lethal law enforcement weapons, it would be unconstitutional for law enforcement officers to intentionally take the life of another.

California law enforcement working through the C_3PST were informed that law enforcement needed to find a way to reduce the time officers were spending in court while at least maintaining the current level of convictions. C_3PST working with vendors on already available technology developed the police helmet cameras. They were so readily admissible in court as evidence, convictions became routine. Defense attorneys would first ask if they could see the video and then would routinely have their clients plead guilty for reduced sentences.

The economy started to decline and because of political maneuvering, no new prisons were built. In December of 1996 the prisons for the first time in history in the State of California exceeded their capacity. Event #3 State prison system exceeds capacity. Prisons started housing prisoners in tents in the prison yards. This came

at a bad time due to the severe down turn in the economy and the rapidly rising cost of housing prisoners. Trend #7 Cost of housing prisoners. Courts would no longer house the prisoners in tents.

California law enforcement tasked the C_3PST with developing a viable alternative to prison; a solution that would incorporate the need to maintain public safety with need to be sensitive to the prisoner's rights. The C_3PST came through again with the prisoner chip. Some of the more non-violent prisoners were allowed to serve their sentences at home. They had to agree to have a chip implanted in themselves under the skin. This was a non-removable chip that would remain implanted for the rest of the individual's life. Law enforcement, through the use of the global positioning system satellites, was able to monitor the location of each subject that had the implanted chip. If the subject left his residence he was put back in prison. This looked as if it were going to be the answer to the state prison overcrowding, until after the implementation of the "three strikes and you are out law". By February of 1997 it had become absolutely necessary to build a new prison. Event #5 Implementation of 3 strikes and you are out law. That is when the legislature, together with California Department of Corrections, reasoned that it was too expensive to continue to build prisons for the people who were going to be put in prison for life. Because of its earlier successes, C_3PST was asked to develop something that would eliminate the problem. All of their committees were asked to work together on this one. They decided to build a very large prison that they could

continue to add onto, in Death Valley, away from the general public. Many new and innovative techniques were built into the prison to reduce the number of guards necessary to operate it and prisoner safety was also enhanced. The C_3PST came through again.

In April of 1997, some of the 35th Street Gang an outspoken racist group advocating the use of force to create fear. The gang became increasingly violent. In April of 1998, they conducted the takeover of the Richard M. Nixon Library in Yorba Linda. Event #2 Major media coverage of an act of horrific gang violence. As you recall, they destroyed many valuable artifacts and the grave sites of Richard and Pat Nixon. They also sprayed the walls with paint leaving their "monikers" for all to see. They took thirty people as hostages, initially killing four, and then threatened to kill one hostage an hour until their demands were met. That was the first time the beetle, which had been created by the C_3PST in response to California law enforcement concerns regarding barricaded felons, was ever used. The beetle was the remote controlled miniaturized camera and tape recorder. It was still fairly large back then, about the size of your thumb. They covered it with a plastic beetle shell to disguise it. This was the result of technology that had been developed for the military and space programs being applied to law enforcement needs. Trend #4 Manufacturing focus change from military to civilian. It gave the Brea Police Department very detailed information about what was going on in the library. Due to the intelligence thus gathered, the Brea Police Department, in cooperation with the Orange County

Sheriff's Department SWAT team, were able to enter the library and secure it with no further injuries or deaths. Seven gang members were taken into custody. Trend #2 Regionalization of Resources. This event was televised on international television and carried by all the newspapers.

Occurring in September of 1998, was the tragedy in Brea, that involved the minibus for handicappped pe' ons. Rueben Hernandeze, the thirty nine year old convicted child molester, had been serving out the remainder of his sentence at his residence in Yorba Linda. He left his residence, which subsequently triggered the alarm because of the implanted chip that had earlier been placed into his arm. The Brea Police Department was notified, and within ten minutes, thanks to monitoring system developed by the C_3PST, he was located driving in Yorba Linda. He was in a minibus containing eight mentally handicapped children. He had killed the bus driver and was now proceeding at speeds reaching eighty miles per hour. The minibus was followed by two police units who were trying not to precipitate any further dangerous driving actions by Mr. Hernandeze. After driving for about fifteen minutes, a helicopter joined the pursuit and the police units dropped back, so as to be out of sight of the minibus. After an additional half hour, the police helicopter was joined by four additional television helicopters. While on national television the minibus failed to negotiate a turn and to everyone's horror the minibus tumbled down a seventy foot embankment in Carbon Canyon and burst into flames killing everyone onboard. Event #6 Major criminal event captures the public eye. As a result of this incident the

C_3PST had been tasked to develop some process for ending pursuits safely. They expanded on some work being done by TRW to develop a microwave that could shut down the central processing unit in the onboard computers in vehicles manufactured after 1985. A high priority was given to this project. As a result we now have the "Engine Killer" and high speed pursuits have become a thing of the past. Trend #8 Cooperative partnerships to solve technological issues.

Then just before Christmas, in December of 2001, the unemployment figures reached twenty million and the U.S. economy collapsed. Event #9 U.S. economy collapses. Law enforcement agencies across the country were devastated. It became necessary to lay off large numbers of officers and there was little or no money available to develop technology. Trend #6 Amount of money available for technology. That is when they voted for special law enforcement bonds, which provided funding for law enforcement to continue the important work being done by the C_3PST. There was hard work in developing and purchasing advanced technology to off-set to some degree the radical reduction in manpower. Most of you remember hearing, "We've got to learn how to do more with less." It became necessary to upgrade the level of technological literacy among law enforcement officers to make up for some of the layoffs. Trend #3 Level of technological literacy among law enforcement officers. In-house training became the standard, Officers would become proficient in the use of virtual reality for training, and supervisors began to supervise by remote consoles with footage from helmet cameras. Supervisors were able to tune in any officer at any

time. Fewer supervisors were needed. Computers were developed that would automatically type reports through voice recognition. This eliminated the need for many clerk typists and shortened the amount of time needed for an officer to write reports. All of this was possible due to the comprehensive efforts of the C_3PST.

In March of 2002 the economy was so bad it was necessary to slash all social services across the board. Event #7 Decision made to cut social services across the board. That was an anxious time for law enforcement officials because they all saw more cuts coming. Fortunately, the public's concern for public safety remained high and law enforcement was lucky that no major programs had to be cut. Trend #5 Public concern for public safety.

In July of 2002, came the media blitz about the lack of progress in the criminal justice program. Event #10 Major media focus on lack of progress in the criminal justice program. It seemed as if it was the number one topic on all the news shows for the rest of the summer. There were in-depth stories that ranged from everything the public would ever want to know about the correctional system to the duplication in the management of police departments for every city. The result of the intensive coverage was to make the system take a hard look at itself. Several law enforcement organizations got together to figure out ways that they could combine resources and work with technology developers to help provide solutions to make the system more accountable to the public it serves. Because of the standards developed by the C_3PST

many of the various systems used by law enforcement agencies throughout the state were easily integrated. Trend #2 Regionalization of resources.

That brings us up to the U.S. Supreme Court's latest case decision that came down in December of 2004. California vs. Windere caused the court to initiate language in its decision that the safety of the community should supersede the criminals right to privacy. Event #1 U.S. Supreme Court decision limiting the right of privacy. This, in effect, will create a major change in the way we do business. This will allow us to utilize technology to uncover and prosecute criminals when it is deemed that the safety of the community is at stake. Previously we have been in the position of not being able to violate the criminal's right of privacy. C_3PST through its academics committee had been using the Presley Center on campus at the University of California, Riverside to address the social-legal, and ethical issues relating to the use of technology by California law enforcement agencies. Because of the abundance of caution used in the development of technology by the C_3PST, and subsequent organizations that sprung up in other states in effect copying the structure of the C_3PST, the court cited in the majority opinion that significant precautions had been taken by law enforcement to minimize personal intrusion.

As you can see, the last ten years have been difficult, and there is no promise that the next ten years will be any easier. We have managed to get through this past decade by employing technology as our friend. This might have turned out much

differently if there had not been a C_3PST to rely on. Law enforcement will definitely be challenged during the next decade, and it will be up to people like you to meet that challenge. Good luck.

NGT ASSERTIONS

The NGT panel was a very interesting and informative group. Their backgrounds were extensive and varied. All have some stake in the outcome of the issue question and sub-issues. They represented their various perspectives very well. The panel proved to be quite articulate and provided a good deal of insight. The presentation and ensuing discussions were very enlightening. These are some of the more salient points.

★ There is a window of opportunity at the moment for law enforcement to be the recipient of some very sophisticated state of the art technology that has become available because of the end of the cold war.

★ The national laboratories have done extensive research and development for department of defense and NASA. Due to cutbacks in both budgets they are looking for another outlet. They would like to make law enforcement a beneficiary of the technology.

★ The law enforcement market is too fragmented. Each jurisdiction wants something a little different and then it is almost impossible to find any one person who is the actual decision maker. The Department of Defense has clearly visible decision makers. Law enforcement needs to make itself more attractive as a market.

★ There needs to be cooperation between law enforcement, the national laboratories, and the manufacturers in order to develop technology that is both useful and affordable.

★ Law enforcement must find a way to do an extensive needs assessment on an on-going basis. The needs should be identified and prioritized and then communicated.

★ Some group must take the initiative to coordinate these activities for law enforcement. Those that were most discussed were the National Institute of Justice, the California Peace Officer's Association, and the California Commission on Peace Officer Standards and Training.

Scenario Supplement

The three fictitious scenarios used in this project were located in Brea, California. The scenarios were to demonstrate how technology might be impacted by future trends and events.

Scenario number three was the selected scenario because it is most closely related to activity that is occurring in technology. Much of what was projected into the future in the way of technology and process appears to be well within the realm of possibility.

The use of this scenario will be the most beneficial in developing the appropriate strategy and transition management plan. It folds into the process by utilizing the concept of the C_3PST and demonstrates the benefit of such a consortium.

Strategic Planning

California law enforcement agencies require a strategic plan to address what methods they will use to identify and inform technology developers of their needs for the future. The rapid progression of technology has diminished the ability of law enforcement to remain current with the latest in technological developments. California law enforcement agencies are confronting reduced budgets. Most departments are struggling to avoid layoffs.

Since the end of the cold war and subsequent reductions in defense spending, national laboratories have been looking for a way to market their technological research and development.[14] Vendors, because of tight fiscal constraints they have been operating under and their desire to increase profits, would find it especially attractive to be in a position to market new state of the art products while cutting research and development costs. This environment creates an immediate opportunity for California law enforcement to benefit from emerging technologies.

A mission statement was created to establish the direction and purpose for the development of the strategies proposed in this paper. It was recognized that this would serve a purpose as it relates to this project, but it will be necessary to further refine the mission statement during the transition management phase of the selected strategy.

MISSION STATEMENT

The mission of the C_3PST will be to assist California law enforcement agencies to provide the most effective and efficient service to the public in a fiscally responsible manner. This will be done by identifying, developing and making appropriate technologies known to California law enforcement to enhance their ability to provide necessary services while working with limited financial resources.

SITUATIONAL ANALYSIS

A modified delphi process was conducted utilizing some of the panel members from the NGT. Those participating were Dr. James Farris, from the California State University at Fullerton, Lt. Woessner from the Westminster Police Department, Captain Christian, Sgt. Carlock, and Officer Leever from the Brea Police Department. Because of rapidly unfolding events near the conclusion of this project, Bureau Chiefs Holly Mitchum, and Ken Whitman from the California Commission on Peace Officer Standards and Training. Both bureau chiefs have been involved extensively in technology transfer issues for POST. Their participation in this modified delphi panel significantly enhances the relevance of this project because of their experience with technology transfer and training. Holly Mitchum was also consulted in the early stages of the conceptualization of the C_3PST. Their participation significantly enhances the relevance of this project because of their experience with technology transfer and training. They were tasked with identifying stakeholders and making

assumptions regarding the stakeholders' positions. Because of the large number of actual stakeholders, only a representative sampling of some of the more significant stakeholders was included. There is also an obvious increase in the numbers of possible snaildarters. The panel was again asked to identify only a small representative sampling of these snaildarters. They were asked, because of their broad experience working with agencies throughout the state, to provide their opinions of the current internal and external environment of California law enforcement, through the use of a "WOTS-UP" (Weaknesses, Opportunities, Threats, Strengths, Underlying, and Planning) analysis. The STEEP (Social, Technological, Economic, Environmental, and Political) methodology was applied.

The panel developed three strategies as a result of the process. Each of them was defined. Advantages and disadvantages to each of the strategies were discussed.

Environmental Analysis

Opportunities

SOCIAL:

Public safety is a major concern of the citizens of the State of California. This is evident in the legislation that is being passed, in the support from the voters by passing an additional sales tax to promote public safety, and in campaign literature. Public policy makers who desire to be identified as supporters of public safety will

create opportunities by initiating projects and allocating funds to enhance the public's safety concerns.

The 1993 Crime and Delinquency report issued by Dan Lungren, the Attorney General in the State of California, compared 1952 to 1993; the latest year with available statistics. It was noted that the violent crime rate had grown at more than twice the rate of the California Crime Index (CCI) and almost three times the rate of property crimes. In 1952 violent crimes represented 17% of the CCI and in 1993 it accounted for 31.4% of the index. This creates an opportunity because the public would be amenable to purchases of technology if it can be demonstrated to significantly increase public safety.

TECHNOLOGICAL:

Technological advances have been rapid and ongoing. Technology can be shown to be a force multiplier as discussed earlier in the introduction. It can reduce employee work hours spent in the station taking reports and identifying criminals. It can be shown to reduce liability and injuries to officers because of more effective means in reducing physical confrontations. Some examples of how this could help would be recording and printing of reports through voice recognition recording, the use of new robotics to limit safety risks when dealing with bombs, hostages, and barracaded felons. It could possibly reduce the time and costs associated with

training. It would also reduce employee work hours involved in case management, enhance case clearance statistics, and increase the number of convictions.

The end of the cold war and subsequent defense cutbacks have left the national laboratories with an abundance of completed research and development in areas where they now have a much smaller market. Vendors have products that are often obsolete before they can sell them and have fewer resources available to conduct research and development. There is an opportunity for California law enforcement to make itself an attractive market for this technology. This could be done by allowing the vendors to avail themselves of the existing research and development from the national laboratories through licenses, and then to develop products for law enforcement.

The military has advanced technologies available for transfer that can be transferred or modified for law enforcement applications. Examples are night vision equipment and conflict and shooting emulation software. There is also technology that could have dual use capabilities that would benefit both the military and California law enforcement.

ECONOMIC:

California law enforcement agencies are trying to maintain services while working with shrinking budgets. The state has withheld revenue from city and county

agencies because of its own financial problems. Some agencies will be hit hard as a result of the Orange County Fund recently declaring bankruptcy.

This is an opportunity for agencies to demonstrate that technology is cost effective. If appropriate technologies are properly applied it may prove to be a partial solution to some of the revenue problems being experienced by the various law enforcement agencies throughout California. Regionalization of technologies or shared technologies with the military and other public safety entities would also help to make development of new products more economically feasible.

ENVIRONMENTAL:

Many California law enforcement agencies have developed an aggressive public safety posture. Some agencies are involved in establishing community oriented policing programs. They are looking for ways to reduce employee work hours and to increase the public's perception of safety in their communities. This environment is well suited for appropriate applications of technology.

POLITICAL:

Most public policy makers were elected under campaigns that contained a strong public safety platform. They are interested in pursuing paths that will lead to

that end. Technology will significantly impact California's ability to provide quality service to the public. Appropriate technology can be cost effective.

Homeowners' associations and businesses have strong voices in most communities. It is anticipated that closer ties will be developed between these entities and agencies who have instituted community oriented policing policies. They will be supportive of useful technology.

THREATS:

SOCIAL:

The public is concerned about law enforcement developing too much of a technological advantage. It is felt that this could infringe on the public's right to due process and other constitutional rights, especially as they relate to issues regarding the right to privacy. Businesses want to see criminals arrested and incarcerated, but some have concerns the technology that would be used to catch criminals could also be used by agencies such as the IRS to audit the business community. Although much is paranoia, this fear still exists.

A wide variety of special interest groups such as the American Civil Liberties Union, National Rifle Association, National Association for the Advancement of Colored People, Police Associations, etc. will challenge applications of the technology. Significant questions and issues will be raised regarding the professional and ethical

use of technology. This could have repercussions involving serious civil liability, resulting in pivotal legislation being passed to regulate and restrict the use of technology.

Other groups will probably, for various reasons, challenge the need for the technology. They will argue the need for more officers on the street. The biggest threat of all is the misuse of technology by law enforcement officers. This could cause a significant backlash against law enforcement.

TECHNOLOGICAL:

The advancement of technology could drive a wedge between law enforcement and the community. There would be fewer officers and therefore less individual contact with the public, resulting in a more detached and distant relationship between law enforcement and the public it serves. This effort runs contrary to the community oriented policing models being advanced by many agencies.

Some officers are tired of keeping up with the dynamics of change experienced with technology. Keeping up with this rapidly changing field is not easy. Some agencies fail to manage change properly and this creates serious problems within their agencies.

There is fear because technology may eventually put some officers out of a job. They have already seen lay-offs due to a lack of revenue and some see technology as a threat moving in the same direction.

Many crimes are accomplished through the application of advanced technologies. Examples of this would be something called "salami slicing", where a criminal would transfer a small amount of money from a large number of other people's account into his own account. In doing so the criminal feels safe because he feels that the small amount won't be noticed. If law enforcement falls too far behind, it may never catch up.

ECONOMIC:

Government budgets have declined over the last 5 years. It is unknown how long this trend will continue. Many California law enforcement agencies have "right-sized" just about as far as they can. If budgets continue to fall at the current pace it will be necessary to look at layoffs and reductions in services and equipment. Some agencies have even had to tap into their reserve funds. This would be a difficult time to find available resources to promote technological advances.

The state has been going through its own budget problems. It is not in a strong position to help with funding. Funding for technological products will be

accomplished through some innovative new alternate funding sources or special taxes. If the state budget picture becomes more positive, it will become less of a problem.

Law enforcement agencies have few revenue sources available to fund promising new technologies. While there are some federal funds available, they are at a minimum.

Law enforcement is competing for limited funds with other very worthy entities such as education, social services, victims of violent crimes and others. Discretionary funds also suffer from fierce competition. All are worthy of consideration. In this arena it will be difficult for law enforcement agencies to obtain the necessary funds to purchase technology.

ENVIRONMENTAL:

California law enforcement agencies are among the most progressive in the nation. POST Bureau Chief Ken Whitman said that he has heard representatives from other states say many times that they wait for California to lead the way when it comes to advances in law enforcement and training.

Communities want to feel safe. Many equate safety with seeing more cops on the beat. They want to be able to pick up the phone, call an agency, and see an

officer in short order. California governments will have to look at cutting services. Purchase of new technology in this atmosphere will be difficult.

POLITICAL:

Most public policy makers are running on a strong public safety platform. Several are also running on a platform to reduce the size of government and on cutting government spending. Although not mutually exclusive, these areas may conflict, especially as they relate to obtaining funds for the purchase of technological products. This climate would make it difficult to form another institution to develop or procure technology for California law enforcement.

Organizational Analysis of California Law Enforcement

Strengths:

California law enforcement is in a dynamic state of transition. Community Oriented Policing is becoming popular. Officers are working more with community leaders, and there is a stronger tie between officers and the community they serve. There has been a strong trend in developing superior executives and first line supervisors through the Command College and Supervisory Leadership Institutes sponsored by POST. It is not business as usual, as many changes are occurring. It is an exciting and challenging time. California law enforcement is preparing to move into the twenty first century as leaders in the field of law enforcement.

Historically, California has been progressive in respect to new ideas. This has been demonstrated in many ways such as satellite training, Cal-ID, computer systems and communications equipment. California is looked upon by other states as a proving ground for new programs.

There is an opportunity for California to continue in its leadership role in the acquisition of state of the art technology by combining its desire to embrace technology with an equally strong commitment toward fiscal responsibility.

The need to enhance the delivery of services during financially lean times will cause law enforcement to look toward technology as a possible way to do more with less.

Weaknesses:

Public policy makers have been under a great deal of pressure from competing interests. As they strain to listen to each of these differing interests, it will be very difficult for law enforcement to make its point effectively.

There is no coordinated statewide needs analysis on technology development. Each jurisdiction has traditionally wanted to maintain its autonomy. Vendors have to deal with more than five hundred agencies, one at a time. This results in frustration for the vendors. Each jurisdiction makes independent decisions on technological

purchases based on its own limited information. Since in many areas standards have not been set, agencies have purchased various computer programs, radios, optical scan fingerprint systems, etc., that do not interface with other jurisdictions' equipment.

Law enforcement personnel may be leery of moving forward with technology. They will weigh what has worked for them in the past against unproven technologies with little or no track records.

It will be difficult to convince the public of the tangible benefits of technology to replace street officers. Because of the riots, gang violence, immigration issues, the homeless, and massive media attention given to violence, people have an increased concern for public safety.

STAKEHOLDER ANALYSIS

Stakeholders have a vested interest in the issue. The following stakeholders have been identified and assumptions were made concerning how they view the issue. "Snaildarter" is a term used to describe unanticipated stakeholders who can have a significant impact on the issue. Due to the large number of stakeholders that are related to this issue, it is impractical to list all of them. In the modified delphi panel's opinion, the following are a representative sampling of the major stakeholders. The following list is not inclusive of all stakeholders, however it does include the top thirteen, plus two snaildarters that the panel perceived to be the most significant.

1. Government Risk Managers (supportive)

    a. Concern for liability issues that relate to misuse of technology.

    b. Concern for employee safety issues arising from the new unproven technological products under very difficult circumstances.

2. Vendors (i.e., Motorola, Pacific Telesis, General Electric, etc.)(supportive)

    a. Desire to increase existing market to increase their profit.

    b. Desire to reduce expenses to increase their profit margins.

3. Technology Developers (supportive)

    a. Need to survive with shrinking military, formally their main outlet and now cutting back..

    b. Desire to explore new frontiers with technologies.

4. Law Enforcement Executives (supportive)

    a. Desire to provide best technology to subordinates.

    b. Concerned about cost effectiveness for their jurisdiction.

5. Public Policy Makers (supportive)

    a. Concern that technology will benefit constituents.

    b. Desire to control costs.

6. Private Security (supportive)

   a. Desire to share in technological advances.

   b. Desire to be involved in development discussions.

7. Employee Groups (mixed)

   a. Will champion technologies that increase safety.

   b. Will oppose technologies that eliminate jobs.

8. Chief Financial Officers (mixed)

   a. Will approve of cost saving measures.

   b. Will oppose non-cost effective technologies.

9. Federal agencies (supportive)

   a. Will want to benefit from the new technologies.

   b. Will want to benefit from cost savings.

10. Intelligence agencies (mixed)

   a. Will oppose dissemination of technologies for national security.

   b. Desire to network with other agencies.

11. Prosecutors/Courts (mixed)

   a. Will like increase in convictions.

b. Concern about privacy issues.

12. Department of Defense (mixed)

a. Will be supportive of cost effective dual use technology.

b. Will oppose if there is a war.

13. University of California Regents (supportive)

a. Will support due to potential revenue stream for programs.

b. Will support to promote stronger public relations for the university.

14. Large and small agencies (snaildarters)

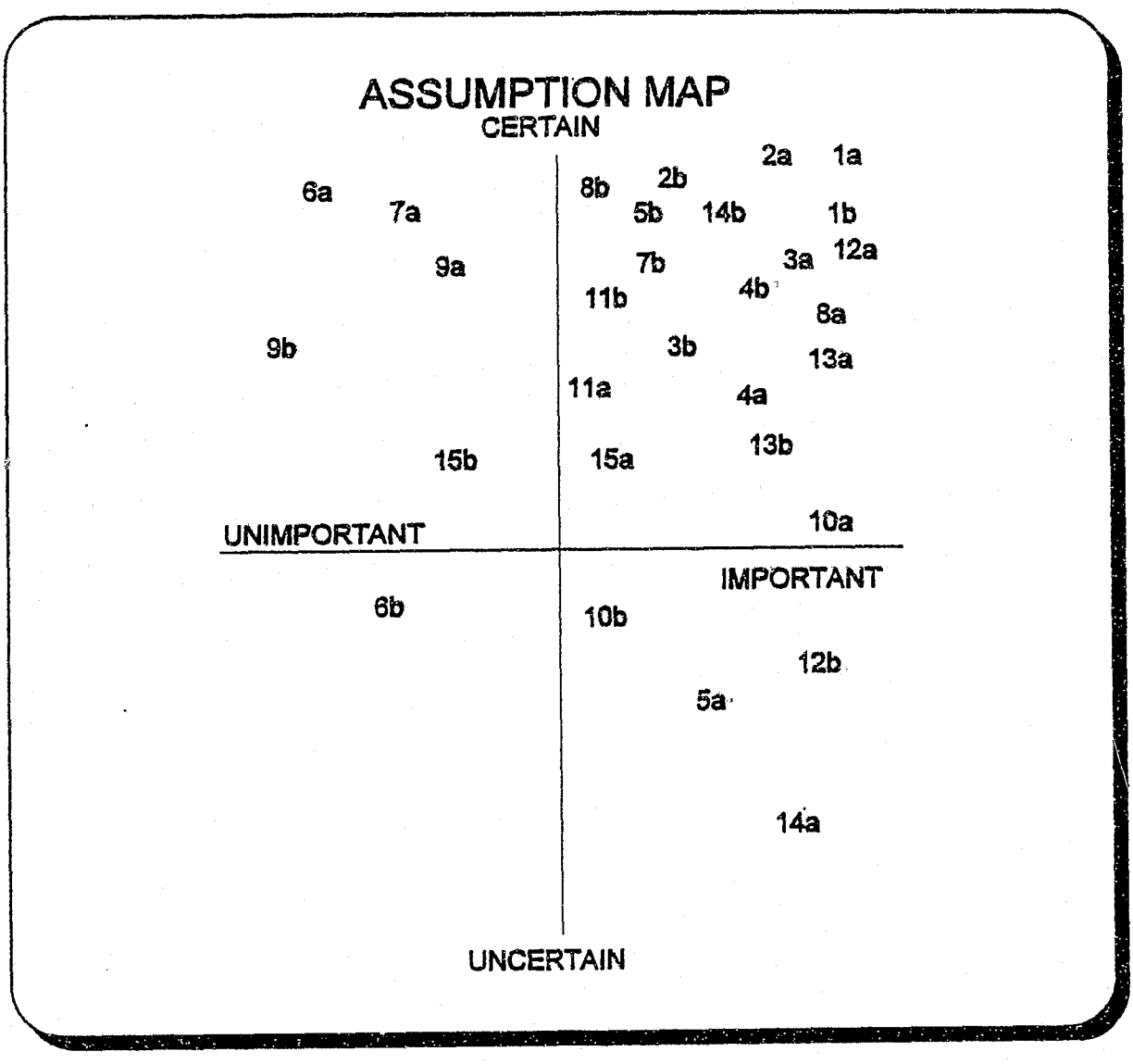
a. Big agencies may compete because of their greater buying power.

b. Small agencies want involvement to ensure needs are met.

15. Special Interest Groups (snaildarters)

a. Will be generally supportive on public safety issues.

b. Will differ on individual issues on constitutional basis.



[ILLUSTRATION #22]

ASSUMPTION MAPPING:

Stakeholder assumptions were mapped according to forecasts made regarding the certainty of the assumption and its importance to the issue.

Developing Alternative Strategies

Alternate strategies were developed by the modified delphi panel. They were asked to identify strategies that could be implemented that would help in achieving its stated mission. Additional criteria used to develop these strategies were to make technology transfer cost effective for law enforcement, efficient, and a benefit to those involved on all sides of the plan. Strategy #1 was felt to have the most promise, to a lesser degree, Strategy #2 was felt to have merit, and Strategy #3 was felt to be the least likely of the three to produce meaningful results.

STRATEGY #1

DEFINITION:

Susan Hackwood, PhD, Dean of the Bourns College of Engineering, University of California, Riverside, is in the process of developing a Consortium for Crime Control and Public Safety Technology (C_3PST). The college is in a unique position to broker the technology transfer because it can provide reliable and impartial expertise to:

1. Conduct an assessment of California law enforcement needs.
2. Identify and evaluate existing and emerging technologies to meet the needs of California law enforcement.
3. Assist in the transfer of existing technology and development of new technologies.

4. The ability to inform and educate as to the technological needs of California law enforcement agencies and resulting benefits from the application of existing and emerging technologies.
5. The ability to acquire funds to promote the project.
6. Through the Presley Center a research program in the Department of Sociology at UCR, it can provide a social-ecological and legal-ethical structure through which technological solutions can be evaluated.

Because of her knowledge, abilities, and significant involvement in this arena, it was the panel's opinion that Dean Hackwood would be an ideal program manager.

The program manager should create a transition management plan to implement the following structure:

Steering committee

This committee will serve as a policy making body to establish a workable, ongoing process for the successful transfer of technology to address the needs of California law enforcement. It would also be responsible for developing criteria and an actual selection criteria for members of the law enforcement working committee.

The committee should be made up of at least:

- (3) representatives from the California State Sheriffs Association.

  There should be a representative of small, medium, and large agencies from north, central, and southern California.

- (3) representatives from the California Police Chiefs Association.

  Should be representative of small, medium, and large agencies from north, central, and southern California.

- (1) representative from the California Commission on Peace Officer Standards and Training. (POST)

- (1) representative from the California Department of Justice. (D.O.J.)

- (1) representative from the Office of Criminal Justice Planning. (O.C.J.P.)

- (1) representative of Peace Officers Research Association of California (P.O.R.A.C.)

- (1) representative of the California Peace Officer's Association. (C.P.O.A.)

Law Enforcement (working committee)

This committee will work with the other committees to develop a comprehensive needs analysis, provide input for technology development, and feedback regarding standards and the usefulness of products.

Involving the following members of the California law enforcement community:

- Representatives from north, south and central California from small, medium and large agencies.
- Representatives of special units (ie, narcotics, vice, swat, bomb squads, training, etc.) would be encouraged.

Academic Unit (University of California, Bourns College of Engineering, Presley Center)

This committee will be asked to facilitate the orderly transfer of technology to California law enforcement. It will be asked to create standards, develop proposals, recommend appropriate technology or products, assess the socio-ecological and legal-ethical issues related to various technologies, and institute an efficient cost effective way of delivering the technology to the appropriate departments. It will be responsible for developing an evaluation instrument to measure the

effectiveness and efficiency of the process and technology produced. A report will be submitted to the steering committee for approval.

It will consist of the following entities:

- Representatives from the Bourns College of Engineering.
- Representatives from the Presley Center
- Representatives from the University of California as they are identified to have significant input toward the orderly and efficient transfer of technology to California law enforcement.

Legal (Independent legal counsel)

They will be asked to provide assistance as it relates to legal issues related to this project. This will relate to areas such as patents, product liability, licensing and other contractual matters.

National Laboratories (Advisory Committee)

This advisory committee will be tasked with evaluating emerging technologies for application to the expressed needs of California law enforcement and will also advise on research and development concerns.

Involving the following entities:

- National laboratories (invite all of the applicable federal laboratories to send a representative)

Vendors (Advisory Committee)

Will be tasked with cataloging technology that can be used to address the needs of California law enforcement.

Involving the following entities:

- Motorola
- Pacific Telesis
- Westinghouse
- TRW
- General Electric
- IBM
- Automobile Manufacturers
- Other vendors identified as being active in this arena by vendors advisory committee.

Advantages:

The following concepts would create a more attractive climate for the vendors and would provide law enforcement with better technology in a more efficient way.

- The center would represent California law enforcement.

- There should be one decision maker. (The C_3PST)
- The center should have its own budget.
- The center could secure bulk purchases and see that the acquired technologies are promptly distributed to agencies within the state.
- A commitment should be obtained from as many agencies as possible that purchases would be made through this center whenever practicable.

The modified delphi panel felt that whenever a concerted effort was made similar to those made to institute 911, Cal ID, and POST training by satellite, major accomplishments resulted. Individually, law enforcement agencies present a very perplexing and sometimes difficult market.

The panel felt that there was a significant need to focus the efforts of California law enforcement. This would provide major dividends.

Disadvantages:

This is a long term solution. California law enforcement agencies have been successful in the past working toward mutual goals. It would be an even more difficult task to build a consortium truly representative of the entire state and get a complete buy-in from all agencies. Funding will be difficult to obtain without

successes to point toward. The program manager will have to contend with many competing interests to make the center work.

Several obstacles will have to be overcome. These obstacles, include but are not limited to, legal issues, operational security, fear of technology, technological illiteracy, and lack of expertise in emerging technologies.

Stakeholder Assumptions:

Most stakeholders would be supportive of this approach. Most would be represented in the various committees. It will be necessary to continuously seek input from as many stakeholders as possible to maintain their support. Another key to retaining support would be good communications. There would still be individual concerns of special interest groups. These issues should be dealt with as soon as possible to help in building a quality relationship with them. The more high-tech solutions to combating crime, reducing workload, and increasing accuracy and access to information, the better able California law enforcement will be able to deliver its services. This strategy is cost effective, efficient, and would benefit all participants.

STRATEGY #2

Definition:

The modified delphi panel generated the second strategy built as a modified military model. This would require the formation of a new agency. This agency would locate personnel experienced in military procurement. It would be placed under the authority of the State Attorney General's Office. They would accept bids for research and development on specific products. They would evaluate the bids and make volume purchases. They would license the use of the products developed as a result of request for proposals (RFPs) to private security and other markets.

This plan requires centralized decision making and someone or some agency to act as an active ongoing watch dog to eliminate the $600 toilets, and $500 hammers that have sometimes embarrassed the military.

Advantages:

This strategy simulates the military model. This model has made the U.S. Armed Forces the best technologically equipped military in the world. It would be an easy adaptation for both the laboratories and vendors to make after many years of working with the military. There would be a ready work force made up of people who have either retired or otherwise discharged from the military. Components of the new agency would be readily identifiable to the participating departments. With the centralized decision-making and a responsible procurement policy, it would provide for more consistent standards in the resultant development of new technological products.

Disadvantages:

Not all retired or discharged military personnel have any special knowledge of law enforcement. There is no ongoing process set up in this strategy for a comprehensive needs assessment. The learning curve for non-law-enforcement personnel hired to staff this agency could prove to be prohibitive. There have been abuses of the military model and there is no reason to believe that it would not happen with this new agency. Funding for the new agency would be a difficult problem that would have to be overcome because there is no structure for seeking ideas or creating dialogue. It is filled with possibilities for misunderstandings because of the lack of input available to agencies utilizing the service. It is unlikely that the many jurisdictions and agencies within the state will be inclined to accept the decisions made by this new autonomous agency.

Stakeholder Assumptions:

Stakeholders would probably accept this strategy. The vendors and laboratories already work in this environment with the military. They are comfortable with it and would find the one decision maker aspect desirable. It is not as clear whether the users would be as accepting. Their cooperation is critical; if they do not cooperate the strategy is doomed. It is important they be on board and actively supportive before implementing this strategy. If supported by all stakeholders this could be cost effective, efficient, and benefit all involved.

STRATEGY #3

Definition:

The third strategy requires the state to provide matching funds for regionalized research and development units. The regions could represent counties, unique geographical areas, or regions as they have been set up by the California Peace Officers Association. This was seen as having merit because of the similar nature of many jurisdictions within certain geographical areas. This is not consistent on a statewide basis. Each research and development unit would provide advice and guidance in technical matters but would not become involved in purchasing. It would require some meaningful ongoing dialogue with the various agencies that it would serve within the region.

Advantages:

This strategy would have the least expensive start up cost of any of the strategies presented. It would provide for unique characteristics of each region. It would allow each jurisdiction to make their own decisions. It would, however, give the decision-makers the added benefit of relying on an independent, objective research and development team to give unbiased advice. It is the least complicated of the strategies and retains local control on decisions.

It would provide a cost savings in that it could keep various jurisdictions from purchasing obsolete equipment. It would be efficient because the team could help maintain some consistent standards at least on a regional basis.

Disadvantages:

Standards would be not be consistent statewide. There would be no purchasing power developed because of this strategy. It would not provide a strong market. The decision-making would remain fragmented. Without statewide coordination there would be a propensity to duplicate efforts and to develop similar technologies that would not interface well with each other. Long term, it would not present the savings that would be realized in the other strategies.

Stakeholder Assumptions:

Vendors and the federal laboratories would not actively oppose such a project, though it does not create a strong market and it is unlikely that they will be very interested in it. The individual jurisdictions would probably appreciate the ability to have the research and development unit to contact while making decisions. They would probably be supportive. It does meet with the criteria established.

IMPLEMENTATION PLAN

The plan that has the best likelihood of succeeding is Strategy #1. The first step would be to enlist the cooperation of Dean Hackwood, with the Bourns College of Engineering, University of California, Riverside. It seems appropriate for her to take the leadership role in this strategy. She is already involved statewide with various stakeholders regarding this very issue. It is important to formulate the center and the committees quickly to take advantage of this window of opportunity.

The steering committee must consider the needs of all law enforcement within the state. A statewide law enforcement needs analysis should be conducted. The needs of all law enforcement agencies must be heard to make this work. The new center would represent all interests. POST has taken the lead statewide in training. Their experience could be extremely valuable in implementing this strategy.

The program manager must see to it that the oversight committee considers the needs of all stakeholders. A balance must be struck between the autonomy of particular jurisdictions with the need of technology developers and vendors to have one decision maker to work with who can authorize purchases on a large scale.

Technology is progressing at an extremely rapid pace. Law enforcement agencies must progress or be left behind. To have their needs met, California law

enforcement agencies must be involved as a group, because as individual units they will not have the same voice and will not be nearly as effective. Decisions made now by a few will inevitably affect everyone who lives in or visits California in the years to come.

Transition Management

This section contains elements of the transition management plan essential for carrying out the selected strategy. It is necessary to work together to formulate a more attractive market for the vendors. If law enforcement is to make a difference in the 21st century, it must develop a process to express its needs to the technology developers. The smooth transfer of technology will require that the lead agency be futures-oriented and have the resources and commitment in place to be successful. The steering committee should set policies that will help the program manager administer the transfer and coordinate efforts throughout the state. It is essential that this be done to address as many technological needs as possible.

The primary ingredients essential in making this transition feasible are presently available. This metamorphosis will require an appropriate strategy, with a good transition management plan to make it successful.

A larger and more easily accessible market involving other entities would make a more attractive business proposition for the vendors involved. It would also cause a higher priority to be placed on federal technology transfer. This is described in the Federal Technology Transfer Act of 1986 and later detailed in a paper dated February 22, 1993 from President Clinton and Vice President Gore entitled "Technology for America's Economic Growth, A New Direction to Build Economic Strength." There is also a memorandum of understanding between the Defense Department and the Department of Justice providing for federal technology transfer. Transition management must be in place to effectively implant the strategic plan.

Identification of the Critical Mass

The critical mass are identified groups or individuals usually numbering between five and ten, who if supportive, will normally ensure success, and if negative, will normally ensure failure. The critical mass often contains stakeholders, but not all stakeholders are part of the critical mass. Because they will often not share the same viewpoints on the impacted issues, it will be necessary to change their commitment level to assure the success of the change. The following chart will characterize the critical mass. It will allege the current and desired levels of commitment by the critical mass as identified by the members of the delphi panel, which will be necessary to make the undertaking successful.

COMMITMENT CHART

Critical Mass	Block Change	Not Committed	Let it Happen	Help it Happen	Make it Happen
Susan Hackwood					X->O
University of California			X--------	--------->O	
Public Policy Makers		X--------	--------	--------->O	
Technology Developers			X--------	--------->O	
Vendors		X--------	--------	--------->O	
California D.O.J.			X--------	--------->O	
Professional Law Enforcement Organizations		X--------	--------	--------->O	
Law Enforcement Agencies			X--------	--------->O	
United States Attorney General			X--------	--------->O	
United States D.O.D.			X--------	--------->O	
POST				X->O	
X = PRESENT LEVEL OF COMMITMENT			O = DESIRED LEVEL OF COMMITMENT		
The information compiled on this chart was the result of a consensus of the modified delphi panel.					

(ILLUSTRATION #25)

The Commitment Chart lists groups considered to be part of the critical mass. Their current level of commitment is marked with an (X). The desired change necessary to make the change successful is marked with an (O). Where movement is necessary, intervention strategies must be developed.

Intervention Strategies

Susan Hackwood: Dean Hackwood is very much aware of the benefits of technology. She has already demonstrated a desire to make the C_3PST a reality. She has a solid grasp of the dynamics involved. She will have to work hard to develop the resources and contacts necessary to create this center. Her commitment level is definitely at the *make it happen* level and should remain there.

University of California: The University of California regents are presently at the *let it happen* level. They are interested in the process, but due to the vast number of important projects currently being handled at the University of California, they will have to be convinced of its benefit to the entire law enforcement community in California. The potential revenue that will be developed through the program and public relations benefits will also prove to be powerful ammunition that can be utilized to move the University of California into the *make it happen level*. Raymond L.

Orbach, Chancellor, University of California, Riverside is a strong proponent of the project. He should be approached to work with the regents into backing the C_3PST.

Public Policy Makers: The public policy makers are not sure of the benefits of technology transfer and have been operating at the *not committed* level. They generally evaluate one piece of technology at a time and vote. To make the strategy workable the public policy makers will have to move into the *help it happen* level. It will be necessary for them to provide funding for the C_3PST. It will be necessary to educate them regarding the benefits that this technology transfer can bring to California law enforcement. Their constituents continually pummel them with concerns over public safety. This is an arena that could provide enormous dividends. The argument must be made that it is not efficient for them to continue their current process of purchasing technology one piece at a time. The effectiveness of California law enforcement would be greatly enhanced by a progressive and well structured process. Law enforcement agency heads must meet with their local representatives in the legislature to solicit their support. Former California State Senator Bob Presley has been retained by the University of California, Riverside to work as a proponent for the C_3PST. He has a lot of credibility with the California Legislature and will be a key toward gaining the support of the legislature.

Technology Developers: This title would apply to several entities; for this project, emphasis is placed on the national laboratories. They are in the *let it happen*

category. They have been mandated by the federal legislature to transfer technology. This mandate is not exclusive to law enforcement. The laboratories would be very interested in providing the technology transfer to law enforcement but have generally been frustrated in their efforts. This is due to the fragmentation of the market and the lack of ability to locate decision makers. With the end of the cold war and down-sizing of the Department of Defense, they must develop other outlets for emerging technologies. Liaisons created with the interested laboratories would be a valuable resource. They would decide which technologies to apply to the needs articulated by the law enforcement community. They would also be a resource in describing how the transfer could take place. Technology developers should be moved into the *help it happen* category. Jared Dufresne has been working as a liaison to law enforcement for the Livermore Laboratory which is also connected with the University of California system. He understands the nexus between law enforcement, technology and the national laboratories and would be a key toward putting together the laboratories to work with the C_3PST.

Vendors: This title is meant to represent those technology providers that have an interest in selling their commodities to law enforcement. Although they may have an interest in providing products for law enforcement, this may not represent the majority of their sales. Vendors are in the *not committed* category. Liaisons should be developed with interested vendors and should be included in the vendor committee and regularly engaged in dialogue regarding technology transfer. They have the

knowledge of how to build the equipment and would clearly benefit financially and technologically from the research and development generated by the national laboratories. It would be preferable to deal with the C_3PST rather than seeking out a decision maker with each law enforcement jurisdiction. This process could be cloned in other states. Vendors should be moved into the *help it happen* category.

State of California Department of Justice: The California Department of Justice is clearly in the *let it happen* category. It has benefitted from many technological advances and has made large expenditures in an attempt to stay current in this rapidly evolving field. D.O.J. has been functioning mostly as an end user. It has been very helpful to other law enforcement agencies in the state by sharing its technology when appropriate but has not really been a leader in creating or developing new technologies. D.O.J. is in a unique position as it encompasses law enforcement, forensics, training, and prosecutorial personnel. This would provide an invaluable resource because of the many arenas within which the Department of Justice operates. Dan Lungren the Attorney General, Gregory Cowart, Director of the Division of Law Enforcement and Jim Majors, Director of the Hawkins Data Center for the Department of Justice have all endorsed the concept of C_3PST. The Department of Justice should move into the *help it happen* category. The program manager should ask the Attorney General to assign either Gregory Cowart or Jim Majors to be a representative from D.O.J. to serve on the steering committee.

Professional Law Enforcement Associations: The California Peace Officers Association (CPOA), California Police Chiefs Association (CPCA), Police Officer's Research Association of California (PORAC), California State Sheriff's Association(CSSA), Office of Criminal Justice Planning (OCJP), and other professional law enforcement agencies concerned with addressing the issue should be asked to send representatives to participate in the law enforcement working committee. Some are independent organizations not sponsored by the state. These organizations represent a wealth of knowledge and experience. Their assistance in developing a comprehensive needs analysis would be most valuable. Many have some experience with lobbies on behalf of law enforcement to the legislature. Most of these organizations have generally been in the *not committed* category. Clearly they need to be moved to the *help it happen* category. They would be an outstanding resource in the development of strong relations with the California legislature and the Governor. Cois Byrd, the former Sheriff of Riverside County has been retained by the University of California to work with C_3PST. He has the necessary background and resulting credibility that will help to sway these organizations. He has already received the endorsements of the California State Sheriff's Association, and the Western States Sheriff's Association. He is knowledgeable, energetic and genuinely believes in the project. He will be tasked with lobbying those professional organizations who have already endorsed the project and with actively seeking the endorsements from professional organizations not already onboard.

Law Enforcement Agencies: California law enforcement agencies as end users are generally operating in the *let it happen* category. They enjoy the benefits from technology but generally have not been involved in developing technology or technology transfer. Because of geographical boundaries, available budgets, the size of departments and demographics to name some of the variables, their needs and ability to affect change vary greatly. They have had to be content with purchasing technology off the shelf and adapting it to their individual needs. This process often leaves them with products that only partially address their needs and products that rapidly become obsolete. This is inefficient and not cost effective. The agencies should be divided into three categories: 1) Large agencies of 500+ sworn officers, 2) Mid-sized agencies of 50 to 499 sworn officers, and 3) Small agencies of less than 50 sworn officers. Each group should have representatives on the Steering Committee. California law enforcement agencies should move into the *help it happen* category. Cois Byrd again is in a position to obtain the necessary cooperation to cause this to happen. He will through his contacts with the professional organizations seek to inform and obtain endorsements from as many California law enforcement agencies as possible. This will be done by having those organizations who have endorsed the project enlisting the cooperation of their members.

United States Department of Justice: The United States Department of Justice has a great interest in technology transfer. Under its domain, there are the federal prosecutors, national forensic laboratories, the Federal Bureau of Investigation and

other agencies that would benefit from technology transfer. Their focus may be broader but they have significant influence with federal legislators to develop appropriate legislation that would help in the acquisition or funding of technology transfer. The U.S. Department of Justice has a legitimate interest in the project and should be moved from the *let it happen* category to the *help it happen* category. The program manager should ask the Attorney General, Janet Reno to provide a liaison to work with her to overcome problems that could occur at the federal level.

United States Department of Defense: The United States Department of Defense (DOD) is in the *let it happen* category now. It has been the prime user of the technology developed in the national laboratories and has benefitted greatly. Because of the end of the cold war, its resources have been drastically reduced. It has an interest in the survival of the national laboratories but also has a mandate to maintain national security. Although it is a legitimate concern, DOD can sometimes be too protective. It could close the flow of technology whenever it felt that the national security might be jeopardized. A warm relationship should be developed with DOD to keep them informed and supportive. Because of their position, it is best they operate in the *help it happen* category. The program manager should ask the Secretary of Defense, William Perry to provide a liaison to work with the Program Manager to assist in overcoming problem areas.

California Commission on Peace Officers Standards and Training (POST): This agency is in a unique position to influence technology transfer throughout the state. Because it has successfully standardized training throughout the state it has the respect of all the groups in the critical mass. It interacts with them frequently and has the confidence of the Governor, and other government agencies not listed as part of the critical mass. Two of their bureau chiefs, Holly Mitchum, and Ken Whitman, are currently working with the technology transfer issue. Mitchum has done some preliminary work with Dean Hackwood regarding the C_3PST.

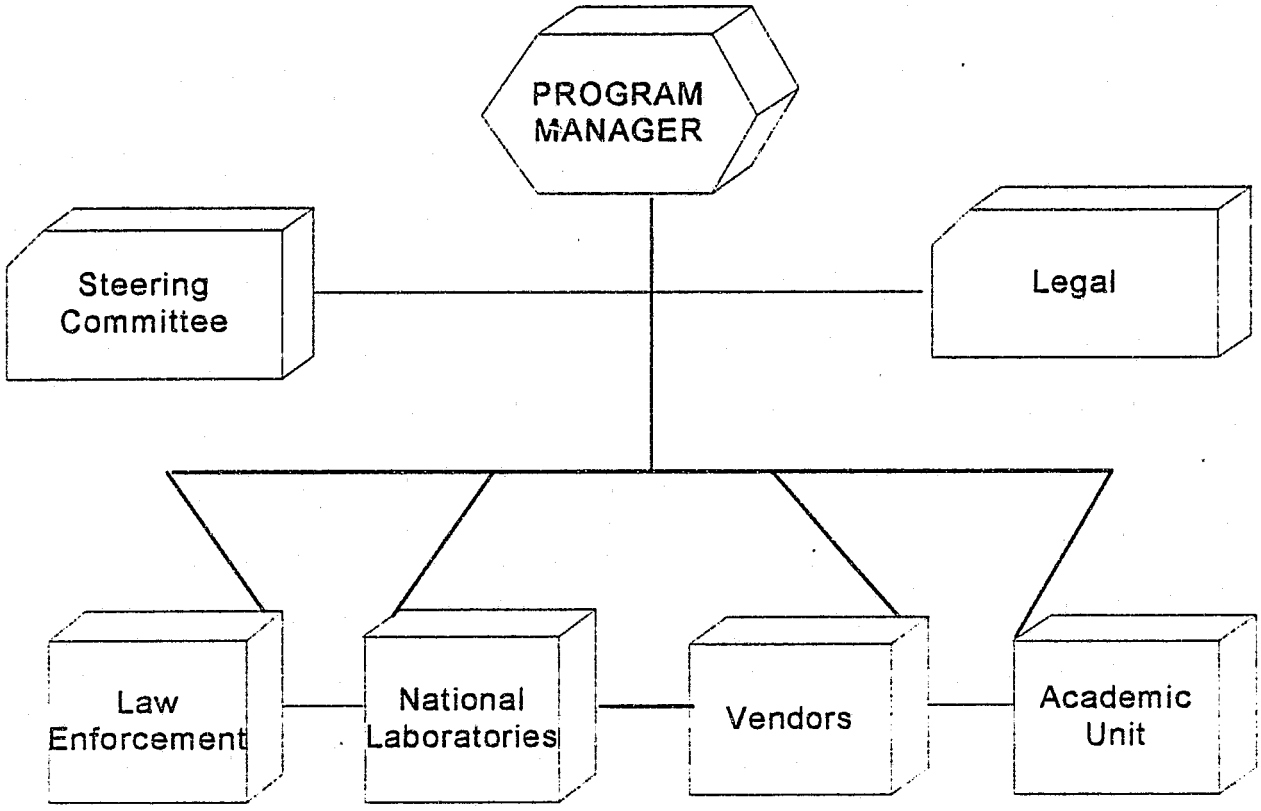
POST has had extensive experience in working with all of the California law enforcement agencies. It has an extensive background in working with the legislature. POST has developed the Command College, and as a result, has adopted a futures orientation that is vitally important to the success of this kind of project. The program manager should ask Dr. Norman Boehm, Executive Director of POST to assign Bureau Chief Holly Mitchum to work on the Steering Committee. POST is currently operating at the *make it happen* category. No movement is required in their commitment level.

Management Structure

The program manager, Dean Hackwood, must gain the respect of the law enforcement community, she must utilize effective personal skills and be empowered to speak for all of California law enforcement on the issue of technology transfer.

This strategy calls for a steering committee to be chaired by the program manager. The program manager should meet with California delegates to U.S. Congress and members of the California legislature on committees that would impact the project, provide information and ask for their support. The U.S. Attorney General, and the Secretary of Defense, should be contacted by the program manager and provided information. A request should be made, to the secretary, by the program manager to assign a representative from who would act as a liaison with her.

The program manager should select executive managers who are representatives of small, medium and large sized departments that have demonstrated an interest in technology transfer to sit on the steering committee. Consideration should be given to Command College graduates because of their futures orientation toward law enforcement. The Attorney General for the State of California and the listed professional law enforcement agencies should also be provided information and asked to provide a representative to the law enforcement committee. The program manager should meet with designated personnel from interested federal laboratories, provide information, and request personnel to be placed on a national laboratories advisory committee to provide a resource for the center. A request to vendors such as Westinghouse, Pac-Telesis, Motorola, General Electric, American automobile manufacturers, IBM and others, should be made, asking for executives to form another advisory committee as an additional resource.



MANAGEMENT STRUCTURE

ILLUSTRATION #24

Implementation Methods and Techniques

Society is dynamic and as it moves toward the future, change is inevitable. The challenge is to manage and benefit from change. Law enforcement should embrace technology as a friend.

The Bourns College of Engineering, University of California, Riverside, must take the initiative to make this project a reality. It will have to commit to allowing Dean Hackwood to assume the role as the program manager. Initial funds for the project have been obtained through her efforts and California State Senator Bob Presley. As the project progresses, more funds will have to be secured through the state and federal legislatures. Assistance in this area should be provided by other members of the critical mass.

Communication must be maintained with members of the critical mass to assure their ongoing cooperation with the project. An effective communication network should be organized. Information must flow freely. This will foster an atmosphere of trust between the various committees in the critical mass. The program manager must move rapidly to establish this communications link. This will remove the mystery from the conclusions reached and actions taken by the steering committee. It will also provide critical feedback as part of an effective evaluation process to assist the steering committee in keeping on track.

Equally urgent will be the task of selecting the members of the steering committee and meeting with them to establish clear goals. The goals should state the committee's desire to act as a conduit for technology transfer for the identified needs of California law enforcement agencies.

The next phase will be the creation of the advisory committees. It is recommended that members of these committees have a genuine personal interest in the transfer of technology to law enforcement. They should meet at least quarterly. Initially it may prove beneficial to meet more frequently.

The advisory committee from the federal laboratories will be tasked with identifying the most appropriate technologies to pursue. They must also assist, when appropriate, with recommendations on how vendors could benefit from the application of research and development that can be transferred.

The vendor advisory committee will provide recommendations on how to manufacture and provide the technology. It will assist in the development of requests for proposals and provide advice on the most cost-effective way to procure the identified technology.

The academic committee will conduct a survey and assess the needs of California law enforcement. They will set standards so that whenever a product is

endorsed by the C_3PST, it will interface with other products purchased and also endorsed by the center. The academic committee will be an objective member of the center. They understand the new technologies and will have the benefit of the needs analysis and ability to utilize the other committees as a resource to remain focused on the following areas of concern:

- prioritize needs articulated by law enforcement

- catalogue existing technologies

- match new and emerging technologies being developed in the national laboratories to law enforcement needs

- evaluate the cost effectiveness of the various products

- weigh the socio-legal-ethical of the technologies

The academic committee will meet with the federal laboratories' advisory committee and inform these technology developers of the needs identified. Once the appropriate technology is ascertained, the committee will work with the vendors, who will have been asked to create a catalogue of existing technologies and seek the most frugal and efficient way to provide appropriate technologies. Where appropriate,

research and development conducted by the national laboratories will be licensed to a vendor for development of certain products. The legal committee will be asked to examine and assist where appropriate with agreements, protection of patents, product liability and other issues that require their services. There will be an independent group of attorneys placed on retainer by the center. The academic committee will provide feedback to the program manager and to the steering committee. The program manager will exchange information with the committee and authorize endorsements of the products. The process should be regularly examined and refinements made to the structure to make it more efficient.

Responsibility Charting

Responsibility charting is an effective way to communicate to key members of the transition plan what their responsibility is in regards to specific acts or events. This will also assist each member of the team and clarify behaviors required from them to carry out important changes, tasks, actions or decisions. It reduces ambiguity, prevents wasted energy, and adverse emotional reactions between effected individuals or committees. Only one member is assigned the responsibility of any one task.

RESPONSIBILITY CHART

(RASI)

ACTORS / TASKS	PROGRAM MANAGER	ACADEMIC (COMM)	STEERING (COMM.)	NAT'L LABS (COMM)	VENDORS (COMM)	LAW ENF (COMM)	LEGAL (Comm)
Needs Assessment	I	I	I	I	I	R	-
Locate Appropriate Tech.	S	A	I	R	S	I	-
Communications with Critical Mass	S	R	S	S	S	S	S
Procurement	S	R	I	I	I	S	S
Funding	S	R	S	S	S	S	S
Evaluations	R	I	A	I	I	S	I
Policy	S	R	A	I	I	S	I

The information compiled on this chart was the result of a consensus of the modified delphi panel.

(ILLUSTRATION #25)

R = RESPONSIBILITY (NOT NECESSARILY AUTHORITY)
A = APPROVAL (RIGHT TO VOTE)
S = SUPPORT (PUT RESOURCES TOWARD)
I = INFORMED (TO BE CONSULTED BEFORE ACTION)
- = IRRELEVANT TO THIS ITEM

Transition Management Plan

The transition plan is an outline of fundamental tasks, with an identified time frame in which to perform them. The following outline delineates a series of events necessary to implement the change.

I. Planning

- A. Designate program manger (immediate)
- B. Announcement of project (immediate)
- C. Develop budget (immediate)
- D. Logistical issues (immediate)
- E. Establish committees (within 2 months)
  1. Steering Committee
  2. Academic Unit
  3. Law Enforcement (working committee)
  4. National Laboratories (advisory committee)
  5. Vendors (advisory committee)
  6. Legal (review and liability assessment)
- F. Conduct meetings, discuss mission, clarify goals (within 3 months)
- G. Develop communications network (within 4 months)
- H. Conduct a comprehensive needs assessment for California law enforcement (within 6 months)

II. Implementation (process to be repeated yearly)

A. Program manager will meet with the Steering Committee to develop policy for the center. (within 3 months)

B. Academic committee with assistance from the Law Enforcement Committee will prioritize and coordinate a comprehensive list of identified needs and provide them to the program manager. (within 8 months)

C. Program manager will meet with the Federal Laboratories Advisory Committee (within 10 months)

1. Explore appropriate technologies
2. Project into future other appropriate emerging technologies
3. Discuss methods and suitability of a transfer of research and development to prospective vendors

D. Program manager will meet with Vendors Advisory Committee (within 1 year)

1. Develop methods to develop and transmit request for proposals
2. Explore most cost-effective way to produce the required technology
3. Explore existing products for suitability and catalog them
4. Develop process to explore bids

E. Program manager will meet with Steering Committee (within 13 months)

1. Develop policy to compare bids with RFP
2. Develop policy to select the appropriate bid

F. Program manager to meet/communicate with Law Enforcement Committee (within 14 months)

1. Provide information regarding bids that have been accepted
2. Accept orders

G. Program manager will coordinate the purchasers with the accepted vendors (within 18 months)

1. To have payments made directly to vendor
2. To have products received directly by purchasers

III. Evaluations (ongoing)

A. Program manager (yearly)

1. Transition period (first year only)
2. Process
3. All Committees
4. Communications
5. Current position of the Critical Mass
6. Position of Program manager

B. Academic Committee

1. Needs assessment
2. Cost effectiveness
3. Process

4. Communications

5. Products provided

Problems and Obstacles

It must be assumed that there will be problems or obstacles, both during the transition period and after the project is implemented. Any problems that surface should be dealt with immediately. Good communications is a key to both prevention and early detection of problems. The Program manager has the responsibility to deal with problems swiftly and decisively.

One problem area that can be anticipated is in the dynamics of the critical mass. There are a variety of outside influences that can cause them to move from one commitment level to another. The program manager must remain tuned into their positions and take whatever appropriate actions are possible to move them back into the desired commitment level.

It is incredibly important that the program manager maintain the perspective that the process is in place to be a conduit for technology transfer and not a road block. The process should be beneficial for all the participants.

Section Summary

Change is inevitable. It must be managed. This transition plan focuses on the progression of events necessary to successfully implement the project. It gives structure to the process and sets reasonable time frames to accomplish clear goals. The use of systematic procedures and the selection of appropriate technologies will help to ensure success for the project. Law enforcement will at last receive the benefits of technology transfer. Technology developers will benefit from generation of a new market that will likely produce additional funding for other projects they are working on. Vendors will benefit from lower research and development costs, a single decision maker, and a larger market, and the conversion of some technologies to civilian use.

CONCLUSION

The subject matter for this project moved very rapidly while research was being conducted. One of the major strengths of the study was the utilization of not only experts from the law enforcement community, but also experts provided by the vendors, the national laboratories, and the academic community. This created a more complete perspective of the issues and added much to the validity of the study. It was obvious to the author that this is a very dynamic area, and abundantly clear that law enforcement should be involved in the process of technology transfer. They should be a proactive partner, driving the change and not being pulled along as a reactive and unwilling participant.

The conclusions reached regarding the issue and sub issues identified in this technical report are as follows:

Issue: "What methods will California law enforcement agencies use to identify and inform technology developers of their needs by the year 2004?"

Law enforcement agencies, individually and through their professional organizations, will have to consolidate their interests and develop one voice. The C_3PST is an independent, objective entity that can help them to accomplish this goal.

It can work with them to develop an on-going needs analysis process that will not only collect the information and help to prioritize data, but also by working with the national laboratories, the vendors, and law enforcement, to develop strategies for the best way to produce the appropriate technology for the identified need.

Currently, there are optical scanners being used for fingerprint identification. The type of unit selected by an agency, determines the database they will be using. They each operate using different technology. There were no standards when they were being developed. If there had been standards, California law enforcement would be working from one database. Standards should be set by weighing the best technology, the most cost effective method to produce, and how it addresses the identified needs with it. The C_3PST is in a position to set those standards by coordinating all of the competing interests.

The products that will be used by law enforcement will need to be ethically and legally suitable for their identified use. The Presley Center on the University of California campus is in a unique position to work with the C_3PST on these issues.

There are several research projects that can be undertaken by the C_3PST. Examples of these are:

- Visual Recognition, e.g., fingerprint, face prints, tire tread, shoe prints.

- Image Databases, e.g., forensic databases for automated matching and recognition
- Alternative Forms of Detention, e.g., improving home arrest technology to efficiently monitor criminals under detention
- Location Devices, e.g., practical devices for locating property or people over a large area.
- Damage Assessment Image Analysis, e.g. incorporated with a Geographical Information System and cellular communications for faster more precise, prioritized damage assessment
- Advanced Computer Imaging and Animation for Crime Scenes

California law enforcement agencies are not able to stay current with advanced technologies. They need a center such as this to act as an advocate and be a conduit to successfully address their identified and prioritized needs to the technology developers.

Sub-issue #1: "What process will be used to identify technological needs?"

The C_3PST appears to have the most promise for successfully developing a thorough needs analysis. The academic committee can develop comprehensive instruments to conduct the analysis. At least once a year agencies will be contacted to ascertain information as to their needs and priorities. An evaluation of how the process is working, and what can be done to improve it should also be conducted.

When the instruments are returned, the academic committee will work with the law enforcement committee to refine the information into a workable list.

It is important for all California law enforcement agencies to participate. This will enhance the process and make it truly reflective of the entire law enforcement community in California.

Sub issue #2: "How will communications obstacles be addressed?"

When C_3PST is fully operational it will act as a central processing unit for California law enforcement agencies. It will focus their energy into one centralized location. This will enhance the ability of agencies to find answers to questions.

The consortium will communicate with professional organizations and agencies on a regular basis through a newsletter and be accessible through the Internet.

Representatives selected for the steering and law enforcement committees will be working with agencies in their areas to develop on-going lines of communication. All involved in the consortium should understand their roles to include the task of developing these communications with their constituents. This can be done by phone, fax, computer, or in person. It is necessary that this be a conscious effort by all those involved.

If communications are to be fruitful, they will have to be considerate of differing perspectives. They will need to make themselves accessible to each other and address competing interests in an open and forthright manner.

Sub issue #3: "What can California law enforcement do to promote itself as an appealing market to private industry?"

The C_3PST will help law enforcement to become an appealing market to private industry. California law enforcement is a very fragmented market. It is very difficult to market technological products to law enforcement because of a lack of technical expertise and the lack of standards. The C_3PST will provide standards and endorsements for technological products. Vendors will be able to market their products more easily if they have the endorsement. Law enforcement will be able to regionalize, and in many cases go statewide with various databases such as fingerprints, voiceprints, etc., because of the standards set by the consortium. This should produce a synergistic result.

Research and development costs will be borne in many instances by the national laboratories and licensed to vendors. This will cut the costs normally incurred by vendors. The vendors, in many cases, may also be able to utilize much of the technology for civilian markets.

Dual use technologies can be a benefit to both the military and law enforcement. There are many applications such as conflict management software that may readily lend itself to dual use. This could be a significant cost saving measure for law enforcement agencies.

Recommendation

This study has focused its concerns based on the needs of California law enforcement. The focus may perhaps be too narrow. There may be considerable benefit to looking at the issue as part of a public safety approach, including fire departments, communications, and other public safety entities. There may also be a considerable benefit to making this more of a national effort.

It may become necessary to look at departments and communities to volunteer their participation in pilot projects to test various technologies. Depending on the project, this may pose some difficulties.

The consortium is involved in discussions to move the Riverside County forensic laboratory to a site on campus. They will be working to increase the capabilities of the laboratory and make it a state of the art facility. It has been well documented in the O.J. Simpson trial that it was necessary to send several items of evidence to the east coast because the laboratories on the west coast were not adequate. The C_3PST

is in an ideal position to coordinate a state of the art laboratory on campus that could coordinate forensic resources from the California Department of Justice and the Federal Bureau of Investigation to provide a significant resource to law enforcement agencies located in the west.

This is the tip of the iceberg. There will be many technological advances that will literally change the way law enforcement operates. Everything from the elimination of pursuits to the technological advances made with non-lethal weapons will produce dramatic changes for the future of law enforcement.

An additional benefit derived from utilizing the University of California to develop the consortium will be the training of a whole host of specialties focusing on law enforcement. There will be scientists, lawyers, judges, criminalists, teachers, police officers and others that will graduate with a much stronger background in police technology.

Other issues discussed during this study should also be considered for future research. They include:

1. Technology transfer from a national perspective.
2. Technology transfer from a public safety perspective.
3. Development of a pilot project to test the process.
4. The impact of the C_3PST on law enforcement and the court system.

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Appendix A

SILENT GENERATION OF TRENDS

1. Amount of money available for law enforcement to acquire advanced technology.
2. The public's fear of the "Big Brother" issue.
3. The degree of trust that the public has in government.
4. The change from our old way of procuring technology.
5. Development of technology related specifically to law enforcement.
6. The education level of law enforcement officers.
7. Morals and ethics in society.
8. Utilization of violence for problem resolution.
9. Aging of the population.
10. The immigration backlash.
11. Quality of political candidates.
12. The effects of technology as it relates to creating problems for law enforcement in a "Paperless Society".
13. The level of technology literacy of the law enforcement community.
14. The cost of housing prisoners.
15. Changes in the focus of technology developers. (Military vs. Civilian)
16. Privatization of traditional government roles.
17. The decentralization of political power.
18. The development of artificial intelligence.
19. Cooperative partnerships to solve technological issues.

20. Utilization of expertise transfer.

21. Technology development as it relates to creating a "Wireless Society".

22. Political focus on law enforcement technology.

23. Utilization of man/machine interface.

24. Technologically literate criminals.

25. Level of data stored.

26. Control of technology by large corporations.

27. Sophistication of white collar crime.

28. Utilization of interactive telecomputing.

29. Utilization of image transfer development.

30. Change in court decisions related to privacy issues.

31. Regionalization of resources.

32. Public pressure to do more with less.

33. Level of public concern for public safety.

34. Law enforcements reliance on outside contractors for development of technology.

35. Technology's impact on the apprehension of criminals.

36. Utilization of technology to resolve issues that evolve from cultural diversity.

37. The amount of change in the question of punishment vs. rehabilitation of prisoners.

Appendix B

SILENT GENERATION OF EVENTS

1. A major disaster. (Natural or Man-Made)
2. Implementation of the North American Free Trade Agreement.
3. Implementation of the 3 strikes and your out law.
4. China loses its Most Favored Nation status.
5. Decriminalization of Drugs.
6. A major terrorist incident in the United States.
7. A global trade war.
8. A major criminal event that captures the public eye (like Polly Klass).
9. Federal grants are made available to law enforcement for coordination of research and development for the development of technology for law enforcement.
10. A Supreme Court decision limiting privacy rights.
11. A law requiring the implantation of a personal identifier microchip to all citizens.
12. Contracting a private company to take over law enforcement functions for the city.
13. Criminal invades a law enforcement data base and erases/changes criminal records.
14. A law enacted that collapses the U.S. border.
15. A decision made to slash social services across the board due to a lack of funds to support the system.
16. An attempt made by a political figure to manipulate a law enforcement agency through the control of an "at will" chief of police.
17. A state law eliminating prosecution of misdemeanor cases.

18. A race war breaks out.

19. Another media event displaying police brutality on the level of the Rodney King incident occurs.

20. The killing of a police officer.

21. Major media coverage of an event of horrific gang violence.

22. A significant civil rights law suit requiring a city government to pay out in excess of 10 million dollars.

23. Reactivation of military contracts that have been cancelled due to global unrest.

24. Passage of a law that requires convicted criminals to receive specific sentences eliminating court/corrections/parole board discretion in the sentencing/release of prisoners.

25. The consolidation of all law enforcement agencies in Orange County, California.

26. Due to budget constraints all government grants to law enforcement are eliminated.

27. A major advance in special law enforcement computer/communications software.

28. United Nations decision to institute an international peace keeping posture even to the point of being involved in civil wars.

29. Legislation enacted providing additional monies to increase the number of police officers.

30. The development of a high tech command and control system for law enforcement.

31. A war.

32. Supreme Court rules that the use of lethal force by law enforcement is unconstitutional.

33. POST training is completely interactive.

34. The president requires police officers be recruited from the defense industry.

35. A device is developed that will decode all electronic transmissions.

36. California state treasury emptied by a criminal via electronic transfer.

37. Terrorists bypass security devices, infiltrate a police department and kill police officers.

38. Major incident at an industrial military contractor involving espionage.

39. State prison system exceeds capacity.

40. Radio/data/telephone communications scrambler developed for general use by the public for privacy.

41. Collapse of the U.S. economy.

42. Cold war renewed.

43. Major media focus on lack of progress in the criminal justice system.