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HOW WILL INTEROPERABILITY SERVE TO ACCOMMODATE COMPUTER INFORMATION SHARING FOR LAW ENFORCEMENT BY THE YEAR 2004?

TECHNICAL REPORT

BY

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COMMAND COLLEGE CLASS XVIII

PEACE OFFICERS STANDARDS AND TRAINING (POST)

SACRAMENTO, CALIFORNIA

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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).

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INTRODUCTION

PURPOSE OF THIS INDEPENDENT STUDY PROJECT

The purpose of this project is to explore the issue: ***How will interoperability serve to accommodate computer information sharing for law enforcement by the year 2004?***

STATEMENT OF THE PROBLEM

Government is undergoing significant changes as it enters the new century. Computer information sharing amongst municipalities, such as field interview contacts, known offenders, gang members and arrestees to name a few, is one of these significant changes that has received increased attention lately and needs to be clearly understood by law enforcement managers in the future. In addition, the quantum improvements in the technological arena and the introduction of interoperability, makes it imperative that law enforcement managers be ready to take an active role in its implementation and not be controlled by it. This is not something that can be ignored any longer.

Still, keeping up with new technology is not cheap and the recession has cut tax

dollars that once flowed into general funds. This impact has focused attention on capital expenditures within municipal governments. Law enforcement agencies are already being forced with doing more with less. "Doing more with less" will most likely be a key to the survival of American businesses in the decades ahead. There will be even fewer resources than there are now - less time, less money, fewer managers and supervisors to make decisions, less opportunity to make mistakes, less job security. Such a prospect, when one first faces it, appears extremely negative. Instead, as the author of "Workplace 2000" relates, the new millennium should be viewed as an exciting challenge for futuristic thinking managers and leaders.[1] Projects, such as multiagency task forces and local agency level computer networks, where sharing of resources were once taboo are now being reconsidered by municipal law enforcement.[2] Cost effective programs which save significant funds are more likely to be approved by existing and future managers and political establishments of these municipalities. The sharing of costs to accomplish automation for law enforcement agencies provides effective use of resources.[3] Even today, many law enforcement agencies in close geographic vicinities are linking together to share criminal data and some are investigating the possibilities of joint communication centers.

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1 Boyett and Conn; WORKPLACE 2000: The Revolution Reshaping American Business

2 Ritter, Ken "Council considering cost-cutting options." The Desert Sun

3 Metzger, John "An Economical Crime Stopper." California Peace Officer

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ABSTRACT

This research project provides a strategic plan to bring about computerized information sharing among law enforcement agencies by the year 2004. Explained in the study is the mode (INTEROPERABILITY) which will be used to take law enforcement from its present state of minimal exchange of information to the desired future state of open and transparent information exchange. Incorporated in the study is a review of trends and events which may have an impact on the implementation of interoperability technology. The study findings provide a strategic direction for managers to follow in order to accomplish computer information sharing for future law enforcement. The transition management model proposed suggests an official body structure headed by CLETS (California Law Enforcement Telecommunication System) a division of the DOJ (Department of Justice). Included in the study are literature scans, forecasts and analysis of trends and events, graphs, references, appendixes; references and bibliography.

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SECTION I

INTRODUCTION

ISSUE STATEMENT

Computers are everywhere and law enforcement is not immune to this present reality. Mass quantities of information captured by law enforcement on these computers but agency A cannot benefit from agency B's automated data and vice versa, primarily because they do not use the same type of computer and/or software. So the criminals slip through the cracks and all that priceless information that law enforcement so painfully took the time to capture currently is not shared and goes to waste.

> Police agencies in New York City and elsewhere have already installed computerized systems that allow instantaneous access to information on suspected criminals and stolen property. But much more could be done in this area if hard-pressed city governments could only come up with the money. In large part, the efficiency of crime prevention in the future depends on the use of technology to manage information.
>
> George Gallup Jr, FORECAST 2000, p. 79

Fortunately, there is a new technology on the horizon that will allow law enforcement to renew their information investment. This journal article is written to provide law enforcement managers a strategic direction as they discover the importance of this emerging technology issue: HOW WILL INTEROPERABILITY SERVE TO ACCOMMODATE COMPUTER INFORMATION SHARING FOR LAW ENFORCEMENT BY THE YEAR 2004?

The first step will be to provide managers with a usable definition of this new technology. Interoperability provides an easy to use pathway that allows different types of computers and programs to share data with a minimum impact on the people who need the information. In addition, this article will discuss the following sub-issues related to INTEROPERABILITY:

1) How will costs associated with interoperability be handled by participating agencies?

2) What steps will be necessary to handle the political considerations for the approval of such systems?

3) What will be the training needs for employees in order to facilitate shared information systems?

It is the intention of the author of this journal article to provide managers with a strategic direction for the future regarding this issue. Interoperability offers new and exciting opportunities in the positive enhancement of information sharing for law enforcement.

AVAILABLE INFORMATION

Since interoperability is such a new technological concept, the formalized information on the subject is limited. Its theoretical application has been referred to in such studies as the one put together by the consultant company KMPG Peat Marwick for the

Riverside County Sheriff's Department.[1] The purpose of the study was to develop a plan to allow the Sheriff's Department to conveniently share information throughout the County and within the agency itself. This organization has multiple computer platforms responsible for unique areas of the total departmental operations, such as jail operations, records management and computer aided dispatch. The main disadvantage is that none of them are compatible and each platform is on a different computer running specialized programs. Since money is not readily available to buy all new and throw away the old, a direction had to be found to salvage the systems and still make them communicate with one another, this is where interoperability shines.

Companies such as UNISYS and NETWORK SOLUTIONS have been working closely with law enforcement to create the means which will facilitate interoperability. Many approaches are being examined such as the "black box", an interpreter machine that does nothing but translate signals from one machine to another, to translator programs that reside on each of the host computers. Geographically prime locations are beginning to plan to use interoperability to share critical information. Contra Costa County is the lead location in the use of this technology promoting data integration using packet switching. Contra Costa County consists of agencies that use computer equipment from companies such as IBM, DEC, Prime and Data General. Their goal is

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1 KPMG Peat Marwick "Strategic Plan for Riverside County Law Enforcement Systems: A Public Safety Vision for the Decade of the 1990s."

to one day have all law enforcement agencies linked together on a single network and be able to retrieve key data regardless of the type of computer each agency utilizes. In this way, law enforcement agencies can automate at their own pace, within their own budgets and still be a part of a larger information community. Santa Clara County is implementing a form of interoperability through their live-identification system known as CONFIRM (COunty-wide Network Fingerprint Identification Remote Match). The lead organizations in this project are the Santa Clara County Sheriff, Sunnyvale Police Department, San Jose Police Department and the Department of Corrections.

IMPORTANCE OF ISSUE

There has to be something better than post office walls to share information on criminals or milk cartons to help locate missing children. These techniques may on occasion be noticed by the general populace but in reality, when was the last time a milk carton was brought to the briefing room? The most recent positive use of available technology for the purpose of information sharing has been the use of mass media, with such television programs as "America's Most Wanted". In essence, a group of private citizens have used television to bring the post office bulletin board to our living rooms. One of the fugitives profiled on the show was about to be released on a minor charge in another city when the jailer realized he had seen him on television. As it turned out, the individual was turned over to the proper authorities and made to pay for his crimes.

How often though do those same criminals slip through the fingers of law enforcement? Richard Allen Davis, (most of you readers may recognize this name), is the man who kidnapped and killed 12-year-old Polly Klaas. This same individual slipped through the hands of law enforcement twice, early on in Polly's disappearance. The very night of the kidnapping, October 1, 1993, Sonoma County sheriff's deputies responding to a trespass call came face to face with Davis. Petaluma police had sent a description out via teletype but this information was overlooked when the deputies ran a check on Davis and then sent him on his way. On October 19, 1993, the California Highway Patrol stopped and booked Davis for drunk driving. After doing a routine check for outstanding warrants, they let Davis go. Composite sketches of the kidnapper were posted in the station and the officers never put the two together.[2]

How can this happen? It comes down to one simple fact: the priceless data law enforcement agencies capture is for the most part only available within the single organization. The information entered in the Petaluma Police Department's databases was not available to the Sonoma County sheriff's deputies nor the California Highway Patrol officers that did not have the time to review the composite on the briefing room wall. There was not and is not any easy way to share information between multiple agencies. Data incompatibility may have indirectly attributed to the death of Polly Klaas while a technology like interoperability may have saved her.

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2 Beck, Melinda and Andrew Murr; "The Sad Case of Polly Klaas"; NEWSWEEK; December 13, 1993: p. 39

Katie Romanek is alive today thanks to the lessons learned from Polly Klaas' case. Information on the suspect and the girl was disseminated quickly and accurately to all the law enforcement agencies involved as well as key volunteer groups. Within 19 hours, the girl was found alive and the suspect apprehended.

These examples put great emphasis on the fact that future law enforcement managers need to not only know what technology has to offer them, but more important, the impact that these managers can have to shape the technology to their benefit.

SECTION II

FUTURE OF THE ISSUE

FORESEEABLE TRENDS

The past few years offer a window into the direction of the next ten years. The number one trend is the reduction in available revenues. The money does not flow as freely as it did in the past and as a result managers have to learn to work smarter and not harder. Huge government debts, reduction in jobs, increased government assistance programs, less tax monies, etc., all these will directly impact the ability of law enforcement to take advantage of new technology. On the other hand, the

inability to hire additional people results in the necessity to rely on automation to make personnel resources available more productive.

In an effort to avoid missing the technology boat, law enforcement is moving from the total control ideology to one of regionalization and the sharing of some resources. This trend is most likely to gain more popularity during the next decade. Even if the economy levels out, the preliminary results of regionalization attempts have produced remarkable findings. Saving money has proven to be only the tip of the iceberg, law enforcement managers are beginning to see that sharing information on items such as criminal history and activities are invaluable. In addition, the wealth of knowledge they share with each other since they will now work closer allows them to grow and learn faster. There is no need to reinvent the wheel when one can learn from fellow colleague's successes and failures.

The last trend to be discussed here is the fact that crime rates continue to rise. As jobs disappear burglaries, robberies and domestic violence situations become more common place. Law enforcement managers are faced with the fact that there are often more calls than they have people to respond to them. City leaders expect strong public safety yet do not supply the monetary support needed. With automation law enforcement has been able to keep their heads above water. Unfortunately, when society is faced with the breakdown of morals and values of our youth, the stakes for law enforcement get exponentially higher. One way for law enforcement to keep even

with criminals who are better armed and more financially sound is to make the best use of available technology. Yet without money to build up their individual systems, they must find ways to share what they have with others. The criminals use technology to keep track of the police by monitoring radio transmissions using high-end scanners. Interoperability can provide law enforcement with this much needed edge. As we progress into the Information Age, we can expect to find that crime will be fought at the keyboard as often as in the streets.[3]

CRITICAL EVENTS

Always new - always faster, technology is beating down the door to get our attention. Even today, the California Department of Motor Vehicles has begun to utilize the ability to encode personal information in a magnetic strip. This information can be read by specialized citations writers, such as those used in Ventura County, and save officers valuable time. Within the next ten years it is foreseen that federal computerized identification cards will be issued to all citizens. Law enforcement must prepare to proactively for this event.

The "BIG ONE", everyone agrees that it is coming but law enforcement is not prepared. Automated backup systems are in their infancy. A future benefit of

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3 Fellers, Linda; "Making the Computer work for you"; CALIFORNIA PEACE OFFICER; Summer 1991; p. 17

interoperability will be the ability to transfer and store critical data on a computer system miles away. In that way, if disaster strikes, precious information is not lost for eternity.

The use of interoperability is in its own right a key future event. This technological breakthrough for sharing information has the potential to positively alter the wave of trends affecting law enforcement. Still, it is critical that law enforcement take part in shaping the policies and procedures that will guide the implementation of interoperability. Law enforcement managers must educate themselves to what is out there to avoid the costs associated with backtracking.

A SCENARIO OF THE FUTURE

It's a typical day in May 2004 and a group of local law enforcement managers are meeting for lunch. During the meal, one of them remembers the days before the paperless police departments. Another is reminded of the old movie "Demolition Man" and they all laugh. Then thinking of how far they have truly come, makes them grateful that they were fortunate enough to have a say in the shaping of the law enforcement environment they have now.

Through mechanisms such as POST Command College, law enforcement managers learned to take control of their destinies. In the mid-1990s, law enforcement entered

the market for automation as a unified force and doors began to open, such as interoperability which provided low cost networking. Interoperability was one of the major milestones which set the mold for transparent cooperative information sharing. In the later portion of the century, regional law enforcement conglomerates helped to finance the first law enforcement communications satellite network. This network was the lifesaver that kept the information flowing when the 8.2 quake hit central California a few years ago literally destroying major sections of ground communication links.

One of the managers, then asks the question, "So what do we do now?" This triggers a lively conversation involving expanding the use of their voice recognition computers to provide the officers even more flexibility. "We should also look at updating the interoperability standards to include the transfer of holographic information", says another. Lunch continues and so does the never ending improvement of law enforcement automation.

SECTION III

STRATEGIC PLANNING

DEFINING DIRECTION

The goal that law enforcement must reach is the ability to share critical and potentially life saving information and still maintain the freedom to chose the computerized system they like best. Unless, IBM, DEC or Hewlett-Packard completely buys out all the competition, law enforcement agencies will still purchase the base system that meets the most of their internal needs. Still, they know they must communicate and share information with each other and with interoperability, they can.

MACRO MISSION STATEMENT

The mission of law enforcement is to provide an environment whereby its residents can live safe and productive lives by establishing an increased level of cooperation between law enforcement and the community and by utilizing available positive resources to their fullest potential.

MICRO MISSION STATEMENT

Through the establishment and fine tuning of cooperative information sharing through the use of interoperability, law enforcement can better use their limited resources by sharing information with one another.

OBSTACLES AND POSITIVE REINFORCEMENTS

The Rodney King case is a perfect example of how and why law enforcement managers must take a proactive role in the development and enhancement of information sharing. Potentially damaging messages were sent through the mobile data terminal network proving that today's leaders must provide clear training to the officers using the available and future technologies. Legal rights advocates will be breaking down the legal doors to produce legislation that may critically hinder the sharing of information using interoperability. Hackers will do their best to gain access to confidential information. One leak will trigger a political backlash that could set the whole system back years.

Continuing education is the foundation of success. Law enforcement managers realize that successful implementation of interoperability is not a nice thing to have, it is a necessity. The instinct to survive will strengthen the resolve of these managers as they prepare their agencies and personnel to due battle with the ever more sophisticated criminals. Regionalization will allow law enforcement to make the best better and eliminate unnecessary excess that could slow them down. The expanded use of automation through such mechanisms as interoperability will keep vital information at the officers fingertips. The officer of the future will know the power of automation and use it to benefit him. As illustrated in the recent movie, "Demolition

Man", the officer of 2032, on foot, had the ability to access the department's data bases instantly.[4]

KEY PLAYERS

The new, young officers of today, raised using a computer, will be a driving force in the growth of law enforcement automation. This is true for two reasons, there are less officers in the field so automation gives them an added productive edge and they like using the computer. Interoperability can provide the avenue for these officers to easily obtain the key information that will help them investigate and arrest the criminals.

Law enforcement managers will play a key role in the successful implementation of information sharing. It is their responsibility to make sure they meet the needs to the citizens and provide a growing work environment for their officers. As a result they continue to look for all available ways to get the most for their dollars. Properly established automated systems will assist them in reaching this goal.

Money is a driving force in a capitalistic society and vendors are always looking for new markets. The communications industry is no different and as the market share

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4 Sandel, Rod; "Information Is A Powerful Partner"; LAW ENFORCEMENT TECHNOLOGY; February 1994; p. 56

rises so will the automation joint ventures between these vendors and law enforcement.

Everyone wants and dreams of a safe place to live and work. Citizens already have used their voting power to make it clear that they support law enforcement. They only ask that their limited tax dollars are used as effectively as possible.

HOW TO GET THERE

Using a selection type process, a group of panel members selected for their knowledge of law enforcement and computer technology, identified three strategic alternatives that needed to be considered to facilitate cooperative information sharing using the interoperability technology. The alternatives identified were 1) Law Enforcement Only Approach, 2) High Visibility - Full Information Disclosure Approach, and 3) Consistent and Cooperative Information Disclosure Approach.

The Law Enforcement Only Approach was set aside by the panel due to its limited focus. Realistically, the law enforcement environment is only a user of technology, not a creator. Law enforcement must get involved with those in the automation and communication industries as well as state and federal legislators to promote information sharing.

The High Visibility-Full Information Disclosure Approach the panel regarded as highly dangerous and foolish with the potential for agency embarrassment and damaging liability issues. The O.J. Simpson case is a prime example of full information disclosure gone wild. Though information disclosure is a good thing, this particular approach tends to eliminate the individual's right to privacy. Resulting civil rights lawsuits could greatly interfere with the future of information sharing.

Alternative number three was selected as the best approach to accomplish implementation because it tends to bring together the best attributes of the two previous approaches without the negative aspects. Selection of this strategy was made because it works to match the needs of the everyone involved. This path also would bring together law enforcement, vendors, legislators and citizens groups in a concerted effort to bring about Interoperability, making the exchange of information on dissimilar computer environments a positive reality.

A well constructed implementation plan, in which key players take a role to help, provides a secure roadway to the future. The successful approach identified by panel members provided a properly thought out guide for implementation. Components of that plan consist of the following six points:

1) Defining the Key Issues
2) Recognizing the Major Obstacles

3) Establishing the Implementation Board

4) Identifying the Steps to Success

5) Developing a Reasonable Time Table

6) Evaluation System to Identify Weaknesses That Need Improvement

With these components in place comes the question; where do we start? The initial step should be for the Department of Justice to select a group to manage the implementation plan. This group needs to consist of members who are dynamic and have shown their individual abilities to overcome diversity and the ingenuity to meet stringent time tables. Initially a group not consisting of over six individuals should begin the process. The group that is appointed must have some relative power to move the implementation plan forward.

This group's first line of business would be to establish some policies and procedures. Policies, for example, on the use and implementation of automated crime reports. These will need to be looked at so they will conform to the requirements of 21st century law enforcement. Consideration of adding computers to the basic academy curriculum and hardening law enforcement communications by satellite systems are just a few of the other considerations.

Developing protocol through expanded lines of open communication among the law enforcement agencies becomes the next hurdle for the implementation group. A

newsletter providing law enforcement managers with direction as to what the legislatures are doing and which vendors are meeting the needs of law enforcement. The newsletter needs to reflect common standards for areas such as data entry so that agencies can move in a direction which will bring law enforcement together in the future.

The implementation group will develop a time line broken down into six month increments and spanning a five year period to guide them through the process and keep them on track. They will need to work closely with regulatory and fiscal managers at the state and federal levels to establish funding procedures and communications standards. In addition, a close partnership developed early on with the most interested vendors may provide necessary equipment and materials at a reduced cost.

SECTION IV

TRANSITION MANAGEMENT

THE NEXT STEP

The group is together and the time line is in place, so what now? The most difficult period in any change, good or bad, is the time of transition. Managers have often

described transition as chaos and if this move to information sharing using interoperability is to be successful, then law enforcement leaders must learn chaos management.

Transition, at its best, is a time of turmoil. Consider the scenario with the relaxed group of law enforcement managers reminiscing about how good information sharing is and the positive impact it's had on their departments. One must realize the battles they had to fight and win to get to that point. The first challenge is to let people know what you are trying to accomplish. This requires a great deal of leg work and selling the product to the various law enforcement related groups. The first target are those groups that will respond positively and provide that vital support needed to survive when the chaos begins. The implementation group will begin publishing informational articles for the law enforcement managers. They will schedule speaking engagements at technical conferences, law enforcement seminars and citizens for better public safety meetings.

When the "comfortable" groups realize that they have been placed in transition, challenge two begins. The implementation group must prepare contingencies and alternative approaches to compensate for the inevitable roadblocks. Roadblocks will take the form of managers that swear never to touch a computer and the criminals that do not want law enforcement to do their job better. These groups will drag out the heavy artillery from claims of civil rights violations to sabotage. The most

successful way to get around these groups is to start small and build a strong foundation. Private industry, always hungry for a new market, will be a powerful ally. In time, the combination of a solid foundation of successes backed by the potential earning power will overcome the status quo.

One of the most lethal entities in any transition is boredom and dissatisfaction among the very people in the implementation group. Challenge three of the time line is to make sure it includes areas of excitement and encouragement. It is important to make sure that each step of the time line is broken down into groups of small steps and at the end of these groups a reward type system is incorporated. The group members must continue to grow in their education and personal well being in order not to be so overwhelmed by the project they are trying to accomplish.

Challenge four is proper documentation of each level in the implementation plan. This serves a dual purpose: 1) it provides information to those wanting to learn more about the transition taking place and 2) provides historical records for the group. It is conceivable that a project of this magnitude will take many years to reach its end goal. The word "interoperability" does not even exist in most dictionaries yet, most vendors are still unsure how to incorporate it and the law enforcement community that will benefit by it is still learning how to use a personal computer. Documentation will provide continuity as implementation proceeds.

Challenge five is making the transition stick and to realize that even when the initial goal is reached, the transition is not over. The managers in the earlier scenario were aware of this as they discussed how they could improve the interoperability standards. Contingencies must be clearly outlined to provide for continued improvement and growth. Complacency must be avoided to keep ahead of roadblocks that wish to undermine progress. This will be true of information sharing using interoperability if the law enforcement managers who reap it benefits do not continue to make it better.

SECTION V

CONCLUSION AND RECOMMENDATIONS

THE STEP BEYOND

The world outside is changing, it is moving from an industrial society to an information society, and law enforcement must keep up with it. The introduction of automation to law enforcement has provided them with a means to capture data on top of data. The next logical step is to share the data so it does some good. The use of interoperability allows for a less expensive, easy to use way of accomplishing this task.

HANDLING COSTS

Even with the ever dropping price of computers, automation implementing correctly can cost a great deal of money. Joint Power Authorities (JPAs) will form as smaller agencies pool their resources for the common goal. Vendors will provide incentive programs and law enforcement lobbyists will push for state and federal funding.

POLITICAL CONSIDERATIONS

A major contributor to the transformation will be the chief of police or sheriff. Their background in computer development and the awareness of what a major impact this will have on an organization will set the stage for the success or failure of the project.[5]

Education is the key to overcome and steer political considerations towards the positive end. Law enforcement, the public and the criminal justice system must be reminded again and again about the benefits they will receive as a result of information sharing. The implementation group must also keep up to speed with the ever changing levels of technology which will impact the direction of interoperability.

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5 Carrasco, Robert R.; "Technology for the management of information"; CALIFORNIA PEACE OFFICER; Summer 1991; p. 21

TRAINING NEEDS

The officers in the field are going to be the main benefactors as information sharing reaches its true potential. They are also the ones that can cause the greatest damage to its end use. Officers are taught the right and wrong ways to handle their service weapon in basic academy training. Automation is now the newest tool in the field and therefor computer literacy and accurate information capturing must also be taught. If training is not provided to ensure the entry of concise and complete information, then the result will be unusable, error laden data or "Garbage In - Garbage Out". This cannot be tolerated in an organization that relies so heavily on accurate information. Policies and procedures will have to be drafted to guide the employees on their role in the success of this system.

ISSUE QUESTION

Interoperability will serve to accommodate computer information sharing for law enforcement by the year 2004 by allowing this information exchange to be as effective and comprehensive as possible. Law enforcement agencies are realistically never all going to use the same computers and the same programs, with interoperability that do not have to and can still reap the benefits of sharing each other's information.

RECOMMENDED STUDIES

Future studies that will enhance the road to interoperability as it pertains to information sharing in law enforcement include, but not limited to, the following: 1) what will be the role of automation ten years from now; 2) preparing course outlines for computer literacy training from the academy and beyond; 3) how will privatization impact information sharing of confidential data in the next ten years. The topics of study are only limited by one's own imagination, it is time to start thinking beyond the dots.

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IMPORTANCE OF THE PROBLEM

A dispatcher has just received a 911 call reporting the kidnapping of a child, the officer is there in minutes getting a description and within the first hour the information is on the shared information network ready and available to all law enforcement personnel. If this had truly been the case in October of 1992, Polly Klaas may have been found alive. Twice the suspect slipped through the hands of law enforcement because today's police managers had taken a passive attitude on the importance of automation and the sharing of information. Had the technology of interoperability been in place, Polly's life may have been saved.

During the last five years there have been increased incidents whereby law enforcement agencies have discussed sharing information on databases and costs associated with the implementation of automation.[4] Discussions only began in the late 1980's as a result of county agencies' attempts to charge municipal agencies for access to the California Law Enforcement Telecommunications System (CLETS).

CLETS cost sharing was a direct result of the State of California budget deficits which made departments within the state more accountable for their budgets. County governments feeling the pinch from the state, estimated to be in excess of 50 million

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[4] Garza, Mariel "Police agencies join forces to cut costs." The Press Enterprise

dollars annually, passed on those costs to municipal city governments. It was these costs and incidents such as that of Polly Klaas that brought this author's attention to the issue.

For example, in November of 1988, within Riverside County the issue of paying $17,000,000.00 for a new facility and enhanced CLETS system came to the attention of city managers and police chiefs alike. Questions began to be asked about the logic of paying additional city funds in support of a county system that did not meet the needs of local law enforcement. This had not been the question in the past, because there were no costs to cities associated with using the county networked system. Now that the county was asking cities to pay a proportionate amount for the system, it brought new attention to that system's ability of providing for the future needs of municipal law enforcement in Riverside County.

To answer questions regarding the Riverside County direction, a meeting attended by city managers, chiefs of police and computer specialists from every agency was convened in November of 1988. This resulted in a three year RFI (request for information) study by Peat Marwick of current, existing, and future needs of law enforcement within Riverside County to the year 2000.[5] It is information gathered from that study and the implementation of shared computer systems by two separate

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[5] KPMG Peat Marwick "Strategic Plan for Riverside County Law Enforcement Systems: A Public Safety Vision for the Decade of the 1990s."

entities within the county that really established a question regarding law enforcement looking for ways to share information in the future.

Research provided in the Peat Marwick study led to a term called "interoperability". The report indicated that interoperability will serve to meet the needs of law enforcement for sharing information amongst dissimilar computer systems in the future. Interoperability is simply the ability to provide user interaction between computer databases different from one another as though no differences existed. An example, in crude form, of interoperability in early stages of development is located in Contra Costa County. It is their goal to successfully link 18 dissimilar computer systems into a seamless, smooth flowing information data network. The Contra Costa system chose to use switching networks installed in two separate locations. These locations, known as hubs, are linked to each other through 56K lines and provide system redundancy in the event of a disaster. The Contra Costa County system is considered to be the first attempt at interoperability in the country.

Information technology on a shared basis is used to "informate" whole agencies. The meaning of the new term is clear enough; agency wide telecommunications and computer access to a common data base generate an unprecedented flow of information among people who need it.[6]

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[6] Enrst & Young; The Landmark MIT Study: Management in the 1990's

Therefore, this project will evaluate the issue: How will interoperability serve to accommodate computer information sharing for law enforcement by the year 2004?

SETTING OF THE PROBLEM

This Independent Study Project is designed to assist law enforcement managers serving communities located within the State of California to manage the issue of interoperability and its impact on computer information sharing. However, portions of this study may be adaptable to other law enforcement communities located in other states and countries.

RESEARCH ANALYSIS

Throughout time great minds have brought us new and better ways to communicate information from the first drum messages to the fax machine. The path to the twenty-first century will be littered with invention after invention, developed so fast that one makes the other obsolete not long after its creation. Laptop computers, hand held facsimile machines, satellite link ups, video telecommunications, artificial intelligence, and the list goes on, will become the gateways to cooperative law enforcement information sharing.

The information super highway is right around the corner and being the next big

financial marketplace, this new technology will force the merger of television, telecommunications, computers, consumer electronics, publishing and information services into a single interactive information industry.[7] The new technologies, such as expanded use of fiber optic cable, in which the twenty-first century will come to heavily depend upon will encourage the growth and consolidation of the international community. New communications technology will dissolve distances by linking individuals electronically and create "virtual communities".[8]

> "An organizational culture resistant to these changes will not only make poor use of new technology, it will doom its end-use applications to mediocrity, if not out-right failure"[9]

The law enforcement community cannot hide forever from the realities of the outside world. It used to be that a law enforcement agency serving its jurisdiction was an island to itself. Law enforcement agencies have jurisdictional boundaries, criminals do not. By the implementation of cooperative law enforcement information systems through the use of interoperability and taking advantage of new technologies, law

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7 Elmer-Dewitt, Philip "Take a Trip into the Future on the Electronic Superhighway." TIME

8 Stableford and Lanford; THE THIRD MILLENNIUM: A History of the World: AD 2000-3000

9 Dunchack, Jon "The Information Highway: A Road Map for Local Government" Western City, May 1994

enforcement can expand its horizons by learning to work together and also share the benefits associated with such technology.

The law enforcement managers now and in the future must take an active role in the formation of policies and procedures that will control the manner in which interoperability will impact their organizations and assist in its direction. To begin in this direction, understanding and defining the steps they must take to reach the desired future of interoperability; the following section describes the issue and sub-issue considerations through future forecasts and analysis.

SECTION II

FUTURES FORECASTING & ANALYSIS

ISSUE STATEMENT

There are three stages used in this section to formulate conclusions on forecasting the future. These stages are based on futures forecasting methodology which uses ***literature scanning, consultation with authorities*** on the subject, and ***forecasts of meaningful trends and possible events*** that could impact the issue.

The issue which this project explores is: ***How will interoperability serve to accommodate computer information sharing for law enforcement by the year 2004?*** The pivotal expressions of the statement are defined as:

Interoperability-Computer Information Sharing: The sharing of information through the cooperative efforts of law enforcement agencies utilizing the interoperability technology. This includes the associate costs along with the development of future systems for the purpose of enhancing law enforcement activities to the year 2004.

Law Enforcement Agencies: Those agencies which provide public safety services

in an environment which has surrounding municipalities serving a regional area. Criminals have no boundaries thus agencies in the same geographic area are frequented by the same criminals.

SUB-ISSUES

Sub-issues which have a repercussion on the general issue are based from the futures wheel and literature scanning.

FUTURES WHEEL

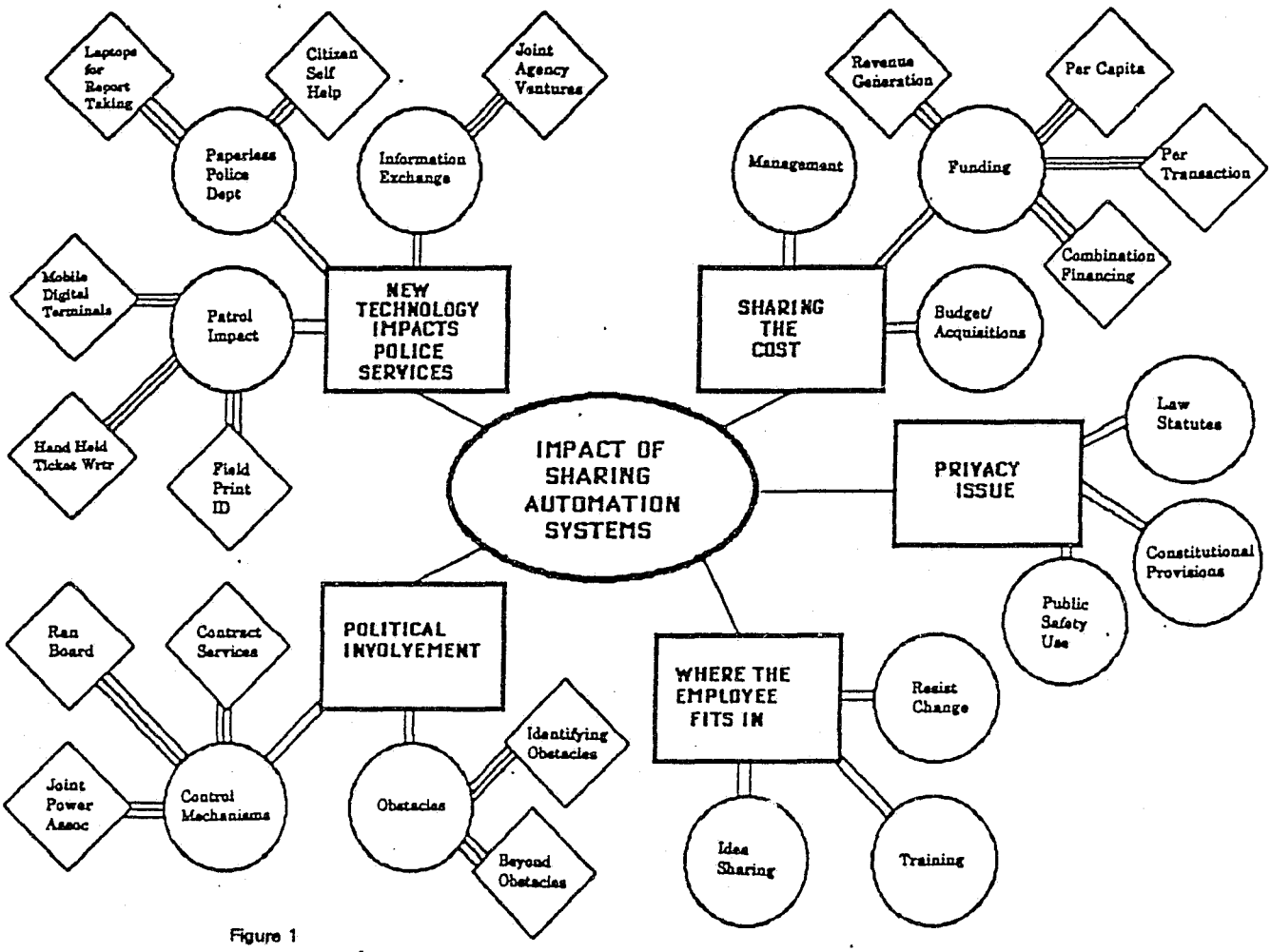

Figure 1

This Futures Wheel was developed by consultation with the RCLEA (Riverside County Law Enforcement Administrators) technical advisory group on automation. This is a group of 12 technilogical advisors from municipal and county law enforcement agencies providing future direction to law enforcement in Riverside County.

Sub-Issues

* How will agencies handle the costs associated with interoperability for participating agencies?
* How will the interoperability impact the delivery of police services?
* What steps will be necessary to handle the political considerations for the approval of such systems?
* How will privacy issues be handled?
* What will be the training needs for employees in order to facilitate shared information systems?

These sub-issues were borne out as important by information collected and articulated in this section.

Technological advances present us with the opportunity to extend our brain power. The use of computers, electronic terminals, digital communication networks, microprocessors, etc., provide a means to make us all smarter at our jobs, allowing us to obtain more facts quickly, and assemble information at once, which helps us

come to useful conclusions. This provides for higher productivity and lower costs which assists to impact questionable manner of how the nation's economy has been managed. The effects will lead to more efficient use of resources and higher returns on investments and thus will stimulate free enterprise.

Computers are taking an expanding roll of what we are doing today and in the future. In 1983, Romo quoted, the president of General Motors who said, "that by the end of the century ninety percent of General Motors production would be under computer direction".[10]

Just as in the case with manufacturing, whereby an increased production and efficiency is realized, it appears that all segments of our society are moving in the direction of increased information. Public safety is among these segments.

> "The increased efficiency that advanced technology will bring to government will also benefit the public in terms other than dollars and cents. For instance, as law enforcement services are improved through computerization, one result may well be safer communities in the future. In particular, such public services as police and fire departments will benefit from streamlined procedures. In emergency situations, cutting the time needed to answer a call for help can mean the difference between life and death. Police, fire departments, and emergency teams will increasingly use computerized methods to cut response time and deploy necessary equipment."
>
> George Gallup, Jr. FORECAST 2000 p. 79

[10] Simon, Ramo; WHAT'S WRONG WITH OUR TECHNOLOGY SOCIETY - AND HOW TO FIX IT; (1983)

In a poll of 1,346 national opinion leaders conducted by George Gallup Jr. in 1984, it was interesting to see what the perceived future would be like by the year 2000. One question asked of these opinion leaders was: ***What do you regard as the five most serious problems facing the United States today?***

They answered:

1	-	Threat of Nuclear War	65%
2	**-**	**Crime / Lawlessness**	**61%**
3	-	Inflation	38%
4	-	Unemployment	36%
5	-	Environmental Problems	27%

Although the nuclear war threat has diminished in the 90's, crime and lawlessness nevertheless received almost equal concern in the 80's. Disorder within communities is a concern for public safety officials and citizens alike. The use of automation in dealing with criminal activity will be a major weapon in the future arsenals of law enforcement. Opinion leaders in 1984, agreed heavily that there will be greater use of computer technology by the year 2000.[11]

TREND PROJECTIONS

A Nominal Group Technique (NGT) process was used as a source for research. The

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[11] Gallup, George Jr.; FORECAST 2000; (1984) pp. 78-79

NGT process is a technique which takes advantage of individual experts of diverse backgrounds to assemble trends and events and forecast them in relation to the issues. The group of nine was selected for their personal knowledge in computer technology, law enforcement automation, and communication networking (Appendix 3). This group assisted in identifying 26 trends (Appendix 1). The trend scanning process revealed 10 of the 26 trends produced that would have a higher impact on the issue under discussion. The NGT panel median scores were then used to determine a five and ten year forecast. Below are the top ten trends selected by the NGT panel.

Trend 1 - Use of Computers by Law Enforcement: For identifying those committing crime and the sharing of information.

Trend 2 - Regionalization of Police Services: The combining of services within a regional area.

Trend 3 - State Funding For Automation: The ability of the state to provide funding to assist agencies in acquiring computer hardware, software and networking communication equipment.

Trend 4 - Public Support For Automation: Providing economical systems which will provide increased protection and apprehension of criminals.

Trend 5 - Criminal Justice System Changes: Mandates which will effect the collecting, sharing and distribution of information.

Trend 6 - Population Changes: California is expected to see a larger share of population growth.

Trend 7 - Computer Costs: Provides for easier acquisition and funding approval.

Trend 8 - Crime Rate: Crime is expected to increase due to the economy and gang related activities.

Trend 9 - Change in Demographics: Population ethnitisity will be changing in the late 90's which may cause focus to move in another direction.

Trend 10 - Size of Computers: With this future trend, smaller computers will become part of an officer's standard equipment.

TREND EVALUATIONS

The following trend analysis represents the forecasts from the NGT process.

Chart 1

TREND STATEMENT	LEVEL OF THE TREND (today = 100)			
	Five years Ago	Today	Five years From Now	Ten years From Now
T-1 USE OF COMPUTERS BY LAW ENFORCEMENT	40	100	300	800
T-2 REGIONALIZATION OF POLICE SERVICES	5	100	150	420
T-3 STATE FUNDING FOR AUTOMATION	40	100	60	90
T-4 PUBLIC SUPPORT FOR AUTOMATION	70	100	250	600
T-5 CRIMINAL JUSTICE SYSTEM CHANGES	10	100	300	900
T-6 POPULATION CHANGES	95	100	225	400
T-7 COMPUTER COSTS	60	100	400	800
T-8 CRIME RATE	75	100	350	700
T-9 CHANGE IN DEMOGRAPHICS	80	100	200	450
T-10 SIZE OF COMPUTERS	60	100	500	800

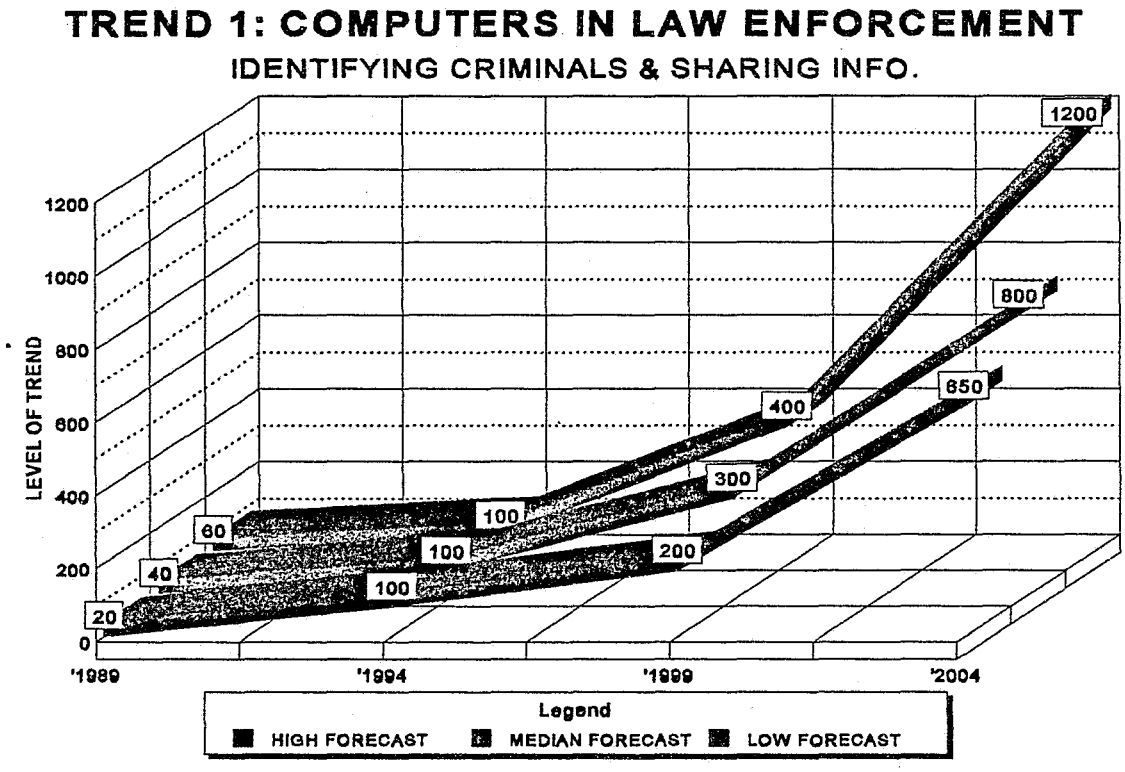

Figure 2

TREND 1: The panel indicated that this trend is on the increase principally because of knowledge on the use of computers, and costs which are decreasing at a steady pace. Identification of criminals through the use of automation is increasing due to technological advances such as live finger print scan (CAL-ID), and other shared data bases. The panel related that computers in the law enforcement trend of 1999 may have lower growth than what is indicated due to the economy and the funding for such systems. All felt that sharing of data bases by the year 2004 would become a reality along with regionalization of computer systems for law enforcement.

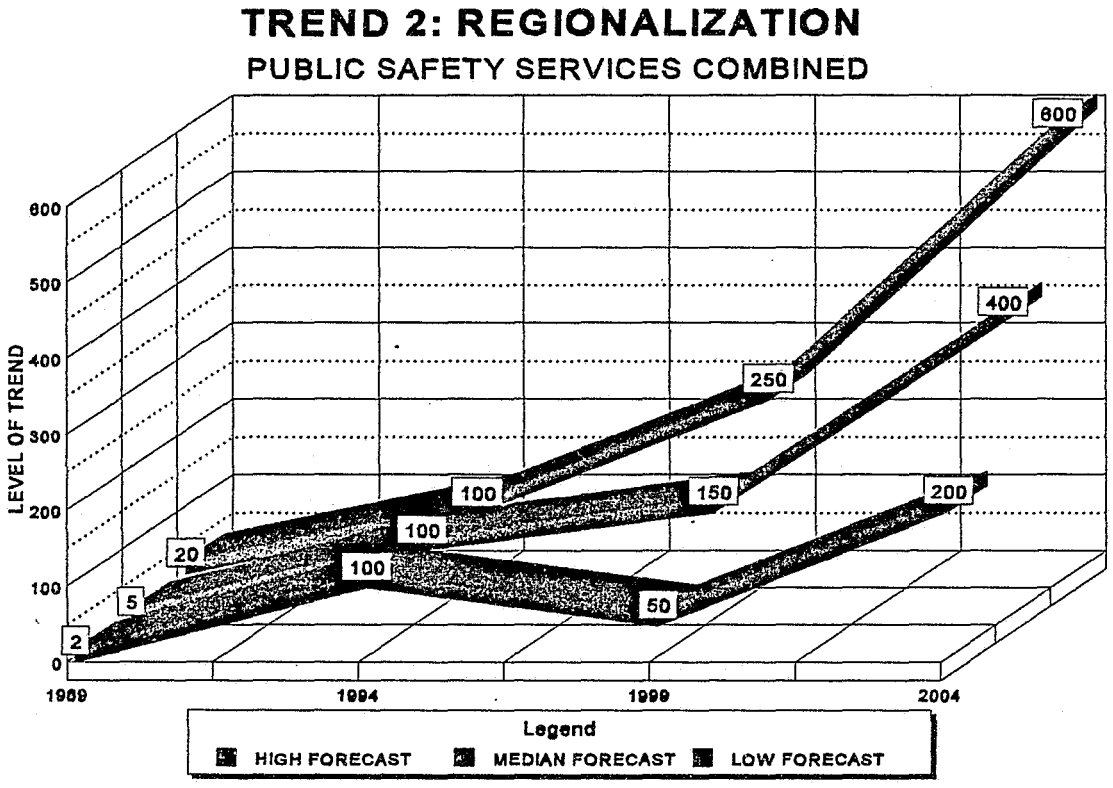

Figure 3

TREND 2: This panel felt that regionalization of police services would become popular in the late 1990's but would have a slow start due to political ramifications. Cities are used to local control of public services and are not so willing to relinquish that control. Regionalization is expected to start out small with the creation of regional dispatch centers and emergency operation centers. As automation provides the ability for politicians and managers to see what is going on at their fingertips, the argument of local control will lose to greater protection of their communities. The panel indicated that some services will be combined in law enforcement by 1999, such as communications.

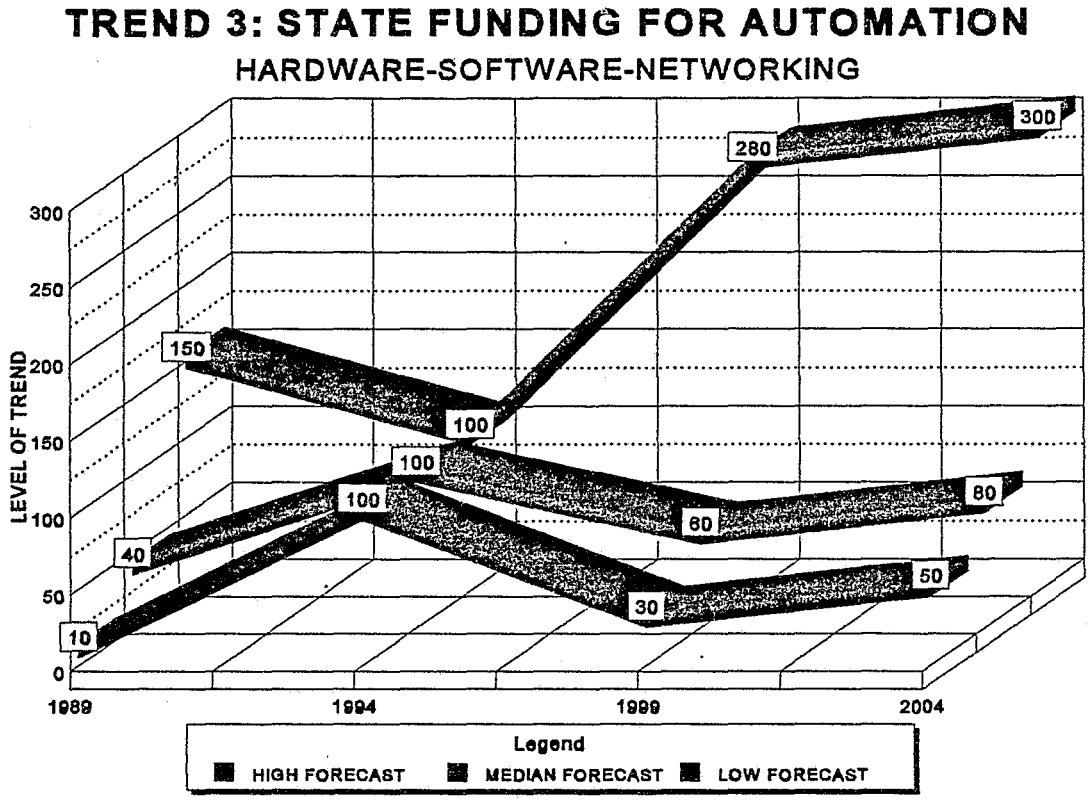

Figure 4

TREND 3: State funding for projects of any kind is expected to be on the decline until the turn of the century, the panel members felt. In fact, the panel felt that certain funding for municipalities will be removed or curtailed between now and 1999. Indicators in economic growth reflect a slow progress to the return of pre-recession economy. After the return to some economic normalcy, it is expected that justifications requiring capital expenditures in the future will have to clearly define and project their desires over a long term financial plan. With long term financial planning in place, support for state funding of portions of public safety projects can be identified to meet the long range projections of local and state government.

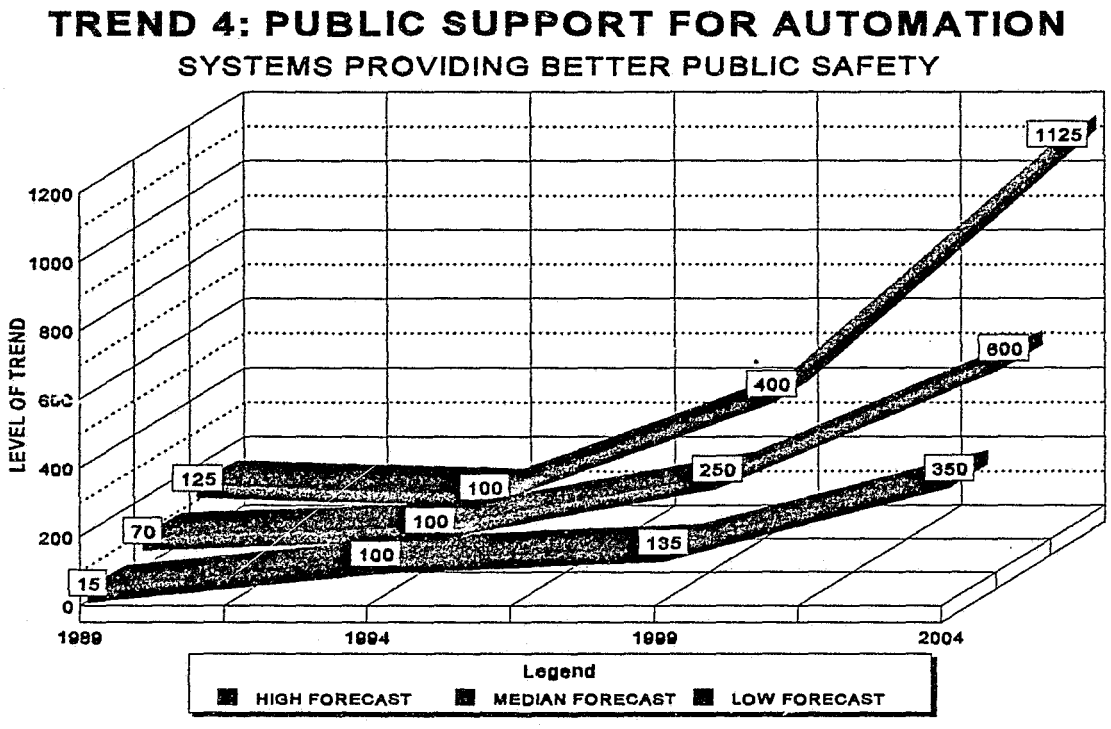

Figure 5

TREND 4: The panel believes that the public will demand greater protection by law enforcement in the future. Support for programs which will enhance the safety of communities, will be championed by the public. Issues such as gangs, drugs and violent crime will cause communities to come together with law enforcement. Tools, such as automation, will gain support through the end of the century. By then, crime will take over as the lead problem facing communities. The economy will be on a slow return at that time providing an ease for funding and will allow law enforcement to obtain better computer systems. Community participation is also expected to be higher after 1999, as community oriented policing strategies prove to be effective in saving our communities from criminal activities.

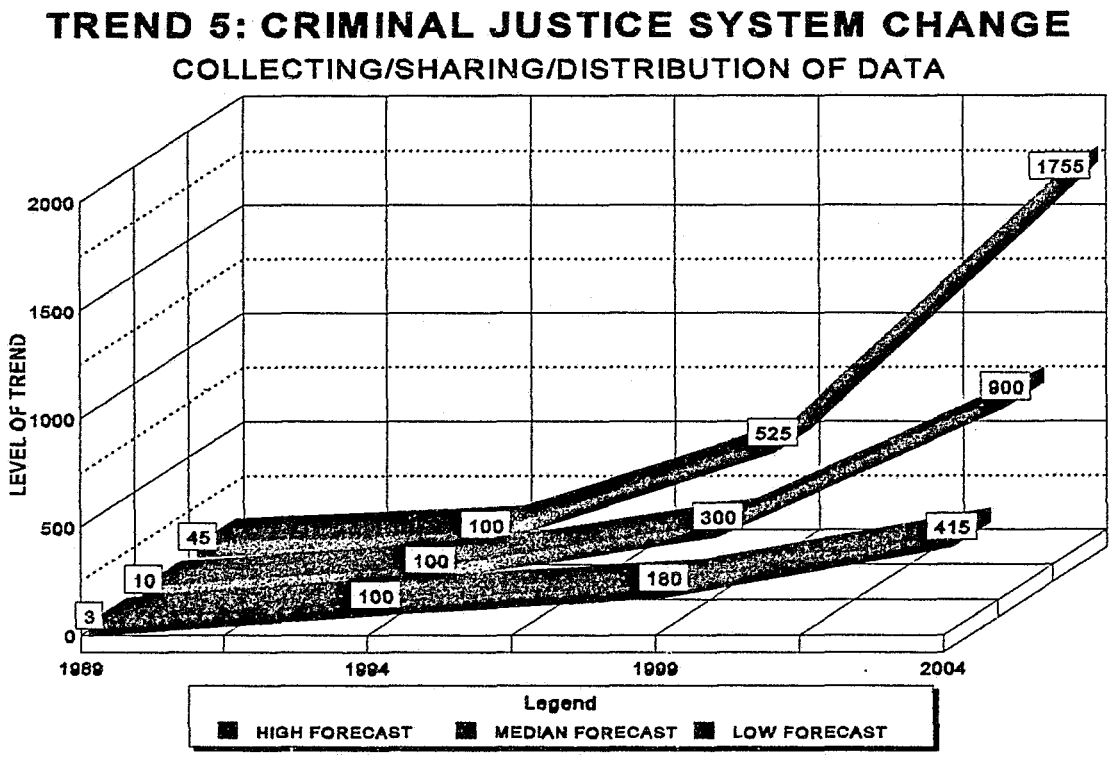

Figure 6

TREND 5: Panel members all agreed that major changes in the criminal justice system will occur after 1998. With the stabilization of the economy being a higher priority, the criminal justice system will take a back seat until the economy eases and criminal activity rises. The panel expects that law enforcement will also take on some judicial roles. Such roles may include first time misdemeanor offenses and citizen/police review panels regarding the activity of defendants. Citations will be returned to local control. Courts will deal with hard core criminals and serious crimes, thus freeing up the criminal justice system to provide for a faster action on felonious type crimes. Jails will handle felony types and law enforcement will handle the misdemeanor offenders.

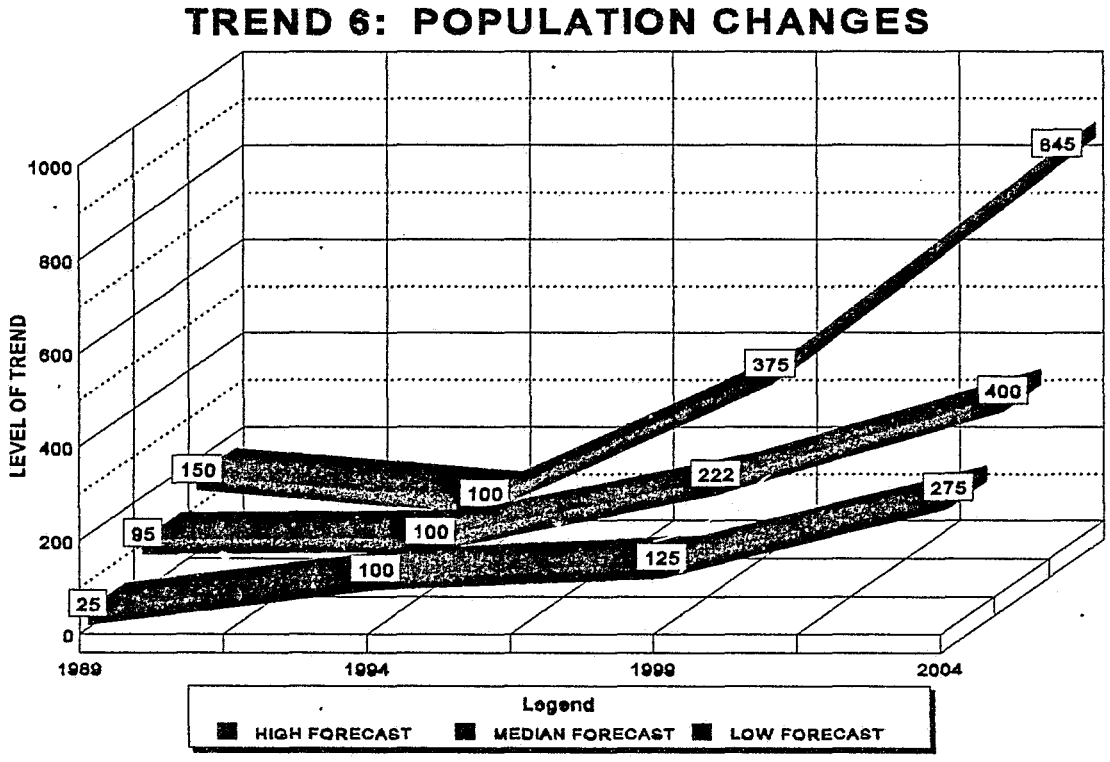

Figure 7

TREND 6: Expected growth in California projected by the California Department of Finance in 1990, indicates that phenomenal growth will take place in the state. Population growth is expected to exceed six (6) million by the year 2000 and over twelve (12) million by the year 2010. The Finance Department in 1986, projected a birth rate of 1.9 babies per mother. However, the birth rate actually calculated to 2.4 babies each. It is expected that the figure will increase to 2.6 babies during the later part of 1990's.[12] The panel agreed that population increases will have a direct impact on the issue. The need for information at the fingertips of the officer will become

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12. The Press-Enterprise, "Phenomenal Growth Rate Expected in County", April 14, 1993, p. A1.

vital to the identification and apprehension of those committing crime.

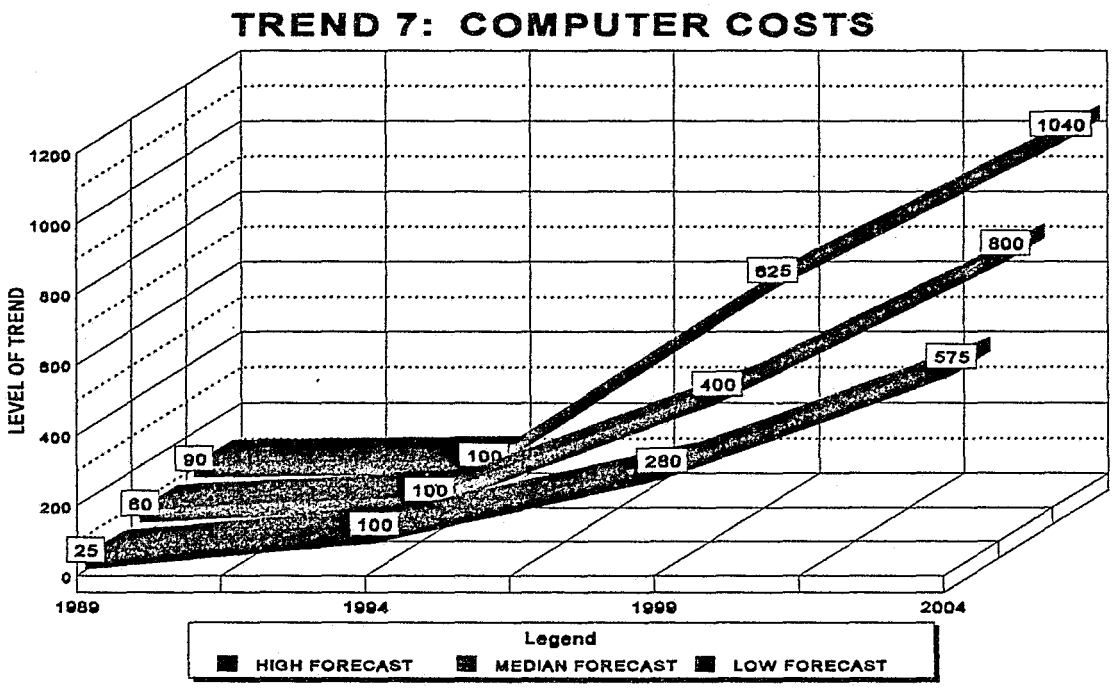

Figure 8

TREND 7: Panel members believe that decreasing costs for computers will play an important role in the ability of cities to afford computers for their respective law enforcement agencies. Costs relative to computers from the eighties to the early nineties have already shown significant savings for this technology. Some members indicated that the nineties will be the decade of computers. With costs continuing to decrease, they expect that law enforcement will gain a position in the market where significant power will generate momentum for all of law enforcement to become automated. By the year 2004, all law enforcement agencies should be using some type of automation for criminal identification, the panel felt.

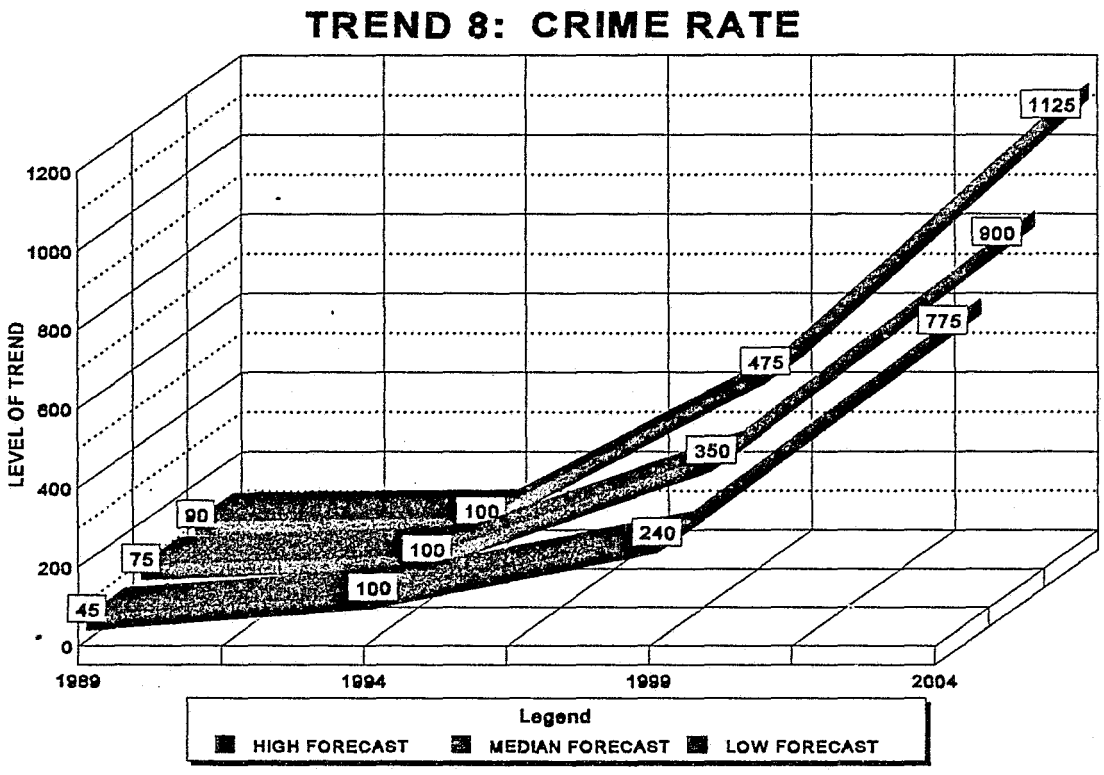

Figure 9

TREND 8: The panel all agreed that crime is expected to rise over the next five (5) years. With the economy taking a nose-dive and unemployment getting higher each quarter, people will still have to feed their families and thus criminal activity will increase. Members felt that crime is related to the economy and the availability of employment. Should this trend continue, which is expected, the "have-nots" will greatly out number the "haves" and we can expect violent crime to rise. Already signs of this have appeared in random shootings, from the high-rise incident in San Francisco to postal workers, taking place throughout the nation. Frustration breeds despair and the feeling of hopelessness, only direct intervention in our economy and

better employment opportunity from meaningful employment can impact this trend.

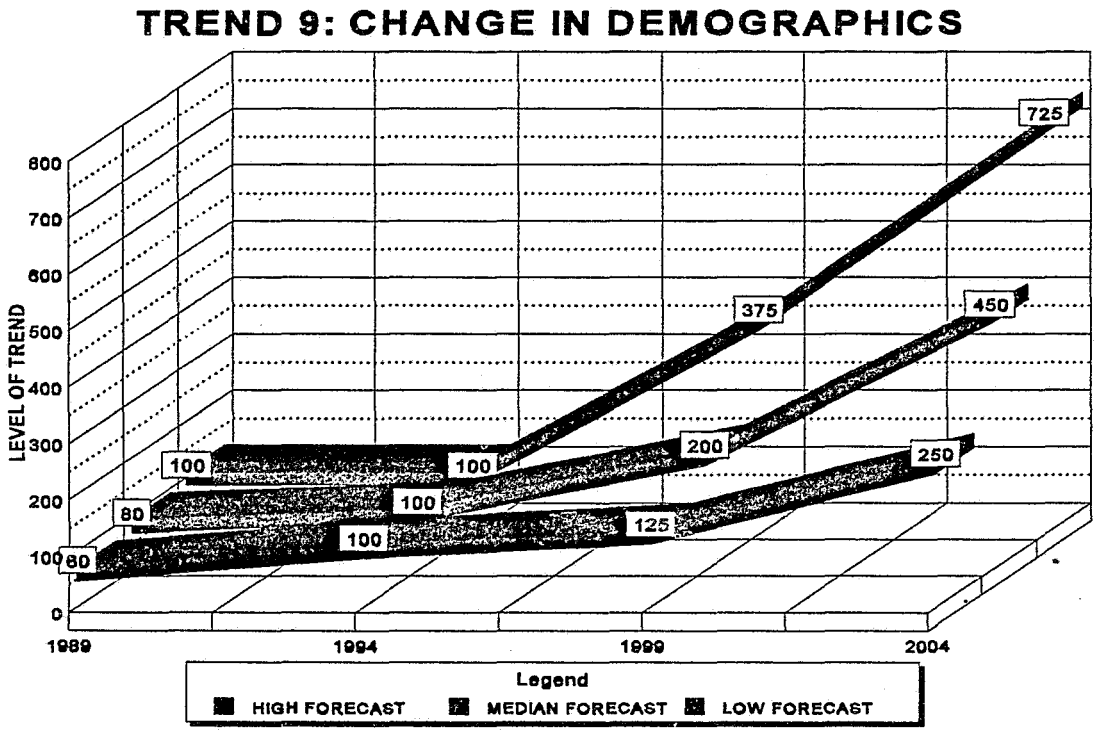

Figure 10

TREND 9: The panel indicated that demographic changes are expected to impact the issue because of the switch to a hispanic population domination. The Department of Finance supports the panel's assumption regarding demographic changes in the mullitium. The Finance Department in their report of 1990, indicated that the hispanic population will rival that of caucasians by the year 2010. Identification becomes increasingly difficult when many sir-names are used and a language barrier exists. The panel felt that automation will help in keeping track of who is who and will allow for improved services to a richly diverse cultural community. The group felt that the change is already taking place in our schools and reflects the path of the future.

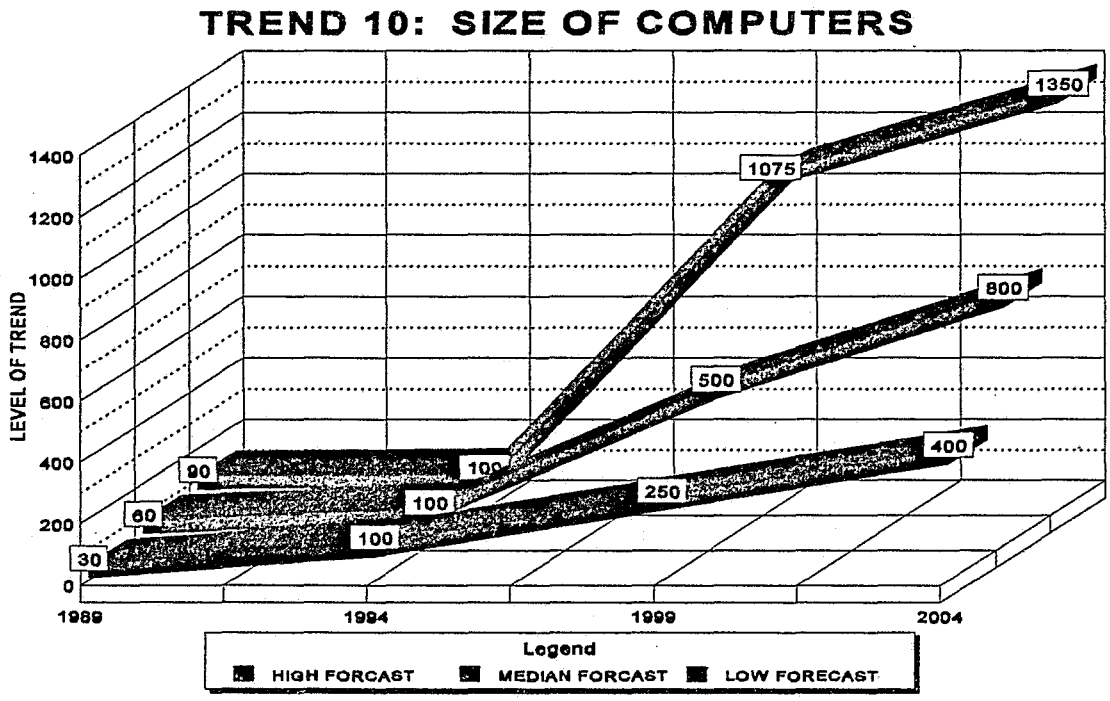

Figure 11

TREND 10: The panel discussed that computers are getting smaller and more adaptable to the law enforcement field environment. Each felt that the future trend will be to make smaller and more powerful computers. For law enforcement applications, a handheld computer/radio device is what would be a desire for most of the panel. "Let's face it", one member said, "justification has already been established for the handheld radios for officers, this is just an improved version of our communications network". Most of the panel accepted that analogy for the future when voice-activated computer technology becomes a reality after the year 2000. However, for now, all agreed that the smaller the hardware becomes, the more it can be adapted to law enforcement use.

EVENT PROJECTIONS

The NGT panel, used to establish the trend projections, was also used to provide input to the selection of events that could affect the issue in the future. The group provided events that had a probability of first exceeding zero within the time frame of the study and the likelihood of occurring within five and/or ten year intervals. The panel then selected the ten events they felt would have the greatest impact on the issue if they were to occur. Included is an event evaluation, probability and analysis table which outlines each event. The group reviewed the list of twenty four events that were identified (Appendix 2) and made comment on the top ten.

Event 1 - Economic Recession and/or Depression with Unemployment Exceeding Fifteen Percent.

Event 2 - Federal / State Funding for Shared Systems; Multi-agency Use of the Same Computer System Over Area Network.

Event 3 - Wide Area Interoperability Provides Low Cost Networking.

Event 4 - Satellites Used to Enhance Communications.

Event 5 - Computers Provide for Paperless Police Departments.

Event 6 - Earthquake or Major Disaster.

Event 7 - Computer Literacy Taught in Police Academy.

Event 8 - Federal Computerized Identification Cards for All Citizens.

Event 9 - United States Supreme Court Restricts Information Sharing by Law Enforcement.

Event 10 - Citizens Report Crime via Personal Computers.

EVENTS EVALUATIONS

Chart 2

EVENT STATEMENT	Years Until Probablity First Exceeds Zero	PROBABILITY		IMPACT ON THE ISSUE AREA IF THE EVENT OCCURRED	
		Five Years From Now (0-100)	Ten Years From Now (0-100)	POSITIVE (0-10)	NEGATIVE (0-10)
E-1 ECONOMIC RECESSION/DEPRESSION WITH UNEMPLOYEMENT 15%	3	60%	30%	0	8
E-2 FEDERAL/STATE FUNDING FOR SHARED SYSTEMS	5	10%	50%	7	0
E-3 WIDE AREA INTEROPERABILITY PROVIDES LOW COST NETWORKING	2	50%	90%	8	0
E-4 SATELLITE USED TO ENHANCE COMMUNICATIONS	2	80%	100%	7	0
E-5 COMPUTERS PROVIDE PAPERLESS POLICE DEPARTMENTS	3	40%	70%	10	0
E-6 EARTHQUAKE OR MAJOR DISASTER	0	30%	80%	0	6
E-7 COMPUTER LITERACY TAUGHT IN POLICE ACADEMY	2	70%	100%	10	0
E-8 FEREDAL COMPUTERIZED E.D. CARDS FOR ALL CITIZENS	5	10%	40%	6	0
E-9 U.S. SUPREME COUR T RESTRICTS INFORMATION SHARING	3	20%	40%	0	9
E-10 CITIZENS REPORT CRIMES VIA PERSONAL COMPUTERS	5	25%	70%	8	0

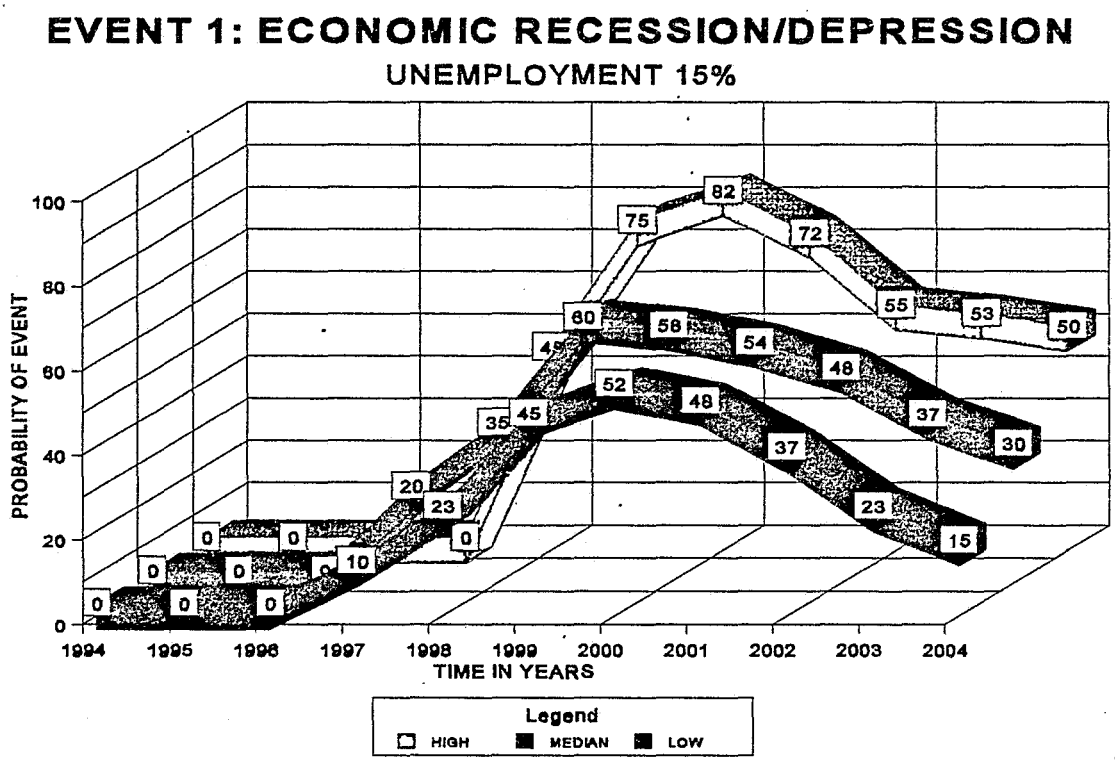

Figure 12

EVENT 1: The NGT panel discussed the current economic status within California and the likelihood that the recession would continue for some time. The evident move of businesses out of the state, illegal immigration and new trade agreements, such as NAFTA, have only added to an already weakened economy. Some members felt, that if economic conditions did not improve over the next few years, unemployment could be over fifteen percent and a depression could result. The majority of the group felt that this event was more likely to occur, 60% in five years versus 30% in ten years. Presently at 9.8%, California has the highest unemployment rate in the country. All agreed that if the event occurs it would have a negative impact on the issue.

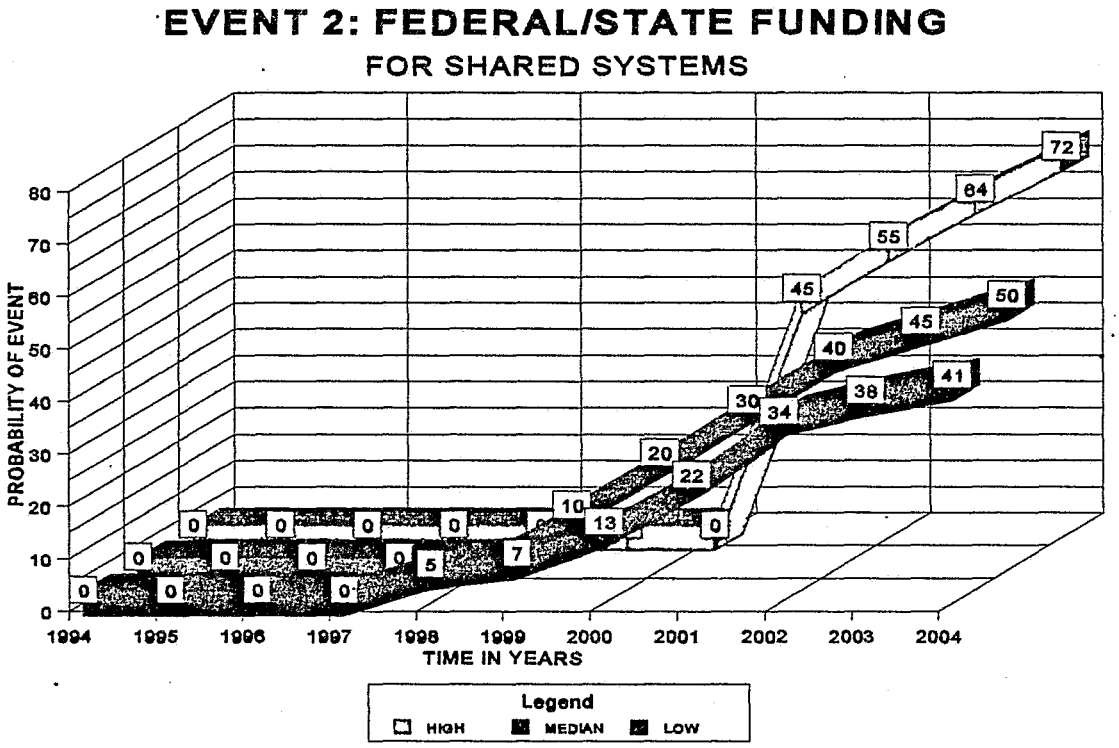

Figure 13

EVENT 2: There are many computer systems today that have been funded by government through legislation. Such known systems are the California Law Enforcement Telecommunications Systems (CLETS) and the National Crime Information Center (NCIC). CLETS is a switching computer system that takes the user through 14 plus data bases. The recent addition of CAL-ID (California Identification) provides for fingerprint identification and is expected to supply sub-systems for photo and DNA identification. Members of the NGT panel felt that this event would not occur within the next five years if it ever occurred at all in the next ten years. Only 10% of the group thought it would occur in the first five years while 50% felt it may occur in ten years. If the event occurred it would have a positive affect on the issue.

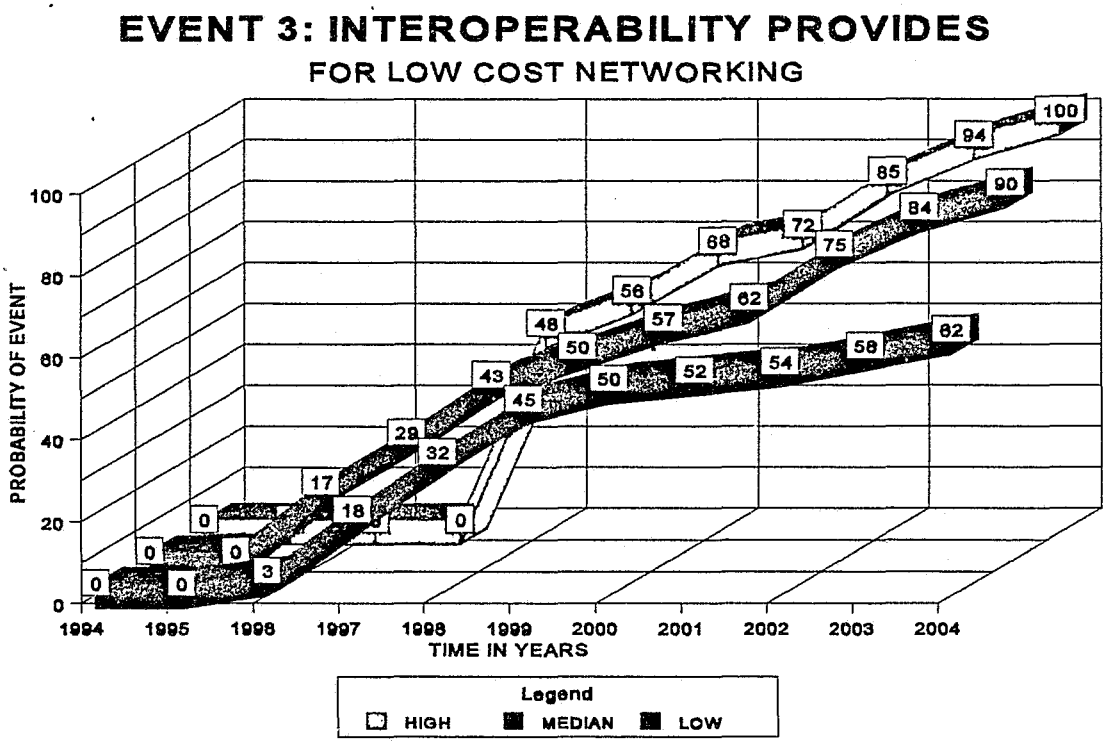

Figure 14

EVENT 3: The term interoperability relates to a communication computer system network that has the ability to connect dissimilar computer software and hardware to each other whereby it is transparent to the user allowing access in a format the user is familiar. Agencies feel comfortable with their own systems but they realize that they need to communicate with one another. Crude forms of interoperability are now in the works but obstacles such as lack of funding have slowed down its refinement. Most everyone felt that this event would occur during the next ten years. Group members indicated there was a 50% probability of it occurring in five years with a better than 90% probability of it occurring in ten years.

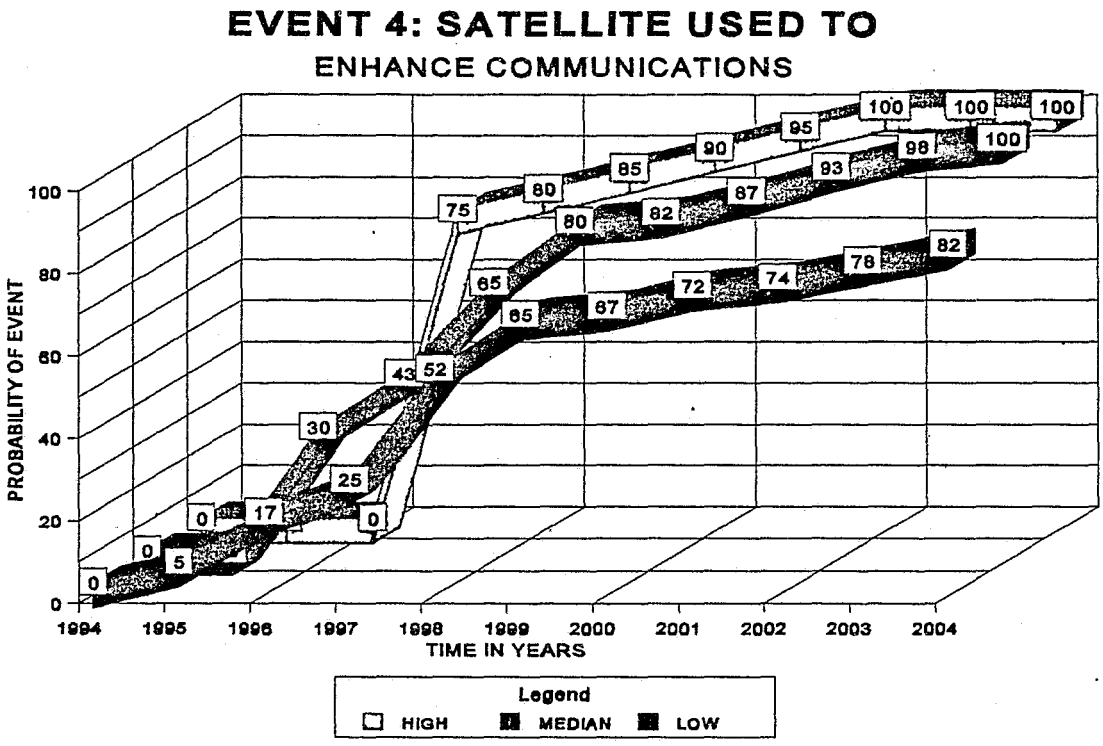

Figure 15

EVENT 4: Like most computer systems the weakest link is it communication tie-ins to other computers. Land lines, microwave and other land based communication systems have become more reliable over the years however, they are sometimes affected by various events which occur on earth such as an earthquake. In order to avoid land based communications breakdowns, space will be the home of a more reliable communication network with the use of satellites. Efforts are already under way by Motorola to launch a string of relay satellites. The NGT panel felt there was a 100% probability of occurrence within the next ten years. The panel also concurred that there was an 80% probability of it occurring within five years.

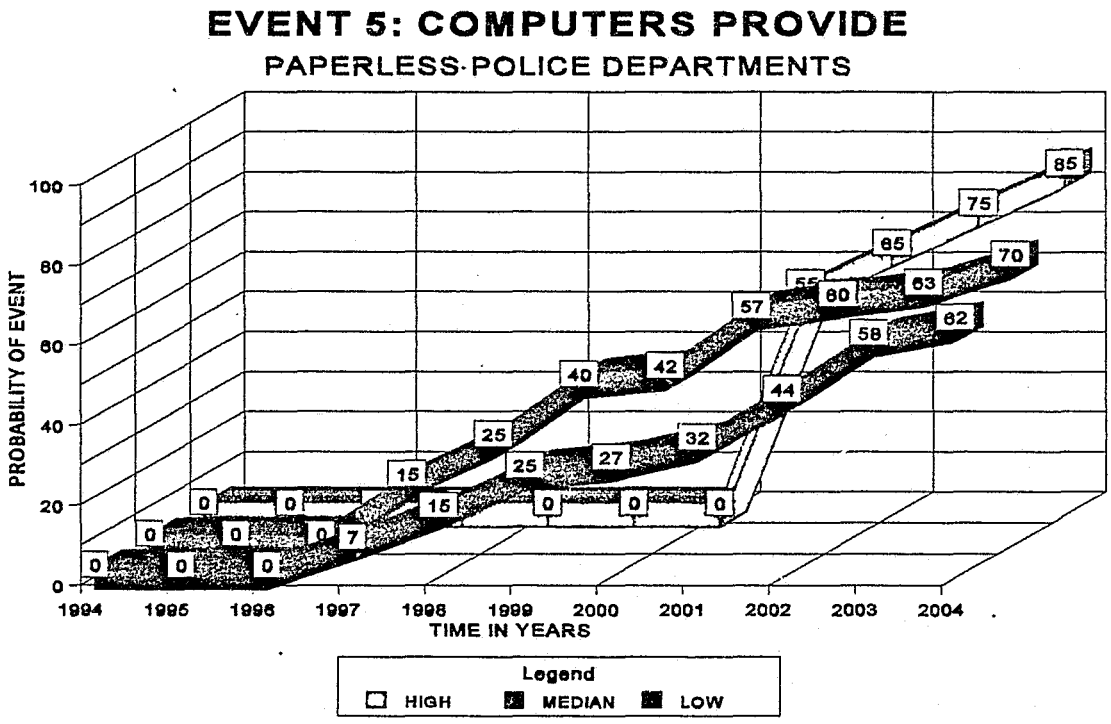

Figure 16

EVENT 5: The NGT panel appreciated the idea of paperless police departments, but felt that total paperless could not be obtained. Technologies such as laptop based report writing and document imaging will greatly reduce the tremendous amount of repetitious copying. Areas slow to respond to a paperless environment will be the court system, which requires the appearance of a signature. Technologies that allow on screen signatures are now in their infancy but will surely grow in popularity as time goes on. Only a 70% probability for this event was scored as to its likelihood of occurring within the next ten years. However, the panel did find that a positive impact on the issue would be high (10) should the event occur.

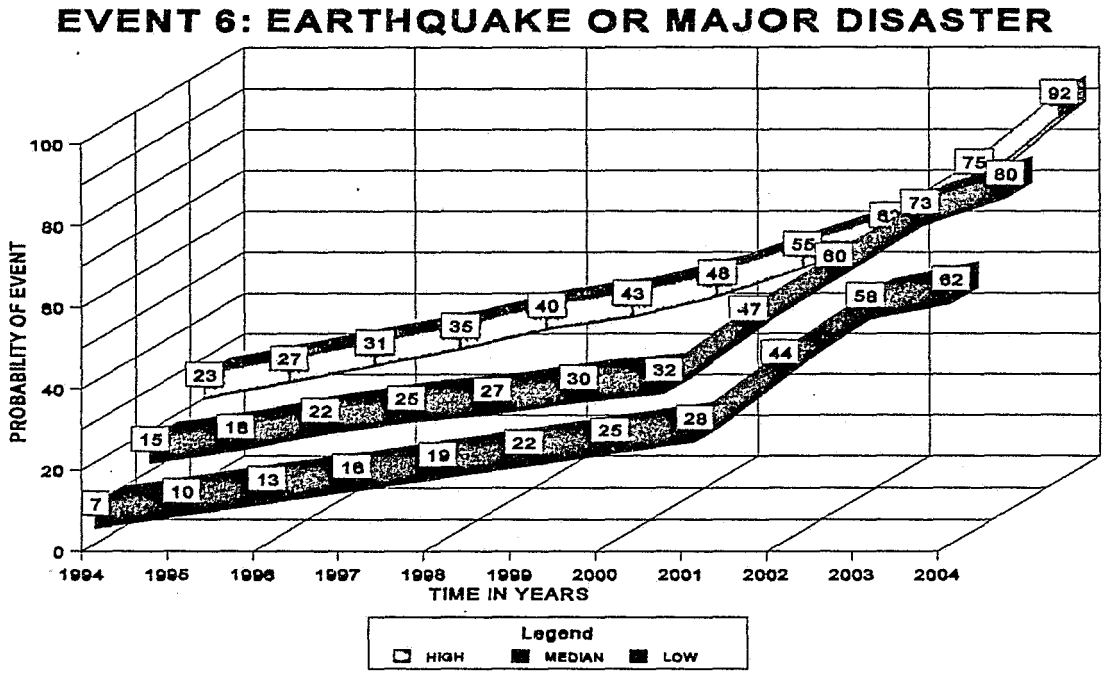

Figure 17

EVENT 6: The panel discussed that an earthquake in California of a sizeable magnitude will most likely take place over the next ten years. All agreed that the quake would occur in the beginning of the next decade where the probability rose from a 35% in 1999 to a probability of 80% by the year 2004. Most agreed that this could impact the issue of cooperative information sharing through interoperability. Steps need to be taken to assure that such a disaster will not set back information sharing computer technology. Looking at disaster preparedness means looking at all aspects of one's public safety operation. To assure communications and automation technology are operational during a disaster thus requires consideration on affects that such a disaster would cause.

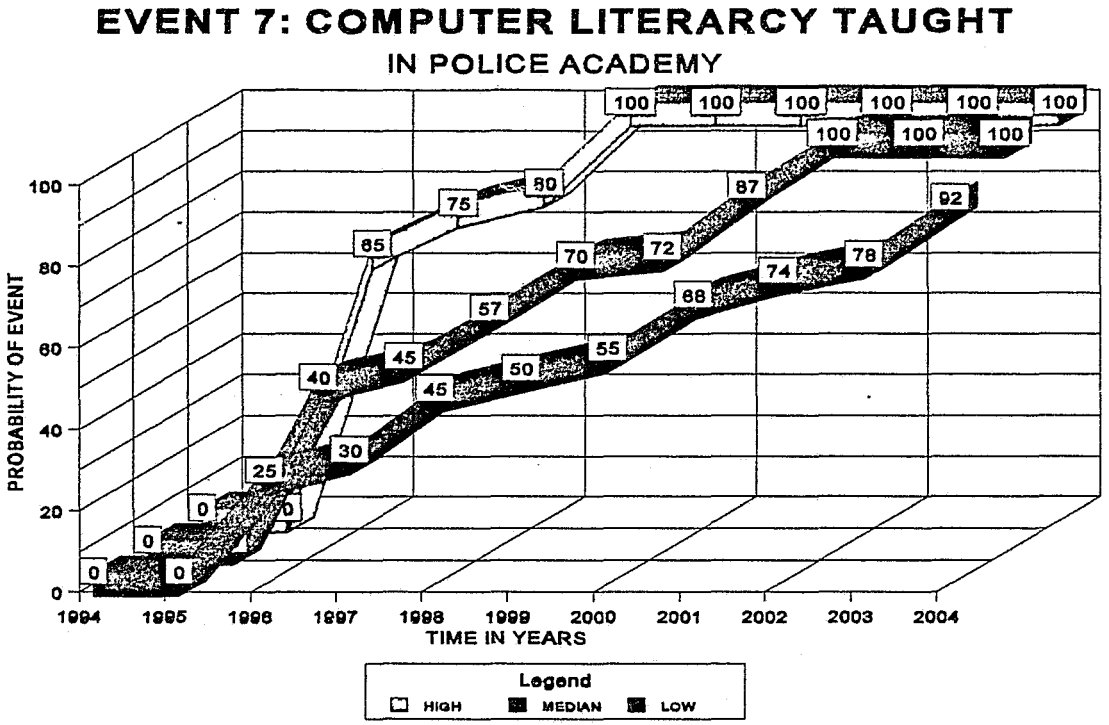

Figure 18

EVENT 7: The panel felt that this is something that should be taught in the basic police academy now. Many of the new recruits of the future will be learning basic computer skills from kindergarten, it is fitting to continue that course of training as they enter their career path. Most of the members felt that there was a probability of 40% that POST would begin training officers in computer literacy by the year 1996. There was a significant amount that felt the probability would even be higher with a probability of 65% for the same period. In any case all the panel members agreed that by 1999, computer literacy would be part of basic academy training only because most everything they do will be computerized.

EVENT 8: FEDERAL COMPUTERIZED I.D. CARD
FOR ALL CITIZENS

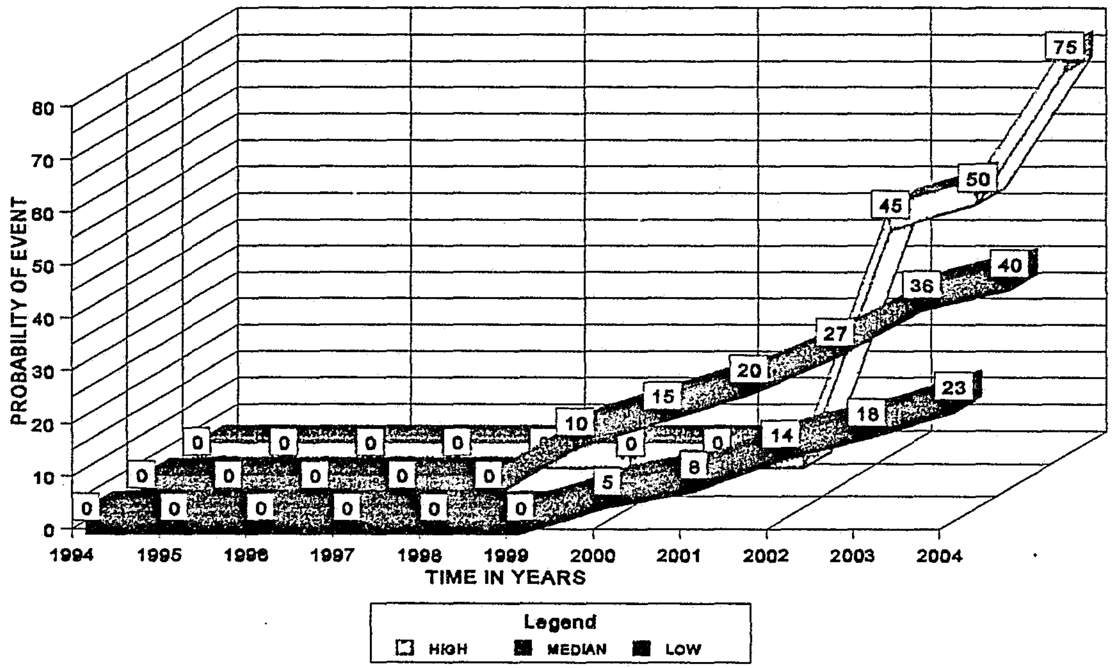

Figure 19

EVENT 8: The topic of federal identification cards for citizens was slow to get off the ground with most NGT panel members. They felt that citizens would object to such an application in violation of their constitutional rights. I reminded them that there is a federal identification card now called the social security card. Most of the panel felt that if any federal identification card was to occur it would not be until the recession turned around and crime became more of an issue. Another possible influence will be the growing problem of tracking illegal immigrants and welfare recipients. There were a couple of members of the panel that agreed that by the year 2004, there would be a 75% probability of federal identification cards becoming reality.

EVENT 9: SUPREME COURT RESTRICTS INFORMATION SHARING

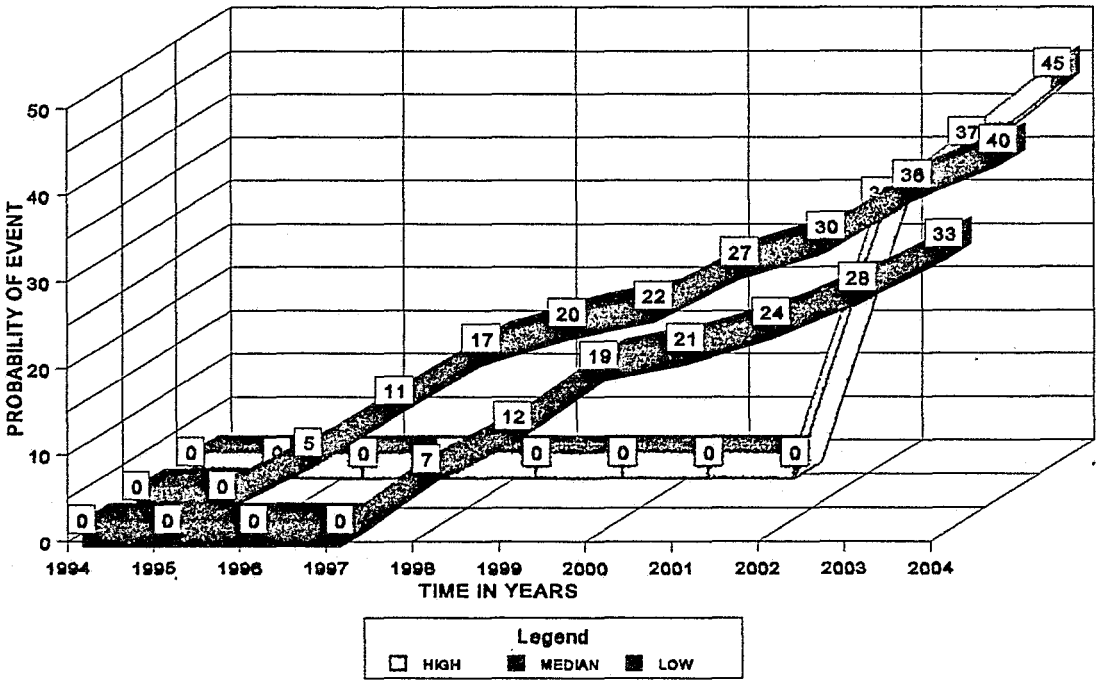

Figure 20

EVENT 9: Though cooperative information sharing as a whole is looked upon as a good thing, there is always the possibility for misuse of that information. For this reason alone, the NGT panel members felt that there was an outside chance that misuse would occur sometime during the next ten years, such action may cause the Supreme Court to restrict cooperative information sharing. As certain groups file for protection from publicized information, the higher court may be forced to rule on such matters. These rulings will set precedent for all agencies that are sharing information. The group felt that the highest probability of this actually occurring was just under 45%. The panel also recognized that law enforcement must take the appropriate steps to ensure cooperative sharing is not abused and for law enforcement purposes

only. As one panel member put it, "we need to police our own house".

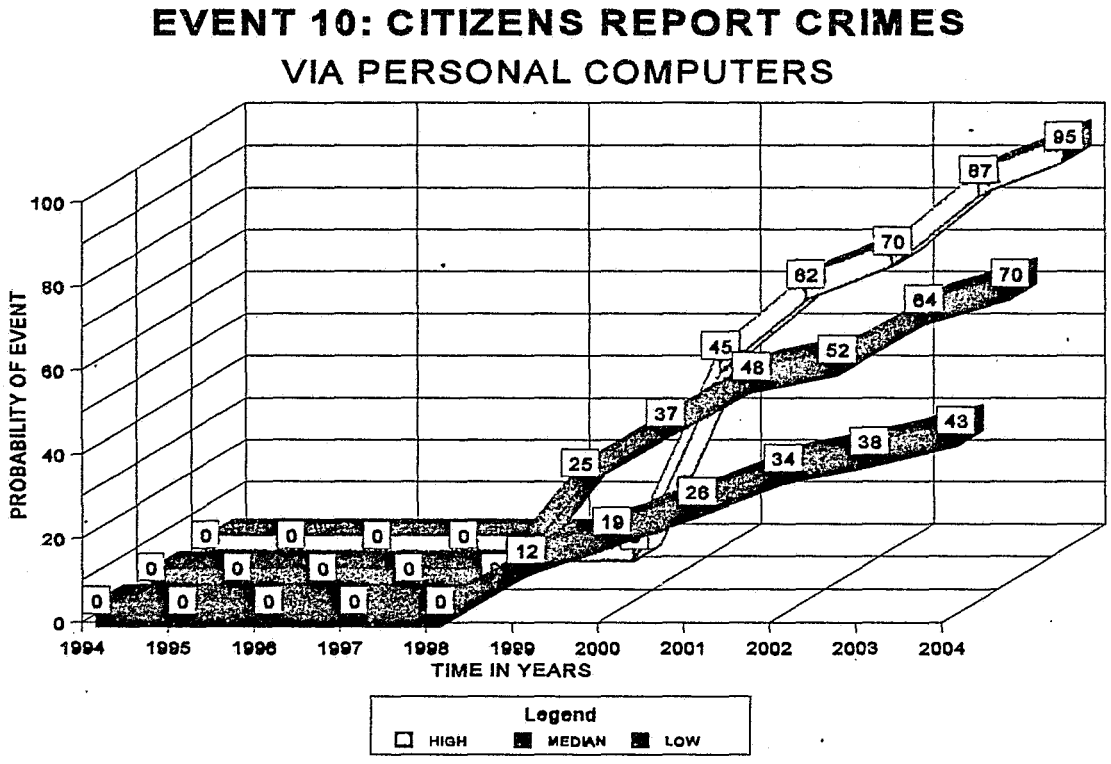

Figure 21

EVENT 10: The panel talked about this for some time. It was felt that citizens reporting crimes via computers would work just like when you call the bank on your home or business computer to get information on your accounts or move money to pay loans and bills, etc. Some believe that such a practice could account for nearly 40% of all crimes reported to law enforcement by the turn of the century. Although I felt that this was a little optimistic, nevertheless, the group outcome indicated that by 1998 such a program would be introduced and its probability of occurring within 5 years of its introduction was better than 50%.

FUTURES SCENARIOS

Understanding the results of the forecasting analysis process, the author provides scenarios of the future. The scenarios were developed using nominal forecasting techniques and scenario generator program known as SIGMA developed by Policy Analysis Company, Inc. Using the trends, events and information gathered during the research process, three scenarios have been provided for the reader.

Scenario one is called the nominal scenario and is considered the most likely scenario, provided that nothing is done to change its direction or outcome. Scenario two, the hypothetical scenario, provides for the worst case outcomes and answers the *what if* questions. Scenario three, the normative scenario, represents the desired and attainable future. This scenario provides for interaction which allows for forces to be put into motion which will positively affect the outcome. It shows that there are things that can be done now that will impact the future in a desired manner rather than just letting it happen. Understanding the desired outcome allows policy considerations to be developed which will hopefully produce the desired results.

Scenario #1 Nominal Scenario (Likely to Occur)

During the 1990s little was done by law enforcement tc become a market place for automation manufacturers. They spent most of their time handling mandatory

reporting requirements, such as domestic violence information, gang identifications and violent offender data, that federal government and California state legislators passed. These mandates dealt with the human needs for safety within the communities. With gangs, narcotics and crimes against persons continuing to rise, these mandates were the desired form for counteracting those forces. Information sharing on criminals, gang members and narcotic offenders became popular when law enforcement officials realized that criminals had no geographical boundaries and they became victims of neighboring city criminals.

Citizens began to report crimes via computers in certain portions of California in 1997. This contributed to enhanced crime analysis which in turn gave information to the operation and investigation functions of the police department. Information gathered from citizen reports helped identify patterns of criminal activity quicker and steps were taken to mitigate them more effectively.

During this same period, officers were afforded training with ***computer literacy being taught in the police academy.*** This training gave officers the ability to search federal, state and local computer systems without the assistance of dispatchers or records personnel. Officers for the first time began to identify criminals involved in their investigation by the use of the computers and in turn this added pressure for more computerized shared information.

It didn't take long for the news headlines in early 1998 to read ***"Federal Court Restricts Information Sharing".*** This was taken as a set back at first by law enforcement in the apprehension of those committing crimes in California. However, ***federal mandates for uniform crime reporting*** quickly changed this. These mandates which required the reporting of crimes in an incident based format for both part one and part two crimes, crimes involving physical violence and high property losses, provided a foundation as well as the need for similar systems with the ability to provide information in desired formats.

As a result of a common foundation regarding public safety automation, ***paperless police departments via computers*** began to appear in the later part of 1998. Courts, citizens and governments supported this concept as it allowed a higher degree of confidentiality than the written, filed documents of the past. Information sharing among paperless police departments was allowed by the courts for law enforcement purposes only. Even though ***federal/state funding for shared systems*** did not occur in the 1990s, the need for shared information overcame the cost for such systems.

Regional police departments were created to help deal with the funding for law enforcement just before the turn of the century. This provided for more street resources and at the same time down-sized the administrative aspect of law enforcement. Only a few of these regional police departments were created and approved by POST during that period. They were studied and watched by various

California communities to see the effectiveness and cost saving aspects of such regionalization.

As California entered the twenty-first century, two major events occurred that helped bring about cost effective sharing of information through interoperability by law enforcement. Both events occurred in the year 2001, with ***satellite enhancing communications*** coming first. This cut costs for communications drastically over the conventional microwave and radio systems providing for a more dependable and secure communications network. The other event capitalized on the trend of networking by ***interoperability providing low cost networking.*** Interoperability was a concept introduced in the mid 1990s, but not perfected at that time. This technology allows dissimilar computer systems to talk to one another. Now that interoperability is a reality and satellite communication is available at a reasonable cost, California law enforcement is moving in that direction.

The disastrous ***earthquake*** that hit California on September 3, 2003, crippled nearly all communication systems for law enforcement. The Hall Committee Report criticized the slow progress made by the California law enforcement community in developing state-of-the-art computer and communications systems in the late 1990s as the primary reason for a lack of response during the earthquake. The Hall report went on to say that had interoperability been in place in the 1990s to provide shared computer systems, California, it is estimated that nearly 10,000 additional lives could have been

saved from this disaster.

Scenario #2 Hypothetical Scenario (Worst Case)

Law enforcement meeting the challenge to share information has moved ahead in California in the 1990s. Law enforcement using state wide computer systems inform each other of outstanding criminals and their activities. Stolen property and vehicles are entered into the state system so that inquiries regarding property will list it as stolen. Department of Motor Vehicle records provide a wealth of information on drivers and their vehicles. Many innovations are being talked about and funding sources to provide shared computer systems are being identified. Interoperability is the key phrase being echoed throughout the California law enforcement community. Everyone sees interoperability as a means for sharing information without giving up their preferred computer system and its associated software. State legislation and funding for interoperability is nearing approval and is expected soon. Nobody expected that all of this effort would be for not because of a natural disaster.

The ***earthquake*** of November 30, 1995, of 8.3 magnitude in the southern portion of the state greatly changed the direction of shared automation for law enforcement in California. Focus turned to helping restore devastated cities and to provide for the thousands of homeless victims of the disaster. Money allocated in budgets for programs not directly used for operations were redirected to funding rescue and

rebuilding efforts in devastated areas. ***Computer interoperability*** was not available or even considered during this time of rebuilding and caring for the citizens who lost nearly everything. ***Funding for computer literacy*** which was scheduled to be taught in the police academy was preempted by disaster preparedness training, incident reporting and civilian training for disaster assistance.

Crime during this period was out of control and for nearly one and a half years the National Guard along with federal troops assisted local law enforcement in maintaining peace and order. Planning for the "big one" was good in helping to save lives, but little planning was done to assure the vital future of law enforcement programs to continue. We have begun to learn from our past and look to the twenty-first century in the hopes we will regain our future.

Scenario #3 Normative Scenario (Desired/Obtainable)

Welcome to the 2002 law enforcement conference for the State of California. Our keynote speaker will be Regional Director of Law Enforcement for the Southern Counties, Director David G. McGowan. The topic Director McGowan has selected covers the progressive steps by law enforcement in cooperative information sharing.

The Director started by recounting when he was a patrol officer in the Coachella Valley in a small law enforcement agency once known as the Cathedral City Police

Department. The Director was interrupted by applause from the audience before he could go on explaining that this was his first encounter with automation in 1990. He spoke about a time where he could check out a laptop computer to do his crime reports and then print them out to be approved. Times have surely changed since those days with the advent of mobile data communications. He said he remembers the planning and implementation that went on to accomplish this and ***paperless police departments.***

Once law enforcement entered the market for automation as a unified force, doors began to open such as ***interoperability which provided low cost networking*** in June of 1995. Interoperability, the Director recalls, was one of the major milestones which brought about cooperative information sharing. He related that he recalled going to briefing as a supervisor and giving out a 3 1/2 inch diskette which held briefing information for review when put into a patrol unit's mobile data communications terminal. That terminal, he said, was what I thought was the ultimate in computer technology, there was laughter from the audience. He went on to say how that terminal did communications with dispatch, federal and state computers plus report writing which was linked to his watch commander's terminal for approval and automatic entry into the records management system.

Director McGowan was proud to recount when he was on the Commission for Public Safety Automation in 1998 and 1999, which played an important part in bringing

satellite communications and ***computers which allowed citizens to report crimes.*** Such systems were just part of the fast paced growth of automation which was supported by all aspects of government and citizens alike.

When the ***earthquake*** hit on October 7, 1999, we were ready, he said. Emergency communications via satellites operated without interruptions providing emergency response like no other disaster in history could have received, this was recorded by the Hall Commission on the earthquake.

Director McGowan also reminded the audience that when the ***Supreme Court restricted information sharing,*** law enforcement was once again ready to deal with the situation. The Supreme Court was primarily interested in private industry giving out information on citizens without their consent. This resulted in the Supreme Court exempting the criminal justice system from the restrictions as long as the information was used for criminal justice applications only.

Finally, the Director said that we are now in the twenty-first century and our collective work has brought about early aspirations of law enforcement futurists. Today, in the year 2002, our officers are using ***voice recognition computers*** to communicate with dispatchers, run license and driver information and open computer channels to neighboring communities to obtain criminal identification information. With FAX capability and cellular phones incorporated into the voice communications computers,

this literally provides officers with hands free communications and crime reporting. "Yes, we have collectively come down a long road together", he said and paused, "but the future provides us with the prospect of bigger and better challenges ahead".

POLICY CONSIDERATIONS

In order to reach the desired scenario, normative, as stated in the issue statement the following ongoing policies should be considered:

1. Development of community support by making presentations and press releases on the use of automation and information sharing to solve crimes.
2. Hiring qualifications reflecting profiency in computer for those being considered as police personnel.
3. Provide ongoing education for law enforcement managers on the benefits of cooperative information sharing.
4. Communicate with local, state and federal policy and law makers on the proactive benefits information sharing provides for law enforcement.
5. Prepare vendors of computer software and hardware of the desired future of information exchange and sharing by law enforcement in the future.
6. Continue to look for funding sources which will ultimately provide funds for incorporation in the interoperability world of the future.

SECTION III

STRATEGIC MANAGEMENT

INTRODUCTORY STATEMENT

In the preceding section the author discussed various scenarios outlining the interests of law enforcement sharing information in the future through interoperability and the desired normative scenario. This section moves into the formation of a strategic management analysis which will provide a process that will chart the direction for California Law Enforcement in the area of cooperative information sharing through this decade and beyond.

To develop this process, a strategic plan is provided which will identify a mission statement, environment analysis, law enforcement organizational analysis, stakeholder identification and the development of alternative strategies to achieve a path for change in the future. Because this issue is centered around the cooperation between law enforcement throughout California, it is necessary to consider the whole State while preparing a strategic blueprint to the future.

Finally, the reader will go away from this section with an understanding of key issues and concerns, along with major obstacles affecting an implementation plan. Also, they will have a perception of who will be responsible for the implementation

plan, identifying tasks and sequence of steps that need to be accomplished and to provide a means to monitor and evaluate its progress.

STRATEGIC PLAN

MISSION STATEMENT

Establishing a Mission Statement that is general for all law enforcement as it pertains to interoperability for the sharing of information, requires certain fundamental ideals. These fundamental ideals provide for conformity and uniformity in decision making, express values and serve as a guide for conduct and performance for all involved. A sub-group of the NGT panel assisted in the development of the following mission statements .

MACRO MISSION STATEMENT

It is the mission of law enforcement agencies in the State of California to work together to provide an environment whereby its residents can live safe and productive lives by establishing an increased level of cooperation and trust between law enforcement and the community and by utilizing available positive resources to their fullest potential thus concentrating on the removal of the criminal element from our society.

MICRO MISSION STATEMENT

Through the establishment and fine tuning of cooperative information sharing through the use of interoperability, law enforcement agencies throughout the State

of California will be able to better utilize their limited resources to assist one another with the substantiation of potential trouble zones leading to a more effective identification, apprehension and conviction of criminals.

SITUATIONAL ANALYSIS

WOTS-UP ANALYSIS

To conduct an analysis of the external environment and the capabilities of California law enforcement, a method known as **WOTS-UP** (Weaknesses, Opportunities, Threats, Strengths and Underlying Planning) was utilized by the sub-group of the NGT. This method provides a way for the external and internal environments to be compared in order to find common areas whereby support can be focused to accomplish the task of cooperative information sharing through interoperability for California law enforcement in the future.

The process is broken down into two major analysis (environmental and organizational) which are in turn separated into the subsections of threats and opportunities, weaknesses and strengths respectively. By this process the methodology finally used will make the Micro Mission Statement a reality.

ENVIRONMENTAL ANALYSIS

This analysis covers sociological, technological, economical, and political aspects of the external environment that needs to be taken into consideration in forming a

strategic plan. Threats as well as opportunities are provided to help achieve a blueprint to the future for those that will be making policy decisions.

THREATS

SPECIAL INTEREST GROUPS

Special interest groups throughout history have been able to intercede in legislation that would better the life of the majority by protecting the interests of the minority. Such groups as the ACLU (American Civil Liberties Union), have attacked legislation which appears to infringe upon the civil rights of the individual through the courts and political lobbying process. These special interest groups need to be taken into consideration when establishing policies that may affect minority groups or an individual's constitutional rights.

SLOW ECONOMIC GROWTH

Slow economic growth in California has a direct impact on any plan for the future. Economic conditions appear to be steadily declining and will likely continue to do so into the future. For the first time in its history, California could experience a drop in population as residents look for their hopes and dreams of a better life somewhere else. Earthquakes, economy and crime are considered to be the primary reasons for this potential migration out of California. [13]

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[13] "California Exodus", The Desert Sun, Sept. 6, 1993 p. A1

POLITICAL PRESSURES

Political pressures have provided many mandates for law enforcement. More mandates are expected in the future with little or no funding in support of these required programs. Politicians want to make everyone happy and in their attempts to accomplish this satisfaction level public safety may suffer. Political support for projects that interfere with law enforcement coupled with the potential lack of support for public safety in general is a consideration that may block implementation plans.

IMMIGRATION

Immigration in California of Hispanic and other ethnic groups is forecasted to continue to grow. Hispanic growth by the year 2010 is expected to increase whereby this group will become the majority in the state. This creates several potential areas of concern, such as language barriers and cultural traditions, that need to be considered when sharing information and the presentation of that information.

OPPORTUNITIES

DATA PORTABILITY

Data portability is a term that has yet to catch on. It simply means: technology that can be put into the hands of field officers that is smaller, cheaper and easier to use. Today, we have observed increased interest in automation by law enforcement. As we move toward the 21st century, information management

through the use of computers will grow to unprecedented levels and exist in some manner at every system level. Data portability with the ease of information exchange will provide tools to the officers which will assist them in identification of suspects, reporting systems, communications as well as a host of user friendly programs that will entertain and support field operations.

REGIONALIZATION

The talk about regionalization has been heard up and down California for some time. Although such a theory represents a great deal of positive points and could save municipalities revenue, the struggle for political control remains the leading reason that such regionalization has so slowly become a reality. It is expected however, that due to economic constraints many of these barriers will dissolve. Certain areas of law enforcement lend themselves well to the regionalization concept. Such areas are communications, jails, records, and automation. Interoperability to provide cooperative information sharing is one of the common link to the successful implementation of this concept.

INTEGRATED TECHNOLOGY

Integrating technology is a process whereby the information exchange among users is made simpler. Tomorrow's technology called interoperability will provide for networking of dissimilar computer systems to the point where data requested from another mainframe will return on the screen of the requester in a familiar format.

Such technology is not far off and will move to bring law enforcement to its goal of cooperative information sharing.

NINETEEN NINETIES

The nineties will be called the decade of information. Information technology is becoming a valuable commodity and will provide a new angle in the way law enforcement perform their tasks in the future. The next ten years represents a time in which law enforcement should climb aboard the cab of the technology train and steer it to the future where information exchange will be as easy as making a telephone call. Through programs, such as management courses by POST, leaders are being taught to embrace these changes and use them for the betterment of law enforcement.

ORGANIZATION ANALYSIS

Analysis of strengths and weaknesses of California law enforcement is equally as important in providing support for information sharing in the future. Establishing future policy and direction for law enforcement depends on how California law enforcement community looks at interoperability to supply a means of sharing information. Policies which support open technology and information exchange are what one hopes to find in tomorrow's law enforcement.

WEAKNESSES

ECONOMIC

Most of today's law enforcement agencies are faced with economic difficulties which will take them through the mid 1990's to recover. Such financial problems provide little to no change in the ability of the police to move to integrated technology that will support information sharing. The call of doing more with less will be management's role in the nineties.

DOWNSIZING

Downsizing law enforcement agencies is also becoming a popular way to reorganize and direct community oriented policing. Some city administrators are pushing for decreased personnel and the hiring of non-sworn positions to handle many officer duties. Providing automation and the sharing of information has little interest while law enforcement is reorganizing itself.

STRENGTHS

COMPUTER LITERATE EMPLOYEES

Today's law enforcement employee has been introduced to information sharing through the use of computers located throughout their respective agencies. These employees are more computer literate and are pressing for more integrated systems in the future. Nearly all have worked on retrieving information from the

computer and are aware of the process to abstract information. As these employees justify to management the need for systems that are integrated, the more likely sharing systems through interoperability will come to reality.

TRAINING

Training regarding the use of sophisticated computer systems, networking and communications has brought together the need for more information. POST is expected to start computer training in the basic academy. Such training will provide for a more rounded officer, having a better understanding of the value to share information.

NEW FACES

Retirement of the "old guard" is taking place across California and new blood is entering the ranks. This old guard, are the past champions of law enforcement who's time has come to relinquish the rings of control to the futurist type managers. These new managers will encourage information exchange through computers. Command College graduates are taking these responsible roles throughout California. These future leaders understand the importance of information sharing and will be researching interoperability as a means to make it a reality.

AUTOMATION

Automation is in its infancy as it pertains to law enforcement applications. Better,

smaller and lower cost computers will be the name of the game in the future. Each of us will be carrying some kind of computer by the end of the decade. We will be using these computers for communications, gathering and sharing information, money tracking and as personal file cabinets. Interoperability will be a term popular in the later portion of the 1990's. Such interoperability will provide transparent information sharing to the user allowing them to retrieve information from dissimilar systems without having to learn new systems.

STAKEHOLDER ANALYSIS

(Strategic Assumption Surfacing Technique - SAST)

When reviewing any approach to the future, it is necessary to identify who will benefit by the organizational plan, who can influence it and who is interested in what the organization accomplishes. Since life is a conglomeration of action and reaction to others, these stakeholders and how they are addressed by the organization can mean the difference between a successful or disastrous future. In addition, it is critical to remember that not all stakeholders are obvious at first and usually do not want or encourage change, these snaildarters will do what they can to throw the proverbial "monkey wrench" into the plan.

The following stakeholders in the area of cooperative information sharing using interoperability among California law enforcement agencies have been identified by a subsection of the NGT members (appendix 3):

1. Law Enforcement Managers
2. CALIFORNIA-IDENTIFICATION (CAL-ID)
3. Communications Industry
4. Patrol Officers
5. City Councils
6. Special Interest Groups
7. News Media
8. Criminal Justice System
9. Data Processing Departments
10. Department of Justice
11. Citizens

STAKEHOLDER ASSUMPTIONS

In this area the panel has put together a set of assumptions as to why the above listed stakeholders will have a relevant interest in the issue of interoperability for cooperative information sharing.

1. Law Enforcement Managers

This particular group will be responding to a wide range of pressures both internally and externally. Their officers want to be safe in the field and need more help while the public and the city administrators demand better service but cannot offer the funding for that very service. These managers realize that by a cooperative pooling

of their resources to provide information sharing, they can not only avoid making the same costly mistakes over and over but they can breath new life into their law enforcement agencies. The "control" issue, once a common downfall of cooperative efforts, will be replaced by a renewed spirit and willingness to reach the goal of the mission statement.

2. CAL-ID (CALIFORNIA IDENTIFICATION)

In the late eighties and early nineties, CAL-ID played an important role in establishing the base for cooperative information sharing. This organization successfully initiated a number of programs that served as a source of guidance and proof that this type of cooperation is beneficial to its participants and achievable. The CAL-ID RAND board, as done in Riverside County, has also proved to be a basis as to how cooperative endeavors can be effectively govern.

3. Communications Industry

This stakeholder will positively benefit from and is a vital contributor in the establishment interoperability to provide cooperative information sharing. Companies such as AT&T and Bellcorp (telephones), Time-Warner (cable television), and the four major broadcasting networks all stand to gain as the information highway and interoperability becomes a reality. Vendors, such as these, from the communications industry will work closely with law enforcement representatives to create better, disaster hardened networks. They will also improve upon the use of satellites to

achieve this goal.

4. Patrol Officers

No one has more to gain or lose by the sharing of information than the officer in the field. Tough economic times will prevent law enforcement from increasing manpower, but the implementation of automation at the patrol level will provide tools to allow the officer to do the job safer and more productively. The officers, the gatherers of the information, will now see the end product of their reporting writing at work.

5. City Councils and County Boards of Supervisors

As the economy works slowly through its recovery, City Councils will be looking to staff to provide creative solutions that will successfully provide services without an excessive financial burden on their constituents. The elected officials support law enforcement and welcome a cooperative working environment. It is believe that the League of California Cities will co-sponsor research efforts to assist law enforcement agencies in finding the most efficient avenues for information sharing, such as interoperability. These leaders realize that to meet the needs of their communities, they must take an equal interest in the implementation of new automation technologies.

6. Special Interest Groups - Snaildarter

These groups will not respond favorably to the idea of information sharing. It should

be expected that the American Civil Liberties Union (ACLU) will attempt to generate legislation that will stifle any sort of cooperative system. Their members will rally that government and law enforcement will use such a system to keep "tabs" on individuals therefore violating the "right to privacy". The NAACP may claim that such information gathering and sharing through automation is a means to justify prejudices. The Hispanic and Asian communities could demand that if information is to be shared, it must include languages other than English to avoid possible hiring discrimination. The strong lobbyists representing these groups will work hard in the legislature to create legal obstacles for interoperability.

7. News Media - Snaildarter

Since good news does not sell papers or attract viewers, the news media will not be generally on the side of a system that will potential reduce criminal activity. Information databases will be targeted by the watchdog journalists that are just waiting for potential misuses of information and mismanagement. For this reason, the powers in charge of a interoperability type information sharing system must be exceptionally careful.

8. Criminal Justice System

If approached properly, the law enforcement community will win the support of the criminal justice system. Cooperative information sharing including such technologies as the implementation of remote arraignments, can promote the courts to rule

favorably on legislation that will support these endeavors. Members from the Attorney General's office and the district attorneys' offices will benefit from the time and money savings aspects of such implementation.

9. Data Processing Departments

Professionals in the data processing industry will prove to be a positive ally in the push towards automation in law enforcement. In return, the law enforcement representatives will educate this industry to the needs of public safety and work in partnership to create a favorable environment for cooperative information sharing.

10. Department of Justice

For years the Department of Justice (DOJ) in California has been working to standardized the form in which information is accessed. Through its leadership in the development and continuous fine tuning of the California Law Enforcement Telecommunications System (CLETS), it has provided the municipal agencies a road map for expanding on this concept. DOJ is also the gateway to the federal systems and protect the interests of California law enforcement by keeping agencies up to date with system reformations such as those expected with the new NCIC 2000 program. DOJ encourages participation by local law enforcement agencies because it recognizes that smaller departments can many times implement new technologies quicker than the State. The knowledge base then available due to the success and failure of these implementations can save the Department of Justice time and money

by not reinventing the wheel.

11. Citizens/Community Groups

The citizens of the municipalities, counties and state represent the tax base which provides the funding for areas such as law enforcement. Community groups such as the local exchange clubs, rotary, or local churches bring these citizens together providing an educational forum to let them share ideas and solutions. There are few residents of a community which advocate more criminal activity in their areas. Neighborhood watch, Citizens On Patrol, and the Combat Auto Theft programs are all current ways that concerned citizens work with law enforcement. The formation of a system which provide citizens a way to report crime via their home computer, either anonymously or identified, seems like the next logical step. Today, 1994, approximately 47% of all households have at least one computer and of that 47% it is estimated that 24% utilized some sort of computer transaction via modem such as home banking, airline ticket purchases or computer bulletin boards. Crime hotlines already exist, a crime bulletin board would offer a new twist on community participation. Understandably though, the major concern of this usually supportive group is the present feeling that the city administrators are lousy fiscal managers with an unpopular habit of holding their safety for ransom. Citizens are demanding that elected officials provide them with safe communities and though they stand behind their police departments, do not want to be forced to pay higher and higher premiums for what used to be a "given" service.

STAKEHOLDER ANALYSIS MAP

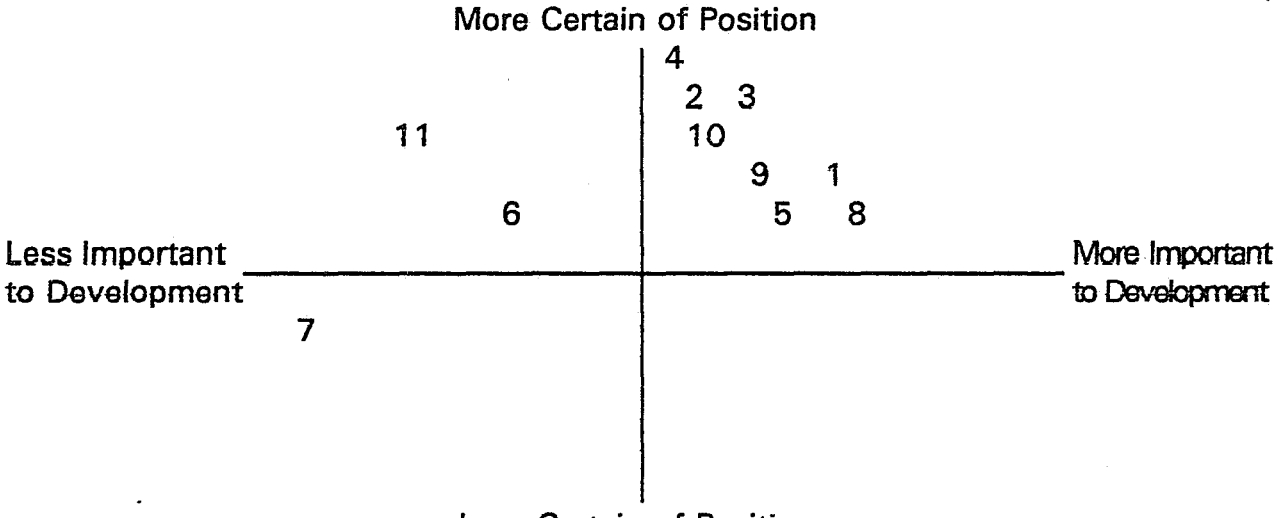

Figure 22

1. Law Enforcement Managers
2. CAL-ID
3. Communications Industry
4. Patrol Officers
5. City Councils
6. Special Interests Groups
7. News Media
8. Criminal Justice System
9. Data Processing Dept
10. Department of Justice
11. Citizens

DEVELOPING ALTERNATIVE STRATEGIES

MODIFIED POLICY DELPHI PROCESS

The subsection group of the original NGT panel that developed the stakeholders lists also participated in a Modified Policy Delphi process to develop strategic alternatives for the implementation of interoperability providing cooperative information sharing. This panel generated, analyzed and selected policy alternatives that would enable California to strategically take advantage of this emerging technology during the next ten years.

Alternative One: Law Enforcement Only Approach calls for a policy alternatives utilizing only members of the law enforcement community. This approach which focuses directly on the use of interoperability as effects law enforcement provides a focus which may not allow for outside considerations.

Alternative Two: High Visibility-Full Information Disclosure Approach consists of full open disclosure to all who wish to become involved. This direction provides a wide view of input toward policy considerations but may slow the process of implementation.

Alternative Three: Consistent-Cooperative Information Disclosure Approach which provides for information exchange from only those stakeholders directly affected.

	CRITERIA SET
1.	Safe Officers/Better Service
2.	Eliminate "Control" Issue
3.	Establish guidelines to oversee issue implementation
4.	Develop dialogue with vendors
5.	Encourage revenue generating ideas
6.	Obtain political support
7.	Create small committees with key people from stakeholder groups
8.	Promote Positive Press (Honest-Open-Teamwork)
9.	Secure a buy-in from all criminal justice components
10.	Participate in change
11.	Utilize all available technologies

The group then proceeded to rate the three alternatives using only the above set of criteria, resulting in the following:

ALTERNATIVES RANK AGAINST CRITERIA SET

	A1	A2	A3
C1	4	1	3
C2	2	4	3
C3	4	1	4
C4	1	2	3
C5	1	1	3
C6	1	3	3
C7	1	1	4
C8	1	2	4
C9	3	2	2
C10	3	3	3
C11	4	3	4
TOTAL	25	23	36

The ranking was based on an average group score on a scale from 1 to 5, where 1 is the lowest and 5 is the highest.

STRATEGIC ANALYSIS

Alternative One: Law Enforcement Approach Only

Using the above ranking, this alternative placed second with its only high marks in the areas of safer officers, establishing guidelines for implementation and utilizing technologies. **PROS:** This strategy has its greatest potential in actually addressing the needs of law enforcement. Implementation time would be faster since the key players already know what they want and would move in that direction as a whole. **CONS:** Having little communication with the outside world, getting support for

funding may prove difficult. In addition, since outside interference would not be a factor, only a small set of individuals would have any input thus putting the law enforcement once again at odds with the rest of the stakeholders.

Alternative Two: High Visibility-Full Information Disclosure Approach

This strategy ranked number three as far as meeting the needs of the criteria set. Its highest mark came in the area of eliminating the "control" issue. **PROS:** More support could be received from the special interest groups through full information disclosure. All the stakeholders have an opportunity to get involved. **CONS:** Potential exploitation of too much available information. The likelihood of implementation bottlenecks as all stakeholders insist on policies that support individual group desires and not that of the issue.

Alternative Three: Consistent-Cooperative Information Disclosure Approach

Clearly this alternative rated at the top, addressing issues such as the implementation guidelines, stakeholder representatives in small groups, promoting positive press and utilizing technologies. **PROS:** This strategy promotes education of non law enforcement stakeholders as to the needs of public safety. It also encourages the distribution of positive press to counter the publicity and glamorizing of violence. Plus, provides a methodology that will get things done with a majority support of the stakeholders. **CONS:** Due to committee input, even small committees, implementation times may go longer than desired. Special interest groups may still

cry foul at the fact that information is being dispersed at a more common sense, conservative pace.

The next step in choosing the final strategy was to once again rank the alternatives but this time using the reaction of the stakeholders. For this portion, the group individually ranked each on a scale from 1 to 10, where 1 is lowest and 10 is highest. These scores where then averaged and tabulated here:

ALTERNATIVE RANKING BY STAKEHOLDERS

	A1	A2	A3
S1	8	2	6
S2	5	2	7
S3	4	4	5
S4	7	3	6
S5	2	6	8
S6	1	9	5
S7	1	10	7
S8	5	3	6
S9	2	2	4
S10	5	2	6
S11	1	8	8
TOTAL	41	51	68

This results put alternative three as the one that would meet most of the stakeholders needs. It is interesting to note that with a variety of people involved, alternative one which concentrated on a single group turned out to be the least popular. Alternative two brought out too many strong emotions in either direction, thus keeping it from first place.

MAKING THE CHOICE

Taking both sets of information, the group chose alternative three as the strategy that they felt would provide the most successful path to the realization of issue. Since the goal is for interoperability to provide cooperative information sharing, a strategy based on that concept was perceived by the participants as the most logical choice.

IMPLEMENTATION PLAN

As outlined in the previous section, the future is a combination of trends influenced by events. What is to be can be left to time or we can take a role in shaping it. "Make it clear to one and all that the future of the enterprise rests on a willingness to experiment, to push in new and untested directions." [14] To make the future happen requires a will to do just that and is best served by a well thought out guide for implementation. A successful implementation plan consists of the following components: 1) defining the key issues; 2) recognizing the major obstacles; 3) establishing the implementation board; 4) identifying the steps to success; 5) developing a reasonable time table and 6) evaluate and improve on weaknesses found in the plan.

In order to make cooperative information sharing through interoperability a part of

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[14] Gaines-Ross, **Fortune Cookies: Management Wit and Wisdom from FORTUNE Magazine**, Vintage Books, New York p.35

the realistic future, the most pressing issue at hand is where to start. Many agencies, large and small, have chosen to begin by introducing the laptop and/or mobile digital terminal to their environments. This has allowed them to take an important step towards the paperless office. Other issues to be addressed range from the fine tuning of interoperability to computer training at the academy.

Since getting there is half the fun and nothing worth having is ever handed out free, there will be obstacles to conquer. Fear of the unknown, the lack of funds, breaking down the "control" barriers, computer architecture and language differences, what communications frequency to use, these are just a few of the hurdles that must be faced. It should be noted that though no foreseeable obstacle can permanently stop the progress towards the goal, many of them if not properly prepared for can slow it down immensely. This slow down will only benefit the groups that fight change and cannot see the future.

The group chosen will be selected from the Department of Justice to put the implementation plan into action must consist of individuals that can see the future and hopefully be filled with the desire to better that future for the majority not the minority. Their views must also be realistic, fair and reflect a willingness to get the project moving, not bury it bureaucratic red tape. Finally, the group must be small, ideally no more than six members, and they must be given the power to make decisions on behalf of the organizations they represent. Every effort must be taken

to avoid the "figure head" or "too many chefs" syndrome.

The "steps to success" start with the policies and procedures that will guide the law enforcement agencies on their journey to interoperability providing cooperative information sharing. Policies such as establishing standards for automated crime reports, incentive programs for revenue generating ideas, creating regionalized centers for records entry and dispatching, adding computers to the academy curriculum and developing a law enforcement satellite communications networks are just a few of the ones needed to mold the future. Then it is the task of the implementation group to advise the agencies of the direction to take and to assist, where possible, to get every department to work together.

As with any time line, some items, though related, can exist independently and can be initiated simultaneously. Others require a pre-existing condition before the next step can begin. It is estimated that within five years nearly all agencies will be utilizing laptop computers in the field, within eight the majority will have mobile digital terminal capability. By the end of the next three year period, computer literacy courses at the academy will be required. Standardization of frequency use and satellite links could take as long as ten to twelve years to complete since these areas are controlled by the federal government. Of course the neverending search for funding will continue. The success of the program will be measured by the impact law enforcement will have on the criminal activity due to this use of technology.

SUMMARY

The normative scenario outlined a better, happier, more productive future. How we get there is up to us and success lies in our abilities to look at the big picture. Many times organizations, such as law enforcement, forget that they are just one part of a whole. They plan their futures as if they are in a vacuum and then they wonder why their plans fail. In this section, we defined our mission, took an honest look at the potential problems and the existing positives, defined who is out there to help or hurt the program, and chose the most workable path for success. Since change cannot and will not happen over night, the next section will identify the transition plan. That plan which will more clearly outline how the future becomes the present.

SECTION IV

TRANSITION MANAGEMENT

CHANGING TO THE FUTURE

To bring about change may cause discomfort for some of those being affected. It is critical to have a good understanding of individual apprehensions with change in order to assure successful implementation of a strategic plan. Providing relief from such anticipations or finding a positive benefit which over shadows the anxiety for those affected with change will greatly improve the chances for success of a project involving cooperative information sharing for law enforcement through interoperability.

The strategic plan provides for an interoperability approach to information sharing concept which deals with data bases located at the various police agencies. With the age of computers, law enforcement has available throughout the state valuable information on data bases about criminals, people, property and vehicles. Providing interoperability to access and share this intelligence among state law enforcement agencies will greatly enhance the crime fighting abilities of California peace officers to identify, apprehend and convict those who are committing crimes.

To accomplish cooperative information sharing, the strategic plan provides for the use of an emerging technology, interoperability. The strategic plan indicates that this technology will allow independent law enforcement agencies to continue with their individual efforts for automating in their respective departments without concern for information sharing in the future. Interoperability allows for these dissimilar systems to communicate with each other via a translator device which will provide information using a language and format the requesting user understands. So, with this technology being used, the apprehensions of those who fear change will be greatly reduced and for those attempting to obtain information from other than their own data bases will appear transparent to them also, thus reducing the fear of the users.

To provide for this change to the future state of interoperability providing cooperative information sharing between law enforcement by the year 2004, a transition management plan needs to be established to deal with the potentially difficult areas of change. The transition management plan is a methodology exercised to pass from the present state to the future state. In this section, a transition management plan is unfolded that integrates the following elements:

1) Identifying the critical mass
2) Analyzing the critical mass as to their readiness and capacity for change
3) Evaluating the critical mass as to their current level of commitment and what the desired level of commitment must be for success
4) Identifying the transition management structure necessary to manage the

transition

5) Technologies which will help those involved move to the future state

6) Provide an evaluation process which provides feedback to measure progress

CRITICAL MASS

The critical mass component groups are a subset from the previously named individuals or stakeholders that in one way or another can influence the final goal to accomplish information sharing through interoperability. Using the stakeholders list identified through the WOTS-UP analysis process, (page 49 of this report), the component groups making up the critical mass needed in the project are acknowledged as:

1) Law enforcement managers

2) Communications industry

3) Criminal Justice system

4) Department of Justice

5) Data processing officials

CRITICAL MASS ANALYSIS

Each group of the critical mass was analyzed by the panel as to its readiness and capability to change. Readiness refers to the willingness to and the motive behind a change, while capability refers to an individual or group's power and influence needed to instigate change. The figure below represents the readiness and capability of each member of the critical mass.

READINESS / CAPABILITY CHART

CRITICAL MASS GROUP	READINESS			CAPABILITY		
	High	Med	Low	High	Med	Low
Law Enforcement Managers	X				X	
Communications Industry	X			X		
Criminal Justice System	X				X	
Department of Justice	X			X		
Data Processing Departments		X		X		

Figure 23

COMMITMENT CHARTING

The following Commitment Chart reflects the current level of commitment (X) that each of these critical mass groups possess as well as their desired position of change (O) necessary to facilitate the strategic plan. The significance of this portion is to illustrate that no change is possible until the critical elements are aligned to a more receptive position.

COMMITMENT CHART

CRITICAL MASS GROUP	BLOCK CHANGE	LET CHANGE HAPPEN	HELP CHANGE HAPPEN	MAKE CHANGE HAPPEN
Law Enforcement Managers	X ----------> O			
Communications Industry	X ----------> O			
Criminal Justice System	X ----------> O			
Department of Justice			X ----------> O	
Data Processing Departments	X ----------> O			

Figure 24

IDENTIFYING THE CRITICAL MASS COMPONENTS

Law Enforcement Managers: This group of individuals are the command staff and heads of law enforcement. These managers' position for the most part has been to let change happen. They will be responding to a wide range of pressures both internally and externally. Their officers want to be safe in the field and need more help serving the public, at the same time the city administrators demand better service but cannot offer the funding for that very service. These managers must begin to get involved with the new technologies available to them or be left in the dust. By moving them to a make change happen position, these managers will obtain a cooperative pooling of their resources in the area of information sharing, avoid making the same costly mistakes over and over, and breathe new life into their agencies. The

"control" issue, once a common downfall of cooperative efforts, will be replaced by a renewed spirit and willingness to accomplish the strategic plan of information sharing through interoperability.

Communications Industry: This critical mass component will positively benefit from law enforcement moving in a concerted effort to communicate with one another and is a vital link to cooperative information sharing using interoperability. The communications industrys' position of let change happen needs to be moved to help change happen. Vendors from the communications industry, from the telephone corporations such as AT&T to the television conglomerates such as Time-Warner, will need to work closely with law enforcement representatives and other key members to create better, disaster hardened networks. Pilot programs linking nearby jurisdictions should be explored as a benefit to both the vendors and the law enforcement users. They will also improve upon the use of satellites to achieve this goal.

Criminal Justice System: Like a sleeping giant, this member of the critical mass can make a definite impact on the future of cooperative information sharing and needs to be awakened from let change happen to help change happen. Members of the criminal justice system are potential users of the information supplied by law enforcement. They use the information in determining fines, sentences, probation and the movement of criminals. Without it, criminals can move about the state and

commit crimes indiscriminately, with little detection from one jurisdiction to another. Interoperability used to provide information sharing will establish such technologies as the implementation of remote arraignments. They are also catalysts to promote the courts to rule favorable on legislation that will support this endeavor.

Department of Justice: For years the Department of Justice (DOJ) in California has been working to standardize the form in which information is accessed. It has the contacts, knowledge and ability to keep the project moving and a firm desire to provide tools, training and information to law enforcement for the ease of accomplishing their task of public safety. Their position from help change happen to taking a leadership roll of make change happen is critical to success. Its leadership in the development and continuous fine tuning of the California Law Enforcement Telecommunications System (CLETS), has provided the municipal agencies a road map for expanding on this concept. DOJ is also the gateway to the federal systems and protects the interests of California law enforcement by keeping agencies up to date with system reformations such as those expected with the new NCIC 2000 program. DOJ encourages participation by local law enforcement agencies because it recognizes that smaller departments can many times implement newer technologies faster than the State. Therefore, it is essential that the project coordinator be chosen from this critical mass member.

Data Processing Officials: Data processing officials have been historically

autonomous individuals making the changes they think are best. The position of block change comes from the perceived loss of control. Hopefully, their position can be moved to help change happen. Professionals in the data processing industry will prove to be a positive ally in the push towards automation in law enforcement. Data processing managers have the technical knowledge to adjust the strategic plan to meet future technologies. In return, the law enforcement representatives will educate these individuals as to the needs of public safety and work in partnership to create a favorable environment for interoperability to supply cooperative information sharing.

TRANSITION MANAGEMENT STRUCTURE

In developing the management structure to provide interoperability type information sharing, focus was made on establishing standards, controls and security requirements for implementation of the strategic plan. Therefore, the transition management group must contain individuals that collectively possess the skills, knowledge and abilities necessary to identify the desired future state, assess the present state and, finally, map out a course that will move between the two.

In choosing the management structure, the panel felt consideration should be made to assure that the structure's leadership had: 1) the authority to mobilize resources to keep the change moving; 2) the respect of existing management and supporters of the change; 3) have interpersonal skills to deal with a wide variety of people with

varied interests. With the desired structure considerations in place, the logical transition group make up would fall into the category of " an official body" structure.

The official body would consist of change oriented representatives from mostly the critical mass components. The group would incorporate a project coordinator who would manage the overall change. This individual would be dedicated and responsible to oversee all elements of the project and coordinating the efforts of others to assure tasks are completed in a timely manner, as related earlier DOJ/CLETS is likely to take the position. For a change of this magnitude, an assistant to the project coordinator may be necessary as the project expands over the years. This position would allow for a level of consistency should the original project coordinator not be able to complete the task. The assistant would be responsible for filtering out extraneous information plus providing a sounding board as the project coordinator puts together this state-wide project. Milestones need to be established that reflect a step by step progress toward the implementation of the strategic plan. To achieve this, certain techniques will assist in obtaining the goal of accomplishing true interoperability information sharing. These techniques are explained more fully in the following pages.

TECHNIQUES AND TECHNOLOGIES TO CHANGE

The transition process uses various techniques and technologies as tools to manage change. In order to accomplish a project of this magnitude, careful consideration of

these tools is essential. Tools recommended for this are as follows:

COMMUNICATION OF VISION will become critical if the entire law enforcement community is expected to come aboard for interoperability to provide information sharing. Early communication will provide recognition for the strategic plan and allow those involved an understanding and a buy-in to the future of information sharing for law enforcement. This communication step can be accomplished by a newsletter from the project director on behalf of the official body tasked with the implementation of the strategic plan. This will greatly reduce the fear of those who are afraid of change.

CONFLICT MANAGEMENT for those that have worked and used out dated technology to accomplish sharing of information needs to be managed. It is hard for those who have spent their lives with understandings and beliefs different from the direction of the strategic plan. Dealing with these issues head-on will help safeguard the security of those employees that will be involved. This can be achieved through regional meetings with agencies that will be affected by the strategic plan.

MILESTONE RECOGNITION is an important tool for the attainment of the strategic plan. Periodic reports are essential for keeping all involved abreast of the accomplishments made by those dedicated to the implementation of the strategic plan. When key milestones are reached, recognition of these accomplishments need

to be shared thus encouraging others to reach the milestone given to them. Providing rewards for those who do reach milestones are discussed further in changing reward systems.

CHANGING REWARD SYSTEMS that will aid in bringing about acceptance to change and commitment to the future, enhance the viability of the strategic plan. Reward systems which recognize those who embrace change and provide little to those who just maintain status quo will aid in implementation. Such rewards could be as simple as recognition by the transition management personnel to those who assist in the acceptance and encouragement of others for the use of such technology.

RESPONSIBILITY CHARTING is a technique used to outline the milestones that need to be accomplished to insure successful transition. Such charting provides understanding of who is responsible for a given task as well as who has the supporting roles assigned to assist in those tasks. The project director early in the process should develop a responsibility chart to assist in the transition.

TRAINING AND EDUCATION on an on-going basis removes fear of change. Everyone is afraid of the unknown and unfamiliar areas of our work environment. By providing introductions to this new technology and follow-up training will greatly reduce the fear and apprehension for those who will be required to access shared information through interoperability.

TRANSITION MANAGEMENT

OUTLINE

I. YEAR ONE

A. THE DEPARTMENT OF JUSTICE BRINGS TOGETHER THOSE INVOLVED IN THE STRATEGIC PLAN TO DEVELOP A TRANSITION MANAGEMENT PLAN.

B. UNDERTAKE AN ANALYSIS OF THE CRITICAL MASS.

C. DEVELOP A PLAN TO MOVE CRITICAL MASS PLAYERS TO A DESIRED COMMITMENT (THIS MAY BE AN ON-GOING PROCESS OVER A NUMBER OF YEARS).

II. YEAR TWO

A. SELECT TYPE OF ORGANIZATIONAL BODY THAT WILL OVERSEE THE TRANSITION.

B. OBTAIN FINANCING FOR PROJECT TRANSITION MANAGEMENT.

C. APPOINT PROJECT DIRECTOR AND ASSISTANTS.

III. YEAR THREE

A. SURVEY EXISTING LAW ENFORCEMENT AGENCIES REGARDING EXISTING AND FUTURE AUTOMATION.

B. SURVEY VENDORS WHO HAVE TECHNOLOGY INTERESTS IN TRANSPARENT INFORMATION EXCHANGF (INTEROPERABILITY).

IV. YEAR FOUR

A. DEVELOP R.F.P. AND/OR R.F.I. FOR THE STRATEGIC PLAN

B. DEVELOP STRUCTURED IMPLEMENTATION PLAN AND TIMETABLE

C. PROVIDE A FORM OF COMMUNICATION TO CRITICAL MASS AND POTENTIAL USERS.

D. LOCATE FINANCING SOURCE FOR PROJECT IMPLEMENTATION.

V. YEAR FIVE

A. REVIEW R.F.P.s OR R.F.I.s AND SELECTION OF THE BEST VENDOR.

B. PROVIDE CHANGES NEEDED TO BRING ABOUT IMPLEMENTATION.

C. SELECT IMPLEMENTATION PERSONNEL TO WORK WITH VENDOR.

D. PROVIDE FINANCING FOR IMPLEMENTATION.

VI. YEAR SIX THROUGH TEN

A. IMPLEMENTATION TEAM TO DESIGN PLAN FOR IMPLEMENTATION OVER THE NEXT FIVE YEARS.

SECTION V

CONCLUSION

The purpose of this study project was to examine ***How Interoperability Will Serve to Accommodate Information Sharing for Law Enforcement by the Year 2004.*** The theme expressed in this study was the importance of sharing of this computer information to facilitate the identification of individuals committing criminal activity.

In evaluating the results of the Nominal Group Technique, trends indicated a high probability that Interoperability will occur if supported by applicable planning and management. Research in this study has shown that ***Violent Crime*** is a major concern of citizens and government alike. With citizens focusing in on criminal behavior, law enforcement should experience strong public support in the future. Citizens who are critical stakeholders will form a partnership with law enforcement to make their streets, parks, and communities safer.

Law enforcement agencies are being inundated with computer technology. No sooner do they learn about one type of computer it becomes obsolete and another takes its place. Interoperability, however, is not just a technology but a theory for the direction of cooperative information sharing regardless of the technology an agency has chosen to pursue. We have all heard the terms network, local area

networks, wide area networks. Interoperability takes these one dimension further providing the exchange of information in a transparent application to the requesting agency in a format they understand.

This study has shown the importance of information sharing. If the trends continue, as forecasted, there should be a high willingness by law enforcement to move in the direction of cooperative information sharing. In order to bring about this change law enforcement managers must keep themselves abreast of this emerging technology.

This study also has shown that funding will play an important part in taking us from our present state to the desired future. Funding sources whether local, state or federal level must be developed in support of the development of interoperability technology.

In summation, if law enforcement is going to meet the demands of an increasingly violent and mobile society, then a inevitable conclusion is that they must move in an a expeditious manner to accomplish the implementation of INTEROPERABILITY, the sharing information among themselves.

SUB-ISSUES CONSIDERATIONS

How will agencies handle the costs associated with interoperability for participating agencies?: Information sharing networks will start small and consist

of member agencies contracting with a lead agency which will supply a service for a specified fee. As interoperability expands the size of these networks, the financial and governing bodies, will transfer to a group that represents the interests of each member involved. The Joint Powers Agreement (JPA) format is a very popular and successful approach for this type of organization. The fee structure should reflect actual cost plus 5% for unexpected items and 5% to 10% for growth or future shared endeavors.

The ultimate goal would be the establishment of an agency dedicated to interoperability within the Department of Justice, such as CLETS, to pull together every law enforcement agency and oversee the costs related to its operation.

How will interoperability impact the delivery of police services?: The law enforcement community has an extensive history of information gathering. Unfortunately, the actual use of this information has been limited. The introduction of the computer increased the retrievability of the information but it is still limited by the boundaries of a particular agency or computer system. Interoperability provides a new horizon in the area of information sharing. Police services can only improve as a result of interoperability. With it, agencies having access to potentially unlimited sources of information will increase their apprehension and crime solving levels.

What steps will be necessary to handle the political considerations for the approval of such systems?: Necessary steps required for the successful approval of

interoperability systems range from who will legally be able to provide and use the service to how the providers and users will be regulated. Local law enforcement agencies must keep up to date with legislation that is presently being passed which can greatly limit their progress. Law enforcement leaders must start working together now to develop a legislative outline and work close with their elected representatives in order to activity shape the future of interoperability and shared information regulations.

How will privacy issues be handled?: The threat of "big brother" has always had a negative reception from the general populace. No one likes the idea of someone watching them or the possibility of losing their right to privacy. Agencies, such as the American Civil Liberties Union, will fight the expansion of shared information systems for these very reasons. It is imperative that law enforcement take great care in the handling of this resource and not exploit it. The unnecessary release of 911 tapes in the O.J. Simpson case dramatically illustrates the potential for exploitation and the damage it can cause. Release of information must be carefully controlled to protect the privacy rights of individuals otherwise the entire system could be jeopardized.

What will be the training needs for employees in order to facilitate shared information systems?: Employee training needs will be broken down into categories such as: basic user skills covering information entry and retrieval; use of outside agency

information; liability of information use and release; and crime solving skills utilizing shared information systems. As the transition from manual to automated systems continues, training must emphasize how automation benefits the employee. Even now there are many in the law enforcement environment that would be very happy if the never had to use a computer for their entire career. Direct education is the only way to change this type of thinking.

RECOMMENDATIONS

Preparation by law enforcement must start now if we are going to take advantage of technology such as interoperability by the new millennium.

The study has identified stakeholders and its critical mass associated with the bringing about of interoperability. Three scenarios were written of which one set the path for a desired future state, providing for a more efficient and effective law enforcement. The strategic plan provides a direction to mitigate difficulties while the transition management section provides law enforcement managers a blueprint from the present state to the desired future state of interoperability.

Major political and financial implications for law enforcement in California surfaced during this research. Most of the strategic planning, policy development, and the transition management plan focused on these areas. Due to the vast and changing

technology of automation, technological advances in hardware and software is left to future researchers.

FUTURE IMPLICATIONS

Automation has hit law enforcement by storm, emerging managers into the information society without preparation. Tomorrow's law enforcement managers will be future oriented leaders who will keep their minds open and strive to improve on how we do business.

During the next ten years law enforcement will undertake significant changes on the way it does business. This interoperability technological study is but one of these changes. Law enforcement managers will hopefully use this study to bring about information sharing, laying the ground-work for future technologies associated with the information super highway of tomorrow.

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APPENDIX 1

TRENDS

1. USE OF COMPUTERS BY LAW ENFORCEMENT
2. REGIONALIZATION OF POLICE SERVICES
3. STATE FUNDING FOR AUTOMATION
4. PUBLIC SUPPORT FOR AUTOMATION
5. CRIMINAL JUSTICE SYSTEM CHANGES
6. INCREASED POPULATION
7. COMPUTER COSTS DECREASE
8. INCREASED CRIME RATE
9. CHANGE IN DEMOGRAPHICS
10. COMPUTERS GETTING SMALLER
11. MORE INFORMATION AVAILABILITY
12. INCREASED FEAR OF THE PUBLIC
13. CIVILIANIZATION OF POLICE DEPARTMENTS
14. COMMUNITY ORIENTED POLICING
15. PRISON CONSTRUCTION RATE
16. SECURITY FOR SHARED SYSTEMS
17. PUBLIC LACK OF TOLERANCE FOR INCREASE IN CRIME
18. MOBILITY OF SOCIETY
19. COOPERATION BETWEEN POLICE AGENCIES
20. CRIMINAL SOPHISTICATION
21. REGIONAL EMPLOYMENT RATE
22. COMPUTER CHIP HOLDS MORE DATA
23. CIVIL PROCESS OVER CRIMINAL PROCESS
24. PUBLIC ASSISTANCE IN COMMUNITY PUBLIC SAFETY
25. EDUCATION LEVEL OF POLICE APPLICANTS
26. REQUIREMENTS FOR POLICE OFFICERS

APPENDIX 2

EVENTS

1. ECONOMIC RECESSION/DEPRESSION WITH UNEMPLOYMENT OVER 15%
2. FEDERAL/STATE FUNDING FOR SHARED SYSTEMS
3. WIDE AREA INTEROPERABILITY PROVIDES LOW COST NETWORKING
4. SATELLITES USED TO ENHANCE COMMUNICATIONS
5. COMPUTERS PROVIDE FOR PAPERLESS POLICE DEPARTMENTS
6. EARTHQUAKE OR MAJOR DISASTER
7. COMPUTER LITERACY TAUGHT IN POLICE ACADEMY
8. FEDERAL IDENTIFICATION CARDS REQUIRED FOR ALL CITIZENS
9. U.S. SUPREME COURT RESTRICTS CERTAIN INFORMATION THAT CAN BE SHARED
10. CITIZENS REPORT CRIMES VIA PERSONAL COMPUTERS
11. MUNICIPAL GOVERNMENT CUTS FUNDING FOR PUBLIC SAFETY
12. REGIONAL POLICE DEPARTMENTS INCORPORATE SMALLER CITY POLICE
13. FEDERAL MANDATES FOR UNIFORM CRIME REPORTING
14. VOICE REGONITION COMPUTERS ENHANCE REPORT TAKING
15. STATE RESOLUTION PASSED TO FUND TWO POLICE OFFICERS PER 1000 POPULATION
16 COURTS MANDATE CITIES TO HANDLE THEIR OWN INFRACTIONS AND MISDEMEANORS FOR FIRST TIME OFFENDERS
17. IDENTIFICATION AND LOCATION DEVICE MANUFACTURED IN VEHICLES
18. HOME ARREST WITH SENSOR FOR SENTENCE LESS THAN SIX MONTHS
19. IMMIGRATION INCREASED DUE TO GLOBAL ECONOMY
20. SEMIAUTO WEAPON OWNERSHIP RESTRICTED TO MILITARY AND PUBLIC SAFETY USE ONLY
21. MARIJUANA AND METHAMPHETAMINE LAWS CHANGED TO ALLOW PERSONAL COMSUMPTION
22. COMPUTER CRIME BECOMES HIGHEST LOSS PROPERTY CRIME
23. NOTEBOOK COMPUTERS WIT DATA COMMUNICATIONS PROVIDED FOR ALL POLICE PERSONNEL
24. BILLING OF OFFENDERS FOR COST OF POLICE SERVICES LEGALIZED

APPENDIX 3

NGT PANEL

1. Chief of Police - Indio Police Department (Jerry Graves)
2. Records / Communication Manager (Gary Heckman / Indio PD)
3. Jail / Radio Communications Supervisor (Jim Runge / Palm Springs PD)
4. Patrol Lieutenant (Ray Griffith, Cathedral City PD)
5. Finance Director (Finance Director, Cathedral City)
6. Fire Captain (Mark Baker, Cathedral City FD)
7. Crime Prevention Officer (Eva Guenther-James, Cathedral City PD)
8. Public Safety Computer Manager (Michelle Johnson, DIMES)
9. Police Captain (Robert Ohlemann)

NGT Sub Committee

1. Gary Heckman - Indio Records/Communications Manager
2. Jim Runge - Palm Springs Jail/Radio Communications Manger
3. Mark Baker - Cathedral City Fire Captain
4. Eva Guenther-James - Crime Prevention Officer
5. Michelle Johnson - Public Safety Computer Manager

APPENDIX 4

The Policy Analysis Co., Inc. SIGMA Scenario Generator

Used for Nominal Scenario

10 year SCENARIO that begins in 1994

THIS IS WHAT HAPPENS!!

1.	May 1997	E-10: CITIZENS REPORT CRIMES VIA COMPUTERS			
	T = 146	P = 63.05	+I = 8	-I = 0	
2.	Sep. 1997	E-7: COMPUTER LITERACY TAUGHT IN POLICE ACADEMY			
	T = 156	P = 97.02	+I = 10	-I = 0	
3.	Feb. 1998	E-9: U.S. SUPREME COURT RESTRICTS CERTAIN INFORMATION SHARING			
	T = 147	P = 59.03	+I = 0	-I = 9	
4.	Feb. 1998	E-13: FEDERAL MANDATES FOR UNIFORM CRIME REPORTING			
	T = 151	P = 63.04	+I = 7	-I = 3	
5.	Aug. 1998	E-5: COMPUTERS PROVIDE FOR PAPERLESS POLICE DEPARTMENT			
	T = 161	P = 92.03	+I = 10	-I = 0	
6.	Apr. 1999	E-12: REGIONAL POLICE DEPARTMENTS CREATED			
	T = 167	P = 75	+I = 6	-I = 0	
7.	Jul. 2001	E-4: SATELLITE USED TO ENHANCE COMMUNICATIONS			
	T = 171	P = 63.04	+I = 7	-I = 0	
8.	Oct. 2001	E-3: INTEROPERABILITY PROVIDES LOW COST NETWORKING			
	T = 162	P = 59.03	+I = 9	-I = 0	
9.	Sep. 2003	E-6: EARTHQUAKE OR MAJOR DISASTER			
	T = 168	P = 75	+I = 0	-I = 6	

The EVENTS which do NOT happen are:

1. E-1: ECONOMIC RECESSION/DEPRESSION UNEMPLOYMENT 15%
2. E-2: FEDERAL/STATE FUNDING FOR SHARED SYSTEMS
3. E-8: FEDERAL COMPUTERIZED I.D. CARDS FOR ALL CITIZENS
4. E-11: MUNICIPAL GOV'T CUTS PUBLIC SAFETY FUNDING
5. E-14: VOICE RECOGNITION COMPUTERS HELP REPORT TAKING

APPENDIX 5

The Policy Analysis Co., Inc. SIGMA Scenario Generator

Used for Hypothetical Scenario

10 year SCENARIO that begins in 1994

THIS IS WHAT HAPPENS!!

1. Nov. 1995 E-4: SATELLITE USED TO ENHANCE COMMUNICATIONS
   T = 228 P = 59.03 +I = 9 -I = 0
2. Nov. 1995 E-6: EARTHQUAKE OR MAJOR DISASTER
   T = 234 P = 75 +I = 0 -I = 6
3. Jul. 1997 E-13: FEDERAL MANDATES FOR UNIFORM CRIME REPORTING
   T = 238 P = 63.04 +I = 7 -I = 3
4. May 1999 E-2: FEDERAL/STATE FUNDING FOR SHARED SYSTEMS
   T = 244 P = 75 +I = 6 -I = 0
5. Apr. 2000 E-12: REGIONAL POLICE DEPARTMENTS CREATED
   T = 250 P = 75 +I = 6 -I = 0
6. Aug. 2002 E-5: COMPUTERS PROVIDE FOR PAPERLESS POLICE DEPARTMENT
   T = 256 P = 75 +I = 10 -I = 0
7. Feb. 2003 E-9: U.S. SUPREME COURT RESTRICTS CERTAIN INFORMATION SHARING
   T = 262 P = 75 +I = 0 -I = 9

The EVENTS which do NOT happen are:

1. E-1: ECONOMIC RECESSION/DEPRESSION UNEMPLOYMENT 15%
2. E-3: INTEROPERABILITY PROVIDE FOR LOW COST NETWORKING
3. E-7: COMPUTER LITERACY TAUGHT IN POLICE ACADEMY
4. E-8: FEDERAL COMPUTERIZED I.D. CARDS FOR ALL CITIZENS
5. E-10: CITIZENS REPORT CRIMES VIA COMPUTERS
6. E-11: MUNICIPAL GOV'T CUTS PUBLIC SAFETY FUNDING
7. E-14: VOICE RECOGNITION COMPUTERS HELP REPORT TAKING

APPENDIX 6

The Policy Analysis Co., Inc. SIGMA Scenario Generator

Used for Normative Scenario

10 year SCENARIO that begins in 1994

THIS IS WHAT HAPPENS!!

1.	May 1995	E-5: COMPUTERS PROVIDE FOR PAPERLESS POLICE DEPARTMENT			
	T = 314	P = 75	+I = 6	-I = 0	
2.	Jun. 1995	E-3: INTEROPERABILITY PROVIDES LOW COST NETWORKING			
	T = 318	P = 63.04	+I = 7	-I = 3	
3.	Jul. 1998	E-4: SATELLITE USED TO ENHANCE COMMUNICATIONS			
	T = 324	P = 75	+I = 6	-I = 0	
4.	Apr. 1999	E-10: CITIZENS REPORT CRIMES VIA COMPUTERS			
	T = 332	P = 63.05	+I = 8	-I = 0	
5.	May 1999	E-9: U.S. SUPREME COURT RESTRICTS CERTAIN INFORMATION SHARING			
	T = 339	P = 75	+I = 0	-I = 9	
6.	Oct. 1999	E-6: EARTHQUAKE OR MAJOR DISASTER			
	T = 344	P = 75	+I = 0	-I = 6	
7.	Sep. 2000	E-12: REGIONAL POLICE DEPARTMENTS CREATED			
	T = 350	P = 75	+I = 6	-I = 0	
8.	Nov. 2000	E-8: FEDERAL COMPUTERIZED I.D. CARDS FOR ALL CITIZENS			
	T = 341	P = 59.03	+I = 0	-I = 9	
9.	Feb. 2001	E-2: FEDERAL/STATE FUNDING FOR SHARED SYSTEMS			
	T = 345	P = 63.04	+I = 7	-I = 3	
10.	Jun. 2001	E-14: VOICE RECOGNITION COMPUTERS HELP REPORT TAKING			
	T = 352	P = 31.07	+I = 7	-I = 0	

The EVENTS which do NOT happen are:

1. E-1: ECONOMIC RECESSION/DEPRESSION UNEMPLOYMENT 15%
2. E-7: COMPUTER LITERACY TAUGHT IN POLICE ACADEMY
3. E-11: MUNICIPAL GOV'T CUTS PUBLIC SAFETY FUNDING
5. E-13: FEDERAL MANDATES FOR UNIFORM CRIME REPORTING