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CLASS SEVEN

WHAT IMPACT WILL OPTICAL DISK TECHNOLOGY HAVE ON LAW ENFORCEMENT RECORDS MANAGEMENT BY THE YEAR 1998?

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EXECUTIVE SUMMARY

What impact will optical disk technology have on law enforcement records management by the year 1998?

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What does the future hold regarding storage and retrieval of records?. What technology is available to impact the general but critical subject of records management? To address these questions, literature scanning was undertaken which seemed to indicate the very high storage capacity of optical disks might be the answer. To test this possibility, personal interviews and surveys were conducted. A nominal group technique (NGT) was conducted to thoroughly explore the numerous trends and events which could affect the issue. A cross-impact analysis was utilized to identify interrelationships of the various trends and events.

Reflecting on all information gathered, three scenarios were developed. The normative scenario, showing a well-conceived and efficiently run records bureau by the year 1998, was selected to pursue as both possible and desired. In the future office, optical disks are seen as the storage medium. Massive amounts of information are stored in a very small space. Report "images" replace tons of photocopies and their related costs.

An analysis was undertaken to identify present departmental capabilities and weaknesses. Those either affecting, or affected by the plan, were identified. Certain assumptions were made about these "stakeholders". Within this group, certain persons were seen as more important for gaining acceptance of the plan. Of this "critical mass", two , the city manager and city council, were viewed as demanding most of our attention. Logical reasoning, backed with facts, figures, and a commitment to succeed, was the selected negotiation strategy for dealing with these persons.

A strategic plan was chosen which called for the formation of a records storage and retrieval committee comprised of persons representing all divisions of the department.

The committee would be responsible for evaluating records needs for all areas of the department and assessing what optical disk vendors offer to possibly fill those needs. To reduce stress and instill commitment, the committee was to solicit feedback from all persons involved. These persons are those who will be entering information as well as the system's end users.

A project manager was to be assigned to execute the plan. He/she would report directly to the chief regarding progress, pitfalls, etc. Supporting technologies included orientation of department personnel, the city council and city manager.

The final step in the transition was setting up a monitoring system, via the committee, which would regularly evaluate progress and facilitate quick identification of any potential need for mid-course corrections.

In the final summation of this monograph, we see our initial question answered. Optical disk technology will positively impact the records storage and retrieval aspect of law enforcement records management by 1998, if not sooner. Though projections are for a ten-year period, we may realize the impact sooner as technology continues its amazing progress.

The most important implication we see, is that our ability to obtain optical disk systems will depend on the quality of planning and commitment by those who can gain the most from it. This new technology will help solve records storage and retrieval problems. It's up to us to make it a part of our future.

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INTRODUCTION

What law enforcement agency doesn't have a person or persons who like things "the way they have always been"? Who doesn't have those who are satisfied with explaining how they do things by saying "we've always done it this way". These persons are found in all departments, and if listened to, can hold back necessary progress as we face the future in our rapidly changing society.

One of the most obvious areas in law enforcement faced with a very rapidly changing environment is records management. The rapidity of change is apparent in the methods with which we handle an ever-increasing work load and storage problems associated with the handling of paper, without subsequent increases in personnel. This is where we turn to technology for help.

When applying the term "technology" to records management, we can envision the office of today, and easily reflect on how many changes have already occurred in a very short period of time. Does this mean what we have now is going to be sufficient for the next 5 or 10 years? Does this mean the technology being developed now will meet the future needs? The best way to approach these questions is to look at how we handled records management in the past, look at where we are now, and look at what the future appears to hold. Once we have offered these three perspectives, we will narrow the scope of our "futures" inquiry to one emerging data storage technology -- optical disks.

STORAGE AND RETRIEVAL OF RECORDS--THE PAST

We know of those who look back fondly to the time when we stored all of our reports in files from one year to the next and indexed them on 3"x5" cards.[1] Times were much simpler then and, depending on the size of the community and crime rate, this method was usually sufficient. The officer went to the call, filled out a handwritten report, and turned it in at the end of shift. The records clerk usually had a few of these reports turned in during the shift, and once in a while there were a couple left over from the previous shift. The report would then be placed next to the typewriter and an index card would be inserted.

From the report, information about the persons involved would be typed on the card (whether a victim, suspect, witness, etc.), together with the type of crime, and the date of occurrence. Of course, there were steps taken to speed the process of later retrieval, such as color-coding the cards to indicate weather the crime was a misdemeanor or a felony, or if an arrest was involved. Another color indicated it was an accident report versus a crime, thus telling us to look in a different file. The indexing process could involve a few minutes to quite a few minutes depending on the number of parties involved.

Now the report was copied with copies routed to the appropriate locations. The reports having no suspects were filed in a folder in numerical order. Those needing follow-up were sent to detectives. Depending on a number of things, the case might be reviewed with the district attorney for a complaint.

Regardless of where the report went, the original was always placed in a file in anticipation that someday it might be needed again. When a file had a number of reports in it, another file was started. This process went on throughout the years and we kept looking for more and more space in which to store these reports and faster

means to locate and retrieve them. What we did was build bigger rooms and/or seek other locations to place our file cabinets, thus creating larger and larger archives and finding our retrieval of reports slower and slower.[2]

When a report was needed at a later date, sometimes just to look at, the clerk had to go to the card index, thumb through until it was found, note the report number, then go to the paper file and bring it out. Many times the requesting party would ask for a photocopy, then the original was returned to the file. One of the many tragedies of this method was that if the report copy was not needed, it was destroyed. Copy costs kept going up, and search and retrieval times showed no improvement.

STORAGE AND RETRIEVAL OF RECORDS--THE PRESENT

Having recognized storage as a problem, agencies currently take large volumes of paper reports and place them on microfilm or microfiche.[3] This has helped tremendously as literally hundreds of police reports can be placed on a single role of microfilm or sheets of microfiche. What has occurred further is that the first lines of reader-printers were found to be too slow. A clerk still had to go to the card index and find the report number. Then you had to pull the appropriate roll of film or sheet of fiche. A manual search took time and, once located, the hard copy was made.

As we searched for more speed of retrieval, CAR (Computer-aided retrieval) systems were introduced which currently are utilized in numerous police records sections.[4] Now the clerk can go either to the card index (fortunately few, but still some, departments use the card system) or the automated index, and find the report number so the copy can be made.

Because the use of the computer has so rapidly increased, sophisticated records management systems give the investigator much more information than was ever previously available. Still, for the minute details of any certain report, the original is pulled and a copy is made. How much has really changed from storage and retrieval of the past?

Now the report is written and turned in as in the past. In several agencies, reports are tape-recorded by the officer and later transcribed. In either case, the report makes its way to records, where it is indexed. In the case of agencies using the card method, nothing has changed. Where computer records management systems are in place, indexing of information is much improved; however, the copy costs seem to continue to rise. Still, investigators and officers needing report information rely heavily on getting the clerk (whose volume of reports has greatly increased) to either pull the hard copy or microfilm/microfiche and make a copy for review or placement into a complaint package for the district attorney.

STORAGE AND RETRIEVAL OF RECORDS--THE FUTURE

Few will dispute the tremendous speed with which technology is moving. As more and more advancements are made, law enforcement records management will likewise benefit. Will we recognize the potential? Will we step out of the traditional reactive role usually associated with law enforcement and actively seek new and advanced ways to handle the information overload we are already beginning to experience? Will we continue to wait until advancement is proven by others before we risk stepping into unexplored areas of technology? Can we convince the city councils and boards of supervisors to place less emphasis on the bottom-line, up-front costs and look more at the long-term cost benefits? Will we properly prepare the work force and the managers who will be directing it?[5]

The challenge is great, but the benefits are many. Within the next five to ten years, there will be a break from what we know as paper reports. It is not believed that within this time frame we will achieve a paperless environment; however, the use of paper will diminish in proportion to the increase in reading images of reports from display screens.

Networking between records and all other portions of the police department will not only increase efficiency of the records management function, but will benefit any division in need of the stored information. The benefit, therefore, will be felt departmentally.

Further steps will cause a network tie with other agencies having regular interaction with the department, notably the district attorney. As it is the case with any transition, much emphasis will need to be given to the people involved, whether it be the people in power or the persons asked to utilize the technologies provided.

The future storage and retrieval of report information will rely greatly on how much capacity we have to store the information and how quickly and accurately it can be located and viewed. The time necessary to preserve the data, as well as the expertise needed to ensure its lengthy storage (approximately thirty years), must be reduced. For all of these needs there stands a relatively new but rapidly advancing storage medium -- optical disk, something likely to be a part of law enforcement records management in the future.

DEFINING THE FUTURE

METHODOLOGY

The initial focus of this study was to be the future impact of technology in general as it applies to law enforcement records management. I wasn't far into the scanning process, however, when it became quite apparent this scope was far too encompassing. To define it would be a monumental task at best. I developed a futures wheel (appendix A) to help visualize the interrelationships of sub-issues, then began to narrow the subject area. I did this by reflecting upon the various problems which came to my attention as the records manager for my department. Certainly, there were numerous situations which deserved attention; however, the one standing out in my mind the most was our constant struggle to find storage space. There were not enough places to deposit the property and evidence we took in. There was little space in the existing portions of the police facility, and if space had existed, it had long since been stuffed with boxes of computer printouts, reports, etc. For one reason or another, these were deemed "possibly needed someday." I also noted that if a report was requested which was over two years old, a clerk would have to go downstairs to archives and get the original, bring it to the photocopy machine, then return it downstairs. Reports over three years old were on microfilm, which helped; however, regardless as to how the report was retrieved, it was photocopied and handed out to the requester.

Numerous reports were shredded once viewed, resulting in a sudden and costly demise for a report which took much time and effort to retrieve. I discussed these observations with previous departmental records managers as well as professionals from both the public and private sectors I met through the Association of Records Managers and Administrators (ARMA). Right on the heals of this, nearly by default, I

received an invitation to attend a demonstration of optical disk storage, presented along with other advances in records storage and retrieval. What I found was most persons with a background in records management quickly agree storage of information, along with its quick and efficient retrieval, is a major concern.

Will this new storage media, optical disks, be the technology which will bring about a cure to records storage problems? Will it store reports easily, and retrieve them while using the minimal amount of space? Will it meet the original document demands legally placed on police reports? Will the work force which is asked to operate the systems associated with optical disks be able to do so? Can a system be developed which is affordable?

LITERATURE SCAN AND PERSONAL INTERVIEW

With these and other questions in mind, I began to contact people. I also visited the POST library and spent several hours poring over articles dealing with technology, specifically optical disks. I also scanned those dealing with the changing work force as it deals with rapidly changing technology.

A very important and helpful part of my scanning effort came in form of a number of personal interviews and on-view visits. The interviews ranged from vendors who themselves had only a small knowledge of what optical disks were all about to those specializing in that technology. It also included talking to numerous law enforcement managers, both with and without records experience.

Travels included a three-day technology conference and on-site visits. The visits included a research and development site, a company which manufactures optical disk drives, and a company which builds optical disk systems. The Anaheim Police Department, which uses perhaps the first optical disk storage system attempted in law enforcement records management, was also visited.

SURVEYS

I next formulated a set of questionnaires, one for records managers and one for technology experts. These forms offered some trends and events which might effect the issue of optical disk technology and its impact on future law enforcement records management. They were sent or delivered to 30 managers and 30 technology experts. The results of the surveys, coupled with the previous scanning results, created a large set of candidate trends and events.

To this point, much information had been gathered. Now it was time to put a Nominal Group (NGT) together, in an effort to make projections and refine trends and events which would most affect the future of optical disks in law enforcement records management.

THE NOMINAL GROUP TECHNIQUE (NGT)

Having asked for and received previous commitments to attend the NGT, I gathered a group of seven people at an off-site location, asking them to plan on a day's work without outside interruption. The persons making up the NGT included four from within law enforcement (two with records management experience, two without), and three from outside, including a computer expert, a vendor who sells records equipment (including optical disks), and a person who troubleshoots computer and other records system problems.

TREND DEVELOPMENT

The nominal group (Hereafter referred to as the NGT) reviewed the lists of candidate trends. They were then asked to offer any additional trends they felt were important to the issue. A substantial amount of time was spent defining the meaning of each to make certain the group agreed as to what each resulting trend statement meant relative to the question "What impact will optical disk technology have on law enforcement records management by the year 1998?"

Several rounds were accomplished in which NGT members offered their individual beliefs as to which trends are most important to the issue. As it turned out, some of the trends initially felt by some to be very important to the issue, were easily passed over in later rounds. This was a result of the group beginning to narrow the large list down to the five most important.

What this indicated is that there are a multitude of trends which can either positively or negatively impact this issue. With this fact in mind, I cautioned the group not to be too disappointed if the trends they offered were eliminated before the conclusion of the NGT efforts. This process is not a certain art, but rather a method to project more accurately what the future appears to hold.

The five trends selected by the NGT, felt to have the greatest value for forecasting were the following:

1. **TREND 1**--The level of budget restrictions placed on law enforcement.
2. **TREND 2**--The level and speed of technological advances.
3. **TREND 3**--The level of changes in management style of law enforcement managers.

4. **TREND 4**--The level of technological awareness in the law enforcement work force.

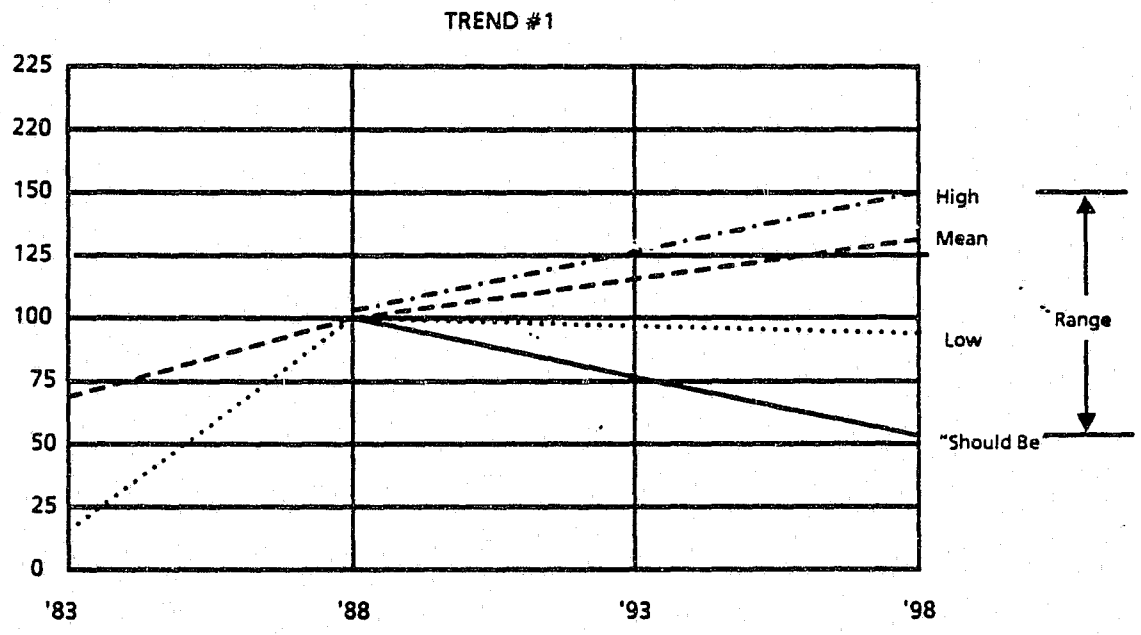
5. **TREND 5**--The level of informational networking (both within the law enforcement agency and with other governmental agencies).

With the trends identified, the NGT was asked to draw upon their own knowledge and estimate the level of each of trend. They independently looked back on each trend as they believe it stood five years ago in relation to today, with today being 100%. The next step was to look forward to where they believe each will be in the next ten years.

The final step was to look at where it was felt each trend should be in order to achieve the desired future, assuming optical disk technology will have a positive impact on records management for law enforcement.

TREND 1: LEVEL OF BUDGET RESTRICTIONS

The following chart indicates the high, low, and mean projection of the NGT regarding this trend. The chart also indicates the average "should be" projection of the NGT, which is indicated only from today forward.



Looking at the NGT's projections, it becomes apparent the majority of the group felt there were fewer budget restrictions placed on law enforcement five years ago than there are today. This estimate ranged from a low of 20% of todays level five years ago compared to a high of 100% (the same level as today). The mean for the NGT equaled 72%, indicating the group as a whole felt there is, today, approximately 28% more budget restrictions than there were five years ago. In the discussions, the NGT referred several times to the fact that Proposition 13 restrictions on property taxes are being felt more than ever in all areas of governmental budget, including the availability or unavailability of money for new technologies.

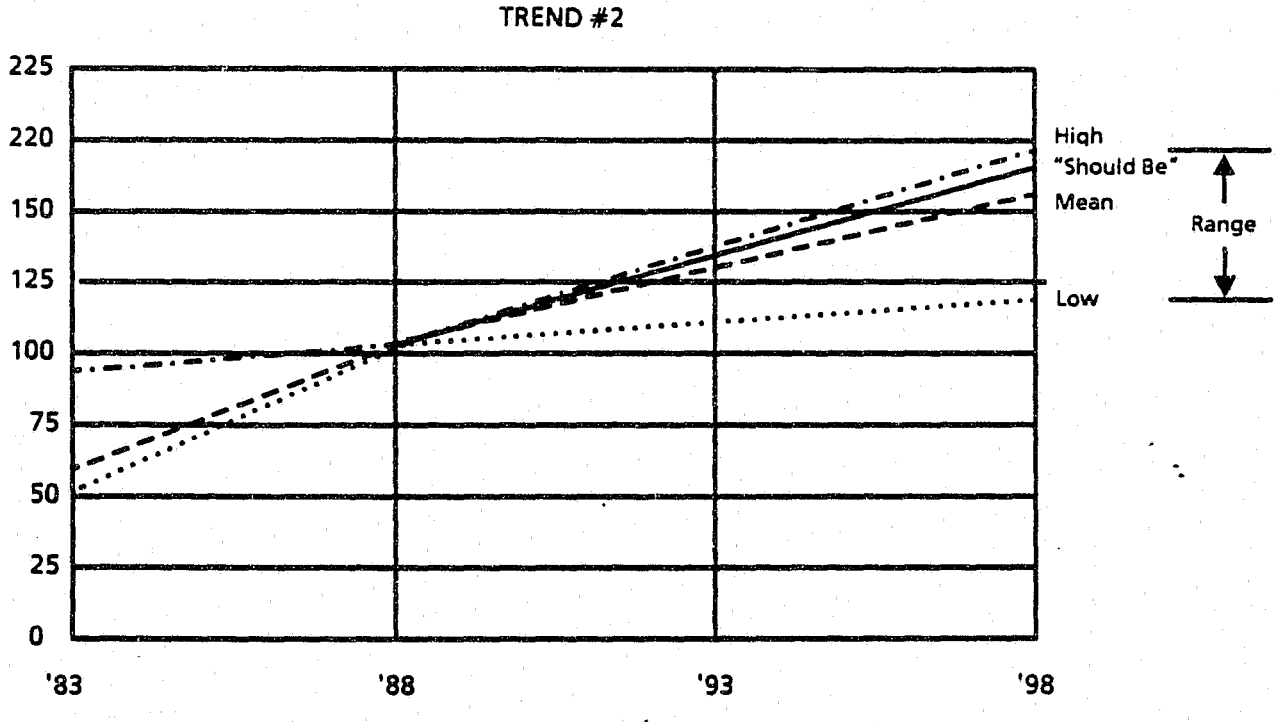
The results of the NGT's projections for the next ten years is distressing when looking at the issue. The lowest projection of this trend was 90%, or only 10% fewer budget restrictions than today. The highest projection was 150%, or 50% less available money. The mean projection was 130%, still indicating the group felt more budget restrictions are in store.

Asking the group to be honest but realistic, I asked them to project where the level of restrictions should be in ten years in order to have a positive future. The group came up with a view that budget restrictions should be 64% of what they are today, or 36% less than today. Interestingly, this figure is even less than the 72% level the group felt budget restrictions were at five years ago.

In summary, the NGT felt current budget restrictions limit the ability to utilize the best and most modern technologies, and the future appears to hold more of the same.

TREND 2: TECHNOLOGICAL ADVANCES

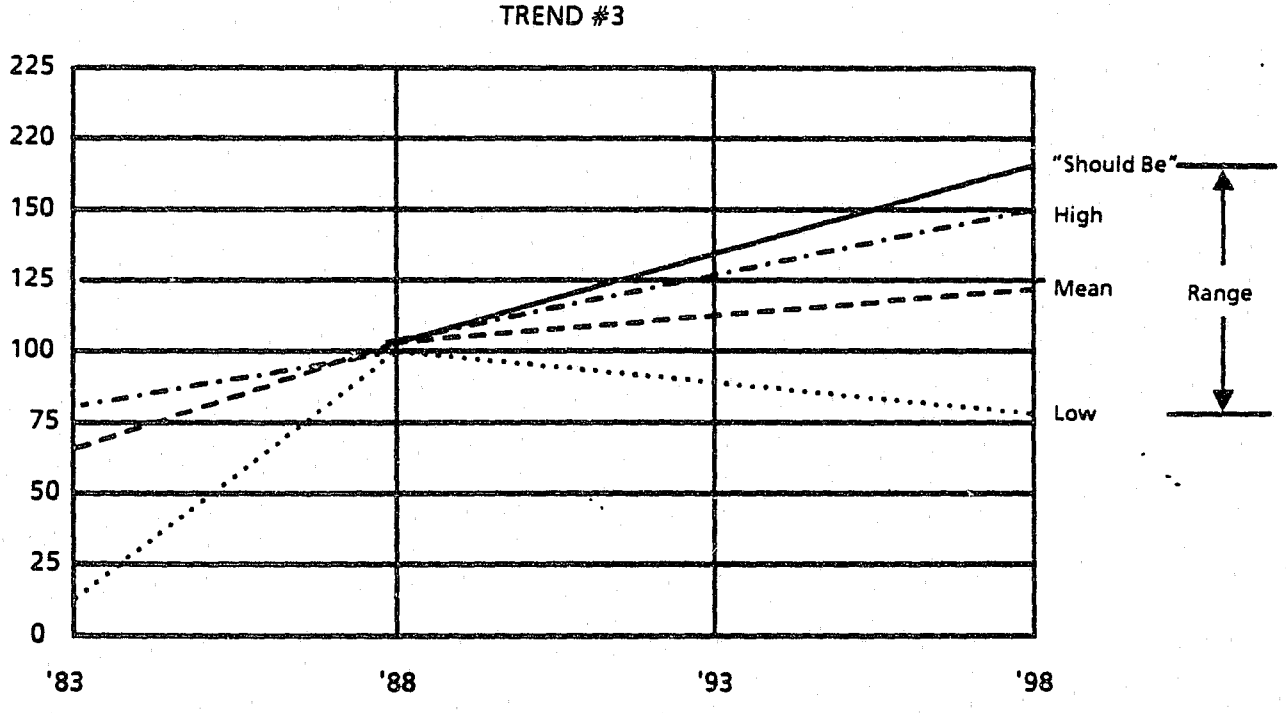
The NGT, looking back on the level of this trend five years ago, felt technology was advancing at a slower pace than today. The mean was 62%, with the lowest score in the group being 50%. The highest score was 90%. In the discussions, the NGT focused primarily on optical disk technology; however, all discussions included the fact that any technological advance which could impact records storage and retrieval must be considered. Some in the group felt that optical disk technology might be but one part of several technologies which will come together to impact storage and retrieval. The group acknowledged this to be so, but was able to focus on optical disk storage and retrieval and its potential impact.



The NGT was directed next to project what the next ten years holds regarding advances in technology. The group overwhelmingly agreed technological advances,

specifically laser optics and fiber optics, will accelerate, with new ground being broken almost daily. The lowest projection was 120%, with the high projection being 200%, or a 100% increase over today. The mean for the group was still a high 182%! The NGT's looking toward where we should be in ten years resulted in a mean score of 185%, very close to where the group felt we will actually be regarding this trend (the mean score for where we will be was 182%).

TREND 3: CHANGING MANAGEMENT STYLES



There was considerable discussion by the NGT regarding the importance of this trend. Though some felt other important trends may have been given less value by the group as a whole, all members agreed the style of managers in the future will have to adjust to this trend. Putting this in context, the NGT felt the quickly

advancing technologies (trend #2), coupled with a much higher technological awareness by the work force of tomorrow (trend #4), would cause a direct impact on how future managers will work to meld the two. The NGT rated the past five years with a low score of 10% (very little change in style) to a high score of 85%. The group mean was 62%. The indication here is managers as far back as only 5 years ago, tended to stick to familiar management styles, yet have adjusted approximately 38% to the current level.

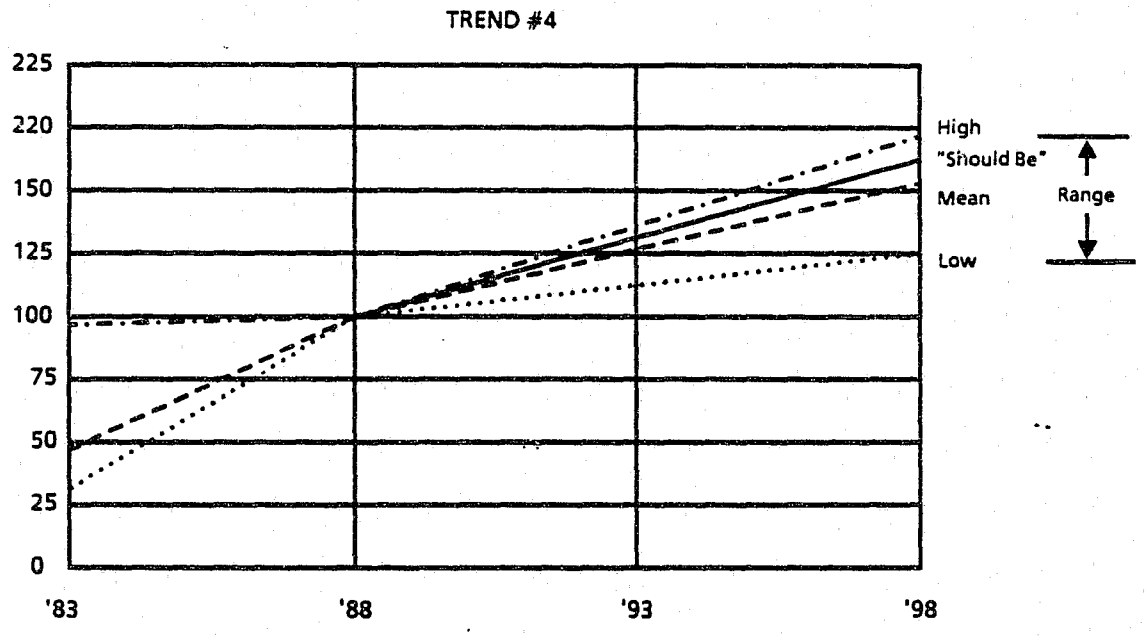
When looking forward to the next ten years, the NGT felt the managers of tomorrow will have to make still further style adjustments. The low score was 80% (an actual lessening of style adjustment), the high score was 150%. The group mean (123%) was projected to call for managers ten years from now to be making yet another 23% adjustment to deal with the technologies and the work force being asked to operate them.

The level of discussion on this trend warrants further explanation. The NGT felt the future manager will be faced with first having to be aware of the capabilities of the available technologies which could increase his/her department's productivity, and second, with being able to deal with a work force which, on the average, is more technologically aware.

The NGT went further to say that, unlike private industry, law enforcement agencies work for the most part under civil service guidelines. Because of this, the work force will continue to have those who prefer the status quo, which will challenge the manager's ability to deal with a group of employees who run the spectrum of abilities, regardless of surrounding technologies.

TREND 4: TECHNOLOGICAL AWARENESS BY WORK FORCE

The NGT felt this trend would have a significant impact on the future use of the technology being explored. This belief was due to the fact that the level of awareness by the work force could either greatly enhance or inhibit law enforcement in introducing, transitioning into, and getting the most use of advanced technologies such as optical disk storage and retrieval systems.

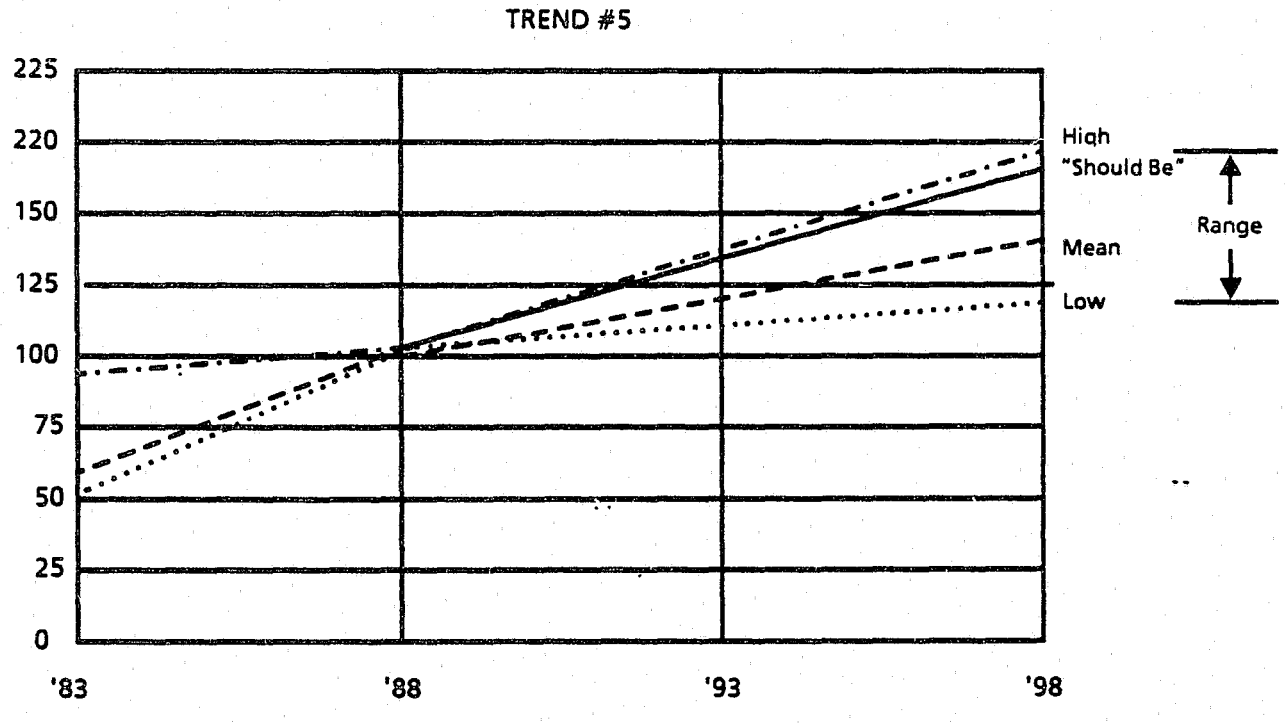


With the group looking back five years ago, the low projection regarding this trend was 30%, with the high being 95%. The mean for the group was 49%. The inference here is the work force five years ago was less than half as informed regarding technology than they are today. Though the NGT focused on technologies in general, they believed projections would be lower if confined to optical disk technology alone. The group felt there was very little awareness regarding this individual technology five years ago. Looking 10 years into the future, the NGT projected a low of 125% to a high of 200%. The mean was 153%, still indicating a

major increase in awareness by the work force. Considering the rapidity of advancements; however, the group projected the level of awareness should be increased to close to twice of what it is currently (183%).

TREND 5: INFORMATIONAL NETWORKING

Trend 5 was discussed in relationship to the level of information either being exchanged or needing to be exchanged in the law enforcement community. Currently, certain information regarding wanted persons, stolen vehicles, etc., is routinely exchanged. What we see, according to the NGT, is law enforcement agencies continuing to do their own thing when it comes to records storage and retrieval. There continues to be duplication of effort, for one thing, as well as an apparently endless passion to photocopy reports numerous times so everybody can get "their copy."



The trend in informational networking, as seen by the NGT, rated from a low projection of 15% of today's level five years ago, to high a of 80%. The mean for the group was 34%. In looking at this projection, it appears that the tendency for law enforcement agencies to network and share information was considerably lower five years ago. At the same time, when we look at the NGT's projections for the next ten years, we can see the trend appears to show an encouraging increase. Agencies will participate in more sharing of commonly needed information. The group felt the mean projection for the future to be 144%, with the low being 120%, and the highest indication 200%. Though the future of this trend looks bright, the group felt still higher networking participation will be necessary. (The "should be" projection of 181%, indicated the need to be nearly double the level of today's law enforcement information sharing).

CRITICAL EVENT DEVELOPMENT

With trend development and evaluation complete, the NGT was next guided through the process of identifying events which, should they occur or fail to occur, would impact the future of the issue. Time was allotted to explain that an event is defined as a unique or single occurrence, which, by its very nature, could alter the future outlook of our issue question. It was further pointed out if an event we feel is certain to occur fails to occur, that too, could impact the future.

Candidate events as identified in earlier surveys, were provided to the NGT. The group reviewed these events and discussed their likelihood, then individual members offered further candidate events. Further and more detailed discussions resulted in distilling a final list of the five events viewed by the NGT to be the most critical regarding the future impact of optical disk technology. They are as follows:

EVENT 1-A new technology is developed which renders optical disks obsolete.

EVENT 2-Optical disk standards are established.

EVENT 3-Fiber-optics are perfected which allow optical disk to optical disk data transfer over great distances.

EVENT 4-Optical disks become the industry standard for data/image storage.

EVENT 5-Wholesale destruction of magnetic storage media occurs nationwide/worldwide.

The chart on the next page indicates the resulting average projections by the NGT. The questions posed to the group in order to develop these projections were as follows:

1. Now that you have defined the events you feel to have the largest potential impact on the issue, in what year will the probability of that event occurring first exceed zero probability? (When could it possibly first occur?)
2. What is the percentage of probability of occurrence of each event in the next five years (by 1993)?
3. What is the percentage of probability of occurrence of each event in the next ten years (by 1998)?.
4. If the individual event were to occur, with the projected probability, what would be the net impact on our issue?
5. If the individual event were to occur, with the projected probability, what would be the net impact on law enforcement in general?

EVENT EVALUATION					
EVENT STATEMENT	PROBABILITY			NET IMPACT ON THE ISSUE AREA (-10 TO + 10)	NET IMPACT ON LAW ENFORCEMENT (-10 TO + 10)
	Year That Probability First Exceeds Zero.	By 1993 (0-100)	By 1998 (0-100)		
1. Technology Developed Which Renders Optical Disks Obsolete.	1993	13%	38%	- 8	+ 5
2. Optical Disk Standards Are Established.	1990	91%	92%	+ 8	+ 8
3. Fiber-Optics Are Perfected Which Allow Optical Disk Data Transfer Over Great Distances.	1991	67%	80%	+ 7	+ 6
4. Optical Disks Become Industry Standard For Data / Image Storage.	1992	51%	73%	+ 9.5	+ 6
5. Wholesale Destruction Of Magnetic Media Occurs Nationwide / Worldwide.	1989	20%	30%	+ 7	- 8

CRITICAL EVENT ANALYSIS

As indicated by the chart, a number of observations can be made when reviewing the NGT's evaluation of events. In analysis, we see the following:

EVENT 1-TECHNOLOGY DEVELOPED/MAKES OPTICAL DISKS OBSOLETE.

The group discussion regarding this event became quite lively as all members agreed technology is advancing with great speed. It was also pointed out by some members that existing magnetic storage media has been in use for years. Also, advances have been made in upgrading the capabilities and capacities of that media.

Optical disk storage (the use of light to write and read data) is the first alternative offered for storage in a long period of time. The group therefore felt great advances in optical storage would be more likely than development of a technology which would make it obsolete. This feeling is apparent in the group's projection that if this were to occur, it was not likely to occur before 1993, and then

only with a 13% possibility. Looking further, into the year 1998, the group still felt the likelihood of this occurring only to be 38%.

When looking at the potential impact, however, there were some interesting and consistent results. On the scale of -10 (very negative impact) to + 10 (very positive impact), the group felt if event 1 were to occur, it would have a negative impact (-8) on the issue area (future impact of optical disk technology on law enforcement records management).

At the same time, when looking at the overall impact of this event on law enforcement in general, the group felt any new and advanced technology, regardless of what it replaced, would have a positive impact on law enforcement in general (+5). The probable reason this event wasn't rated even more positively by the group is because some felt that by the time this occurred, those agencies who invested heavily into optical disk systems would be left with obsolete systems. Again, it must be remembered that the group felt this was an event with a low percentage of possibility of occurrence.

EVENT 2--OPTICAL DISK STANDARDS ARE ESTABLISHED

This event had the largest consensus from the NGT. The likelihood of this event was found to be greater than 90% in both time periods examined (91% by 1993 and 92% by 1998). It was also found to potentially occur sooner than most other events (1990). This finding by the group is consistent with projections from those I talked with in the industry during various interviews. If the standardization in optical disk technology does in fact occur, as it appears it will, the group felt it would have a very positive impact on both the issue and on law enforcement in general (+8 and +8).

The question of standardization is of great importance to agencies and their

records managers. They want to find a high-capacity, high-speed records storage and retrieval system that has more than one media supplier available. In having a number of vendors available who are all able to supply disks compatible with purchased hardware, law enforcement records management would realize stabilized and competitive media costs.

EVENT 3--FIBER OPTICS DEVELOPED/ALLOWS O.D.-TO-O.D. DATA OVER GREAT DISTANCES.

The group agreed that advances in fiber optics have opened new communications frontiers. Technology in this area allows very small strands of fibers to carry data over distances not possible before. As for the application to the issue area, the group felt future networking (Trend 5) would be greatly enhanced by applying the future capabilities of fiber optics. They felt the use of this technology, in partnership with mass storage on optical disks, would allow stored data and images to be accessed from remote areas such as a sheriff's department substation. It would also allow smaller systems to transfer information stored on optical disks to still other optical disks without loss of data.

What we see in analysis of the group's evaluation is that the first year this event may occur is 1991. It was felt, however, that there is a 67% possibility of occurrence by 1993, with a possible 80% chance in the next 10 years.

The impact of this event occurring was seen by the group as being positive to both the issue area and to law enforcement in general. Group evaluation showed a +7 to the issue, and a +6 to law enforcement.

EVENT 4--OPTICAL DISKS BECOMES INDUSTRY STANDARD FOR DATA AND IMAGE STORAGE

This event drew considerable discussion because most members felt magnetic storage media has most of the same capabilities to store data and images as optical disk media, other than capacity. The group consensus, however, indicated a mass conversion to optical disks would take a very concentrated effort to justify due to the costs. Further conversation revealed a concern by the group that records managers may only look at initial costs and not the long-term savings. These concerns over making magnetic media obsolete would severely slow acceptance of optical disk media as an industry standard.

One very important piece of additional information offered is the need to consider the tremendous storage capacity offered by optical disk media. Though some estimates vary, one member pointed out that the information contained on 300 5 1/4" magnetic floppy disks, at a cost of $1,200.00, could be contained on one 5 1/4" non-erasable optical disk for an approximate cost of $60.00! (Approximate figures were originally offered by a 3-M research and development unit, Mountain View, Ca., as estimates only.)

A final look at the group's work showed the earliest date this event could occur is 1992, with probabilities of 51% by 1993 and 73% by 1998. In any case the impact on both the issue and law enforcement was seen as high (+ 9.5/ + 6).

EVENT 5--WHOLESALE DESTRUCTION OF MAGNETIC MEDIA

When this event was first offered by a member of the group, it brought a few

laughs. When the member explained that he could see the day when either sabotage or an unexpected electrical/magnetic field phenomena could wreak havoc, the group began serious discussion. Several members felt it was an unlikely event, yet they would all fall short of saying it couldn't happen. Many of the world's records, which include top-secret military and industry information, are stored on magnetic media. If this event were to occur, what impact would it have? The resulting group evaluation rated the chances of this as being low (20% by 1993 and 30% by 1998). At the same time, it felt there was a real possibility, and if it were to occur, it would have a long-reaching effect.

The resulting evaluation of this event was very interesting in that there would be a very positive effect (+7) on the issue area regarding the future of optical disk media, yet at the same time a very negative effect (-8) on law enforcement in general.

The rationale is that, if magnetic media were suddenly recognized worldwide as vulnerable to such events, there would be a rush to convert to optical disk for future storage needs. This would greatly enhance optical disk as the preferred media. Law enforcement, however, would suddenly have to deal with either the costs of conversion, or taking the chance event 5 would not occur again.

CROSS-IMPACT ANALYSIS

The NGT was asked to perform one further task, that of a cross-impact analysis. The group had previously identified and evaluated important trends. They did the same for critical events. It was now necessary to look at all events as to how they impact the other events and trends. In order to do this, each member of the group was asked to utilize a cross-impact evaluation matrix. As the following chart

indicates, the critical events are listed along the left column. The earlier-identified percentages of probability are in the second column.

The events are again listed along the top of the matrix, followed by the important trends. The group was asked to first look at event 1, consider the probability, and ask "if event 1 did occur, with this percentage of probability, what impact (negative or positive) would it have on event 2?"

Suppose this event actually occured — With this probability ..... Then how would the probability of the events and trends shown below be affected?

							TRENDS				
		E-1	E-2	E-3	E-4	E-5	T-1	T-2	T-3	T-4	T-5
E-1	38%		-50%	0	-75%	0	0	+ 100%	0	+ 50%	0
E-2	29%	-25%		0	+ 100%	0	0	+ 50%	0	+ 50%	0
E-3	80%	0	0		0	0	0	+ 50%	0	+ 25%	+ 100%
E-4	73%	-75%	+ 100%	-25%		0	-15%	0	+ 25%	+ 25%	+ 100%
E-5	30%	+ 25%	+ 75%	0	+ 100%		+ 75%	+ 75%	0	+ 25%	0

Would it decrease or increase the probability of event 2 occurring? Once that task was completed, the member was to go on to event 3 and ask the same question regarding any change resulting from event 1 occurring. The same process, assuming event 1 occurred, was completed regarding potential change in the remaining events and trends. Having completed the comparisons against event 1, the group then went to event 2 and projected its occurrence, and what change, if any, it would have on event 1, on event 3, etc.

In the perusal of the cross-impact evaluation matrix, a number of observations can be made regarding each event and its ability to act on, affect other events, or react and be affected by the other events.

OBSERVATIONS

EVENT 1--NEW TECHNOLOGY DEVELOPED

Keeping in mind that this event was given a low probability, one must still consider what impact would be felt if it were to occur. If this event does in fact occur, it would reduce the probability of event 2 (optical disk standards) by 50% of its projected probability due to the lack of need to standardize media which has been rendered obsolete. The group found there would be no effect on event 3 (fiber optics). The probability of event 4 (optical disk/industry standard) would be decreased by 75% due to the obvious overtaking of the new technology in the field of storage and retrieval. There would be no effect in event 5 or trend 1, 3, or 5. Trend 2 (technological advances--speed of) would see an increase probability of 100% as this new technology spoken of in event 1 would accelerate the trend. The same reasoning would be taken into account when viewing the projection that the occurrence of event 1 would increase the level of trend 4 by an additional 50%.

EVENT 2--OPTICAL DISK STANDARDS ESTABLISHED

The occurrence of this event would decrease the probability of event 1 by 25% This is due to established standards causing more options for media sources, thus giving users more satisfaction with optical disk systems. There would be no effect on event 3 or 5, and likewise no effect on trend 1, 3, or 5. The probability of event 4

(optical disk/industry standard) would be increased by 100% for the obvious reason that established standards would make optical disks more acceptable and a better candidate to become the industry standard for data/image storage and retrieval.

The level of trends 2 and 4 would each increase by 50% if event 1 occurs. This is due to the wider use and awareness of optical disk technology and standards no longer being an issue.

EVENT 3--FIBER OPTICS\LONG-DISTANCE DATA TRANSFER

It is easily seen this event would have no direct effect on other events. The only significant effect projected is a 100% level increase on trend 5 (networking) due to the advantages of fiber optic system connections for long-distance transfer. There would be an effect on trend 2 (+ 50%) and trend 4 (+ 25%) due to the added technological advances this event would offer, and further awareness of this by the work force.

EVENT 4--OPTICAL DISKS BECOME INDUSTRY STANDARD FOR DATA AND IMAGE STORAGE

This event was rated as the largest "actor" event. It would impact all but event 5 and trend 2. It also would be unaffected by event 3. Its impact on event 1 would be to decrease its probability by 75%. It would increase event 2 by 100%. The reason for this impact on both events is that by optical disks becoming the industry standard, the need to find a repiacement technology would be lessened and at the same time standards would already have been established (projected 92% probability by 1998) or the perceived need for them diminished.

Event 3 would see a 25% increase. This would be due to having a specific need set in an industry standard for fiber optic links. This would therefore enhance the chances for such an advancement. The group felt that trend 1 (budget restrictions) would show a slight (15%) decrease in level if this event occurs. The results indicated a belief that if optical disks become the industry standard, there is less risk perceived regarding investing in systems and enhancements, therefore governmental agencies may be slightly more prone to letting go of the money necessary to obtain or maintain such systems.

Trends 3, 4, and 5 were projected to have increased levels of 25%, 25%, and 100% respectively. The apparent reason for the very high level of trend 5 is the transfer capabilities of mass amounts of stored data and images and therefore a subsequent increased amount of networking efforts.

EVENT 5--WHOLESALE DESTRUCTION/MAGNETIC MEDIA.

Though the NGT originally spoke of this event in terms of a nationwide and/or worldwide occurrence, some members had discussed the more plausible occurrence on a smaller scale. It was pointed out that large amounts of important data for a single department, city, county etc. being wiped out, could certainly cause a major impact to that entity. The information of the occurrence would no doubt grab the attention of others in the field who may want to take steps to prevent the same.

If event 5 were to occur, it would decrease the probability of event 1 by 25% due to the fact that optical disk storage is now available for certain applications. Agencies/vendors wanting to move to a less vulnerable storage media may not wait around for, or invest in, a new yet-to-be discovered technology. This event would, however, increase the probability of event 2 by 75%. It appears if event 5 occurs, there would be a much greater attempt by the companies who produce optical media

to find that middle ground regarding the setting of world standards for optical disks. The winners in this, should it occur, would be the consumer agency who could then shop for features in a system which suits that agency best. They could then rest assured that disks, and the drives to run them, do not lock them into dealing only with the same company for future system needs. The same rationale stands regarding event 4 (optical disks becoming the industry standard).

The level of trends 1 and 2 would be increased to 75%, as more demand for money by the agencies who lost or are trying to prevent losses due to the mass destruction of magnetic media, would overload the budgets of the city/county etc. Law enforcement might well have to reevaluate the priorities for the use of existing monies. Trend 4 (technological awareness of work force) would show a 25% increase in the level of that trend due to the great concern, stress, and losses incurred due to the occurrence of event 5.

RANK ORDER LISTING OF "ACTOR/REACTOR" EVENTS/ "REACTOR" TRENDS

The following is a rank-order listing of events as to their apparent ability to impact other events and trends. Due to trends not being actors (they are not as individualized as events), they are ranked only as to how greatly they are impacted by the various events.

ACTOR EVENTS:

1. Event 4 impacted 7 events and trends
2. Event 5 impacted 6 events and trends
3. Event 1 impacted 4 events and trends
4. Event 2 impacted 4 events and trends
5. Event 3 impacted 3 events and trends

REACTOR EVENTS:

1. Event 1 impacted by 3 events
2. Event 2 impacted by 3 events
3. Event 4 impacted by 3 events
4. Event 3 impacted by 1 event
5. Event 5 not impacted

REACTOR TRENDS:

1. Trend 4 impacted by 5 events
2. Trend 2 impacted by 4 events
3. Trend 5 impacted by 2 events
4. Trend 1 impacted by 2 events
5. Trend 3 impacted by 1 event

FORECAST SCENARIOS

There are certain projections which cannot be understood by simply looking at their probabilities and levels. In order to synthesize the large quantity of projections made, scenarios need to be developed and presented. Scenarios are a way for the reader to see the forecasts happen while at the same time being able to view the causes. They further provide a framework for us to ponder the possibilities previously developed while exploring the trends and events. Most certainly, they allow us to ask "what if?"

SCENARIO 1 -- OPTICAL DISK STORAGE AND RETRIEVAL--1998

When you came to work this morning, ready for another day of providing information to the numerous persons and agencies needing it, you took a moment to look back on things. You cannot help but remember how far records management has actually advanced in the last ten years. Even your title has changed. You used to be called the captain of records. Around 1988, you began to regularly hear yourself called the "records manager". You chuckle just a little at the number of times you wondered if perhaps the records were managing you! Just about the time you got used to hearing your new title, you started hearing references to yourself as the

"information" manager, among other things. No, your job hasn't changed, but the way it is accomplished certainly has.

You really start to get into the personal reflection mode now as you walk out onto the floor and observe the processes underway. The first thing you observe is an information processor (formally called a records clerk) as a crime report is pulled up on the video display terminal and reviewed to assure the proper indexing information is present. This only takes a couple of seconds, then the "enter" key is depressed and the processor goes to the next report. Looking at another processor, you observe the handling of some supplemental attachments, including a forged check, as they are placed in a scanner to be digitized into images. Simple indexing points are keyed in and the images of those documents are attached to the respective reports and recorded.

What you suddenly remember is the tremendous absence of color-coded and/or ink-stamped copies of the numerous reports submitted during the previous 24 hours. Man, how could you forget about those tons of photocopies records used to make? There used to be copies for detectives, copies for crime analysis, copies for criminal pouches, copies for the district attorney. The D.A. always wanted to be prepared for the discovery motions of the public defender, so extra copies were supplied for that potential need. Remember detectives? They too needed extra copies, so your clerks ran around copying the same reports 2, maybe 3 or 4 times. You notice one of your information processors calling up a report which is fairly old, and you inquire as to who the report is for. You are told an investigator is in Los Angeles picking up a prisoner and additional information is needed regarding the original arrest report. In a matter of a few seconds, the report is in his hands, having been printed on an LAPD laser printer after being transmitted over the state-of-the-art fiber optic lines in place across the state. Again, you are amazed when you think about it. A few years ago you would have to have mailed a copy of the report via overnight mail, or

searched around for a facsimile machine somewhere within the city because the police department didn't have one. Both processes would have taken substantial time. Both processes would have likewise involved the cost of making photocopies first.

You still have the same job of storing, protecting, routing, and supplying information from police records, but the process has drastically changed. Now the process goes like this: the officer in the field has the option of typing his/her report into a lap-top computer or taping the report for later transcription. In some cases, certain reports are placed on paper. During or after shift, a report which was entered into a lap-top is downloaded into the records management system (RMS) computer buffer. A report which is taped is transcribed into the automated dictation system, a part of the overall RMS. A report which is on paper is turned into Records, where it is scanned and digitized. Whichever type of report, it then becomes the information processor's job to call it up to the VDT, review it, place indexing information with it, and send to the storage media. It should be kept in mind that if the document is scanned and digitally stored, it is then shredded. (A reason the department allows paper reports only as the exception and not the rule.)

You remember it wasn't an easy transition. There were those in the work force who stubbornly resisted change. Those in the city who control the budget were always insisting on "the bottom line," those who were mostly interested in what it costs today, not wanting to hear the long term benefits.

The biggest example of this which comes to mind was when you attempted to demonstrate the need for a mass storage system to lessen the burden. You studied the latest media, optical disks, and became convinced it was a very viable part of an efficient records system. You provided facts, you arranged demonstrations, you pointed out that photocopy costs would be drastically reduced. It was a difficult battle, but it was certainly worth the effort.

But remember back in about 1993? You finally saw the questions about optical disks fade. The fear that a more advanced media would be developed which would replace optical disk never materialized. This was after the 1990 establishment of world standards for the disks and associated drives, which assisted you in your arguments. Optical disk technology was really on its way when, in 1992, it was recognized as the industry standard for data and image storage.

The networking you envisioned did not occur with the magnitude you thought it would. When you think, however, about how the department is linked with the district attorney now, you know very positive strives toward that end have occurred. Copies are made on his laser printer only if needed. You have to laugh to yourself when you think of the arguments you used to gain acceptance for your plan to convert to an optical disk storage system for your department. You were very accurate when you mentioned the tremendous storage capacity advantage it had over magnetic media. Today it has even more than the 1988 figure for its ability to place 50,000 sheets of paper, equal to four 4-drawer file cabinets of information, on a single 5 1/4" optical disk. When you told the "tried-and-true" magnetic media backers that this also equaled the use of 300 5 1/4" magnetic floppy disks, you got their attention. Yes, when you think about the fact that you did not let doubts inhibit you or those key persons you brought into your camp, you feel good, real good.

SCENARIO 2 -- THE ROAD TO RECORDS MANAGEMENT--1998

It seems whichever law enforcement manager you talk to, he/she is willing to agree that the wheels of progress move slowly in the police atmosphere. It seems we are still too busy with putting out the brush fires which crop up to place enough

emphasis on future planning. Without the necessary attitude changes, we are about to embark on yet another decade of making do with the status quo.

We will see some visionaries who will try to introduce the technologies which are on the cutting edge. Unfortunately, we may very well see these attempts made in vain. There are those who make the money decisions, and those who make the policy decisions, who will continue to hold off getting into anything which isn't 100% proven (If there is anything that can be.) Records managers will try to introduce optical disk systems to help handle the tremendous records storage volume. They will be trying to dig out from under tons of papers, but to no avail. They will win some over, but enough to count? Time will tell; however, there are indicators.

The year is 1988. The records manager of a police department in a city of just under 200,000 in population becomes interested in the prospects of optical disks as a data storage medium. More and more articles are now being seen in a number of publications. There has been some interest; however, at this point, there is still some doubt as to the legality involved in records which are stored on, then reproduced from, the optical disk. The records manager has to wonder if the doubt will be overcome soon, as he is anxious to upgrade the storage and retrieval method now being utilized by his department. His department currently makes a number of photocopies as routine. The original report is placed into a file and stored on a shelf. When an additional copy is needed later, for court etc., a clerk checks the computer, finds the departmental reference number, then goes to the shelf to pull the original. The next step is to make the copy, returning the original again to the shelf file. There's also the "lost" reports which were either misfiled or left at the photocopy machine.

There are a number of things which can be done. If, however, certain trends continue, and/or certain events occur, the attempts to utilize optical disks technology to ease the burden may be uncertain.

The indication is positive regarding the legal aspects. In March, 1985, the Anaheim, California Police Department conducted a departmental micrographics analysis. Part of the study addressed optical disk as an option for records storage. The advantages of optical disks were addressed, followed by the disadvantages. A disadvantage was seen in that, to date, there had been no court challenge regarding admissability of the images generated from disk. For three years, people were still waiting for some sign of court recognition. An apparent break came when, on June 9, 1988, California Governor George Deukmejian signed Senate Bill 917 which amended the Business and Professions Code regarding certain fees for filing various documents with, and obtaining various certificates from, the California Secretary of State. This bill also authorized the recordation "to be made by optical disk or reproduction by other techniques which do not permit additions, deletions, or changes to the original document." This ability is one of the main advantages of optical disk WORM (write once, read many) technology. There was even more positive news when the bill later stated; "reproduction of any document filed on microfilm or stored on optical disk pursuant to this section shall be admissible in any court of law."

To get a more accurate view of what the next ten years hold regarding records storage and retrieval, let's follow some important trends and events which could have dramatic impact on the actual future.

There will be competition between vendors of optical disk systems. The consumer, in this case law enforcement records management, will see standardization of optical disk media by 1990. This will allow departments the flexibility of utilizing one or more of several sources for optical disk media and the drives to operate them. In turn, the fear of purchasing a system which will not be compatible with future advances will diminish. The producers of optical disk systems will make a conscious effort to have newer systems produced which will allow the

continued use of the first generations of media, thus eliminating the concern of a system being made obsolete and/or unable to operate newer-generation media. Two important trends followed by the industry are one, capacity and two, pricing. The capacity of optical disks will have an upward trend as follows:

1988- 12" disks 1.0-1.6 GB (Gygabite) to 10 GB by 1990.

1988- 5 1/4" 200-400 MB (Megabite) to 1 GB by 1990.

1988- 3 1/2" 100 MB to 250 MB by 1990.

Pricing will (as with so many products where competition increases) take a downward trend as follows;

12" drives from 1988 costs of $12,000-14,000 to $5,000-7,000 by 1990.

12" media (disks) from 1988 costs of $300.-475. ea. to $100.-150.00 by 1990.

5 1/4" drives from 1988 costs of $2,000-4,000 to $300.-700.00 by 1990.

5 1/4" media (disks) from 1988 costs of $75.-125 to $15.-25.00 by 1990.

Law enforcement records management will not see much progress in their attempts to utilize optical disk technology until approximately 1990 after, among other indicators, the above trends are confirmed. This turns out to be good timing, as it will be during the year 1990 that worldwide optical disk standards will actually become a reality.

What agencies will do, however, is to continue to wait. More and more recognition of optical disk will take place; however, law enforcement somehow seems to limit itself to what's working now. This will continue for most agencies, and as a result advancement to optical disk technology will continue to be delayed.

As can be seen, things all seem to be looking up, and it would be fairly safe to say that optical disk media will most likely become the industry standard for data and image storage within the next five years. It is possible we will see other events occur which could enhance the acceptance of optical disk storage media sooner. For

example, if sabotage occurs which wipes out large data bases of magnetically stored information, optical disks would look more attractive yet.

What then can prevent law enforcement from taking advantage of this technology any sooner? Two things, budget and people.

Budget. We can't blame everything on Proposition 13; however, its true effect has taken hold of nearly all governmental agencies only in the past few years. A reversing legislation is very unlikely to occur. Money will be difficult to obtain to keep basic manpower on the street. This will allow even less money to be allotted to advanced technology, which is viewed as a luxury when there isn't enough money to hire more officers. Alternative funding sources are being sought by many departments. However, the priority of records management over line functions still indicates a gloomy outlook for obtaining optical disk storage and retrieval systems in the next 5-10 years.

People. Technology is moving at a greater pace than the subsequent necessary management style changes to manage it. We will have to work within the parameters of civil service while addressing the issue of workers who resist change. There will continue to be those who like it the old way and will do anything from mild resistance to sabotage in order to maintain the status quo. As this resistance continues, the demand on managers will be greater than ever.

Law enforcement records management will not see wholesale use of optical disk technology in the next 5 years. What it will see is a slow progression toward general acceptance and use (in proportion to available money and use by the work force and its managers). This will be felt statewide for the first time around 1998.

SCENARIO 3 -- RECORDS MANAGEMENT--GETTING BY IN 1998

Mrs. Rex got herself ready for work again today, just as she has for a number of years. How she would love to tell the boss to "take this job and shove it," but she knows she can't. As she leaves for work, her mind goes back to the good old days when things were simpler and there weren't all these new systems. It was so easy to write things down and track your work whatever way seemed best. Now it seems that as soon as you get used to one system, they are bringing in new ones or new procedures. Things aren't that way anymore. Mrs. Rex arrives just under the wire again. No, wait. She forgot again you have to log on to the computer system or you are not considered here. She runs over and types in her password a minute too late. "Oh, great!" she says. She knows the report the boss will print out later will show she was late. They have tried to change her for years now. "They couldn't do it before, they won't do it now." She starts her work now, indexing citations.

She hasn't liked doing this since increased emphasis was placed on driver information. "I suppose some officer will need this, but it sure would make more sense to just put in the location and violation like we used to do it." No, Mrs. Rex hasn't taken too kindly to the moves which have occurred, especially during the last ten years. Now, as she sits at the terminal, she really starts to drift back to the way it used to be. "In the '70's, we had those simple index cards." In 1988, "they" went to this RMS computer that really caused her concern. Computers not only probably put people out of work, but caus[illegible]o much more work putting all that "stuff" in there. In late 1988, she (the boss) started talking all about this optical disk storage system she envisioned as a great help to records. The sheriff even got involved and there were all the questionnaires about systems, optical disks and fiber optics. "They were excited, but to me it was just another waste," said Mrs. Rex. "Then, that was all I

seemed to hear for a long time, optical this, and optical that". She admittedly took pleasure in seeing the boss's frustration when she kept trying to get this new system and they kept telling her the money just wasn't there to take a chance on a new system. "I really enjoyed the questionnaires; I would always try to put something bizarre down. I remember several of us putting down nothing but bad things in hopes of discouraging the boss."

She now thought how she could just kick herself for what she did in 1994. She was so angry about them actually considering this "optical-something" system that she used her security code, went into the system, and wiped out a whole six months' worth of data. She worried for a long time that she would get caught, but it never happened. What did happen, however, is that it made the boss and the rest of "them" work even harder at getting one of those new systems. She suddenly came out of her daze, when the supervisor asked what she was doing. When Mrs. Rex looked up at the clock, it was 9 A.M. and she had just been daydreaming. She reminded the supervisor that the computer screens bother her eyes, and said she needed a break.

When Mrs. Rex got back, the boss, Captain Helen Smith, was standing in the doorway looking at her. She knew Rex had been one of the least productive employees for a long time. She also knew she had all the ability but just didn't want to change. To see how Mrs. Rex and a few other of the "tenured" employees acted was really amazing. "If," thought the captain, " I had recognized more about how the workers would react, I would have spent more time in the planning stage." The captain also thought about the easing of budget restrictions in 1993, when the state recognized the need for law enforcement technology in dealing with records management. By authorizing matching funds for technological projects/systems, the state hoped to bring about a more efficient method for law enforcement to

communicate and share criminal information. She also thought about the in-house fight waged regarding which technology was the most deserving of pursuit.

"Now it's 1998," thought the captain. "We've had an optical disk storage and retrieval system for 3 years now and it works great. If I could have only foreseen the resistance by Mrs. Rex and the others, I could have accomplished the goals sooner. The system and its users could be working up to full capacity, something we still haven't totally experienced."

The captain's final thought of the day was, "How can I change Mrs. Rex?" Mrs. Rex's final thought? "They aren't going to change me; I wish they would quit trying."

POLICY CONSIDERATIONS

The preceding scenarios were formulated by weaving in various trends and events which should be considered when looking toward the future -- specifically, what the future holds regarding the issue of optical disk technology for law enforcement records management. It is possible for all, some, or none of the events to occur. It is likewise possible that some of the identified trends will continue, level out, or take an opposite direction. Some events and/or trends which were either not identified or were given lesser importance by the NGT could still have an effect on

the issue. It is for these reasons scenarios were presented, and for these reasons some other possible stumbling blocks were worked into each scenario. Scenarios provide a reference point from which to focus on where it appears we are headed. Once this is seen, we can compare it to where we want to be. Scenarios also cause us to look at the peripheral issues as well as the present policies and attitudes used in dealing with them. What is hoped is that the reader will begin to see all or many of the possibilities and therefore strive to achieve the desired future.

Having this information, the next step is to consider what future policies should be set in order to narrow the area of uncertainty, thus lending validity to our projections. After the scenarios were written, I re-contacted members of the original NGT, asking them to review the trends and events they had previously identified. They were also asked to review the cross-impact analysis and scenarios. Each member was then asked to provide a policy consideration which would be aimed at achieving the most positive and favorable impact on law enforcement's future use of optical disks and related systems in records management.

The following is a list of the policy alternatives offered by the group:

1. Law enforcement records managers should form a county-wide or multiple county "law enforcement data and image management association," the goal of which is to inform all members of the latest developments regarding optical disk and other document storage media.
2. Law enforcement should take advantage of existing records management associations (ie: ARMA, the Association of Records Managers and Administrators; CLEARS, the California Law Enforcement Association of Records Supervisors). In doing this, law enforcement will ask to form a separate subcommittee which will specifically address image/data storage as it relates and applies to optical disk's place in law enforcement records management.

3. Make records management planning a specific and important part of the overall law enforcement budget process, utilizing all available methods to identify needs, as well as present and future capabilities. From the cost-benefit analysis, promote acceptance of optical disk technology.
4. Place the training of records personnel on a higher plane than today. Emphasis should be on giving an in-depth history of law enforcement records management. This should be followed by the story of where we are today, and how we got there. The final part of the training experience should be in the form of regularly scheduled updates.
5. Form a city-wide or county-wide "data/image storage and retrieval" committee comprised of members from within all departments of that particular government. The purpose is to clearly identify the records storage and retrieval needs of the entire city/county.
6. Law enforcement agencies should make a conscious effort to contact and network with vendors in the private sector who offer various forms of imaging equipment/media.
7. Contact, and continue to work with local lawmakers who could be lobbied to present special funding legislation. The specific purpose of this is to introduce a bill/bills which allot special monies for the sole purpose of upgrading the records management capabilities of law enforcement with optical disk imaging equipment.
8. Work closely with the city/county personnel department to constantly monitor and adjust for changes in job requirements necessitated by the new technologies. This is to be an ongoing process to create an early job-match, thus averting some of the future adjustment problems experienced as past technologies have entered the work environment.

STRATEGIC PLAN

INTRODUCTION

During the earlier processes of identifying trends, events, and their associated impacts, several forces were identified which could very well determine the future of the issue area. Our efforts were never intended to predict the exact future of optical disk technology in law enforcement. What was accomplished, however, was a clear recognition that future success will depend upon planning. We have utilized several methods to paint an analysis-based present, while at the same time taking a glance at the future as seen through scenarios. The next step in the process is to create a strategic plan, a bridge if you will, to provide a pathway between present and future.

SITUATION

Environment

During all phases of data gathering, I noted a common thread regarding what was desirable by all persons involved in some aspect of records storage and retrieval. It did not matter whether it was a person I talked to, the author of an article, or a fellow records manager. In response to an ever-increasing public demand, there is a common and sincere desire to provide accurate, non-cost-prohibitive records availability in the quickest and most efficient method possible. To do this, records managers have, over the years, implemented different systems to handle the workload. Considering a tremendous amount is now being written about the capabilities of optical disks for data and image storage, it would be reasonable to believe there will be an application possibility for law enforcement. Referring back

to the previously identified trends and events, I will attempt to formulate and project a normative future regarding the impact of optical disk technology on law enforcement records management. A quick summary of the five trends and critical events are as follows:

TRENDS

TREND 1--BUDGET RESTRICTIONS

This is consideration of budgetary restrictions which impact law enforcement records management in its attempt to obtain the most modern records storage and retrieval system. This particularly applies to the priority presently placed on the needs of records management in relation to other divisions of the police department.

TREND 2--TECHNOLOGICAL ADVANCES

This applies to the level and speed at which technology is advancing.

TREND 3-MANAGEMENT STYLES

This applies to the differing management styles in law enforcement as they are applied to fast-moving technology and to a changing level of demand for technological knowledge for law enforcement managers.

TREND 4--TECHNOLOGICAL AWARENESS

Though seemingly related to trend 3, this trend applies to the work force itself with respect to changing knowledge/ability levels

TREND 5--INFORMATIONAL NETWORKING

This trend deals with the projected need to increase networking within the law enforcement community, and its effect on our ability to obtain optical disk storage systems which could assist in these efforts.

CRITICAL EVENTS

1. **EVENT 1**--A new technology is developed which renders optical disks obsolete.
2. **EVENT 2**--Optical disk standards are established.
3. **EVENT 3**--Fiber optics are perfected which allow optical disk-to-optical disk data transfer over great distances.
4. **EVENT 4**--Optical disks become the industry standard for data/image storage.
5. **EVENT 5**--Wholesale destruction of magnetic media storage occurs nationwide/worldwide.

There seems to be such a large opportunity presenting itself, making it difficult to imagine that law enforcement won't take advantage. As was pointed out earlier, price trends are on the way down and storage capacity is on the way up. Greater demands are being made on law enforcement in volume and expectations regarding quick availability. More flexibility is necessary both for systems and for the people who are to interact with them.

What then, will happen? What will be the driving forces and who will be the critical players? How will we be able, or will we be able, to obtain optical disk storage and retrieval as part of the overall records management systems? There are opportunities, accompanied by certain threats. How well we recognize the overall

implications, and how we deal with them, will determine the outcome. It's now up to us.

NORMATIVE FUTURE

The normative future is one where law enforcement records management is able to meet the demands placed on it by utilizing the high-capacity data and image storage capabilities of optical disk technology. This will be a multiple-use records system where optical disks will be integrated with other technologies by some agencies. These agencies will be ones who decide to keep some of the old and incorporate some of the new. Other agencies, for a number of reasons, will replace most of the previously used technologies completely with optical disks. As pointed out in the trend and event analysis, technology is moving at a very rapid rate. Recognizing this, the records manager will incorporate detailed planning into his/her efforts to provide the best possible service. Planning will not be performed in a vacuum, but rather as a cooperative effort. This effort will include members from all divisions of the department on the local scale; however, it will also include other departments within the city who face similar records problems. Also, in recognition of the speed with which technology is advancing, agencies will maintain a much closer relationship with the vendors who supply the technologically advanced components and/or systems.

There will be no "perfect" records technology to meet all of the varying needs from agency to agency. For example, a very small department may only be able to afford a small optical disk drive with one on-line disk, which would be able to handle the very small volume of records accessed on a regular basis. A slightly larger department may opt to incorporate optical disks off-line as their archival medium, while maintaining current records on-line. The necessity to insert an archival disk

when needed would still be a great improvement over searching manually through a storage room to find the paper report. A very large department would perhaps opt to keep an OSAR (Optical Storage and Retrieval) "jukebox" where records are stored on one of a great number of disks. The disks are retrieved as needed by a robotic arm and placed into the drive in a matter of seconds. For very old records, the agency would then choose to either scan the documents onto disk or maintain them on microfilm/microfiche (a combining of technologies which might be a preferred option for the agency).

Whichever variation is selected, records management of the normative future will be able to benefit greatly from optical disk technology. The realization of scenario 1 is within our grasp if properly approached. We can see the great speed and accuracy in storing and retrieving reports. We can also see photocopy costs plummet, as reports are routed in digitized form and reviewed on a VDT. We can also benefit from the great time savings in the entire records-handling process. Scenario 1 paints a bright future, a future we will strategically plan for. We also need to reflect upon, and heed the human elements indicated in the feared but possible future of scenario 3. There are those "Mrs. Rex's" out there who must be considered in the overall strategic planning process.

For the purpose of this strategic plan, I will proceed by utilizing the City of Stockton as the target city in an effort to incorporate an optical disk storage and retrieval system into police records management.

RESOURCES

THE COMMUNITY

The City of Stockton is centrally located in the San Joaquin Valley of California, approximately 50 miles south of Sacramento. The population is approximately 190,000, made up of a wide mix of cultures and norms. Though the entire valley has a large amount of agriculture, Stockton also offers a deep-water port with access to worldwide shipping. The second largest banking institution in the nation is based in Stockton, which lends to the fact that computers and other automated systems are not foreign to the area. Two major freeways bordering the east and west areas of the city lend both an element of transient population and opportunities to attract business. There are The University of the Pacific, and Delta Community College, as well as pubilc schools of three different districts within the city borders. Stockton has a manager/council form of government, and city employment matters are defined and managed by a civil service commission.

Major strengths of Stockton include a fairly well-informed public who have a strong desire for better control over a crime rate which has caused concern regarding the quality of life. Also seen as a strength is the mobility of the community. People move with regularity, assisting in revenue generation. This is due to Stockton having fewer and fewer pre-proposition 13 houses, thus allowing for increased property valuation.

THE POLICE DEPARTMENT

The Stockton Police Department has 245 sworn and 125 civilian personnel. Approximately one year ago, the city was faced with a budget deficit. An outside consulting firm was hired to conduct an efficiency study on the various city departments. The hardest hit were police, fire, and public works. An entire book could be written regarding the findings of the study and the resulting impacts. Police department manpower went from an allotted 260 sworn to the present 245. The priorities and emphasis of the police department were, by necessity, changed. Neighborhood facilities were closed, and, in an attempt to keep a constant manpower strength in patrol at a responsive level, officers are transferred from other divisions as openings occur. Equipment for daily functions of the department are considered to be modern and of good quality. Patrol units are equipped with mobile data terminals (MDT), and the computerized records management system is an upgrade from the previous automated name index. The upgraded system is approximately one year old and utilizes DEC hardware. A computer-aided dispatch system was also recently upgraded. Though the resulting effects of the efficiency study are still being felt, the general attitude of the police administration is to undauntedly move forward. Attempts continue to seek and gain the most modern equipment for the officers and other employees.

One area worth consideration when discussing change is the fact rank-and-file officers are part of a very active union. This is only mentioned due to previous problems between labor and management. Relations between the two have appeared to improve; however, sufficient time has not elapsed since the new chief was appointed approximately 1 1/2 years ago. Another area of concern, other than obvious manpower shortages, is one of increased input demands of the new

computer system which, exacerbated by civilian manpower shortages, keeps records in a near-constant state of entry backlog.

In an effort to provide an open and objective assessment of the police department's perceived capabilities, several persons from both inside and outside the department were provided with two questionnaire forms. The first was a "Capability Analysis Rating Form," on which where they were asked to rate the department in 28 separate areas. The rating areas ranged from manpower issues and management flexibility to community and council support. The rater was asked to rate each category from I-(Superior), to V-(Real cause for concern). The second questionnaire had to do with the department's future adaptability regarding the strategic need area of records storage and retrieval. The results of the questionnaires were averaged for an overall approximate view of the department's present capabilities and future adapatability.. (Appendixs A and B)

Listed below are the areas rated as the department's current strengths and weaknesses. Other areas, not listed, were viewed as "average to acceptable."

Perceived department capabilities

Strengths	Weaknesses
Low turnover	Manpower shortages
Pay	Council support
Benefits	Management skills
Equipment	Supervisory skills
Technology	Attitudes

Perceived threats and opportunities

For every threat, there is an opportunity. This is especially true when it comes to viewing and evaluating the above strengths and weaknesses. In the evaluation we note that low turnover, pay, benefits, equipment and technology are apparently sound. This offers us a great opportunity to target those who are critical to the issue and offer them the opportunity to continue on the cutting edge of technology. If the pay and benefits are in fact good, there will be less resistance to spending money for technology which might otherwise be perceived as better spent on a pay increase.

Potential threats are indicated in manpower shortages, council support (lack of it), and poor attitudes which are possibly linked to perceived weaknesses in management and supervisory skills. In light of this, we recognize the need to train our personnel, increasing their skills, and therefore turning these threats into opportunities to raise the overall quality of the department.

Perceived future adaptability

Results from questionnaire 2 were interesting and indicated the department is generally viewed as encouraging a marketing approach in adaptability, that is, one seeking familiar change. However, some areas varied. In the area of "knowledge/education" (of top managers), the perception is that the department adapts to this in a "strategic" approach, seeking related change. In the area of "rewards/incentives" (regarding the organizational climate), as well as in the area of "structure" (regarding organizational competence), the department is viewed as adapting to minor changes (production approach).

STAKEHOLDER IDENTIFICATION/ANALYSIS

If we are to truly move our records storage toward adopting this new technology, there are a number of important persons/groups to consider who will either affect or be affected by the change. These "stakeholders" can mean the difference between acceptance or failure of the plan. Each can be counted on to have opinions regarding the potential impact of the plan and will relate it to their own area.

The Following is a list of significant stakeholders accompanied by a number of the assumptions we can make of each. A conscious effort was also made to identify some of the snaildarters, or those who appear on the surface to have little impact on the plan; however, when analyzed, they are found to require consideration.

1. City council:

a. Will be reluctant to put forward the capital outlay to venture into a new system.

b. Will influence the city manager in reminding him of past budget deficits.

c. Will be willing to listen to any plans where the costs are either shared and/or grants allowed.

d. Will be concerned with the possibility that the system could cost jobs. (There is a heavy affirmative action commitment by the city. If the council felt there may be resulting layoffs, it could have an effect on past minority hiring gains.)

2. Taxpayer groups:

a. Will be suspicious of investments in a new system, particularly because of the latest computer upgrade being so recently completed.

b. Will be interested in seeing a city-wide system as opposed to a department system. (Viewed as a better and more efficient use of monies.)

c. Are concerned with any municipal spending.

d. Would offer assistance if attempts are made to seek a state and/or federal grant in order to acquire such a system. (They will have already been appraised by this time of the long-term cost savings regarding the potential large reduction in photocopy costs.)

3. Citizens of the community:

a. Will support a move which will improve the delivery of police service.

b. Will question the validity of directing monies toward a records storage system when there is a shortage of officers on the street.

4. Police administration:

a. Will support additional technology which will enhance the accomplishment of overall department goals.

b. Some questioning will occur regarding the wisdom of utilizing money on records systems when personnel shortages are a problem.

5. Department civilian employees:

a. Will fear a possible reduction of the work force.

b. Will feel too much emphasis is being placed on machines to do the work previously done by people. (Will get a feeling "they" don't have confidence in employee's abilities).

c. Will, if fears are addressed, support the increased speed and accuracy of a new records storage and retrieval system.

6. Other departments within the city:

a. Will feel jealousy if the police department gets an advanced system which is not offered to them. (There is a feeling in some city departments that public safety has received special treatment in many areas over the years, particularly in budget).

b. Would readily accept a city-wide system which could enhance their efforts as well as those of other departments .

c. Would be concerned about a possible future adoption of a city-wide system which could result in the displacement of persons from within the present work force who previously performed some of the tasks now proposed to be performed by the system.

7. Police officers:

a. Many officers, particularly investigators, would welcome a system which would enhance their investigative efforts.

b. Would be suspicious of the reasoning in placing money in a records system when the department is short of personnel for the line functions.

c. Officers, having recently experienced a transition on the computer-aided dispatch and the records management systems, would fear yet another change in procedure.

d. Would enjoy the prestige of obtaining a records storage and retrieval system which is currently rare in law enforcement.

e. Would appreciate quick report retrieval for last-minute subpoenas.

8. Employee unions, a "snail darter":

a. Would resist moves which could replace people with machines.

b. Would question the allocation of money for a records system when concerns have not been resolved regarding shortages of officers (officer safety issue).

c. Would, if felt necessary, lobby against anything they feel would utilize money which could have later been used for possible pay raises.

9. Private vendors of optical disk storage components/systems:

a. Would continue to be sensitive to the department's need to support the existing system(s) in place which are not replaced.

b. Will be a very helpful resource for justification data and information due to the potential market being addressed.

c. Will be willing to integrate as many of the existing system components as possible into the new optical disk storage and retrieval system.

10. Private users of police records (insurance companies, attorneys, school district security forces, etc.):

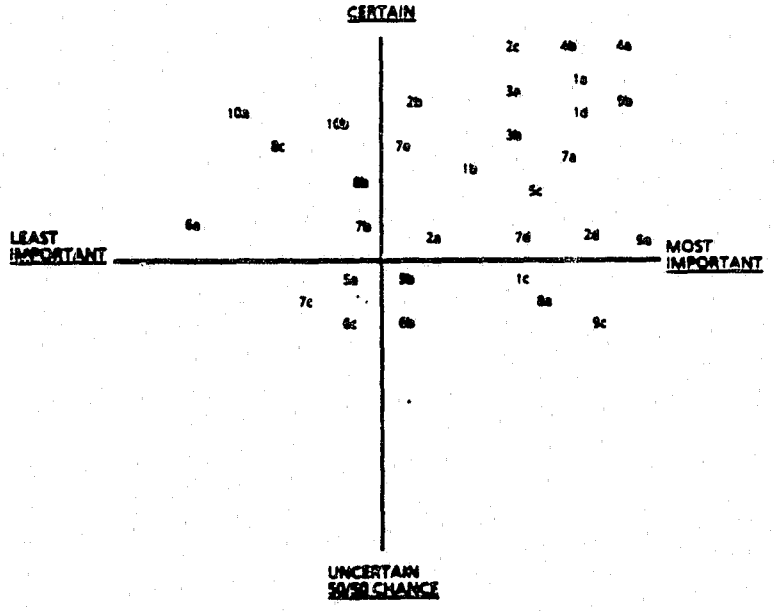
a. Will encourage faster retrieval of report information needed for their purposes.

b. Will supply requested information on current retrieval problems effecting their efforts. (These problems can be utilized as examples for future system justification.)

CHARTING STAKEHOLDER ASSUMPTIONS

The following chart graphically displays where the various assumptions fall regarding their certainty and importance. Each previously noted assumption is charted regarding how important that assumption is to the plan (horizontal line), and how certain we can be the assumption is accurate (vertical line).

*NOTE: The number indicates which stakeholder, the letter indicates which assumption of each



In viewing the chart, we quickly note differences in certainty and importance for some assumptions even when the assumptions are regarding the same stakeholder. From this, it can be concluded that one should not assume the various assumptions of a particular stakeholder are either all positive or all negative to our efforts.

MISSION STATEMENT

Law enforcement is charged with the duty to protect and serve its public. In performing its duty, a continual effort is to be exerted to obtain and properly utilize the most accurate, efficient, and cost-effective methods for the legally mandated storage, retrieval, and release of police information.

EXECUTION

An intensive effort was undertaken (a modified policy delphi) in an attempt to offer a number of alternative strategies as we seek to provide a viable, objective-driven guide (strategic plan) into the future. From a much larger list of alternatives, analysis was undertaken to pare the list to three from which to choose a course of action. The paring-down process consisted of discussions, followed by assessments of each alternative as to its:

1. Feasibility.
2. Desirability.

The three "finalist" alternatives chosen are listed below accompanied with a pro and con analysis of each.

ALTERNATIVE ONE

Form a city-wide committee on data/image storage and retrieval. The committee's purpose is to proactively seek the most advanced high-capacity storage and retrieval system(s) available. The committee will also make conscious efforts to avoid causing as many of the currently utilized system components as possible from being rendered obsolete, where their continued use would be feasible as part of the overall new system.

PRO-By making the plan a city-wide effort as opposed to a departmental one, all city departments stand to benefit from the new system.

PRO-All departments will participate, therefore creating a wider range of support and commitment.

PRO-The city would stand to gain cost breaks for the purchase of a larger, compatible city-wide system.

PRO-The committee would also provide a forum which would bring to light other commonly shared problems and/or solutions within city departments.

CON-Interdepartmental jealousy would tend to slow progress as each would lean toward gaining advantages which would best benefit his/her own department.

CON-Finding a commonly acceptable and available meeting place would cause a logistics problem when attempting to bring several departments together.

CON-It would be difficult to maintain interest when so many other diversified issues are being addressed by various city departments. There would be a tendency for the committee to "die a slow death."

CON-Management through committee has a tendency to slow progress and add to the already existing bureaucratic log jam. A possibility exists for loss of direction and an inability to accomplish tangible results.

ALTERNATIVE TWO

Develop a police department records storage and retrieval committee to identify needs and potential solutions regarding records storage and retrieval and its effect on overall departmental functions. This plan would not be limited to only the department, but would include other agencies who work closely with it. The committee would be charged with seeking objective solutions to problems common to all divisions as a result of records handling. The specific emphasis is to be on seeking a technologically advanced system(s) or additional components to the current system, which would allow quick, accurate, and efficient handling of police records.

PRO-Impacts on different divisions are better understood by all divisions as to how all work is interrelated when it comes to proper handling of reports etc.

PRO-Competition for portions of the departmental budget would be lessened due to the fact that all divisions would expect to sacrifice some less-priority needs for a system which has a great benefit to the department as a whole.

PRO-A sense of ownership in the new system would be built in, as all divisions will be involved and have input from the first day of planning forward.

PRO-A team spirit would cause better understanding and morale throughout the department. This will overflow into other areas where it will show more and more that we are "in this together."

CON-The possibility exists of other more important issues being found which will divert the attention of the committee members. This could occur simply by the

very nature of the law enforcement function where constant "brushfires" occur. Under these circumstances, it is difficult, at best, to keep a committee focused on its long-range goals.

CON-Each division will be preoccupied with its individual needs and somewhat reluctant to give up a divisional need for seemingly less important departmental benefit.

CON-Without constant reassurance of its importance, and of management's backing, the committee could "die a slow death".

ALTERNATIVE THREE

Develop a program intended to incorporate a high-storage capacity optical disk component into the current records management system (RMS), utilizing the current management structure as it handles change.

PRO-By utilizing methods/styles currently familiar, less confusion will occur regarding the transition and its associated stress.

PRO-By striving to replace only components which are not currently able to handle the needed functions associated with a new system, support from those in control of the budget will be easier to obtain by comparing new system costs against component costs.

PRO-Current methods allow for limited input from some divisions of the department. This system of change could actually speed the process due to faster action on decisions normally bogged down during a committee process.

CON-Current department adaptability (viewed in earlier analysis as mostly one of marketing, or seeking familiar change) would not be addressed, therefore stifling future attempts to incorporate more creative, but unfamiliar methods.

CON-By limiting the methods and/or styles from the very beginning, we are unlikely to realize the full possibilities of obtaining the needed system. Obtaining such a new system or its components, and making the necessary transition, may require a new and innovative approach.

CON-The hope of instilling in personnel the pride of knowing the department is progressive and leading the way in technology will suffer a setback by the utilization of old methods in an area demanding innovation.

THE DECIDED COURSE OF ACTION

In order to choose the proper course of action, we must look at the situation in its totality. First, our capabilities are better than average in the areas of pay/benefits and turnover rate. A good number of other areas were rated as acceptable. Problem areas, and it cannot be forgotten these are very important areas, are in manpower (lack of it), management skills, supervisory skills, and most importantly, lack of council support. Department adaptability indicated a tendency to seek familiar change. Another factor to keep in mind is no area indicated a flexibility approach as the norm.

Having perused our environment, capability/resources, and future adaptability, we seek a plan which will best fit. When we look at the case at hand, the alternatives developed through the modified policy delphi present a dilemma. The dilemma is that none of the alternatives offered seem to totally fit our needs as they stand. It is for that reason we will initiate a plan utilizing recommendations from alternative two, in addition to the inclusion of the high-storage capacity offered by optical disk technology, as recommended in alternative three. Alternative one will not be attempted because the records storage needs of the various city departments are not the same. Though there are similarities, the confidentiality and strict release of

information parameters placed on police records information place them in a different category. Law enforcement managers, and perhaps the California Department of Justice, would be extremely hesitant to allow a multiple-user records storage system susceptible to unauthorized access to confidential information.

THE REVISED STRATEGIC PLAN (Combination of alternatives two & three)

Develop a police department records storage and retrieval committee to identify needs and potential solutions regarding records storage and retrieval, and its effect on the overall departmental function. The committee will not limit itself to viewing the department alone, but will also consider other agencies which work closely with it. The committee will be charged with seeking objective solutions to problems common to all divisions and/or associated agencies resulting from the storage and handling of police records. In doing this the committee will place emphasis on seeking a technologically advanced system utilizing large-capacity optical disks as storage media. Possibilities will not be overlooked regarding the incorporation of an optical disk sub-system for the potential use of enhancing the currently active records management system.

The added advantage of the plan selected is that it provides an ongoing forum through which future changes in need and/or capability are quickly recognized, thus allowing for organized and well thought-out mid-course adjustments.

ADMINISTRATION AND LOGISTICS

If all of our departmental capabilities were viewed as very open and flexible, we could assume that the first step in winning acceptance of our plan would be by making a presentation to the city manager and budget staff. The departmental

capabilities analysis, however, indicated weaknesses in the very important areas of management and supervisory skills and council support (lack of it). Under these circumstances, we will proceed by first selling our plan to our own people. These stakeholders, the end users who place information in or access it, and their supervisors and managers, are the key to the success or failure of the plan. Parallel efforts will also be undertaken to plant the seed with the city manager's office and budget staff. As indicated below, there will be portions of the process aimed at police personnel, where we will purposely include other key members of city staff.

Upon gaining conceptual understanding and concurrence of these persons, efforts will be undertaken to maneuver the stakeholders into the needed positions of support. This will not be in the form of a surreptitious effort to have them unknowingly become part of a scheme, but rather to provide them with a true understanding of the long term benefits to the city as a whole.

LOGISTICAL IMPLEMENTATION

1. Orientation sessions (1 month)

    a. Police administration, including all division heads.

    *Short-range and long-range goals.

    *Individual meetings with division heads regarding their future individual division role.

    *Meetings with the commanders and supervisors of smaller units regarding roles and resulting individual advantages to all personnel.

    b. Police officers and other line personnel such as field evidence technicians, community service officers,etc.

    *Roll-call presentations in person to allow for questions and answers.

c. Civilian personnel, including records clerks, secretaries, dispatch center personnel.

*As with the other personnel, this group ofstakeholders are to be provided with an over view of short and long-term goals and the resulting benefits. Provide insight regarding the individual's role in the "big picture."

2. Set up feedback sessions.

a. Establish a group of representatives, one from each group of stakeholders, to solicit feedback from members for a feedback session in one month.

3. Conduct optical disk storage and retrieval system demonstrations for members of various groups of stakeholders to attend. (It will be very important at this point to invite representatives from the city manager's office as well as city council members for first-hand exposure to the capabilities of such a system.)

4. Hold feedback sessions and note important insights which may have been overlooked or underestimated. (It will have now been approximately 2-3 months by the time all of the above has been accomplished; however, it will have been time well spent as the many wheels of thought have now been placed in motion.)

5. Adjust the plan as necessary according to insights gained from all previous efforts.

6 Present the refined plan to the city manager for conceptual approval.

*Presentation by the chief of police and staff.

*Emphasis on future.

*Positive implications of such a project.

*Assurances and justification of the need with further analysis and negotiation to follow.

7. Negotiate with stakeholders regarding the overall and individual pros and cons (3-5 months).

8. Prepare an in-house alternative budgeting plan as a backup in case conventional methods fall through. (consider the use of asset seizure money from narcotics cases) (The money availability, or lack of it, was seen as one of the most important trends during the earlier NGT process.)

9. Bring together the earlier-established group of departmental members representing various stakeholders and establish refined needs regarding the proposed system. (These efforts will have been ongoing since establishment of this group we now refer to as the police department records storage and retrieval committee). At this point, include a representative from the district attorney's office. This is at least one of the other agencies which we will work with regarding future networking efforts.

10. Recontact various vendors in the field of records storage and retrieval (preliminary contact will have occurred during initial research of O.D. systems). The purpose now of this contact is to set the specifications for established needs and have the vendors prepare for the future bid process. Possibly set up more departmental-specific needs demonstrations regarding either how well their system(s) can merge with present system components, or how they can replace portions of the present system. This is also the opportunity to get a much clearer picture of the cost estimates which will play an important roll regarding the future of the plan (2-3 months).

11. Meet with the city manager again with an update on needs/capabilities, costs, etc.

12. Present proposal to the city council including all information gathered to date as well as a report on positions of the other stakeholders. Propose further negotiations with the council. Utilize presentations by other stakeholders who

have committed to the plan. (Current processes could cause this phase to take 6 to 9 months, or up to a year if an election is pending.)

13. Upon adoption of the plan, all stakeholders will be notified via committee members who will be called together. Through this process, stakeholders will be advised of the time frames involved in obtaining the system, as well as the associated transition.

14. Finalize the details for the acquisition of the system or sub-system.

15. Initiate the transition process and monitoring system. (18-20 months)

THE PLANNING SYSTEM

Decisions regarding the type of planning system to be utilized are made after proper analysis and consideration of two main factors:

1. The predictability of associated changes.

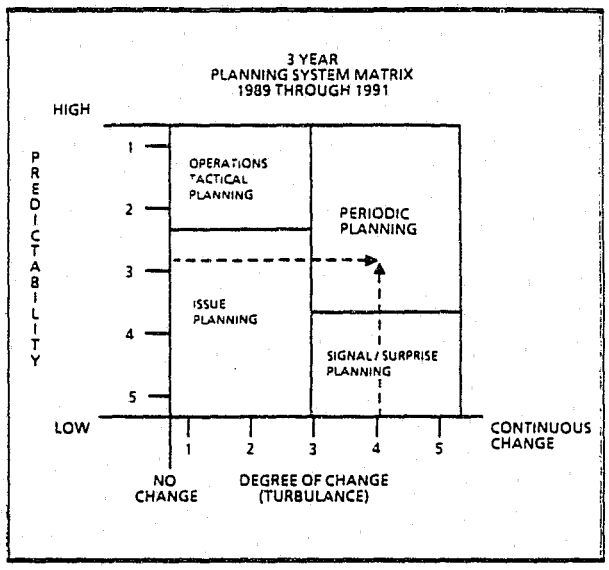
2. The anticipated degree (number) of changes.

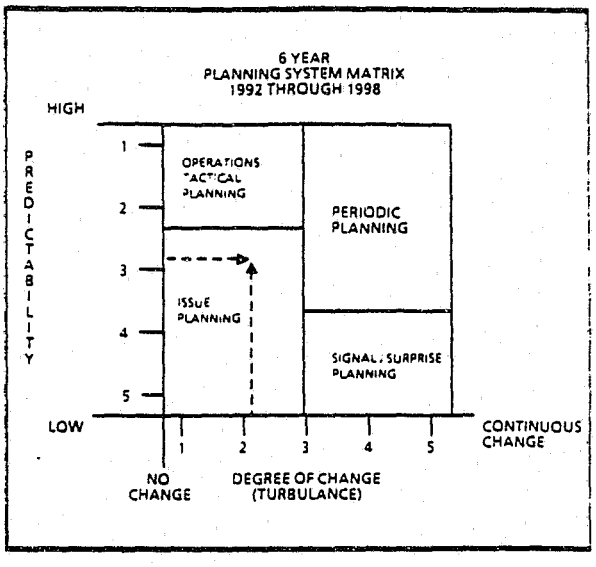
In consideration of this, we must keep in mind we are not only looking ten years into the future, but doing so in an area (technology) which is commonly recognized as one which is advancing at high speed (a trend identified as very important according to the NGT). Due to this speed, we will not attempt to utilize the same planning system for the entire ten-year period. It will be much wiser and more realistic to start with a three-year period (assuming for the purposes of this paper that planning will begin in earnest at the start of 1989). We will then move to an adjusted planning system for the remaining six years.

The following three-year planning matrix indicates that the first three-year period will be beset with a large number of changes (indicated by the bottom horizontal scale). The vertical scale on the left indicates that the changes (as well as

their resulting threats and opportunities) will be mostly predictable. The system called for under these conditions is one of periodic planning.

The second matrix indicates the need for issue planning during the six-year period which follows. This is due to seeing fewer changes, though also being mostly predictable.





As we move forward with our strategic plan, the flexibility we are affording ourselves by utilizing situational planning systems will provide for the orderly incorporation of optical disk media as part of our future records storage and retrieval systems.

TRANSITION PLAN

STRATEGIC PLAN SUMMARY

The thrust of this project is to examine the impact of optical disk technology on law enforcement records management by the year 1998. The more specific focus being on optical disk media for the enhancement of records storage and retrieval. The proposal is made for a police department serving a population of approximately 190,000, and having a high crime index.

PRESENT STATE

A quick glance around the police department records bureau points out a number of technologically sound and modern devices and systems. The most obvious, yet simple, are the memory typewriters. Next to, or in some cases replacements for these typewriters, are the video display terminals (VDT). What doesn't really seem to strike us as a surprise, however, is the fact that there is more than one type of VDT, sometimes with two or more on one desk, each with a different function. Not to be forgotten are the ever-present and ever-grinding photocopy machines meant to duplicate just about anything and everything. This is seen as a convenience by some, yet quite a time-consuming waste by others. As we continue to look around, what becomes even more obvious is the apparent need for more technology to assist, as budget increases do not keep pace with increased work loads and personnel costs.

There are a number of opportunities which provide hope for the future.

These include more affordable prices for advanced equipment and systems, and advances which are making the future capabilities of these systems tremendously improved at a very fast pace. The door appears to be open, and police departments are now being viewed as a more attractive market for advanced systems such as optical disk storage.

FUTURE STATE

Earlier efforts to identify trends and events critical to our issue, combined with a cross-impact analysis of each, have provided certain insights. These pertain to the future impact of optical disk technology on law enforcement records storage and retrieval. Drawing on that information, we offered a normative future upon which to strategically plan for the transition from the present state to that desired and attainable future.

The future was identified as one where the handling of paper reports would be kept to a minimum. Images of reports will be entered either directly or via scanning into high-capacity optical disk storage media, and at the same time become immediately available for viewing at any of a number of remote locations. Distance between terminals is no longer a problem, thanks to the assistance of a well-refined fiber optic transfer network. Officers read and review images of reports, as do district attorneys who contemplate the possible issuance of a criminal complaint. In the numerous instances where the report being reviewed is not needed, or turns out not to be the one actually wanted, the image is canceled from the screen and the report is never reproduced. These digitized reports, and the various accompanying attachments, are routed electronically to only the persons/locations desired. The end result is the efficient and cost-effective handling of information.

We know the present state, and now have a focus on the desired future.

So how do we bridge the gap and make a transition from the present to the future state? The answer lies in the form of an organized strategic plan.

THE TRANSITION MECHANISM

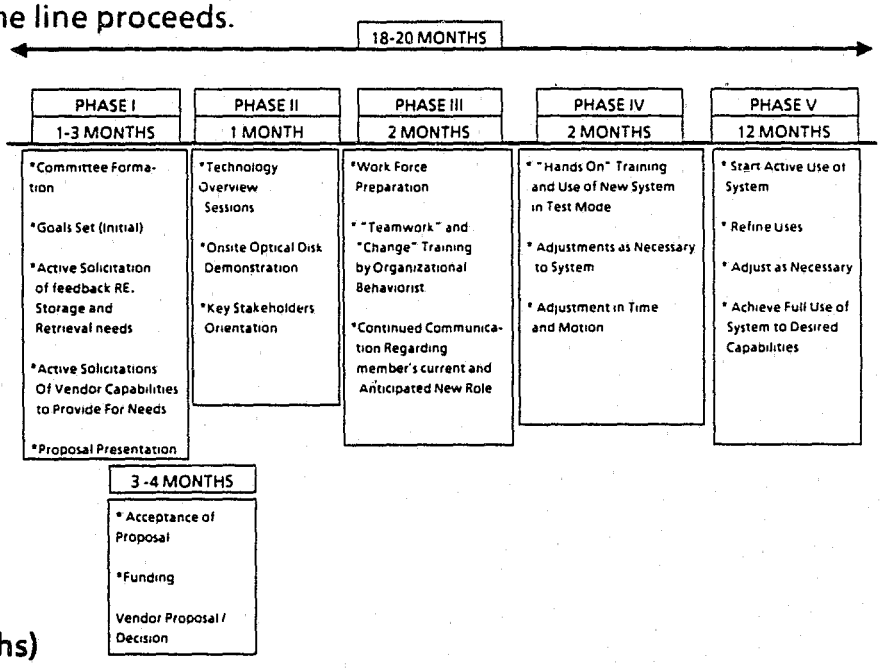
In building our bridge from present to the future, we must make a conscious effort to anticipate and deal with both the technological and human elements we will encounter. These needs will be addressed through training. Needs do not stop with the functional training associated with teaching personnel to operate the new technology. They indicate we must go farther and recognize that humans, by nature, view change as a threat.

So, just how do we do this, and how do we prepare the work force in advance? How do we assure they are ready when the technology is? Much of the answer lies with the tenacity of the project manager and the enthusiasm of the committee. What I picture is a cartoon I saw years ago showing two railroads built from different directions, with the intention of meeting at a particular point. In the picture were two crew bosses scratching their heads as the rails sat a few feet from where they were intended to connect. In that case, as in so many incidents where plans were not well thought out, tremendous effort was expended for a plan which simply did not work. The only way the "last spike" can be driven is for the tracks to be aligned and the crew prepared.

The following time line offers an overview of the approximate time necessary to prepare both the work force and the system for mutual compatibility and a smooth transition. It can be anticipated that the overall change will take approximately 18-20 months. The time line, therefore, allows committee members and interested stakeholders a quick reference to desired goals.

It is appropriate at this point to refer briefly to the transition management

structure covered later in this study. In that section, references are made to the importance of enthusiasm and commitment by the project manager and each committee member. It is helpful to keep this concept in mind, as an ongoing dynamic, as the time line proceeds.



Phase I (1-3 months)

The initial stage consists of identifying members of committee, followed by establishment of committee goals. During this period, there is to be very active solicitation of feedback from department personnel regarding records storage and retrieval needs, parallel with input from vendors as to their ability to fill those needs.

Phase II (1 month)

This phase includes sessions intended to introduce stakeholders to the new desired technology and its implications regarding current and future records practices. These orientation sessions will include both off-site and on-site demonstrations and presentations.

***NOTE:** At some point in time overlapping phase I and phase II, the overall

proposal is anticipated to be accepted and funded. The resulting vendor proposals will have been evaluated and a decision made regarding the selected system/components (3-4 months).

Phase III (2 months)

This is the very critical stage where the tracks must meet between the technology and the work force. In order to accomplish this, training will occur covering both the technical and human aspects of the change.

1. Technical training will cover system abilities to perform needed tasks while at the same time making the worker's job easier and more enjoyable. This training will be conducted by those from the technology field.
2. Human aspect training will consist of the dynamics of change, coupled with recognition of human nature and its ability to help or hinder progress. Also included will more personalized acknowledgment of where each employee will fit into the picture, reassurances that their importance is not being diminished. The need for continual communication and teamwork will be stressed. This training will be conducted by an organizational behaviorist.

Phase IV (2 months)

This phase, though short, is important in that the input and user personnel will have an opportunity to get "hands-on" experience with the actual system. This will lessen the mystery and get the work force familiar with the system prior to it going on line. The system will be in the test mode and will allow for experimentation. The added feature in this is the detection of any system "bugs." These can then be corrected prior to full use.

Phase V (12 months)

During this entire period, a number of processes will be in motion simultaneously. These range from initial start-up, through necessary adjustments, to the final goal of full use of the system. "Full use" will include having both the system and work force working in harmony, at maximum ability.

THE CRITICAL MASS

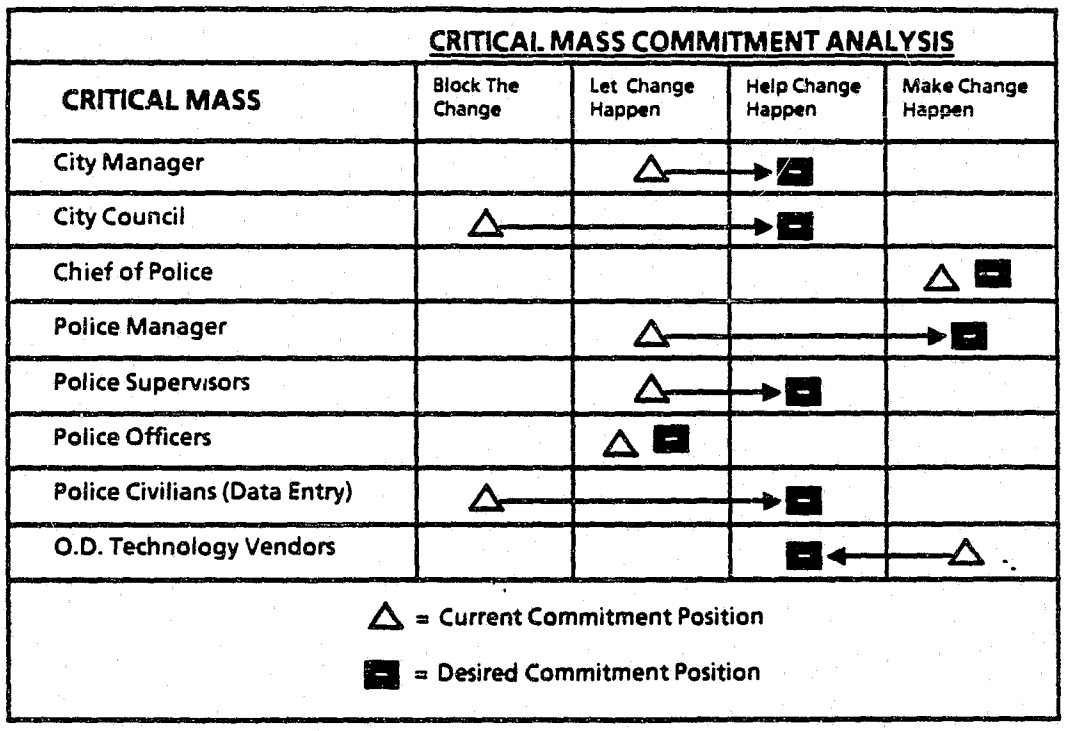
What people and/or organizations are critical to the success of the strategic plan? Who or what will cause the most concern when we are striving for a smooth transition? These are very important questions. The answer is that some of the stakeholders who, by either position or influence, are the most critical if we are to achieve success. This critical mass will demand most of our attention, and are the ones we may need to negotiate with on a number of points in order to achieve that needed commitment.

Of all of the possible stakeholders, the following are viewed as the members of this critical mass:

1. The city manager.
2. The members of the city council.
3. The chief of police.
4. Police managers (division commanders, watch commanders etc.).
5. Police supervisors (sworn and civilian).
6. Police officers.
7. Civilian police clerks, secretaries etc.

8. Optical disk technology vendors.

It has been necessary up to this point to make a number of assumptions. These are not assumptions made based upon the way we want things to be, but based upon past practices, ideologies, policies, and that "gut feeling." With this in mind, we have charted the positions of commitment to indicate where people are now, and where we need them to be for the best results from our efforts.



A number of conclusions can be drawn by viewing the commitment analysis chart. We are fortunate to have two members of the critical mass in the exact positions in which we want them. The police chief is in a position where he is committed to make the change happen. This is critical not only due to the policy-making position he holds in city government, but also because he sets the example. His staff can easily see his commitment, therefore will be more inclined to support it as well.

The police officers are limited in commitment as far as wholehearted,

enthusiastic support. It is, however, nearly as important that they are willing to let it happen. In that mode, the officers will, at the very least, make an effort to provide objective feedback regarding the proposed system.

Although the above persons appear to be in that desired position, we must be sensitive at all times to signals indicating a shift in position. This could come about from lack of communication to the officers regarding progress. It could also come from the chief feeling that he is being circumvented. Communication is all-important regardless of the member's perceived position.

Commitment levels of the remaining members demand more attention. For example, the city manager will currently allow the change to happen however, his commitment to make it happen is more important. He and the chief of police must share similarities in their concept of the project and its benefits.

The police managers are likewise in a position where they will let the change happen. Their position must also be adjusted. As members of the department staff, they will need to be at least as enthusiastic and supportive as the chief who runs the department. Along these lines, as pointed out earlier in the capabilities analysis, managers and supervisors are viewed as a departmental weakness. Methods for improving both, while at the same time gaining added support for the plan, are discussed later under "negotiation strategies," and "the transition mechanism."

The police supervisors (sworn and civilian) are important in that they are the first-line contact people for the users. They presently are in a position to let it happen; however, we need their help! We will therefore need to move them to a position of helping the plan happen. Methods similar to those used to improve managers will also be employed with this group.

The technology vendors, who admittedly are in business to sell products, can also be a very useful resource in our attempts to succeed with the plan. By their assertive nature and zeal to be the product provider, they can be found in a position

of wanting to "make it happen." They will do their own assessment of the current operation and future goals and want to tell us what we need and how they can provide it. We want to move this member to a more desirable position of "help it happen." We need this group to keep us aware of the components and systems available, along with associated cost figures. We are also in need of their ideas regarding system congruency in relation to the current system and future compatibility. When it comes to needs, however, it will be the committee who will evaluate the vendor capabilities, compare them to our plan's needs, and make subsequent recommendations.

The final two members of the critical mass were purposely left for the last assessment. These are two members who contain a number of persons having many varying thoughts, feelings, and agendas. They are the city council members, and the civilian police personnel (data entry etc.).

1. City council members are first of all elected, and secondly, have many diverse backgrounds and experience. The first thoughts usually are, "is this going to cause controversy?" and "How much will this cost today, not ten years in the future?" This is usually followed by a number of referrals back to the department and/or council committee for "more analysis." Perhaps a report from the city manager would be desired. Etc., etc..

If there are not too many obvious pitfalls, they <u>might</u> let it happen. We want this group, however, to shift a considerable distance to a "help it happen" position. It is after all, <u>these</u> folks who ultimately hold the purse strings.

2. Civilian employees are not by nature difficult to deal with, and I don't want to give that impression. In addressing this group, I utilized a great amount of personal reflection regarding my own experience with a civilian work force. This also included experienced gained during a transition I did not have a part in planning, but had to help manage.

Bill Cosby once said, "I don't know the secret to success; however, the secret to failure is to try to please everybody." I am not certain what context Mr. Cosby was speaking in, however there is a lot to be said for his comment. There seems to be this tremendous resistance to change in human nature. That in itself does not have to be a problem as long as the manager recognizes it and takes steps to deal with it in the initial planning stages.

In the case at hand, we are going to place the majority of responsibility for use of the new system into the hands of the civilian records employees. Many of these folks will accept the fact that they are faced with a change precipitated by persons in a higher level of the department. What they have problems with, however, is trying to use familiar methods to operate a system which requires a different mind set. Many will wonder why it doesn't do things the "way we used to do it." Others will make counterproductive efforts, and derive great pleasure from failures of the new system, a sort of "I told you so" attitude.

There are many factors in this, including the fact that many of the workers were in records when we utilized the 3" x 5" cards referred to in the overview of "records storage and retrieval--the past."

The speed at which technology has advanced (Trend 2) has left some persons behind in its wake. The purpose in mentioning these negative possibilities is to point out that these things <u>have</u> occurred in the past. It is also to point out that it does <u>not</u> have to continue to be a problem. By recognizing the civilian work force in the plan as part of the critical mass, we bring them in on the ground level to help us build the solid foundation needed for a successful transition. Though there are always exceptions in any work force, it can be reasonably considered that the people who are expected to help the plan succeed will buy in and support that plan if they are in fact part of it. I do not recall the original source; however, a saying I often think of is "people will support what they help create."

The final point regarding the stakeholder discussed above, is for management to make the necessary considerations and take the appropriate steps. If, however, there are those who still do not support the plan, and there will be, do not let this deter us from the objectives set. The end result will be better for the department as a whole.

NEGOTIATING THE PLAN

Persons are willing to negotiate for two main reasons. One is to gain something, the other is to keep from losing something. Considering this, we quickly see that different persons critical to our effort have different needs. We also note there are certain existing relationships now shared with these critical persons which may be in need of change. This negotiation is not to be looked upon as a contest, a win/lose situation. It needs to be one of win/win, and negotiations are aimed at accomplishing just that. As Gerald I. Nierenberg said in the introduction to his book The Art of Negotiating; "Whenever people exchange ideas with the intention of changing relationships, whenever they confer for agreement, they are negotiating."

We cannot assume any or all of our plan will be automatically accepted. As previously mentioned, there are a number of stakeholders who are to be considered. They are people who affect, or are affected by, the plan. Initially there were 10 such stakeholders identified, and a number of assumptions about them were made. To expand further on this, it is also apparent that some of these people would be easier to deal with than others, either because of their perceived benefit from the plan, or shared values regarding the future state proposed in it. We will now take time to look closer at some of the stakeholders whom we will need to negotiate with regarding the plan itself, or perhaps certain parts of it.

It would seem appropriate, in viewing the initial 10 stakeholders, to categorize

them according to their overall relationship to the police department. The police chief, managers, supervisors, police officers, and civilian employees would come under the heading of "police negotiations." The city manager and city council would fall under "government negotiations." Talks with the various technological vendors would be considered "private sector negotiations."

POLICE NEGOTIATIONS

Though not considered easy, the basic strategy involved with all levels of department personnel will be participation. Here it is incumbent upon all to keep the department mission in sight and look past personal or divisional biases. What is best for the department as a whole shall be considered first.

Information flow will be of the essence. This will start with the initial introduction of the plan, and continue with zealous pursuit of feedback. There will also be a genuine acceptance of ideas and considerations which result from the feedback. There will be a constant emphasis on the need for help and support accompanied by assurances that the proposed system is much more of an opportunity than a threat. Periodic departmental updates will be released to all personnel via newsletter to assure that all stakeholders, not only the committee members, are aware of progress. Efforts will also be undertaken in the area of building the organizational esteem by the constant reference to personnel being part of a "team", and to the department's efforts to be on the cutting edge of technology, thus instilling pride in the plan.

Additional steps will be taken to address the weaknesses discovered during the capabilities assessment process. These will first include training for supervisors and managers regarding technology and its positive effect on departmental processes. Secondly, for the benefit of the plan and the overall benefit to the department in all

matters, a series of team-building processes will instill the vision necessary to undertake a long-term plan such as this. It must be demonstrated that our team includes all employees.

GOVERNMENT NEGOTIATIONS

This area of negotiation could easily be viewed as the most difficult. In fact, it is not the difficulty of dealing with persons in general which causes concern, it is the dealing with the variety of backgrounds contained in the group of persons who make up a typical city council. Persons run for council for a variety of reasons; however, one of the most common is their individual dissatisfaction with the status quo. There are things they see other council members do or fail to do, so they run for office to take charge and do things right. When there is dissatisfaction, there is motivation to change. If this is a correct premise, then our tactic seems quite clear. We must make this group dissatisfied with the status quo regarding records storage and retrieval. We will accomplish this with the chief of police being the primary conduit. He will make as many presentations as necessary, based on fact, regarding the time savings realized in the long run from the investment involved. This will include demonstrations from vendors, possible on-site visits, and question-and-answer periods. We will bring the subject to the forefront and show why they <u>should</u> be dissatisfied. This rational approach will not necessarily sell our plan with this group of stakeholders. We will therefore have all of the cost figures, all of the benefits laid out, and all of the support we can derive from all other stakeholders. We will be persistent.

As Mr. J. Thomas Miller, president of Leadership Seminars Associates, stated on page 2 of his seminar outline for <u>How to Successfully Manage Change</u>, "The process to initiate change involves creativity, initiative, and belief." From this, we find that

the initiative portion, an important part I am advocating for dealing with this group, only works through persistence, determination, and drive.

As mentioned earlier in the stakeholder assumption analysis, this group will be reluctant to let go of the money necessary to obtain a system as long as there is any doubt about its need. With the expenditure being justified as mentioned above, we still have to have a "Plan B." Why though, should we throw all of our eggs into one basket? Why not a "Plan C" also?

Negotiation Strategy B -- When and if the council continues to balk to the point where the money is the only or the biggest concern, negotiate (once this is cleared by the chief and no other procedural problems are anticipated) for the shared cost utilizing one-half city money and one-half from drug asset seizures. The danger here is in possibly creating the idea in the council member's minds that these monies are available for other projects the city had planned to fund otherwise. The facts regarding the use of drug asset seizures are to be explained well in order to eliminate possible confusion.

Negotiation Strategy C -- When all else fails, offer the possibility of utilizing drug asset seizure money as the lone funding source. If either strategy B or C is attempted, check first with the commander of the narcotics division (also a committee member) so all of the information regarding use of the funds is accurate. Currently, restrictions on their use have been eased, possibly making this alternative the preferred method for funding the planned system (or upgrade).

The final, but still important consideration for negotiations with the council and/or manager is to remember they too have a self-image to uphold. To achieve the best results from our plan, we will constantly monitor progress and keep these parts of the critical mass interested, informed, and involved.

PRIVATE SECTOR NEGOTIATIONS

The key here is the controlled involvement of the technology vendors. As previously stated, vendors are there to sell a product and to show a profit. This is not bad; actually, it's the American way. However, we must set the ground rules from the start, and make it clear there will be no favorites when inquiries are made and quotes requested (an important consideration when forming the management structure for the transition). Whatever assistance is rendered in helping us sell our plan can only be repaid with ethical and equal opportunity to make the best offer. It will also be made clear from the beginning that the city is an affirmative action advocate, and any restrictions at bid time would quite possibly be beyond committee control. At the same time, however, vendors can rest assured that the committee is seeking the best possible system and/or enhancements to the present system, and would do everything within its power to make a recommendation along those lines. The vendors who truly believe their product will be able to compete to be the best would afford the time and efforts requested.

TRANSITION MANAGEMENT STRUCTURE

In deciding the management structure for this major transition, we are fortunate to have a built-in information center. That center is the records storage and retrieval committee formed to assure complete analysis of needs, coupled with the ability to obtain detailed answers regarding technology's ability to meet those needs. Having the stage set to show the desired future is possible, the committee has the commitment of the chief of police, who is to play an important part as a change agent. The chief cannot take the time necessary to chair the committee, considering

the other demands made on his time. He likewise cannot oversee the details and appropriate tracking of responsibilities, deadlines, etc. At the same time, the chief must have one person who reports directly to him and is the main conductor to return decisions based upon committee recommendations. Transition management will therefore be structured around a project manager, working closely with the committee. The committee now serves the purpose of being a records management task force representative of the entire department. The project manager does not have to "ramrod" the plan, nor does he have to personally seek the minute details sometimes needed when questions occur. The project manager only manages the plan.

The project manager will be the captain of technical services division (which includes the records bureau). In his new capacity, the manager will have the authority to utilize resources, both budget and personnel, to move from the present state to the future desired state. He will be given authority to question, set deadlines, and to direct the other activities of the committee. He will act as liaison with the various vendors in order to channel efforts through one source and decrease the likelihood of duplicate contact, etc.

One of the most important tasks of the project manager, as noted above, is that of assigning responsibility (knowing full well the ultimate responsibility is his). In order to accomplish this, the following responsibility chart offers a method to reduce the responsibility assignments to paper. It gives the persons responsible for certain actions a reference to remind him/her of what is necessary. It also serves as a reference for the chief, project manager, and to the other committee members who may need to contact a person responsible for a certain action. In short, the responsibility chart offers a document which helps avoid the "I thought you were supposed to do it" responses.

KEY	MAIN ACTORS									
R = RESPONSIBILITY A = APPROVAL (Right to veto) S = SUPPORT (Placing Resources toward) I = INFORM C = CONSULT - = IRRELEVANT TO THIS ITEM	Chief of Police	City Manager	P.D. Management (Division Heads)	P. D. Management (Watch Commanders	P. D. Supervisors	City Council Members	Technology Vendors	Civilian Employees (Clerks)	Project Manager	Storage & Retrieval Committee
Records Storage Needs Assessment	A	-	S	S	S	-	I	S	R	S
Vendor Responses	I	-	I	I	I	-	-	I	R	I
Comparisons of Systems/Components	I	-	I	I	I	-	C	I	R	R
Presentations/ Demonstrations	A	I	I	I	I	I	S	I	R	S
Budget Figures	C	C	I	-	-	I	C	-	R	S
System Approval	A	A	S	S	S	A	S	I	S	S
Implementation Methods/Time Lines	A	C	I	I	I	I	-	I	R	C
Monitoring System	I	I	S	S	S	I	-	S	R	S
Continued Feedback	I	-	S	S	S	-	C	S	S	R

The preceding chart was completed as I perceive the necessary placement of responsibility to accomplish various tasks. In order to provide a clearer understanding of responsibilities, however, our plan would more appropriately call for each main actor to fill out such a form on himself/herself as well as every other actor. The information gained from this effort would prove quite helpful for discussions (perhaps some further negotiations?) taking place to assure various responsibilities are being properly placed.

Supporting earlier comments, the chart indicates a great deal of responsibility is placed on the project manager. Importantly, it also points out to all members of the mass that they are each an integral part of the plan and that their support in numerous areas is critical. Their buy-in comes in the form of being continuously informed and having ownership in the plan.

SUPPORTING TECHNOLOGIES

There are four separate but equally important phases necessary to facilitate the transition process. They are as follows:

1. Select committee members and set meetings to establish goals and objectives. Included in this is personal contact by the chief of police, whose drive, enthusiasm, and vision are critical as the departmental leader.
2. The second is getting the information out to departmental members and receiving the feedback.
3. Inform, enlighten, and hopefully create enthusiasm in the city council, manager, and remaining stakeholders.
4. Formal structuring of transition plan.

Various phases will be accomplished as follows;:

PHASE 1

Congruent with earlier analysis, members of the new records storage and retrieval committee will be representative of all areas of the department. Phase one will include orientation to the past, current, and future state of records storage and retrieval, along with the negatives and positives of each. To give the most insight possible, overviews will be provided to the members regarding how the trends and events led to the realization that the future state described is possible. This overview will likewise indicate the possible pitfalls and the analysis of the stakeholders the committee will be considering. Led by the chief of police, this critical phase will target the development of enthusiasm and belief in the plan. Support to the

members will be exibited by assuring them that the information and recommendations they provide will be legitimately considered, then followed, whenever possible. Subsequent meetings will be set at regular intervals to systematically focus on goals and objectives, followed by assignments of individual membership responsibility.

PHASE 2

With the various stakeholders identified, the committee will formulate the structure for getting the word out about the need and proposed solution. This will include a description of the present and future desired states and the goals of the committee to help the department achieve that state. The importance of support of all personnel will be emphasized, as well as the future role of each. The benefits will be explained; however, potential problems will not be minimized. People will be provided the names of the committee members and will be encouraged to question and comment. After a few of these releases, a survey will be conducted to find out if any of the goals need a possible adjustment.

This is, I believe, one area which is the most overlooked when a department anticipates change. We take great measures to analyze the availability of funds. We also consider our negotiations with vendors and methods necessary to get the best bids from them. When, however, it comes to considering the persons who will provide the basic processes involved in the change (in this case, the data entry and end-users), we fall short. We must utilize phase 2 therefore, to plant and cultivate the seed of change and help remove that air of the unknown.

The media we will use for this phase will be a combination of department newsletters, informational memoranda, roll-call presentations (in person by committee members, the project manager etc.) and videotape presentations as

backup for those who are not able to attend a live presentation. Taking these steps now consumes a bit of time; however, the alternative to this would be faster implementation but a much slower acceptance and utilization. Let's get the word out and let them think about it. We can then receive feedback, adjust where needed, and all take the trip with the full crew knowing where we are headed.

PHASE 3

It may serve us well to conduct this phase simultaneously with phase 2. The city council and city manager are vital to our plan. We will likewise provide informational readings, presentations, and personal discussions with each. This phase could precede phase 2; however, we will proceed with the presumption that we did our homework and are fairly certain our plan can succeed with these segments of the critical mass. Assurances must be constantly made to these persons that their power and authority will not be circumvented, and we will not fail to follow city policy regarding bidding, etc. We will also take this opportunity to offer any and all information gained, to other departments within the city who are considering the use of optical disk technology in their shop.

Another stakeholder previously identified regarding future networking is the district attorney. His agency will also be included in the orientation process, and his potential role and benefits from the plan will be discussed to gain his support. Initial thoughts regarding that agency's role would have already taken place between the chief and the D.A. during one or more of the regular meetings which already occur on a regular basis.

PHASE 4

With the word out and the anxieties diminished, the committee, through the leadership of the project manager, will now be able to establish the committee agenda. This will include prioritizing of need, focus on direction, and assignment of responsibility. The committee will formalize the task and work flow structure, the system/component criteria, and the necessary negotiation tactics.

The committee will also implement a check-and-balance system, a method by which to monitor both progress and necessary adjustments in direction.

The commitment of the chief of police, and the dedication of the committee, will positively impact the department's records management. It will also tend to inspire other persons to take up the cause for other departmental needs. Our successful results, in the form of progress and a rejuvenated sense of pride, will benefit the department for years to come.

CONCLUSION

The question was asked, "What impact will optical disk technology have on law enforcement records management by the year 1998?". Literature scanning, personal interviews, and on-site visits seemed to indicate records storage and retrieval as the specific area of records management showing possibilities for this technology.

Efforts to identify trends and events important to the question were undertaken with the help of a nominal group technique. The group also utilized cross-impact analysis and found the future environment conducive to a normative future. This future was found to be one where officers would submit reports by one of several methods, thus lending flexibility to the report process. The media capable of storing the tremendous volume of reports generated by a police department was shown to be the high-storage capacity optical disk. Reports were seen to be entered into storage by downloading from a lap-top computer, by being placed on audio tape and later transcribed into the system, or by the quick scanning of a paper report. The result, however, was immediate access to an image of the report on a video display terminal (VDT). Reports were routed electronically and viewed on a screen prior to any need to photocopy the report. Interagency ties were established by networking with the district attorney. Quick, accurate, and efficient storage and retrieval not only lessened the work load, but also drastically reduced photocopy costs.

Having the future in sight, the process was undertaken to develop a strategic plan to achieve that future. Three alternative plans were offered and analyzed. The selected plan was to develop a records storage and retrieval committee to analyze current and future needs, as well as the current and future capabilities of technology vendors to meet those needs. Specifically, the committee

was to look at vendors offering optical disk storage systems/components. The committee was to be headed by a project manager and was to be comprised of members representing all areas of the department. The transition process from the current to future state, was made possible through the efforts of the chief of police, the project manager, and the committee (the surrogate for every member of the department).

What was the actual outcome of these efforts? Is this future scenario actually possible? I believe it is. The reason? Commitment. In the tremendously hectic business of law enforcement, it is increasingly difficult to plan for the future. Difficulty in planning for the future however, is no excuse for not doing so. Did you notice I referred to law enforcement as a business? In a world where the economy is fickle and the moods of the people are the same, how does a business know the market? How does a business survive if it doesn't consider the rapidity with which technology effects everything we do? Private industry analyzes the market. They observe trends and events, constantly monitoring demographics and social ills. They also hold their employees accountable and watch the profit/loss margin. Why, then, shouldn't law enforcement look beyond today and utilize some of what private industry does by necessity? Successful businesses have control of today, but they also have an eye on the future.

Budget crunches aren't new, and we shouldn't be naive enough to believe they won't continue to be a problem. If city and county governments have less money to conduct business, they must either cut back in service or streamline operations. This is where the door is open. As the scenario describes, we cut photocopy costs drastically, we move reports around electronically, we provide flexibility in reporting methods, and most importantly, we include the people from day one.

What does this study imply regarding the future of records storage and

retrieval, using optical disks as the primary storage media? Future implications are that a smooth transition into this technology will positively impact departmental morale, possibly resulting in a subsequent reduction in stress-related illnesses. If this does occur it will, in the long run, help pay for the future desired state. It also indicates that optical disk technology can help offset the lack of personnel and parallel increases in work loads. An additional and very important implication is that managers of tomorrow will need to be very diligent in their efforts to recognize and deal with the complexities of human nature in a work force surrounded by rapid change (it will be more important than ever to include the input of those who are critical to successful implementation).

The described future is both desirable and possible. It will become a reality through the commitment of these key individuals: the police chief, the project manager, the committee, and the informed and confident critical mass.

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Jeannine Robinson

Computer Operator

City of Stockton

Stockton, CA

Billy W. Brazzel

Captain (former records manager)

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Stockton, CA

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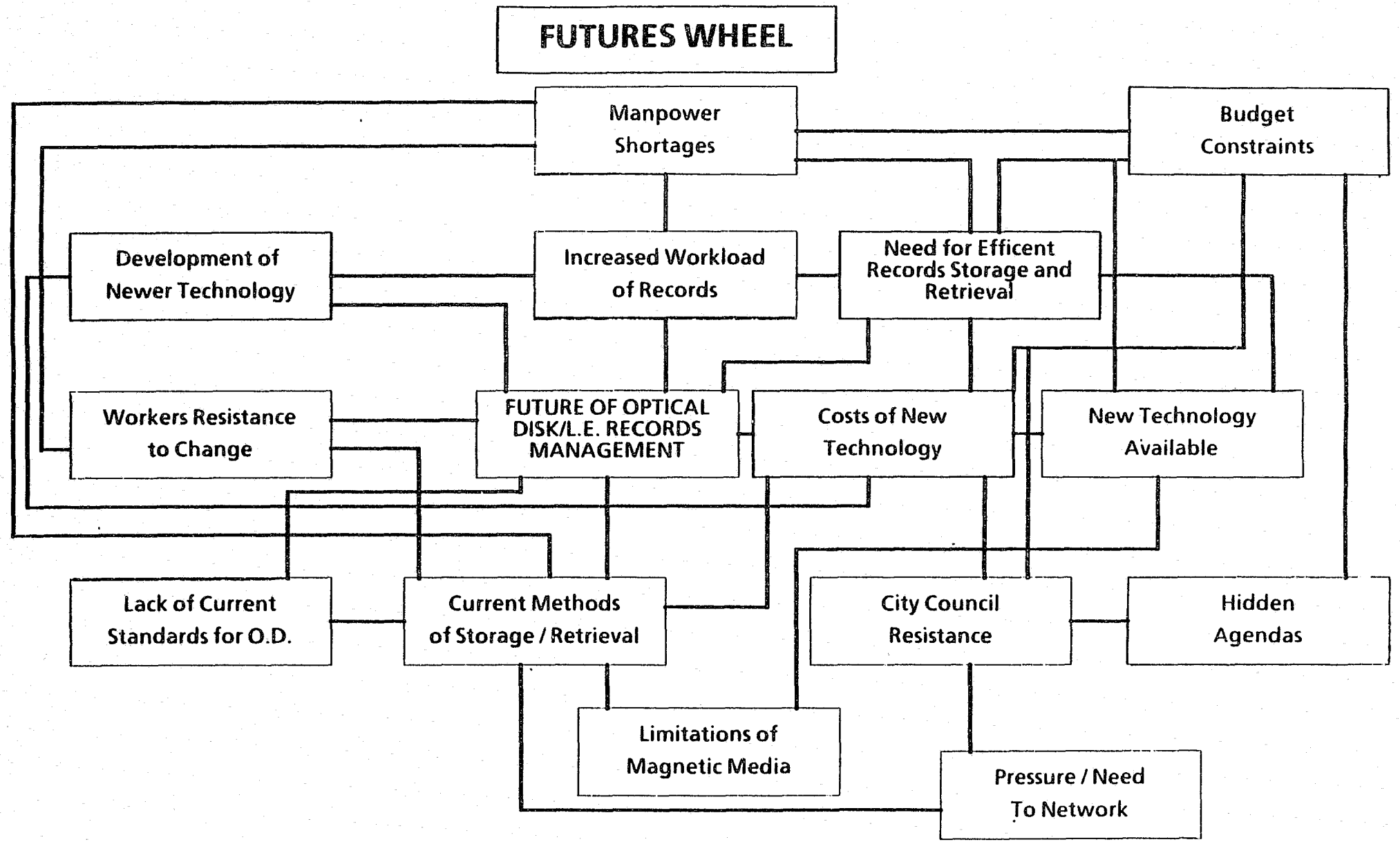

Illustration of Sub-issue interrelationships

APPENDIX A

PRESENT CAPABILITY ANALYSIS: RATING I

Instructions

Evaluate for each item, as appropriate, on the basis of the following criteria:

I Superior. Better than anyone else. Beyond present need.
II Better than average. Suitable performance. No problems.
III Average. Acceptable. Equal to competition. Not good, not bad.
IV Problems here. Not as good as it should be. Deteriorating. Must be improved.
V Real cause for concern. Situation bad. Crisis. Must take action to improve.

Category	I	II	III	IV	V
Manpower				X	
Technology		X			
Equipment		X	X		
Facility			X		
Money			X		
Calls for Service			X		
Supplies			X		
Management Skills				X	
P.O. Skills			X		
Supervisory Skills				X	
Training			X		
Attitudes			X		
Image			X		
Council Support				X	
C. M. Support			X		
Growth Potential			X		
Specialties			X		
Mgt. Flexibility			X		
Sworn/non-sworn Ratio			X		
Pay Scale	X				
Benefits	X				
Turnover		X			
Community Support			X		
Enforcement Index			X		
Traffic Index			X		
Sick Leave Rates			X		
Morale			X		

STRATEGIC NEED AREA DATA STORAGE AND RETRIEVAL

ADAPTABILITY ANALYSIS: RATING 2

Instructions

Evaluate each item for your AGENCY as to what type of activity it encourages.

I	Custodial	- Rejects Changes
II	Production	- Adapts to Minor Changes
III	Marketing	- Seeks Familiar Change
IV	Strategic	- Seeks Related Change
V	Flexible	- Seeks Novel Change

Category

TOP MANAGERS:	I	II	III	IV	V
Mentality Personality			X		
Skills/Talents			X		
Knowledge/Education				X	
ORGANIZATION CLIMATE:					
Culture/Norms			X		
Rewards/Incentives		X			
Power Structure			X		
ORGANIZATION COMPETENCE:					
Structure		X			
Resources			X		
Middle Management			X		
Line Personnel			X		

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