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WHAT WILL BE THE IMPACT

OF

OFFICE AUTOMATION

ON

MUNICIPAL LAW ENFORCEMENT

THROUGH THE YEAR 1998?

BY

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ABSTRACT

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WHAT WILL BE THE IMPACT OF OFFICE AUTOMATION ON MUNICIPAL LAW ENFORCEMENT THROUGH THE YEAR 1998?

This monograph examines the changing office environment in the municipal law enforcement setting, and the impact automation is having on tomorrow's work-place. Its goal is to aid police managers in planning tomorrow's law enforcement office so that the potential benefits of automation may actually be achieved.

Through extensive literature scan on the topic of office automation, (O.A.), personal interviews with experts and visionaries in the field, and tremendous input from a five person assessment group, five trends were identified as having potential for substantial future impact on the law enforcement environment. These trends are:

1. Ergonomics - The human elements associated with O.A.
2. Technology - New technologies imacting O.A.
3. The Office Environment - The office setting, integrated work-stations, acoustics, etc.
4. Organizational Design - Organization structure change resulting from O.A.
5. Secrity and Legal Concerns.

With these trends identified and forecasted through the year 1998 then cross-impacted with five selected potential events, scenarios were developed to identify the normative future.

The monograph suggests that as we prepare for this new law enforcement of the future we must be prepared to consider non-traditional solutions to existing office requirements, and to addrress issues of information control, integration of technologies, and consider the reorganization of our management structures perhaps to focus on the deletion of middle management positions for the creation of new "information processing specialists".

With the identification of the normative future forecasted through to the year 1998, strategic and transition plans are then introduced to provide a management driven guide to the future law enforcement office.

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

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

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

EXECUTIVE SUMMARY

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This monograph examines the changing office environment in the municipal law enforcement setting, and the impact automation is having on tomorrow's work-place. Its goal is to aid police managers in planning tomorrow's law enforcement office so that the potential benefits of automation may actually be achieved.

It is scarcely possible to engage in a conversation with progressive police administrators these days without encountering the topic of computers and office automation as it applies to the law enforcement environment. Police journals today compete to establish their "high-tech" image by publishing "high-tech" feature stories dealing with computer technology. Newspaper and magazine articles about the computer revolution are exceedingly popular. Computer "buzzwords" and jargon have permeated the police vernacular as the norm.

One bit of jargon that has attained exceptional popularity amid the most progressive police managers is the speculation of what the police office of the future may look like which in turn leads to the term "paperless Police Department", which initially was the central theme of this monograph.

Superficial analysis suggested that with the rapidity and ease with which text can be moved electronically, and then displayed on a visual display unit, led to the unwarranted conclusion that the "paperless office" is one of the primary characteristics of office automation.

Very early in my literature scan on the topic of office automation, and then in subsequent interviews with experts and visionaries in the field, it became apparent that it is not the paper that is expensive, but rather the labor cost which surrounds its use that causes the "big money" to be spent. Thus my focus, with substantial additional research and tremendous input from a five person Assessment Group, moved far beyond the elementary position of the "paperless Police Department" to the examination of office automation as a number of elements. The most important of which being the "human" element.

As the issue of "Office Automation's Impact on Municipal Law Enforcement" was forecasted by the Assessment Group, five trends were identified as having the potential for substantial future issue impact. These trends are:

1. Ergonomics - The human elements associated with office automation.
2. Technology - New technologies impacting office automation.

3. The Office Environment - The office setting, integrated work-stations, acoustics, etc..
4. Organizational Design - Organization structure change resulting from office automation.
5. Security and Legal Concerns.

With these trends identified and forecasted through the year 1998 then cross-impacted with five selected potential events, scenarios were developed to identify the normative future.

As you prepare for this new law enforcement of the future be prepared to address issues of information control. Since technology puts everything on an equal basis, it allows equal access of information to all unless they have been blocked by passwords or encryption. Some critics of the electronic age insist that privacy, ("Big Brother" syndrome), and security matters, (legal/investigative issues), will substantially impact law enforcements progress in this area. Most, however, feel that technology, moved by the paying consumer, will allow adequately for privacy and security management.

Integration of technologies is an absolute necessity for the future. The focus can not be of stand alone, indepedent machines, but an ultimate system of total integration, (computer, voice, video); modular design with human, physical, psychological, and social needs addressed, emphasizing the strengths of each type of technology thus maximizing the synergy that can exist in the law enforcement office locally and regionally.

Law enforcement must be prepared to reorganize its management thinking around the flow of information, perhaps to focus on the deletion of middle management positions and the creation of new "information processing specialists". We must take advantage of technology's ability to improve the speed of communication between management and line personnel, and to increase office effectiveness.

Finally, the normative future suggests that we be prepared to consider non-traditional solutions to existing office requirements. Technology that allows a keyboard to enter information into a computer does not distinguish between the keyboard's location at the office, at home, or elsewhere. Law enforcement is in an excellent position to take full advantage of these concepts, thus promoting personal habits and improve the morale of the work-force.

Considering this technical explosion, the police manager must, in addition to being aware of the office automation potential, develop a plan that assures that a management driven guide is in place for the future office. With the normative future identified, Strategic and Transition Plans were developed using as a resource a municipal law enforcement

agency providing service to a population of thirty thousand residents. Drawing on this resource as fairly typical, the Strategic Plan called for the creation of a Research and Development Unit within the Police Department and Community Advisory Commission on High Technology to the City Council. The Transition Plan identified the constituencies, (critical mass), and support technologies necessary to move the Strategic Plan from the present to the the future state.

With the two plans in place, law enforcement and community resources are ready to identify, evaluate, and promote high technological systems to enhance the delivery of police services generally and office automation in the police environment specifically.

With the forecast of office automation through 1998, and the empioyment of the Strategic and Transition Plans, our future in law enforcement will enjoy order and be promoted by a well planned mechanism for sustained evaluation of high technology application that is broad based, community oriented, and enjoys governmental priority organizationally and fiscally.

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What is the future impact of office automation on medium size municipal law enforcement agencies through the year 1998.

INTRODUCTION

The introduction of memory typewriters and then single purpose automated word processors has opened the door to technological revolutions aimed at **OFFICE AUTOMATION.** Over the next ten years the implementation of law enforcement automated offices is inevitable. Substantial recent interest in police information processing systems has been promoted among medium size police agencies serving municipalities in the population range of twenty-five to fifty thousand. Larger police agencies requiring the power of a computer to process information to conduct day to day business have provided an example of computer use within a law enforcement office environment. Now, with more reasonable pricing of computer programs, these medium size police agencies are finding a very favorable 'cost/benefit' ratio for office automation development.

"Over the next ten years the implementation of the law enforcement automated office is inevitable. The impact of this technology on organizations borders on being revolutionary. Uses of the system will be found that are not now even currently imagined. This will be an exciting time for anyone involved in law enforcement information management."[1]

YESTERDAY'S OFFICE

The office of the 1800's was very much different than the office of today. Internal communications were generally face-to-face, and internal written documents were infrequent. Storage of written communications was in pigeon-holes, roll top desks, boxes or drawers in which paper was stored flat. Outgoing correspondence was copied by pressing it between the dampened leaves of tissue of a bound press book. Searching for correspondence required knowing approximate dates of creation and the location of various storage boxes. As incoming and outgoing correspondence was maintained in a different location, reference by 'subject' was impossible. "Technological support" of the time was initiated with the invention and mass production of the typewriter in the 1870's, followed shortly by the telephone.

With growth and complexity of the office environment in the late 1800's two additional innovations settled into the office environment. First, in 1876 vertical card files were created for libraries, and in 1893 vertical office files were introduced by a library supply company. Drawers now replaced boxes and vertical positioning of their contents enabled a document search without removing the entire contents of the container. The second innovation was a way of producing loose rather than bound copies of documents. This need was satisfied by Thomas Edison's invention of the mimeograph machine about 1870, and the creation of carbon paper which achieved widespread use shortly after 1900. These reproduction methods coupled with vertical filing enabled incoming and outgoing correspondence to be easily stored and retrieved together. It created an organizational memory independent of the memory of the

people who stored the information.

Vertical filing created a revolution in offices. During the first two decades of this century due to dramatic increases in internal memorandums, format standardization, indexing schemes, and "filing areas" were developed to increase office efficiency. The design of the office components (desks, chairs, lights, files, floor plans, job types, etc.) evolved to expedite the flow of paper through the system, a paper system, manually driven by the worker who had control over the form and pace of information flow. The design of the office components were standardized, reflecting primarily engineering and manufacturing considerations.

The modern office had arrived, or so it seemed.[2]

TODAY'S OFFICE

The foundation of the office of today began in the late 1930's and early 1940's with the invention of the photocopier and computer. In the early 1960's the development of xerography began to unleash tons of paper into the office "with the push of a button". With the computer of the 1960's and 1970's information could be stored for the first time electronically. This electronic medium created the ability to reduce the time in which office tasks could be performed from hours to seconds. Most office work, and police records are no exception, revolves around document handling, communications, and infomation management. These common threads of any office lead to the need for tools to help people perform these functions more productively. As the cost and power of small computers have changed a whole new industry has emerged to

provide ways to automate just about every function in today's office. This emerging field has finally reached the stage where computer based systems can handle words and data together. Computer hardware and software packages abound to provide for the automated office.

The law enforcement office in which automation is firmly trying to entrench itself has been characterized by stability and slow change since the revolutionary changes around the first of this century. There is a nebulous environment of human interactions, communications, and rigid habits, distinctly behind the automated office in the private sector. While office costs are increasing at a rate of twelve to fifteen per cent each year, the typical office employee uses only forty per cent of his or her potential. Many of the office occupants, especially managers and professionals, have traditionally been told only what to do and how to do it. They have tended to develop highly personalized ways of working.

In terms of design, today's office elements are primarily follow-ons from the earlier era when manufacturing considerations prevailed. It is not uncommon to see desks and chairs from the 1950's in today's office. The work ethic of the modern office worker is also changing. The desire for material possessions is expanding to include psychological concerns. Today, office employees are much more concerned with the quality of work life and humanization of the work environment. Interesting and meaningful work is the main goal. Variety is preferred to routine, and informality to structure. The authority of management is being questioned, and participation in decisions affecting a person's work is becoming increasingly important.[3]

On the horizon there will be a number of dramatic changes. A significant reduction in terminal size will occur as flat panel electronic displays with superior resolution become more widely available in the next five to ten years. This will permit the incorporation of the display within the work-station, instead of necessitating that it be placed on the desk surface as is usually done today.

Another innovation to have a profound impact on the office environment will be more widespread application of voice communication with a computer. When it becomes practical it will unleash a host of acoustical problems that must be addressed.

The next stage of office automation is about to begin. Through the application of technology, municipal police agencies vision the development of an environment that will save time and resources yet improve quality and quantity in the development and dissemination of information.

"We must not lose sight of the fact, however, that the road to successful office system implementation requires complete harmony of the worker, the organization, and the technology. The product of our efforts must result in a condition where jobs, computer systems, equipment, the work environment, and motivations and psychological needs of the worker are properly woven into whole office fabric. The process of change must be carefully managed. The results of our efforts will be no stronger than the weakest thread."[4]

Drawing on past achievements and the office environment of today as a foundation, as well as forecasting the technologies and ergonomic issues of today not only in the public sector but in the private sector, I propose to develop a strategic plan that will provide a guide for the employment of office automation and assure an orderly organizational transition in the law enforcement environment through the year 1998.

DEFINING THE FUTURE

DEFINING THE FUTURE

METHODLOGY

"Researchers are busy counting decisions and diagramming the structures that support them. Analysts argue over the average capitalization of office workers. Manufacturers plan, advertise, and (in many cases) build whole lines of office automation products. The trade press tirelessly chronicles the exploits and failures of the vendors and the leading edge users bold enough to experiment with the gear that is causing all the fuss."[5]

Most of us, however, sit in traditional offices and experience the new automation via newsletters and magazines that envision office systems sales topping ten billion dollars. The information usually comes to us on **paper**, and that paper is usually stained with coffee.

So where is office automation? When will it arrive? And how will we know when it is here? Most basically, **what** is office automation?

LITERATURE SCAN/PERSONAL INTERVIEW

With these questions in mind and when considering the issue of office automation and its future impact on medium size municipal law enforcement agencies through the year 1998, I elected to initially employ a vast literature scan and interview selected experts in the office automation arena from the public and private sector.

As a result of the research associated with the literature scan a

number of experts surfaced with whom I conducted personal interviews. Using the following questions as a general guide, the interviews focused on their estimates of the likely course of future events and trends that would impact office automation. These events and trends estimates covered a variety of fields: those directly associated with office automation; and, those that could influence the development and use of office automation concepts over the next ten years. The areas of inquiry were grouped into such events and trends as: basic societal growth patterns, technology, general economic growth issues, legal and regulatory issues, and organizational operation issues. The questions were:

1. What are the human resources related trends affecting the office environment?
2. What are the technological trends affecting the office environment?
3. What are the fiscal impacts associated with office automation?
4. What are the social trends impacting office automation?
5. What are the office design trends impacting office automation?
6. What impact will office automation have on organizational structure and design?
7. What impact will office automation have on law enforcement's ability to provide service?

BRAINSTORM - NOMINAL GROUP

With research and personal interviews complete, an Assessment Group of five civilians and sworn police personnel were convened to

analyze the issue. Each member received in advance of the meeting, a package of materials to familiarize themselves with the issue. Following a general discussion of office automation the Group, by brainstorming, identified forty-one trends which would be beneficial in assessing the future impact of office automation on medium size law enforcement agencies. By trends, the Group focused on continuous patterns of growth and decay that characterize some aspect of society, technology, the economy, etc.. The Group was instructed that the future is inseparably connected to the present and the past; and that past trends can be expected to continue in some smooth fashion into the future, although the uncertainty concerning their future values increases with time. Valuable to trend identification was office automation expert interviews on the probable course and probable limits of growth of the trends pertinent to the issue. Following the identification of these forty-one trends (Attachment I) the Group distilled through independent identification those trends they felt to be "priceless", "very helpful", and "helpful".

With the identification of these forty-one trends, the Group could not reach a concensus that those trends alone would solicit and reflect the information necessary to forecast the issue properly.

ISSUE TREND DEVELOPMENT

The Group then elected to link some of the original trends to the five selected trends to reinforce the trend meaning and impact.

The five trends selected by the Group felt to have the greatest value for forecasting the impact on office automation were:

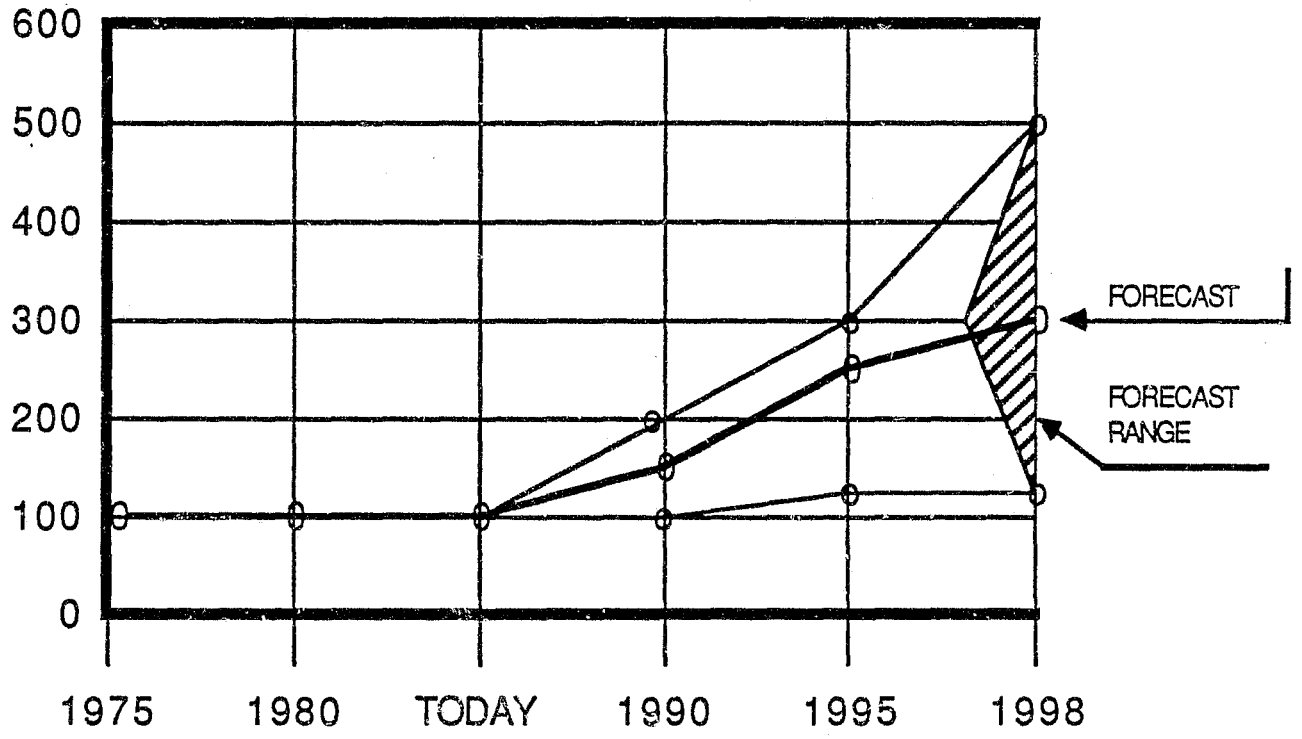
1. Ergonomics - The consideration of human factors related to the

psychological and physiological well-being of people in the office environment such as: visual problems; psychosocial problems; and, postural problems.

2. Technology - The advancement or decline of technology in the office environment.
3. Office Environment - The actual environmental ingredients of tomorrow's office setting, including such elements as: lighting, acoustics, climate, work-stations, office lay-out, and personnel employment practices. All of which impact the physical and psychological well-being, and productivity of the office worker.
4. Organizational design - The various components of organizational structure that will be impacted by office automation.
5. Security and Legal Concerns - Those events generated by office automation that deal with prior and post information control.

For trend evaluation, the Group, drawing on their personal experience and group discussion of trends, was asked to independently estimate the value of each trend's importance on the issue for today. Then they were asked to project backwards for five and ten years; and then into the future for three years to 1990, another five years to 1995, and another three years to 1998. The Group felt that this forecast of approximately ten years provided a time span to project with accuracy the impact of office automation on law enforcement, given the anticipated rapid change in the field.

TREND: HUMAN FACTORS / ERGONOMICS



ESTIMATED TREND VALUE FOR TODAY 90%

The Group felt that human factors and ergonomic considerations would achieve ever-increasing importance in future office environmental design as awareness of their contribution to greater human productivity grows. The United States Bureau of Labor Statistics reflect that white-collar workers now out number blue-collar workers by comprising fifty-three per cent (53%) of the working population. It is anticipated that this percentage will continue to increase, reaching sixty-five per cent (65%) by 1990, and ninety per cent (90%) by the beginning of the twenty-first century. The Group assigned a high estimated trend value of importance to the issue for today at ninety per cent (90%).

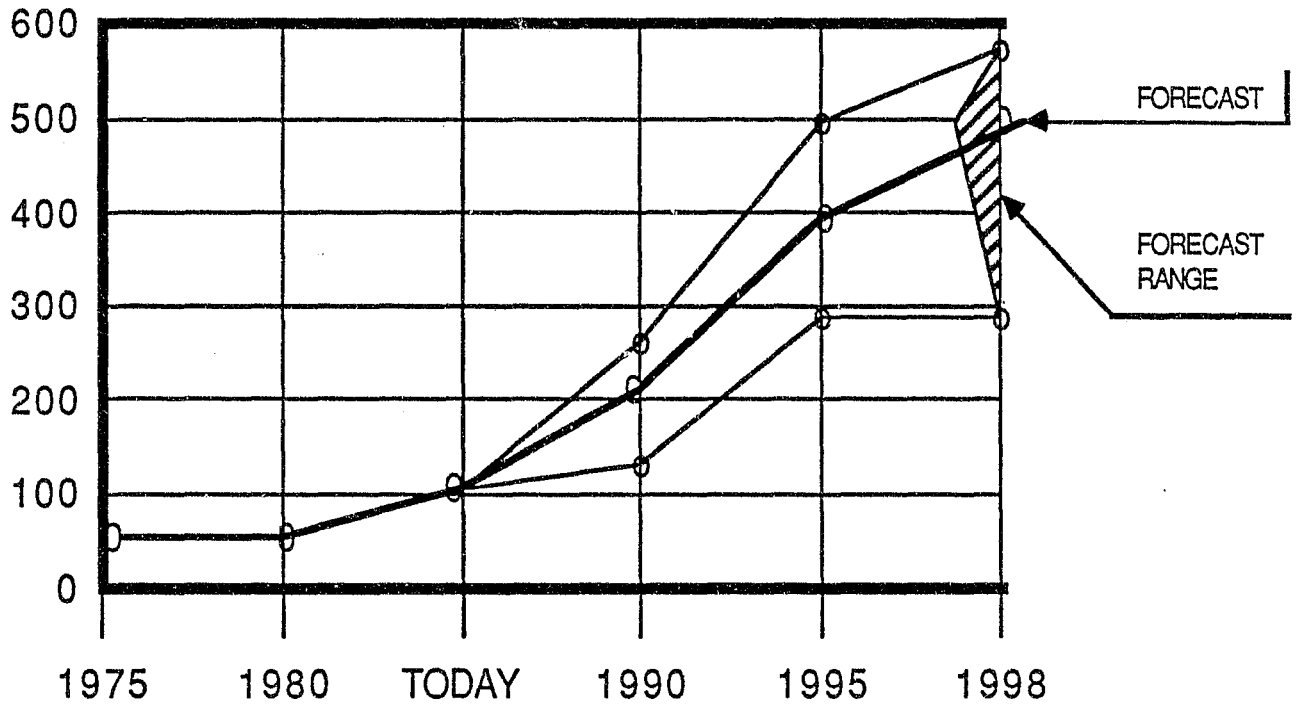
Although the science of ergonomics, the study of the relationship between humans and machine, concerns itself with everything from smoke in the air to the number of keystrokes it takes an operator to implement a machine function, the Group's focus was to assess and forecast the office setting in terms of human perspective.

The Group sensed that strong emphasis would be placed on individuals being recognized for their accomplishments and not made to feel controlled by technology. They felt the emphasis on technology and the environment would have an over-riding concern for people in the office automation effort, and accordingly forecasted an emphasis on the trend to escalate to three hundred per cent (300%) by 1998. There was a dissenting view that managers would be more concerned with the more practical issues involved in justifying and implementing office automation; and that employee resistance to change would adversely impact the office automation effort and thus diminish the significance of this trend.

Specific critical issues incorporated, addressed, and forecasted as part of this trend were dispelling employee fears of lay-offs, re-training, and maintaining employee job satisfaction.

In summary, the common thread running through many of the problem areas is the need for a renewed focus on the human element of the organization. New technologies serve most users, whether they are managers, professionals, or employees enabling them to perform not only more efficiently, but more effectively in meeting the organization's overall goals and objectives.

TREND: OFFICE AUTOMATION TECHNOLOGY



ESTIMATED TREND VALUE FOR TODAY - 100%

The Group, collectively and with strong affirmation, identified technology generally as the primary thrust to the office automation movement. It was the consensus that semiconductors have improved in speed and capacity more than ten fold during the past decade and should have the potential to improve another twenty fold by 1998. Given that continued fiscal interest and software support, office automation will move proportionately.

Drawing on the advancement of computers and word processor development and their impact on the office automation movement, the

Group assigned the maximum of one hundred per cent (100%) for today's estimated trend impact value on the issue.

1987 to 1990

Trend forecast discussion from today through 1990 focused on first, computer cost decline with greater capability. And secondly, computer hardware development that promotes not only multi-functional office equipment capable of performing the previously segregated functions of word processing, data processing in records management, in a fashion that information can be transfered between systems for manipulation, storage and printing, but also on communications networks that can accomodate various types of each manufacturer's system.

The Group felt that during this period the trend would increase by one hundred per cent (100%) to two hundred per cent (200%).

1990 to 1995

With multi-functional and communications as the foundation for this era, work-stations will be more sophisticated. The Group discussed that not only would work-stations on the desks be highly graphically oriented and capable of displaying fairly detailed image information, they will also begin to be equipped with telephones. It was felt that although voice applications will be gradually integrated into information systems in the late 1980's, integrated voice work-stations probably will not replace separate personal computers and phone hand sets until the 1990's.

Processing power will continue to become cheaper and the

work-stations of the office worker will be about three times as powerful as the work-stations of today.

In the early 1990's, Local Area Networks (L.A.N.'s) will be fully integrated with telephone data communication systems, and Integrated Services Digital Networks (I.S.D.N.) will be implemented in Very Large Scale Integration (V.L.S.I.) techology, and become more widespread.

Software will move from the spread sheet type personal productivity tools of the 1980's to office automation systems networking software to change the focus from individual productivity to organizational productivity.

The Group also expressed that by the early 1990's some of the larger law enforcement agencies who had invested heavily in their own network solutions would begin to sell networking services to smaller agencies in their region.

Again the Group anticipated that the trend would increase by one hundred per cent (100%) to four hundred per cent (400%).

1995 to 1998

During this era the Group felt that work-stations would look quite different from the way they do now. Laptop portable computers will be prevalent offering full telephone as well as image and graphic features. Most of the police officers will be carrying electronic briefcases as routinely as they now carry their notebooks. Large screen projection systems will be common for executive offices, conference and briefing rooms. There will be terminals that appear from nowhere as they will be incorporated as part of a total office design, and not as an addition or

after-thought placed on a desk of the 1950's. And, of course, increased telephone integration (and perhaps video phone) will give us "visual work-stations". Even when you do not carry a portable work-station, you will be able to access your information base via any telephone.

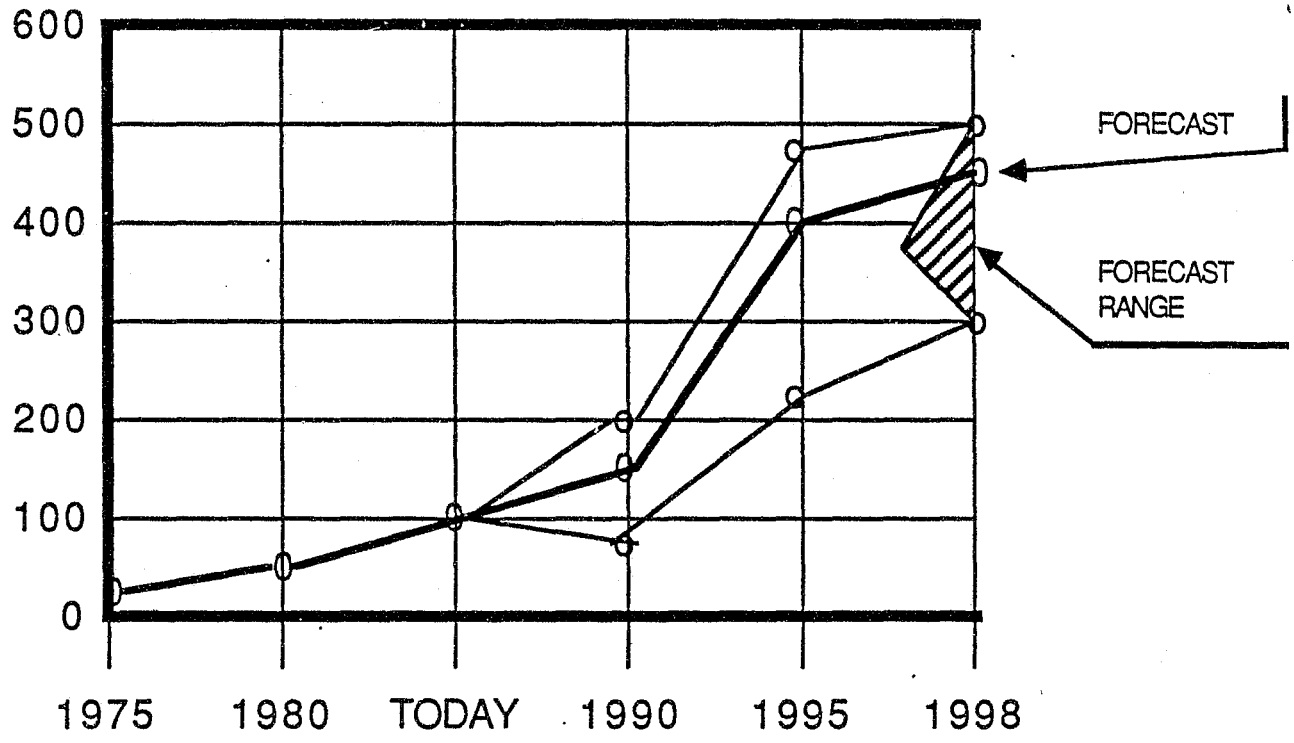
Image and voice will co-exist with other forms of data, assuming, however, a price/performance ratio makes this type of networking feasible for general office use.

The Group thought that this period would be impacted by Artificial Intelligence (A.I.) for software development. Many programs will write themselves with full audit trails, documentation, and appropriate integrity safeguards. Programs will have natural-language interfaces and built-in "Do What I Mean" (DWIM) capabilities.

Finally, it was believed by the Group that development in robotics may well become an extension of the automated office if it follows the trend it is setting in industry. The Group discussed first line intelligent mobile robots being used for security patrol, possessing electronic sensors to detect people through walls and to pick up certain sounds. With advances in robotics occuring at as rapid a pace as those in automated office technologies, robotics is destined to play a part in the office of this era.

Given this discussion, the Group established an increase to five hundred per cent (500%) as technology impacts office automation.

TREND: OFFICE ENVIRONMENTAL DESIGN



ESTIMATED TREND VALUE FOR TODAY 82%

The Group felt strongly that along with the promise of tomorrow's technology some critical environmental issues would surface that must be addressed. It was felt that work-station design must incorporate the demands of technology, the tasks to be performed, and various human needs. Providing for human needs involves consideration of both biological needs, (body dimension, sensory, and ambiance) and psychological needs, (intellectual, social, motivational, and aesthetic). With this as a guide for a broad trend statement, the Group rated the issue impact trend value for today at eighty-two per cent (82%).

It was the consensus of the Group that issues pertaining to the office

environment were just getting underway. It was identified that most office settings were of the 1950-1960 vintage, and that most recently (1980 to today) office partitions, sound soak wall paneling, and basic work-station design were gaining some attention. The Group additionally noted that flex employment hours, job sharing, and tele-computing (a cottage industry) were in their infancy. Office environment trends in this area have been slow to develop but will substantially drive future office automation efforts.

The Group forecasts, for the most immediate future, saw the office lay-out as one to optimize the flow of work among various departments and personnel, minimizing the movement and sound distractions of people going about their business. More of a follow-on to the present focus in office lay-out. The Group sees a slow evolution to 1990, with increase of seventy-five per cent (75%) to one hundred seventy-five per cent (175%).

With the technology of 1990 now advancing at a rapid rate, the forecast of this trend ascends dramatically to four hundred per cent (400%) in 1995. This sharp increase is driven by the work-station of tomorrow. The Group envisioned the future work-station to be smaller with electronic consolidation of information, eliminating the need for large storage areas to store information on paper and the materials needed for paper handling. Greater visual and auditory privacy will be needed as noise created by equipment and voice computer interaction will create severe acoustical problems. Display terminals and other technologies will be incorporated within the work-station itself. The desk surface and work-station and the airplane cockpit might bear some resemblance to each other.

Comfort in working will be achieved through intelligent chairs and

desks. Desk heights and angles will be modified through the simple touch of a button. Desired configurations will be remembered by the desk's electronics and changed as the need of the person changes. The chair may actually configure itself to its occupant through analysis of weight distribution.

The Group saw office buildings, as we know them today, continue to operate. A reduction of paper and paper requirements, and more people working at home on flex time will diminish the space requirement of today.

Along with this office environment and technology comes some additional environmental issues that pertain to noise, health, and electronic social isolation. The Group felt these areas were more subjective and would, therefore, not begin to substantially surface until the 1995 to 1998 era; but would at that time have substantial impact on office automation implementation, thus again driving the forecast percentage upward to settle at the four hundred fifty per cent (450%) mark.

NOISE - As human and computer interaction methods change and voice communication assumes a greater role an office acoustics program will be necessary to keep sound and noise levels within a range that is comfortable for performing human office activities. Levels should eliminate distractions and provide for good hearing and speech privacy.

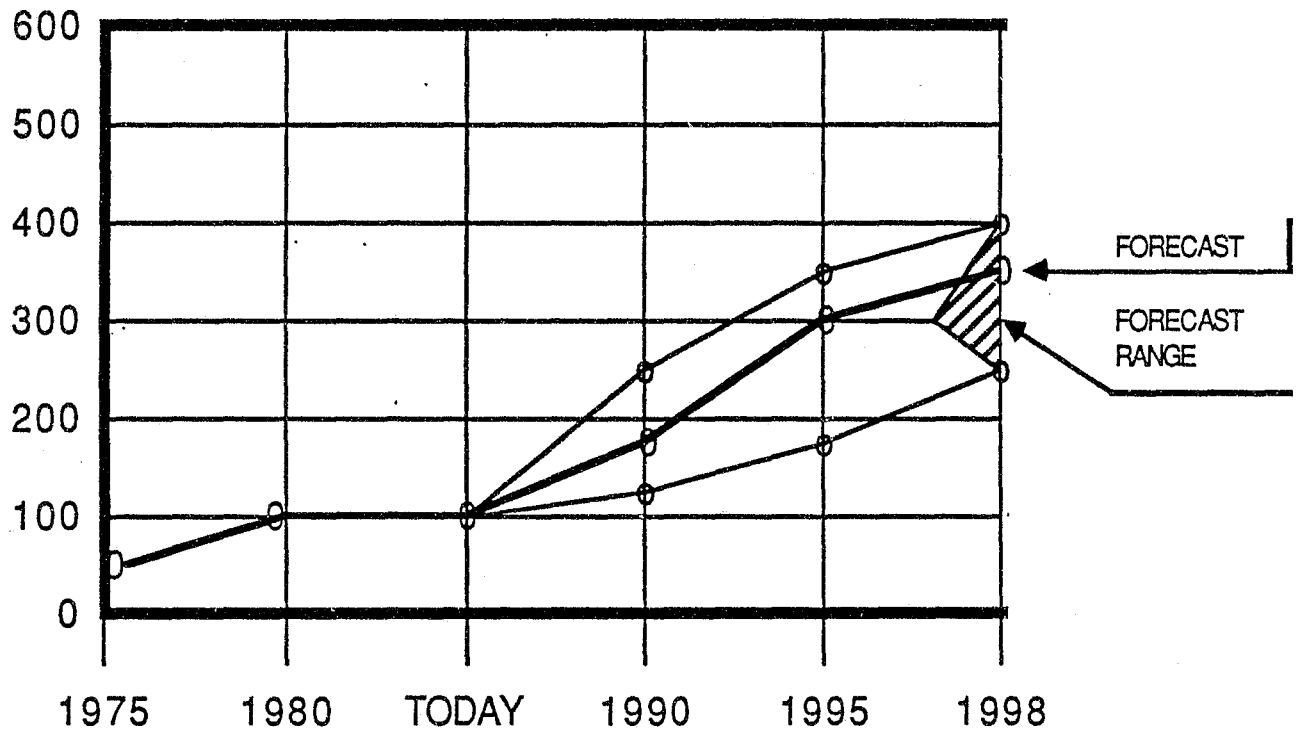
HEALTH - The Group discussed the possibility of future work-stations being too comfortable and that the office environment will have to facilitate a certain degree of physical movement. In addition to office component adjustability, as previously discussed, health clubs or exercise rooms could well be part of the future office environment. The

"coffee break" now used to mentally and physically recharge fatigued minds and bodies may be supplemented by the "exercise break" to replenish stiff and rigid bodies.

Another possible adverse health problem associated with office automation is the use of video display terminals (VDT). Currently there are reports of unusually high numbers of miscarriages, birth defects and eye cataracts. Although, in 1983, a report from the Environmental Health Directorate concluded that there was no reason to be concerned about the radiation health effects of the VDT. The Group predicted that the review of this office automation tool would be continued specifically for any potential adverse impact on the human eye.

SOCIAL ISOLATION - The Group discussed that interacting with others through the electronic medium could improve communication, provide greater interdependence, increase the number of people we deal with, and increase human productivity. However, they forecasted that a problem of social isolation could well become a very negative force in opposition to the office automation environment. The office design, and associated scheduling programs, must foster and encourage human to human interactions. The office designs will provide the degree of privacy demanded by the new technologies, but at the same time will not inhibit the necessary face to face communications of people with other people.

TREND: ORGANIZATIONAL DESIGN



ESTIMATED TREND VALUE FOR TODAY 63%

In viewing this trend the Group ascertained a number of things. First, that the impact of automation on an organizational structure would be much the same as the impact of technology on society. Second, office automation would shift roles and patterns by enabling certain kinds of jobs to be done faster and easier - the tasks for which office automation was intended. Third, having been introduced, office automation would allow for the accomplishment of new kinds of work - jobs that did not exist in the past. And, finally, the widespread employment of office automation concepts would alter, to a greater or lesser degree, the social and economic system of the organization.

With this precept in mind the Group rated the value of this trend's issue at sixty-three per cent (63%). This trend is rated considerably lower than the others as having an overall significance in the office automation effort. It was the Group's consensus that the organizational impact to date, as a result of office automation, was minimal. Little change was noted when looking back to the 1975-1980 time frame. It has not been until the last two years that organization structure has been altered as a result of office automation activity, and that alteration has only focusd on coordinating office automation implementation.

To begin the forecast process for this trend the Group in a brainstorm mode, advanced the following elements they felt would add to this trend's significance:

* middle-aged workers seeking higher level positions contrasted with shortages of young entry level employees can be expected by 1990.
* new jobs requiring higher levels of technical ability will go unfilled due to a lack of qualified applicants.
* work in the office will be restructured to take advantage of office automation opportunities and provide employees with more challenging work.
* organization levels will be reduced and managerial spans of control increased as automation is widely implemented.
* managers and professionals will work at terminals.
* the nature of middle management jobs will probably change because of the information transfer enhancement created by office automation. Middle managers will operate less as remote bosses for the purpose of information transfer and more

.as team leaders, or sources of expert guidance, for teams. Through their positions on teams they will be more exposed to the public and to members of other organizational divisions.

1987 to 1990

INFORMATION CENTER - Most organizations in the past two years are no longer relying on their computer vendors to train and provide support, but are now experimenting with difference forms of in-house support. The Group felt that for the next three years this service would shift between centralized and decentralized support and development within the organization; and would deal primarily with setting networking guidelines, preservation of data security, and system management issues, (users always want control over their own system). The Group saw this trend ascending slowly at a rate of fifty per cent (50%) by 1990.

1990 to 1995

During this era the Group predicted the strongest move for this trend from fifty per cent (50%) to three hundred per cent (300%). The Group felt that the most dramatic and easily predictable organizational changes would affect data processing and information systems management by drawing on the organizational order provided by the early applications of the Information Center concept.

The Group felt that by the early 1990's the majority of city organizations would have a department head position reporting as the Chief Informational Officer (CIO) directly to the City Manager. The Chief

Informational Officer will have responsibility for all information technology in the city. This would also be a function within the police organization the specificity of which would be predicated on organizational size.

1995 to 1998

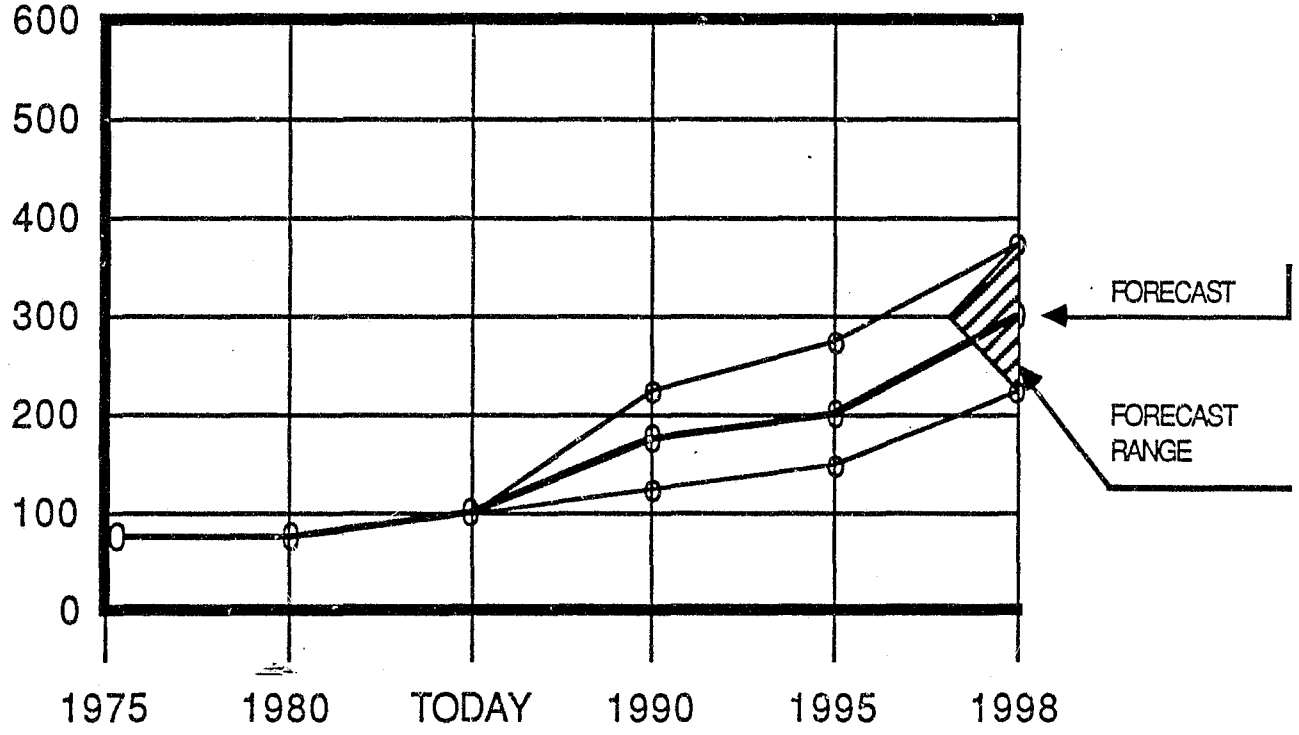
The Group, with the question of "How will organizations look in ten to fifteen years?", felt that the most dramatic change would be during this time frame. They also felt that by 1998 organizational values will have changed dramatically. People will be universally acknowledged to be the most important asset of any organization. This, the Group felt, would be the follow-on from the ergonomic and environmental trends.

In line with this shift in organizational priorities, the Group forecasted an increased emphasis on tools (computers and others) to support and promote individual creativity and intuition, as well as group synergy. However, in order to attract and empower good people, cities will be much more flexible with regard to work schedules and geographic assignments.

Organizations, the Group forecasted, would have a much less rigid hierachial structure. People would be encouraged to work together in cross disciplinary task forces on projects of special teams for specific periods of time.

The Group felt very strongly that the organization would be very flexible, not be as hierarchically commited, and be very employee oriented all of which would solidify about 1998. With this the Group forecasted that this trend would impact the office automation movement by three hundred fifty per cent (350%) ascending finally to three hundred fifty per cent (350%) above the one hundred per cent (100%) base of 1987.

TREND: SECURITY AND LEGAL ISSUES



ESTIMATED TREND VALUE FOR TODAY - 60%

The Group advanced some mixed issues regarding the impact of this trend on office automation implementation. The Group assigned an estimated trend value for today of sixty per cent (60%) to the various elements that add to this trend's composition.

The Group felt that for the past ten years the legal and security issues associated with office automation were minimal, as a result,

primarily, of office automation being in its infancy in the police setting.

The general feeling was that the police department is the same as a business office and that the only legal concern is over the validity and security of records, rather than over the technology in which they are kept.

The Group collectively agreed that with office automation sophistication appropriate audit trails would be mandatory to comply with law enforcement's privacy and security regulations and that if proper controls were not established early-on unmanageable regulatory sanctions would be imposed that would have a very substantial adverse impact on the development of office automation in law enforcement.

The issues evaluated for mandatory future management were:

* rights of privacy versus enhanced and efficient governmental record keeping through automation.
* existence of a free society versus excessive surveillance and governmental intrusion.
* accessibility to unauthorized personnel both external and internal to the organization.
* the use of computer generated records as evidence in court.
* licensing of those having access to computer records.
* computer related negligence or malpractice.

Following a long discussion of philosophical, ethical and real world applications, the Group consensus was that the trend impact would ascend proportiate to the office automation development in law enforcement. It was also the Group's consensus that fixed accountability, resulting from having a division head as a Chief Informational Officer in the organizational structure would add assurance that these concerns would be addressed. They forecasted a three hundred per cent (300%) increase in

legal and security issues impacting the office automation environment in law enforcement.

CRITICAL EVENT DEVELOPMENT

Following the trend development exercise the Assessment Group was reconvened to generate a list and distill to five those events that, if they were to occur, would significantly impact the office automation effort in law enforcement. By events we refered to those unique or single occurences that could alter the course of trends such as a revolutionary scientific discovery --- or just a revolution. Key events can markedly change the possibilities from that point on. Similarly, the failure of some events to occur when they were assumed to be inevitable can also alter the likely futures. The following are those five events felt to have the most significant impact on this issue:

EVENT 1 - A Federal or State Supreme Court case that will be a landmark decision in the area of personal privacy and the use of "high-tech" information systems by law enforcement.

EVENT 2 - State and Federal officials recognize that with specific funding for the application of high technology, law enforcement with office automation identified as a focal point, crime suppression will be greatly enhanced.

EVENT 3 - The passage of Local tax reform measures to reduce government spending.

EVENT 4 - Consolidation of police services at the County and/or

regional level.

EVENT 5 - Crime control legislation

In response to the public's increasing concern about criminal acts and the decline of their confidence in the criminal justice system, general crime control legislation is passed. A section of which pertains to improved office automation in law enforcement.

Following event indentification, the Assessment Group members were asked to assign a numerical figure to each event indicating the probability of that event would occuring by 1990, 1995, and 1998. The following event evaluation chart displays the median probability of the various events occuring at a given point in time, and the median net impact of that event on the issue of the impact of office automation on law enforcement.

EVENT EVALUATION CHART

EVENT STATEMENT	PROBABILITY (0 - 100)			NET IMPACT ON ISSUE OF OFFICE AUTOMATION ON MUNICIPAL LAW ENFORCEMENT (-10 THRU +10)
	BY 1990	BY 1995	BY 1998	
EVENT 1 - COURT DECISION AFFECTING PRIVACY / HI TECHNOLOGY	20%	50%	60%	-2
EVENT 2 - FEDERAL/STATE FUNDING	20%	40%	60%	+7
EVENT 3 - LOCAL TAX REFORM	30%	60%	60%	+8
EVENT 4 - CONSOLIDATION OF POLICE SERVICES	40%	60%	70%	+7
EVENT 5 - CRIME CONTROL LEGISLATION	10%	30%	50%	+2

While analysing the Assessment Group effort, in completing the event evaluation chart, certain specific observations were made about each of the events.

EVENT 1 - COURT DECISION

It was the Group consensus that it would be inevitable that the Court would be asked to determine a balance between the use of high technology information systems and the right to privacy by citizens. Law enforcement has historically used technological advancements such as photography from aircraft or surveillance equipment to assist in efforts to address criminal activity. In each of these general areas a challenge has been advanced through the Courts, and it seems inevitable that the on-slaught of high technology in the office environment for law enforcement information processing will generate more litigation. The potential for this litigation will increase proportionately with the increased use of information systems in the office environment.

EVENT 2 - FEDERAL AND STATE FUNDING

Law enforcement officials, and the general public with increased media attention, have observed the very favorable impact of technology on law enforcement. With this awareness and the increased focus on crime, driven by an aging population that is becoming very security oriented, pressure will be placed at the State and Federal levels of government to provide funding for effective and efficient enforcement through the application of technology.

EVENT 3 - LOCAL TAX REFORM

Local tax reform generated a lot of discussion in that a number of cities are now boasting about being more financially sound as they are now employing utility users' taxes or assessing fees for services. However,

the aftermath of Proposition 13 has made most municipal managers very wary of any long term predictions. Again on the horizon is an aging population with fixed incomes but with a focus to spend discretionary income on those activities that are germain to enjoying the "golden years" of retirement. The front end cost associated with creating an office automation environment are high and there will be close scrutiny of each element of the concept.

EVENT 4 - CONSOLIDATION OF PUBLIC SERVICES

The Assessment Group discussion initially focused on the concept that local control of police protection has always been a major issue for local government in that people want to retain the ability to influence the direction of their local police departments. The Group initially felt that consolidation would occur only when the financial position of the local entity becomes so desperate that merging would be the only answer. After further discussion, however, the Group began to reverse its position when focusing on regionalization of only certain police services. Information processing and the advantages that would be inherent with advanced technology, shared information among various users, reduced costs, and the ability to still maintain personalized police service by having the local police operation would be a desirable alternative. The Group even expanded the potential of contracting information processing functions of the police department to private agencies even to the extent of sending source documents to other countries for "very reasonable" data entry cost, and then retrieving that entered data by satellite to the department or regional police information center.

EVENT 5 - CRIME CONTROL LEGISLATION

Drawing once again on the media's focus on crime, the growing

concern of the aging population, the decline in the public's confidence in the criminal justice system, as displayed in the public reaction to Bernard Gett's following his weapons assault on some teenage criminals on the New York subway, and the evolvement of vigilante groups like the Guardian Angels, crime control legislation could surface.

CROSS IMPACT ANALYSIS

With trend development and critical event probability established the Assessment Group then moved on to a "cross impact analysis". The occurence or non-occurence of an event as an impact on the probable values or trends that are influenced by the event. It also can have an impact on the likelihood of occurence of other events. These influences are called "cross impact".

CROSS- IMPACT EVALUATION CHART

EVENTS	NOMINAL PROBABILITY-1998	EVENTS					TRENDS				
		EVENT-1-COURT DECISION AFFECTING PRIVACY/HI-TECH	EVENT-2-FEDER AL/STATE FUNDING	EVENT-3-LOCAL TAX REFORM	EVENT-4-CONSOLIDATION OF POLICE SERVICES	EVENT-5-CRIME CONTROL LEGISLATION	TREND-1-HUMAN FACTORS ERGONOMICS	TREND-2-OFFIC E AUTOMATION TECHNOLOGY	TREND-3-OFFIC E ENVIRONMENTAL DESIGN	TREND-4-ORGAN IZATIONAL DESIGN	TREND-5-SECUR ITY AND LEGAL ISSUES
EVENT-1-COURT DECISION AFFECTING PRIVACY/HI TECH	60%	X	—	—	50%	—	—	—	—	—	+100
EVENT-2-FEDERAL/STATE FUNDING	60%	—	X	30%	50%	40%	+100	+200	+100	+50	+50
EVENT-3-LOCAL TAX REFORM	60%	—	75%	X	90%	55%	-100	-300	-100	-50	-50
EVENT-4-CONSOLIDATION OF POLICE SERVICES	70%	—	70%	30%	X	—	+100	+200	+100	+100	+250
EVENT-5-CRIME CONTROL LEGISLATION	50%	—	90%	—	—	X	+50	+100	+50	+50	-100

As related, by placing the events and trends in a cross-impact framework we are able to draw some conclusions regarding the interdependence of impact of event to event, and event to trend. As a result of this cross impact the following observations can be made:

EVENT 1 - COURT DECISION

Specifically a court decision affecting personal privacy as it relates to the use of high tech information systems in law enforcement.

* If a landmark decision is advanced on high tech and privacy, then Event #4 (Consolidation of Police Services) will be impacted diminishing that probability from seventy per cent (70%) chance of occuring to a fifty per cent (50%) chance of occuring, in that more comprehensive security of information procedures and audit trails will have to be established to assure legal compliance. To develop these procedures on a regional multi-agency basis is difficult.

The event would have a minimal impact on Trend #2 (Automation Technology), as the advanced forms of technology forecasted will address security issues as development proceeds. This event will have a substantial impact on Trend #5 (Security and Legal Issues) advancing that trend's impact another one hundred per cent (100%) to an overall four hundred per cent (400%).

EVENT 2 - FEDERAL AND STATE FUNDING

If Federal or State funding for high tech applications for the law enforcement automated office does occur, Event #3 (Local Tax Issues) will decline in probability from seventy per cent (70%) to fifty per cent (50%), as

funding at the local level for technology development will be greatly enhanced. Crime control legislation with a probability of fifty per cent (50%) will be reduced to forty per cent (40%) as additional funding will impact rising crime rates, thus impacting the probability of this event occuring. All trends will be impacted favorably, specifically, the office automation trend which is projected to increase by two hundred per cent (200%) to seven hundred per cent (700%). With additional funding as a result of this event those trends specifically tied to technology and its application, egonomics and office environmental design, will enjoy the most substantial increase at one hundred per cent (100%) with the peripheral technology issues of organizational structure and security, enjoying increases of only fifty per cent (50%).

EVENT 3 - LOCAL TAX REFORM

If a local tax reform measure does pass, Event #2 (Federal and State funding) increases in probability from sixty per cent (60%) to seventy-five per cent (75%) as local grass root movements will apply just that much more pressure to increase the probability of State and/or Federal funding. Consolidation of police services will increase from seventy per cent (70%) to ninety per cent (90%) as this consolidation will have a direct impact on a more efficient expenditure of government funds at the local level. The potential for Event #5

(Criminal Control Legislation) increases slightly from a probability of fifty per cent (50%) to fifty-five per cent (55%) as criminal activity could ascend in conjunction with restricted spending mandates. This event, when cross-impacted with trends, has virtually the same impact in a negative way as Federal and State funding, Event #2, would have in a positive way with automation technology being impacted the most. Automation technology was forecasted by the Group to decline three hundred per cent (300%) to two hundred per cent (200%) overall, as without funding the private sector will focus on those areas that offer the greatest financial reward. The Group felt additionally that this decline would be substantial (far more than any projected increase) because the projected momentum apathy associated with spending tax monies for innovative technology is much more significant and easy to foster than that energy required to pursue funding for innovative technology. Again other trends periphial to the technology trend are impacted commensurate to their requirement for funding to ascend or decline.

EVENT 4 - CONSOLIDATION OF POLICE SERVICES

If the consolidation of police services becomes a reality, the Group felt that a stronger lobby would exist to promote State and/or Federal funding probability, (Event #2), from sixty per cent (60%) to seventy per cent (70%); and that local tax reform, (Event #3), may

not enjoy as much support if consolidation efforts were made, thus cutting that probability from sixty per cent (60%) to thirty per cent (30%). This event's impact on trends is positive for those that are in very direct relationship to the advancement of technology. Again the advancement of automation technology anticipates a two hundred per cent (200%) increase over forecasts should this event materialize, as the very nature of "regionalization" of office automation technology calls for enhanced sophistication to make it a working concept. The peripheral trends to automation technology, ergonomics, and office design will all substantially ascend one hundred per cent (100%) each, as a regional concept must employ every resource to assure office automation success. Organizational structure will also ascend by one hundred per cent (100%), as the organizational restructure of law enforcement will be reflected in local organizational design. Legal and security issues are forecasted to ascend most substantially, by two hundred fifty per cent (250%), with the probability of this event as, with consolidation of a number of agencies on a regional basis, follow the problems of security and accuracy in information.

EVENT 5 - CRIME CONTROL LEGISLATION

This event, if enacted, would increase the probability of Federal and/or State funding from sixty per cent (60%)

to ninety per cent (90%), as both would enjoy the same philosophical and political support. Trend support for those trends directly associated with technology would support this legislation in terms of crime abatement. Trend #5, the Legal and Security Issue, would decline by one hundred per cent (100%) in terms of impact as the focus would be on criminal apprehension and not to a great degree on information security.

FORECAST SCENARIOS

Drawing on Assessment Group discussions focused on the development of trend and event forecasts, their probability of occuring and cross impact analysis, two scenarios were developed. A close examination of the various forecast extremes, to assist in the identification of normative future in assessing the impact of office automation on municipal law enforcement through 1998 was made.

SCENARIO 1 - OPTIMUM IN OFFICE AUTOMATION

You have recently been appointed Information Services Manager for a municipal law enforcement agency serving an urban population of forty-five thousand residents. (Information Services Manager is a new position in most organizational structures of today. The position has been created to manage the technology of the office environment and its impact on organization information and resources.) You are excited about the long term potential of the position. You have just returned from a meeting with the Chief of Police who has told you that the County Law Enforcement Executive Committee and County Association of City Managers would like a forecast of what the office and clerical structure of municipal law enforcement agencies will be like in 1990 and beyond. The two organizaitons would like the information now so that they can begin to prepare to "revamp" office systems in their organizations to take full advantage of the new automated technologies of the information age.

Your assignment is simple! All you have to do is estimate what your department's office environment will be like three to ten years from now.

Yet you know that "predicting the future" that far in advance could be very misleading, given the accelerating rate of change in the technology and the office environment taking place today. As you meditate over this problem your eyes grow heavy and you doze off.

In your dream you wake up to a strange world. Everything looks different. Nothing is the same as you remember it. You are reclining in a very comfortable chair. You feel warm and cozy. As you rise to a sitting position, your chair also rises and with a series of automatic movements generated, you suspect, by small electronic driven engines and air compressors, the chair easily molds to your new body position.

You notice a button on the platform in front of you. You hesitate and then press the button. A visual display screen appears in front of you and lists several items: current events, messages, calendar, activity by time, range and selected information.

"Maybe I should catch up on my current events," say you, and the last two words trigger a display of live events that are happening around the world. At the end of the display, an announcer states "And that's the news for today, June 12, 1998." You are shocked! 1998? "Where's my calendar?" At the sound of the word "calendar", the display screen which you take full notice is part of a fully integrated work-station designed as part of the office decor, turns from the current events to a display of the calendar for Friday, June 12, 1998, 8:38 A.M.. You see that at 1530 hours a video conference will be held with the Executive Committee regarding the Regional Information Processing Center. You notice that the chair of this committee is still your department's Chief of Police, Ted Bowers. You feel relieved at least that there is a friendly name. But you say, "I am still lost. I need more information."

Again the screen responds to the word "information" by displaying a menu of items. Among the items you observe "Agenda --- Police Information Center". As this appears to be the topic for today's meeting you begin moving toward the screen with your finger to solicit the agenda information, but you are interrupted as a tall distinguished man in a sleek navy blue one-piece uniform with a bright red patch on his arm displaying in bold blue letters "**I**nformation **T**echnology **O**fficer" (**I.T.O.**) approaches. You are exceptionally pleased as you recognize him to be Sergeant Stan Smith, of a neighboring department, who ten years ago was very involved with technology to enhance law enforcement operations.

Not recognizing you, he begins to discuss his recent promotion to **I.T.O.**. He is pleased that the typical police organizational structure is becoming less of a hierarchy and is using the ability of technology to process and transfer information from the field operation to top management. He reflected with disdain momentarily on that old bureaucratic structure, and how it employed middle managers nothing more than the transfer of information, organization control, and information analysis, which paralyzed good, progressive and innovative concepts. He was happy with his positon, boasting that it was already paying dividends, as he was instrumental in obtaining for the Regional Law Enforcement Information Processing Center participating agencies a state of the art grant from the Federal Government. And further that it would facilitate information processing from the field to the Center with the use of a pocket computer! It was his opinion that the grant was awarded because of the innovation displayed by local municipal police agencies for consolidating police information systems functions established in 1995, and because of pressure applied by proponents of local tax reform to State

and Federal officials for external money to promote more efficent local service and pending crime control legislation. With very apparent enthusiasm, Smith related that he had just completed a burglary report using the new pocket computer. He was particularly enthused as part of the burglarized property included a coin and paper money collection, (high value items as these have not been used legitimately for three years). As the complainant produced evidence of ownership for the collection, Smith used the pocket computer to encode all the details of the burglary for transmission of the report. Smith added that "Illustrating prompts are used so that all pertinent questions are asked. This is part of the system and no written information is necessary to complete the report." At this point Smith reflected back to the days when officers used to carry pen, pencil and a large container for reports. He laughed, asking "When did you last use carbon paper?" Those days are long gone.

Smith then explained how the report was transmitted back to the Law Enforcement Information Processing Center using a telecommunications system built into each computer. Once in the center, all information transactions take place via computer. All information is appropriately routed and organized for general files and officer briefings by cities and area. All of this information is then immediately accessible by police agency terminals, vehicle mobile display terminals and/or pocket computers.

Smith is then interrrupted by a telephone call from the regional holding facility. Following a routine traffic stop and a computer check for wants through the Information Processing Center, the field officers arrested a subject for a robbery warrant. Employing a newly adopted standard as a result of new software technology and the opportunity to

save time, the computer system took the first three letters from the subjects last name and two other identifiers from the vehicle operators license and matched them to the warrant. Once in the holding facility, however, the Senior Intake Officer's "street sense" is alerted as the subject; claims of having the wrong man coincide with his dress, talk, and general demeanor of not being an armed robber. Smith is very sensitive to this issue due to the most recent constraints applied by the Courts regarding collection, use, and application of personal information through hi-tech information systems. Although technological advances include built in safe guards, Smith mumbles, it is these circumstances, data entry from five to seven years ago and the lack of applied common sense, that cause a lot of sympathy among the Courts to find against our application of hi-tech in law enforcement. He then confirms the intuition of the Senior Intake Officer that the man in custody is not the man wanted.

Smith then leaves and you proceed with your intention to review the agenda, and information pertaining to the police information services consortium. You touch the terminal screen and see that the only topic for the meeting is information center work environment/union interest and think momentarily that regardless of technology, the human element always is a primary concern. With this, the screen begins to display some background information for committee members.

> The Law Enforcement Regional Information Service Center was implemented in 1990 to take full advantage of technology, improve information services to all participating agencies, and to reduce to cost associated with maintaining this police information. Early information suggested that new technology would take over the dull routine and free the worker to do more interesting and

meaningful work. Quality of output would be higher and labor and capital productivity would also increase.

In 1992 more jobs were lost than created, and the remaining jobs were either more boring and routine than they were before or required such a high level of skill that workers having the necessary skill or education to master them were difficult to find. During this same time, 1992 to 1995, we found that the pace of work was controlled by the machines rather than by the people who operated them. Management at this point also found the opportunity to monitor and control the work pace continuously, which caused accusations of spying and gave birth to a new form of disability leave identified as "stressful speed-up". The worker lost all the ability to employ any discretion to set the work pace or to exercise how and when work would be done in any given time period. Informal socializing was eliminated except during formal breaks. Workers grumbled that social and physical isolation had a "mind numbing" impact. Ironically, this series of events began to rebound to the centers detriment as much of the sharing of information on how the job can be done more effectively takes place in the course of informal conversation between fellow workers.

1994 - In an effort to combat a very high attrition rate and very apparent low morale among those workers that had "routinized" on dull repetitive data entry type jobs, the centers management instituted work-sharing or job rotation and job enrichment programs. They made available the option of traditional or flex-time patterns within the Center; and external to the Center,

promoted working at home by providing a computer and paying on a piece rate basis. For those that prefered the home environmen, the Center also during this time implemented "telescabbing" sending data entry work via satellite to be processed in Barbados, a low wage country. These changes set in motion the office environment that we enjoy today. The following alternative scenes are offered as an example of the 'old' and 'new', and to reinforce our commitment to the human issues associated with the advanced technology introduced in the information center.

At this point the terminal screen changes to video:

--- Scene 1993.

A worker appears, sitting at a terminal reading lists of numbers and words to the system. If he slows down, he is told by the machine to speed up or his pay will be cut. You observe that the system takes the data that the worker provides and makes some complex calculations to decide the enforcement profile of various field personnel by area and by time. The system gives instructions on what controls to press, when to take a break, and when to change a video disc. You ask "Why are so few people around?" You are told few workers are needed. The manager of the Center is at home and can be reached if necessary by pushing a button. Most of the technical people are also working at home and can be reached instantaneously by pressing their numbers on the directory that is available on the screen.

--- Scene 1998

As the scene changes you immediately sense that things are different in this second environment. Lots of people are around,

busily engaged in their work, but they seem to have time to stop and talk with each other. You ask for further information about what you are seeing. A woman appears and explains the following: "I am a Information Technology Officer at the Law Enforcement Information Center. Our job here is to coordinate information services and activities of the various agencies who are within our region. All of the agencies are linked by a communications network to one another and to the Center. We probably have more highly trained technical workers now than we have ever had, due to the job sharing and rotation policies implemented in 1995. The new technology ties us together and unifies our efforts toward the companies overall goals and objectives."

The woman adds, "We think of the technology as augmenting our work as managers and professionals. We don't need as many low level clerical workers anymore because technology handles the routine boring work. Most of us are managers or professionals and the new systems provide us with tools to help get our work done. For example we can communicate instantly with any agency in the region and can find and supply information with a press of a button. The terminals are easy to use. We insist that the machines be adapted to meet our needs rather than making us change to fit the requirements of the machines."

She concludes "We are really quite happy with the new systems. We handle more data and provide more information than we ever have in the past, with the result being a more efficient and by far a more effective law enforcement system. The Center's staff is just as large now as it was in 1993, but our people are more highly

trained. We still have quite a few clerical workers and secretaries, but the number is not increasing as it was in the late 1980's, and these employees are more productive than they used to be. People generally seem happier. They feel like they are making a real contribution. Sure, a lot of people still have to do routine work, but they have technology to help them. All in all, we are better off now than we were years ago."

As you contemplate the two scenarios you move back into consciousness at the ring of a telephone. As you move to the phone, a movement that you don't recall as part of the office environment of the future you speculate that all communications systems were fully integrated into the work-station, and you wonder if office automation will take over and create more problems than it solves. Or, will office automation serve as a tool to help you and other professionals do your jobs more effectively. In any event, you now feel as though you have some focus on your assignment from Chief Bowers.

SCENARIO 2 - LESS THAN OPTIMUM OFFICE AUTOMATION PROGRESS

* 8:35 A.M., Friday, June 12, 1998
* Police records unit of the municipal law enforcement agency serving a population of 45,000 residents

Late for work, Frank sprints down the aisle of four terminals, three of which are already blinking brightly in response to the flying fingers of

their more punctual operators. In a single motion, perfected by unintended practice, he logs onto his terminal which sits on top of a desk, (1980 vintage), as he slides into his chair which is a standard secretarial chair of the same 1980 era ---

" 061298 0838 hours
STATION FOUR - P - OPR 2 - 3942
YOU ARE EIGHT MINUTES LATE. THIS IS THE FOURTH TIME THIS MONTH AND THE TWENTIETH TIME IN THIS SIX MONTH PERFORMANCE PERIOD. SEE YOUR SUPERVISOR, SERGEANT BLACK, AT THE BREAK."

"Damn," he mutters. "I'm in trouble now." The muscles in his lower back tighten. He winces as he reaches for a stack of citations in his in-basket, and with a sigh he begins to work.

Sergeant Black, the Record Unit Supervisor, had just entered the data entry area when he observed Frank sprint toward his desk. As Frank was rushing toward his area, Black scanned the other three terminal areas and became frustrated again because the same attention was not given to the office environment as was given to technology to get the job done in a more efficient way. It seemed to be the mission of the Department's administration to devote sole attention to software and hardware applications for information processing, with very little financial commitment to developing a totally integrated work-station designed to make the office environment more comfortable for the Data Entry Specialists. Black felt that an environment that would be comparable to those being used in the private sector, terminals not on the desk but a part of, (within), a work-station with sound absorbant partitions to separate

noise and activity from the personal work area, and chairs designed for prolonged use would certainly have a positive impact on productivity. Again he thought how poorly informed the Senior Citizen Tax Payers Coalition was that had initiated a local tax reform in 1993 to stop spending on programs and accessories peripheral to the basic elements necessary to provide basic services. How much better off the public sector would be if they had the funding to develop "complete packages".

Sergeant Black is nearing the completion of his thirtieth year in law enforcement. Black who has a reputation for being a good field supervisor because of his "street sense" and good inter-personal relations has not kept up with the times. Early in his career he was told that he must continue his formal education and learn some computer skills if he was going to advance on the job. Black always found some reason why he could not spend the time in class and the years rolled by. Now, at the end of his career he is assigned to Records because of his age and plans to retire in the next year. Black is now frustrated that he did not take advantage of formal education, as he feels he does not have sufficient background and confidence to address his gut level perception that the technological advances in the Records Unit have displaced the "human" aspects of the job. As he watches Frank slide into his chair, Black senses Frank's frustration and sees his lower back tense as he logs onto the computer.

* 0840 HOURS

Frank, now engaged in the mundane daily routine, lets his mind wander to think of Alison, his wife, and what a good job she has in the private sector -----

Alison wanders leisurely around the apartment, picking up the dishes from breakfast, gathering her laundry, and generally straightening up the

place. "I don't have to meet with the new District Supervisor until 2:00 P.M." she muses, "so I think I'll work here this morning."

She finished cleaning the apartment, takes a shower, and lingers over another cup of coffee and the morning paper. By ten o'clock she is sitting in front of her home terminal logging on:

"061298 1000 HOURS

YOU HAVE TWO MESSAGES. ONE OF THEM IS URGENT. DO YOU WANT THEM NOW?

Yes.

FROM: D. OLSEN URGENT

(flashing in red)

THE MEETING WITH THE NEW DISTRICT SUPERVISOR HAS BEEN MOVED UP TO 1300 HOURS. CAN YOU MAKE IT?

FROM: M. COOPER

THERE IS A ROUGH DRAFT OF A SPEECH I HAVE TO GIVE TO A SALES MEETING TOMORROW IN YOUR 'IN-FILE'. COULD YOU EDIT AND POLISH IT UP FOR ME?"

After responding in the affirmative to Olsen, Alison calls up the speech and starts to work.

* 1030 HOURS
* POLICE RECORDS UNIT

Frank processes a citation. On the screen in front of him flashes "BREAK TIME" and the following message:

"YOU PROCESSED 215 CITATIONS AND MADE 5452 KEY STROKES IN THE LAST TWO HOURS. THIS COMPARES WITH YOUR AVERAGE FOR THE LAST SIX MONTHS OF 225 AND 5730. THE AVERAGE FOR YOUR WORK GROUP IS 246 AND 6308, AND THE PRODUCTION STANDARD

IS SET AT 240 AND 6000. SERGEANT BLACK, YOUR UNIT SUPERVISOR, IS WAITING TO SEE YOU."

The pain in his back intensifies as he rises from his chair and heads down the aisle to Sergeant Black in his cubicle.

Although Sergeant Black drew on his excellent inter-personal relations in his meeting with Frank, Frank was still smarting from the Sergeant's warning about his lagging job performance. Now at 1100 hours Frank switches his fingers and eyes into their usual barely conscious and semi-automatic mode and returns to his favorite daydream. "There must be some way I can get into the operating system of this computer and really screw things up good." He grins at the thought.

Sergeant Black, following his meeting with Frank, tries once again to assess how with all the promise of office automation so many "basic concepts" could have been overlooked --- and begins to reflect on how his unit evolved to its present dilemma.

In 1990, a strong push for fiscal constraint promoted by a large aging population existing on a fixed incomes, reduced government spending, and broke the back of two of twelve cities in the County. This alarmed most city officials and immediate attempts were initiated to consolidate services and employ methods to reduce personnel --- cities were running "scared".

Black's city in 1992, drawing from the tax reform environment, joined a neighboring city in an effort to consolidate law enforcement information processing services, maintain existing service levels, and to reduce costs by eliminating personnel through technology. Due to the concern for spending, basic hardware and software configurations were purchased. In house personnel and vendor representatives were used for system design

advice as opposed to Office Automation Consultants. Clerical personnel were laid off as the technology began to take hold. The traditional police organizational hierarchy remained in place as police administrators rationalized that if sworn positions were released they would not get them back. This was one of the basic considerations for Black, a sworn Police Sergeant, being assigned as Records Unit Supervisor.

Now in 1998, the public sector has moved very slowly in employing a true office automation environment, attrition is high, the work product is mediocre, and no incentives exist for the worker to display initiative to improve the organization.

* 1700 HOURS

* POLICE RECORDS UNIT

It has been a typical tough day, but today Frank thinks he might have it --- the scheme for sabotaging the entire office computer system. He doesn't even care if they could eventually figure out who is responsible. However he will have to wait until the next day to try it out because his backache is now unbearable. Logging off the terminal, he gets up listlessly from his chair and walks slowly up the aisle to the exit.

At home Alison tells Frank of her day. Mr. Olsen wants her and co-workers to develop a new forecasting and analysis system. She relates the job will be tough but likes the opportunity it offers her to exercise initiative, generate ideas of her own, and generally control her work. She comments that its a far cry from the days of just a few years ago and before they introduced office automation into her company --- when she was just another secretary.

Frank grunts "It's sure different in the private sector!", then grins as he thinks about his sabotage plan.

POLICY CONSIDERATIONS

The scenarios, formulated from the trend forecasts and possible events, postulate a number of issues that should be considered when addressing the impact of office automation on municipal law enforcement through 1998.

The scenarios reflect that law enforcement as a result of office automation, and information processing, will change substantially with the aid of the computer and other forms of advanced technology. Whether the potential of this new technology will be realized, however, is difficult to predict. The extent to which office automation can be applied to law enforcement seems almost limitless. Yet, the implementation of new technology or concepts often encounters resistance or organizational inertia. To counteract resistance, the law enforcement community and public must be informed and motivated to apply office automation to the best use.

The Assessment Group, following scenario development, again convened to form policies which might be employed by the law enforcement community of today to impact identified trends in a positive way to assure the most favorable impact of office automation on law enforcement. The Group identified the following policies for on-going and long term impact:

1. The law enforcement community should establish a county regional law enforcement group to actively lobby State and Federal sources to promote funding to facilitate law enforcement office automation efforts;

2. Law enforcement should promote an affiliation with the office automation experts in the private sector;
3. Law enforcement should be aware of fiscal constraints;

   (Financial planning must be incorporated into the police department's objectives for office automation. The City Council and City Department Head Staff must be aware of, and included in, the office automation planning process.)
4. Utilize office automation user participation in planning and decision-making;

   (The people who work with the system will largely determine its success. The degree to which those whose jobs are affected by the new technology, will influence design of the computer-mediated office, may have a major impact on the overall effectiveness of the system.)
5. Extend office automation training;

   (The inexperienced, typically, do not have the skills and/or knowledge needed to operate the technology effectively, or even to accept it as a potentially helpful work tool. This presents a problem not only for office productivity but for the self-esteem, feelings of security, and general well-being of the users themselves. Without the needed skills, workers may feel threatened by the possibility of losing their jobs and may experience feelings of incompetence, loss of control, and stress.)
6. Create an awareness among those in the office environment of anticipated job changes and new uses;

   (Inexperienced users may have difficulty foreseeing how the

technology will affect their jobs. Any help the users can be given in anticipating the impact of technology on their jobs should help to enhance the overall effectiveness of the system.)

7. Local police planning groups should continually meet to discuss, analyze, and plan for the future with specific focus on office automation.

STRATEGIC PLAN

STRATEGIC PLAN

INTRODUCTION

The key point of the two preceding scenarios is that the nature of the law enforcement office of the late 1990's depends almost entirely upon how well current police managers plan to meet the many challenges facing the law enforcement office environment. To date, police managers have not, for the most part, done a good job of planning for office automation. Most changes in the office have been driven by technology. Manufacturers have developed word processing, micro-computers, and other advanced office equipment. Managers have responded by buying equipment and software, and then having to solve problems with the systems they create. The whole process should be reversed.

To successfully adopt automated office systems, police managers must be proactive rather that reactive. They must determine their organization's needs and develop systems that meet these needs. They must develop an effective managerial strategic planning process.

SITUATION

ENVIRONMENT

Considering past trends and events developed through literature scans and personal interviews with office automation experts, it is apparent that the demand of the public for expeditious, cost effective, and professional processing of information in the law enforcement

environment is a high priority. Drawing on this information, five trends have been identified and cross impacted, by five critical events to formulate a normative future in assessing the impact of office automation on municipal law enforcement. In summary the five trends and five critical events are:

TRENDS

1. ERGONOMICS

   The consideration of the human factors related to the psychological and physiological well-being of personnel in the office environment.

2. TECHNOLOGY

   The advancement, or decline, of technology in the office environment.

3. OFFICE ENVIRONMENT

   The environmental elements that will comprise the office of tomorrow, e.g.. work-stations, lighting, acoustics, climate, employment practices.

4. ORGANIZATION DESIGN

   Components of the organizational structure which will be impacted by office automation.

5. SECURITY AND LEGAL CONCERNS

   Those issues generated by office automation that deal with "prior and post" information control.

CRITICAL EVENTS

1. A landmark court decision dealing with personal privacy, and the use of high technology by law enforcement in the office environment.

2. Federal and/or State funding to support employment of high technology in the office environment to assist in crime suppression.
3. A local tax reform measure passes to reduce government spending.
4. Consolidation of police services at the county and regional level, specifically the consolidation of traditional law enforcement office functions.
5. Crime control legislation passed with language that mandates improved office automation in law enforcement to assist in the total effort of crime suppression.

As previously indicated these identified trends and events were the key elements in the analysis of how office automation might evolve in the future law enforcement environment. With this we have the foundation with which to begin the implementation of a strategic planning process to assure that the office automation process is orderly and management driven.

The time could not be better to introduce advanced office systems technology to most law enforcement organizations. The technology is now widely available at prices affordable to most. Technology is advancing at such an accerlerated pace that new sophisticated information processing systems are being introduced on a weekly basis. Computer output has increased ten thousand times in the past fifteen years. Costs are being reduced so rapidly that the per-function cost is down one hundred thousand fold. By 1990, it is estimated that easlily one out of every three white-collar desks will have a video display terminal.

Contrasting this, although the opportunities to apply technology to

the office environment seem limitless, the threat that desired change will not occur with the speed anticipated is a concern as inertia and apathy reduce progress to a step-by-step evolution of improvements on basic systems, rather allowing for achievement based on proactive thinking. Another concern, in the application of high technology, is that while many of the technological advances that will produce positive changes are feasible in the very near future, however the nature of humans is such that adoption could take many more years that expected. Office automation in law enforcement will be driven proportionately to the public's demand for improved and more efficient service.

Given these threats of bureaucratic organizational inertia and public apathy, tremendous opportunity still exists for improving the law enforcement office environment. Trend forecasts suggest substantial opportunity to favorably impact the office environment by the year 1998. The scenarios developed, from trend and event analysis and their interaction, illustrate that the way office technology is used, and its impact on the lives of the personnel and office productivity, depends as much on management ideology as on the technology itself. Clearly the ball is in the police manager's court!

NORMATIVE FUTURE

The normative future identifies a well managed office environment with technology introduced on a planned basis in some form of regional information processing center. Unlike the 1970's and early 1980's with the emphasis on technology, the attention of the future office will be to the personnel who will be using the technology, and not only the clerks and

secretaries, but managers and administrators as well. As illustrated in the scenarios, human resources and environmental factors must be considered in the coordinated problem solving approach to integrating automated office systems. The salient theme in the future office is management of the people. As more and more technology is introduced to the office, employees must be able to accept and prepare for these changes. As illustrated with Frank, Alison, and Sergeant Black in Scenario #2, some individuals will readily adapt to changes and will be receptive to receiving the training necessary to up-grade their knowledge and skills for the new system. These people will find themselves with greater responsibility and new challenges. They will be able to use the new automated systems as a tool to help them do their work better.

Others, however, will not be able to adjust as readily. They will be threatened by change and will become defensive. If they are not assisted in preparing for change, they will find themselves left by the wayside and either unemployed, or underutilized and unfulfilled in their job aspirations.

The degree to which employees accept automated office systems and, therefore, how satisfactory the systems will perform, will depend mainly upon how effective police management is in planning for the new systems. The scenarios illustrated some problems. Some problems are ageless, and recurring. Others will be new and caused by office automation. Failure to foresee and solve these problems may easily render office automation efforts ineffective. As an example, Frank, in Scenario #2, was planning sabotage of the automation system. This illustrates how some workers feel about the computer that it will make their lives worse, not better. An

example of this attitude drawn from the nineteenth century is the British textile workers who staged up-risings to protest the introduction of "automated looms", and actually began destroying the "hated devices". They saw in technology, not a better way of doing things, but a system that would eliminate jobs and make those who were left less creative.

While this type of aggressive resistance is unlikely, a real danger exists in either using high-level police managers to do low level clerical work, placing many office personnel in repetitive, computer dominated positions, or placing unskilled workers in very specialized jobs. People in these situations will resent "working for the computer."[6] This type of office of the future could cause people to long for the office of the past. The management of these forecasts associated with the office automation will have a direct impact on how our resources are going to be used in the future.

RESOURCES

THE COMMUNITY

The City of Los Altos is located in the heart of the high technology industry, Santa Clara County, "SILICON VALLEY'. The City has a very stable upper middle-class to high-class population of twenty-nine thousand (29,000) residents, and is projected to increase in size to only thirty thousand (30,000) by the year 2,000. The primary source of income to support City services is through residential property taxes. There isn't any industry, major shopping and/or entertainment center, or other sole

significant financial support beyond the sales tax generated by independent merchants located in a quaint downtown area and other small shopping clusters throughout the City.

The major strengths of the City, as it relates to the issue of office automation in law enforcement, are: first, that the City is located in the heart of, and has immediate exposure to, the high technology industry which drives the innovation of office automation; second, the City has a very stable, well informed, community oriented, population who are very much aware of the advantages associated with the proper application of technology; third, the City government, which is a Council/City Manager Form, is distinctly competent in promoting substantial community interaction and is very responsive to community desires; and fourth, the City has a very large senior population. Projections are that thirty-five per cent (35%) of the the population in 1995 will be fifty-five years old and older. This will create two very positive alternatives. First, should the seniors continue to reside in the City, and not migrate to smaller residences, (i.e. condominiums), in surrounding cities, community stability will be even stronger thus providing a forum to develop some long range strategies for office automation concepts. Second, should the seniors move from their large homes to smaller units the resale of the homes would generate that property tax revenue lost with Proposition 13.

THE POLICE DEPARTMENT

The Police Department is a "medium to small" police agency. It is comprised of twenty-six sworn positions and fourteen non-sworn positions. The City is now in the process of negotiating a police services contract with the Town of Los Altos Hills, an affluent population of

seventy-five hundred, which will cause an additional five sworn positions and two civilian positions to be created in the police organization. Independent of the Los Altos Hills contract, the organization cannot expect any major changes beyond perhaps two additional sworn positions on the short term, and the reallocation of services from a highly paid sworn officer to a lower paid civilian "Police Services Officer".

The Police Department has had in place for the past five years an automated records and word processing system. This system, a product of Wang Computers, was developed in-house with the assistance of various Wang hardware vendors. The system to date has evolved as a system of "add-ons" with one police administrator providing coordination not only for the Police Department, but also for the other City departments. The City has recently installed a voice mail system in conjunction with a new phone system. This new phone/voice mail system is driven by an IBM computer and again is coordinated by the same police administrator for all City departments.

To assist in identifying the organizational resource an un-biased Organizational Capability Analysis Rating Sheet, (included in Attachments), was solicited from persons within, and external to, the organization. Those within the organization described the organization as an being on the move philosophically from an organization of "adapting to only minor changes", to an organization of "seeking related change", with most issues impacting day-to-day operations ranging from "better than average" to "problems of concern". Significant in the consensus of those surveyed were concerns for manpower, training, growth potential, sick leave, specialty positions, and turn-over. The City has developed a reputation of having a lean, but very competent work force. Thus, those

issues of the survey dealing with personnel resources are viewed as areas that must be improved when viewed internally. In contrast, however, technology, equipment, facility, and supplies were viewed as "better than average", which suggests a deep seated community ethic to provide first class equipment to complete the law enforcement mission.

The organization at this point appears very open, and responsive, to change. This new energy has been driven by a positive disposition of the labor contract with the Police Officers' Association that had not been resolved for three years, and the hiring of a new Chief of Police to fill a vacancy caused by the retirement of the present Chief. The organization now identifies "better than average" support from the City Council and City Manager with pay and benefits at a par with other law enforcement agencies. With the new Chief, who came from outside of the Department, the organization percieves that a "fresh look" is being taken, and strategic change is not only identified as occurring but as supported.

External to the organization, the community, as indicated by recent questionaires administered during the General Plan review process, views the Department as a modern progressive agency with very dedicated, service oriented employees. This favorable feedback can be attributed to a strong basic organizational philosophy of public service which was not impacted by the labor negotiation problems the Police Officers' Association had with the City.

Projecting a new organizational climate fostered through successful labor negotiations, and positive morale created by the new organizational direction of the new Chief of Police, with sustained positive police support from an active and increasingly stable community, we can expect the necessary resource to effectively apply the technology of office

automation to the police environment.

STAKEHOLDER IDENTIFICATION AND ANALYSIS

When developing a strategic plan designed to move the application of office automation into the law enforcement information processing arena, underlying assumptions must be identified by those individuals, groups, or organizations, ("Stakeholders"), who have a vested interest in the office automation issue. Each of these stakeholder groups can be counted on to have one or more opinions about the impact that a new direction, strategy, or program will have on the organization. Identifying these "stakeholder" opinions and assumptions is a criticial aspect of the strategic planning process.

The following is an analysis of assumptions of the most significant stakeholders to the issue:

1. Taxpayer Associations:
   A. Will support the application of office automation if the costs associated with the delivery of police services will decline.
   B. Are concerned about increased municipal spending.
   C. Question necessity for elaborate office automation systems.
   D. Would actively support and lobby for Federal and State funding to support local office automation efforts.
2. Homeowners:
   A. Will support lower taxes.
   B. Will enjoy community esteem afforded by having their Police Department employ the latest in office automation technology. This could favorably impact the demand for

housing.

C. Will receive more efficient and effective police service.

D. Will have a concern over the "Big Brother" syndrome. This assumption could be a "snail-darter" in that this one assumption could terminate all office automation efforts.

3. Seniors:

A. Will constitute a larger percentage of the population between1990 and 2000.

B. Living on a fixed income places more demands for a cost efficient operation.

C. May receive a favorable impact if they wish to sell their homes. More money can be sought by marketing a police department that enjoys a progressive reputation.

D. Have political strength.

4. Office Automation Experts:

A. Will continue to show an interest in providing support to old systems, as well as and developing new systems commensurate with the public sector funding.

B. With the potential for high technology application, will promote high technological interest among law enforcement groups.

C. Will have a new market area.

5. Police Managers:

A. Will promote a positive marketing program for the application of office automation in the police environment to citizen and police groups.

B. Will be concerned about personnel job displacement as a result of office automation.

C. Will provide better service at a reduced cost.

D. Will enjoy department prestige due to state of the art office automation systems.

6. Civilian Police Employees:

A. Will fear workforce reduction.

B. Will be concerned about technology versus human aspects of the job.

C. Will have concerns about the accuracy of information generated by enhanced office automation systems.

7. Data Processing Personnel:

A. Will show an increase in their productivity.

B. Will be concerned about technology versus human aspects of the job.

C. Will have fears of workforce reduction.

8. State and Federal Elected Officials:

A. Will shift funding priorities.

B. Will promote legislative action addressing privacy.

C. Will be faced with service level mandates associated with funding for office automation concepts.

D. Will establish of new state departments to monitor high technology.

9. Local Politicians:

A. Will inquire about the cost/necessity of office automation.

B. Will be pressured by taxpayers to cut municipal spending.

C. Will be concerned about the potential of information abuse by the police, "Big Brother".

10. Other City Departments:

A. Will reduce their share of the municipal budget.

B. Will have less "status" within the City.

C. Will feel a jealousy of the Police Department, which could lead to lower "city morale".

11. Groups Concerned With Civil Liberties and the Public's Right to Privacy:

A. Will have an increased concern regarding about computer information systems.

B. Will be concerned about the misuse of information by those having access to the system.

C. Will demand information accuracy.

12. Police Officers:

A. Will show greater efficiency --- less time spent in the report writing process.

B. Will have greater access to more comprehensive information at street level.

C. Will be concerned about the "Big Brother" atmosphere.

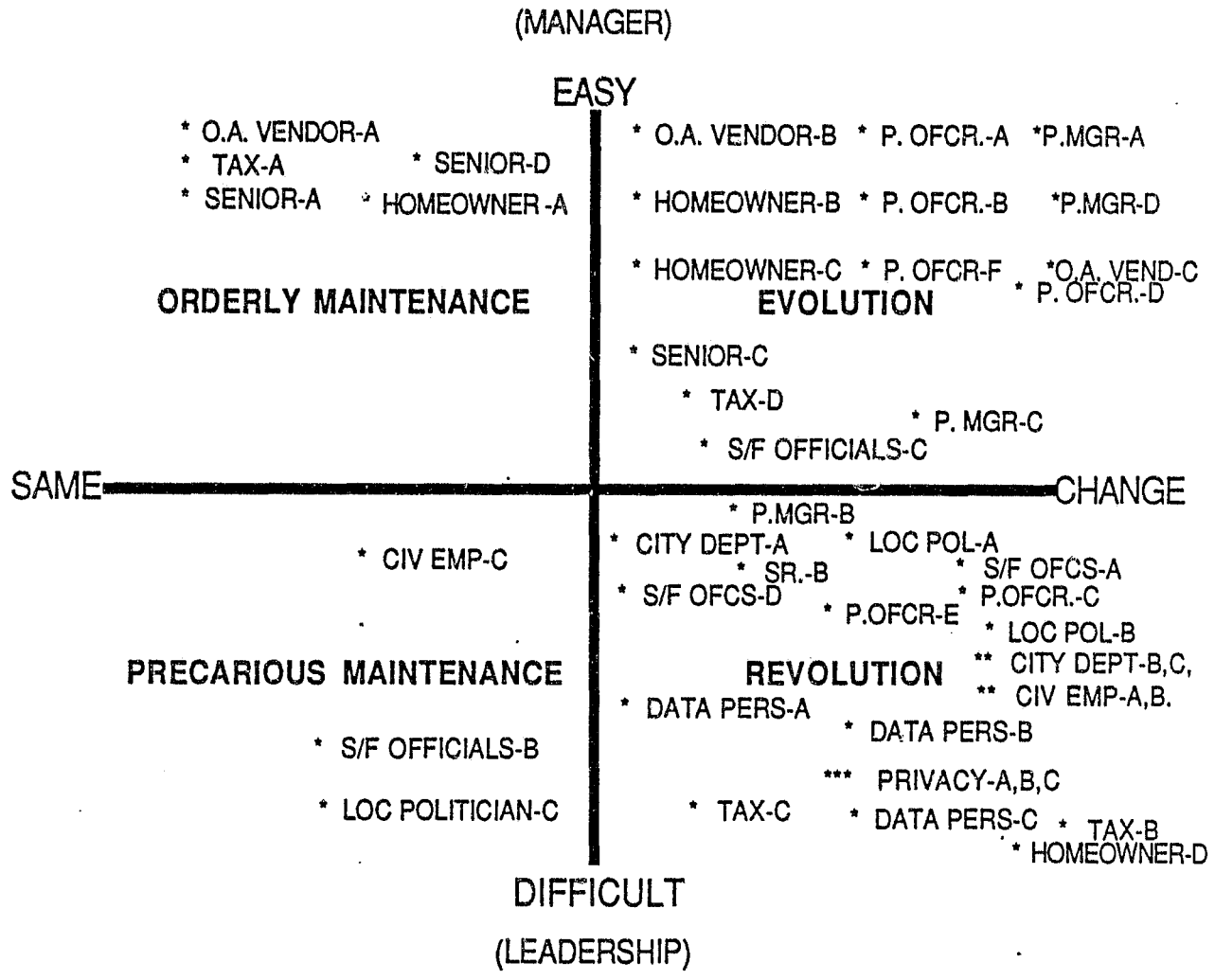
D. Will enjoy more esteem by being associated with a progressive organization which employs office automation.

E. Will sense more emphasis on technology and less on the human aspects of the job as a result of office automation.

F. Will need to have a higher level of technological aptitude at the entry level.

The following graph will show the "stakeholder's" position in relation to the ease or difficulty that will be encountered in obtaining their support for the application of office automation in the law enforcement setting.

STAKEHOLDER EVOLUTION



LAW ENFORCEMENT MISSION

To address the demands of the public and become more effective in their protection, through the implementation of a strategic plan that not only specifically applies to the City of Los Altos; but that can generally apply as a resource to all California law enforcement agencies, in their

efforts to PROMOTE ORDER and address COMMUNITY NEEDS by providing improved police services through the application of office automation.

EXECUTION

To address the impact of office automation on municipal police agencies in terms of the present environment and resource; and to assure a well managed, objective driven guide to the future, three mutually exclusive alternatives are advanced for consideration.

ALTERNATIVE ONE

Drawing on the established governmental structure and the City's long term philosophy of substantial community involvement, establish a commission on high technology, through the City Council, to address the on-going impact of high technology on the City and various departments within the City's organization structure.

PRO - By employing this concept, the City would be able to capitalize not only on that increasing stabilized senior population as we approach the year 1995, but also those living in the community involved in the high technology industry.

PRO - This concept would provide a forum for the community to actively participate in the acquisition of high technology concepts and thus diminish that perceived "Big Brother" feeling that might occur without community involvement.

PRO - This concept would provide a community voice to the high technology industry, indicating interest; and, thereby, fostering financial commitment on the part of the industry to meet

growing community need.

PRO - This concept would provide all City departments, specifically local law enforcement, with the abililty to advance technological systems to the City Council via a community based screening group, assuring a coordinated City-wide application of high technology to the delivery of City services.

CON - This system might add to the bureaucratic inertia that already exists in local government and impede to a greater extent the evolution of high technology's application to law enforcement automated systems.

CON - This system does nothing to promote incentive to law enforcement to implement a high technological planning process.

ALTERNATIVE TWO

Predicated on the favorable response from the Community General Plan and Review Survey, which cites the Police Department as a modern progressive agency providing an above average level of service, maintain the same organizational structure and style, and move into the application of office automation in a cautious reactive mode.

PRO - By maintaining the same organizational structure and style there will be less of the organizational disorder often associated with organizational change. With labor problems rectified, a period of organizational 'calm' will facilitate the work atmosphere.

PRO - By maintaining the reactive mode the Department will assess more correctly the needs of the citizens.

* If office automation's application is necessary to facilitate efficient operations the request will ultimately come from the community. This will abate to some degree the anticipated concerns of the community regarding the "Big Brother" concept.

* Acquisition of office automated systems will be more cost effective as other Departments will have developed, proposed, used, and evaluated various systems.

CON - By maintaining the same organizational structure, the organizational climate of being adaptive to only minor change as described (as in transition to "seeking related change" in the capability analysis) will not be addressed. This adverse attitude will soon be projected to the community.

CON - The existing organizational structure does not have an internal mechanism to promote, or react, to major change; either within or, external, to the organization.

CON - The momentum of being a progressive law enforcement agency will subside, and not only impact adversely the community's perception of the organization on the long term; but will have an immediate adverse impact on those issues associated with organizational morale on the short term, such as: attrition, sick leave, organizational image, and personal esteem.

ALTERNATIVE THREE

Develop a plan that calls for the re-organization of the Police Department that provides a special Research and Development Unit whose charge it would be to identify, evaluate, and promote highly technological

systems to enhance the delivery of police services.

PRO - The organization would, by its very design, have a perspective on future planning and seek a proactive position in not only seeking controlled, innovative change, but also a funding commitment to the future.

PRO - As reflected in the capability analysis, those within the organization view the existing structure as being capable of adapting only to minor change. With the new Chief of Police in place, this alternative would be a positive step in addressing concerns expressed that the organization should be more proactive and flexible. Additionally, it would provide the organization with renewed esteem by being perceived as progressive.

PRO - This alternative would provide a mechanism to evaluate not only internal law enforcement applications of office automation technology and the improvment of the delivery of police services; but would also assist in the coordination of the City's application of this technology, and there-by address some of the potential jealousy concerns.

PRO - By working from within the organization, police personnel will be more receptive to the new capabilities offered by high technology; and, therefore less likely to boycott or sabotage new applications, because of the lack of knowledge of the "Big Brother" syndrome.

PRO - This alternative addresses the short and long term planning issues.

CON - With the current climate of fiscal conservativeness, funding

for a positon removed from line operations might be difficult to sell the City Council.

CON - With the position authorized, staffing might be difficult in that training and expertise would be required not only in the available of high technological systems, but also in the application of high technology to community law enforcement.

RECOMMENDED ALTERNATIVES

Following the evaluation of all alternatives, and their short and long term potential impact in addressing the application of office automation in law enfocement in terms of the community environment, organization/community resource, and the police mission a blend of Alternative One and Three was selected as the most favorable for assuring a well defined management driven guide to the future.

By authorizing the Police Department to include a special Research and Development Unit to identify, evaluate, and promote, high technological systems to enhance the delivery of police services; and, by creating a Commission comprised of community members appointed by the City Council to evaluate the application of high technology from the entire City's perspective, the thrust of the high technology application will be broad based, community oriented, and enjoy governmental priority both organizationally and fiscally.

By employing this concept, the police organization will have demonstrated a commitment, and established a mechanism to actively pursue improved office automation systems. The application of recommended change will not experience organizational or bureaucratic inertia due to the community involvement fostered through the high

technology commission. Citizens will be positioned to be more articulate in expressing their desires of police service levels; and the police will be in a better position to react in a proactive manner, thus promoting greater confidence in all services delivered by the police. The private sector will have a forum from which to release information on new office automation systems to potential users, as well as immediate access in determining their financial reward for becoming involved with the public sector. The "Big Brother" syndrome will be substantially abated due to the collective involvement of police and community in the development of high technology systems.

By employing this alternative, a mechanism is set and a management driven guide is in place not only to address the needs of the present, but also to address those forecasted needs and demands of the future.

ADMINSTRATION AND LOGISTICS

To implement this strategic plan, (dealing with the acquisition of office automated systems in law enforcement), it must be clearly communicated to the police administrative staff so that an organizational strategy can be developed for plan implementation.

With a full understanding of the short and long term impacts of office automation on the organization and community, with and without the employment of this strategic plan, a presentation of the plan must be made to the City Manager and his budget staff. This presentation will not only clearly communicate the plan and its obvious benefits to the Police Department, but will also focus substantially on the information developed from the future trend forecasts and the positive impact that office

automation will have on the other department's operations within the City and the community itself.

Following acceptance by the City Manager and conceptual approval by the Manager's Budget Committee, preliminary negotiations will be initiated with the various "stakeholders" as identified in the implementation section of this plan. With the City Manager's endorsement, and the "stakeholders" in a position of support, advance to the City Council a recommendation that: first, funding be provided to staff within the Police Department a Research and Development Unit; and second, have the City Council establish a Commission on high technology to review, assess, and recommend new technologies that might assist the various departments within the city's organizational sturcture to provide improved services.

LOGISTICAL IMPLEMENTATION

1. Describe plan to police administration (1-2 months):
   * Futures orientation.
   * Full development of office automation's impact on police service.
   * Need for planning process.
   * Staff participation of plan modification and implementation process (buy off and personal commitment).
2. Advance plan to City Manager (2-3months):
   * Futures orientation.
   * Office automation's impact on police service.
   * Benefits of employing a mangement driven guide to the future in an effort to address the impact of office

automation not only on police, but also on other City departments.

* Outline cost benefits of alternatives.

3. Establish preliminary negotiations with "stakeholders" (3-5months):
   * Drawing substantially on personal one on one contact, preview with various "stakeholders" the Strategic Plan's advantages from the perspective of the "stakeholder".
     ** Accomplish this through various police Administrative Staff members.
4. Recommendations to the City Council (5-6 months):
   * Incorporate comments and presentation of 'stakeholders' committed to the plan.
5. On Plan adoption, establish a management team comprised of selected personnel from the police administrative staff and City Manager's staff to implement plan (6-9 months);
   * Establish Research and Development Unit within the Police Department.
     ** Develop job specifications.
     ** Identify unit function within Police Department and City organization.
   * Develop a community Ad Hoc Committee with representation from major "stakeholder" groups to generate candidates for Council selection to the Council Commission on high technology
6. Short and long range planning process for High Technology Commission and police Research and Development Unit (9-12

months):

* High Technology Commission establishes a mission statement, goals, objectives.
* Assign City Staff (unit/department) as Commission support and liaison to coordinate Commission activities with all City Departments, the City Council and community.
* The Research and Development Unit to begin high technology liaison in the private sector with other law enforcement agencies and with local State and Federal legislators.

PLANNING SYSTEM

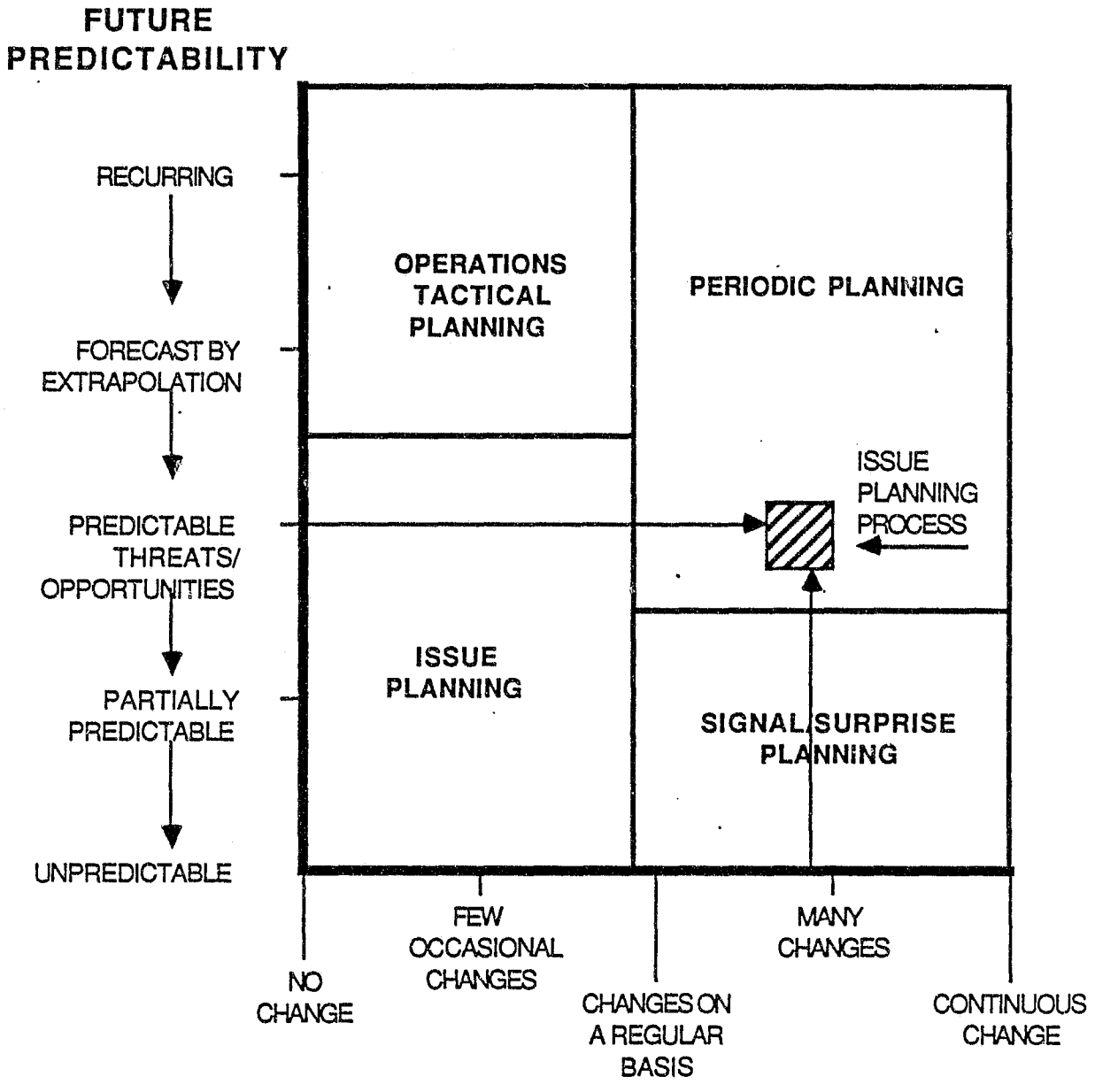
With the evaluation and analysis of the evironmental predictability and turbulence, a periodic planning system is the system most appropriate to be introduced with the implementation of this Strategic Plan.

Analysis of the environmental turbulence identifies "many changes" that will occur in the short and long term, both within the police organization and external to the organization, when considering the application of office automation to law enforcement.

Analysis of the predictability of the future in dealing with the high technology issue as it pertains to the environment shows very predictable threats and opportunities as previously discussed in this paper.

The following Planning System Matrix reflects these assessments and displays the planning system identified to be employed to meet the automated office objective.

PLANNING SYSTEM MATRIX



The periodic planning process aligns specifically to the recommended alternative advanced, setting in place a Research and Development Unit within the Police Department and a High Technology Commission advisory

to the City Council. This system calls for unit identification, organizationally and fiscally, with a semi-autonomous staff. By having the specific functions of long term planning determined by length and certainty of forecasts, such as: strategy identification, selection and implementation, coordination and support of divisional planning, and review and consolidation of divisional plans and development of **"grand strategy"** can be developed and implemented.

With the recommended Strategic Plan alternative in place, the employment of the periodic planning process will facilitate the orderly application of office automation to the the law enforcement environment for both the short and long term.

TRANSITION PLAN

TRANSITION PLAN

STRATEGIC PLAN SUMMARY

This project examines the impact of office automation on municipal law enforcement agencies serving a population range of twenty-five to fifty thousand through the year 1998.

PRESENT STATE

With the introduction of memory typewriters followed by the single purpose automated word processors, the office environment generally, and the law enforcement office specifically, is poised ready to open the door to that technological revolution aimed at office automation. Substantial recent interest in police information processing systems has been promoted among medium seized law enforcement agencies serving a population of twenty-five to fifty thousand. Larger police agencies, requiring the power of a computer to process information to conduct day to day business, have provided an example of computer use within a law enforcement environment. Now, with office automation technology widely available at prices affordable to most, and advancing at such an accelerated pace that new sophisticated information systems are being introduced on a weekly basis, the next stage of automation is about to begin.

FUTURE STATE

Drawing on office automation trend forecasts, and their cross impacts with certain events in the forecast section of this report, a normative future was advanced in the Strategic Plan introduction. This future identified a well-managed office environment using a planning mechanism to introduce advanced office automation technology following the consideration of the overall mission, the system impact on personnel, and the system's ability to interface with not only other existing office systems but also other agencies (regional) engaged in the same functions.

Drawing on a resource of a typical municipal police agency, serving a residential community in the thirty thousand population range, to illustrate viability and a relationship to all California law enforcement agencies in the targeted population range, community "stakeholders" felt to have a vested interest in the office automation issue were identified and a mission statement was established. With the present defined, future forecasted, and resource and environment established a Strategic Plan was developed to provide a guide for the future employment of office automation in the law enforcement environment. With the Strategic Plan in place, a plan for transition from the present to the future is now the focus.

TRANSITION MECHANISM

To assure a well-managed objective driven guide to the future, the Strategic Planning Process distilled for the transition mechanism the establishment of a **COMMISSION ON HIGH TECHNOLOGY** and

REORGANIZATION OF THE POLICE DEPARTMENT TO INCLUDE A RESEARCH AND DEVELOPMENT UNIT.

The Commission on High Technology impaneled by, and working as a reporting commission to, the City Council is to be comprised of various constituencies of the community having a vested interest in the short and long term impact of technology on the delivery of City services. By including a special Research and Development Unit within the organizational structure of the Police Department, a resource would be available to identify, evaluate, and promote high technological systems to enhance office automation in the police environment. With the employment of this transition mechanism, the thrust of the high technology application will be broad based, community oriented, and enjoy governmental priority organizationally and fiscally.

CRITICAL MASS

To cause the creation of the Commission on High Technology and the reorganization of the Police Department to include a Research and Development Unit there are a number of constituencies, (CRITICAL MASS), that are necessary to provide the energy necessary for these changes to occur. They are:

1. Police Organization:
   * Police Chief
   * Police Administration
   * Data Entry/Civilian Employees
   * Police Officers
2. Government:

* City Council
* City Manager

3. Citizens:
   * Senior Citizens
     ** Senior Coordinating Council of Los Altos
     ** Grey Panthers Party
   * Local Residents' Associations
     ** Los Altos Neighborhood Coalition
     ** Taxpayer Association
     ** Downtown Merchants' Association,
        (a high percentage of whom reside in the community and are very active not only in downtown issues but also in neighborhood issues)
4. Private Sector:
   * High Technology Industry
     ** Santa Clara County Association of High Technology

To assist in defining the role of those constituencies identified as the critical mass, and to assure full development of the strategies necessary to ensure that the appropriate energy and commitment necessary from each is provided for optimum plan implementation, the below commitment planning chart was completed.

COMMITMENT ANALYSIS

CRITICAL MASS	BLOCK THE CHANGE	LET CHANGE HAPPEN	HELP CHANGE HAPPEN	MAKE CHANGE HAPPEN
POLICE				
CHIEF OF POLICE				XO
POLICE ADMINISTRATION			X ⟶	O
DATA ENT/CIVILIAN EMP.	X ⟶	O		
POLICE OFFFICERS		XO		
GOVERNMENT				
CITY COUNCIL		XO		
CITY MANAGER		X ⟶	O	
CITIZENS				
SENIORS	X ⟶		O	
RESIDENTS ASSOCIATION	X ⟶		O	
PRIVATE SECTOR				
HIGH-TECH INDUSTRY		X ⟶	O	

X = PRESENT POSITION
O = DESIRED POSITION

POLICE

The Police Administration supports the change and will "make the change happen". On the long term, their mission is to provide optimum cost effective service through the application of high technology. On the short term, their task is positive marketing of the plan to the citizens, government, private sector, and all police personnel. The Chief of Police is the lead constituent of this group. Because of his position, his

commitment for the adoption must be foremost in that he must convince the City Manager and City council that their commitment of time and resources to facilitate Department reorganization, and adoption of a new Commission will have favorable short and long term impacts on the delivery of City services. The Chief will also have a positive impact on the citizens in mobilizing their support and energy for Plan adoption.

Data entry and civilian employees are driven primarily by concern for their jobs. When this technology is introduced, the feeling that those remaining on the job will be forced to work in an autocratic environment focused on worker-productivity must be alleviated. At the present these employees can be expected to "block the change" and have to be educated to "let the change happen". This can best be accomplished by allowing them to participate in the automation planning process, and to provide them with the commitment that they will receive the necessary education and training to create a more flexible and enjoyable work enviroment through the application of technology.

The police officers will "let change happen". Their expressed frustration of not having a state of the art technology has promoted the idea of Department Research and Development. Drawing on their desire for increased technology and the availability of additional organizational mobility and career development resulting from the new "R and D Unit", their necessary support for short term plan development will be secured. On the long term, this group will require continued education to maintain their support so they will have a full understanding of the advantages inherent with the pursuit of technology ..... specifically that of the automated office.

GOVERNMENT

The government is divided between "let change happen" and "help the change happen".

With the passage of Proposition 13, the citizens have become aware of the political power that they hold. This is reflected by the actions of newly elected officials attempting to appease their constituents. Reacting to this responsive philosophy on the short and long term, senior citizens, merchants, taxpayer associations, and high technolgy business will have substantial positive impact for Strategic Plan adoption and sustained City Council commitment. The council will "let the change happen" and look good in the eyes of many constituencies.

The City Manager is very much commited in support of the change and will "help the change to happen". Driven by his perceptions of broad community support addressing the Council, the driving support of the Chief of Police, and the long term potential impact of a mechanism ("Commission" and "R and D Unit") to address the application of high technology for the potential of providing a higher level of City services, the City Manager will approve the allocation of funds and resources necessary for Plan implementation. The Manager will demonstrate a very strong commitment will be very strong in the early stages of Plan development by "endorsing" the "Commission" and "R and D Unit" for establishment.

CITIZENS

The citizens' constituency will "help change to happen". All in this

group are favorably impacted by more efficient police services developed by office automation. This will be accomplished with fewer tax dollars as a result of better utilization of personnel resources which is achievable through Strategic Plan adoption and development.

The senior citizens, (Senior Coordinating Council of Los Altos and the local chapter of the Grey Panthers Party), who in the short term have strong political power and in the long term very impressive potential for political power, are strong allies for any concept advanced for cost efficient service, considering their fixed income status. The Chief of Police, and the Police Administration, using educational and problem-finding activities, will mobilize the support of this contituency which will result in "proper Council pressure".

RESIDENTS' ASSOCIATION

The Residents' Association will actively support Strategic Plan implementation, short and long term, if properly marketed by the Chief of Police. This group will benefit by receiving a higher level of service for tax dollars spent through a systematic review of technologies implied in the Strategic Plan process. This will not only impact the residents as the recipients of a high service level, but also will improve the City's "quality of life rating", thereby having a direct impact on property values and the high promotional esteem of the downtown area.

This constituency, as the seniors, will have to be mobilized through educational and problem-finding activities by the Chief of Police and Police Administration so the "appropriate political pressure" can be applied.

PRIVATE SECTOR

The Private Sector will "let the change happen", then move to "help change happen" in an effort to sustain their environment.

The high technology industry, on the short and long term, will provide interest, energy, and products commensurate with public support and interest in their products. With the Commission on High Technology and the police "R and D Unit", the high technology industry will have a forum with which to discuss the City's interest in immediate technology purchase in the short term, and product development planning in the long term. The high technology constituency is strong as it comprises a substantial segment of the City's residential population now, and has significant strength projected through the year 2005.

The City Manager will address this constituency not only to gain their proactive support and participation; but to display the interest of the City for a sustained relationship in its on-going concern for improving City services.

CRITICAL MASS CONCLUSION

With a thorough probe of assumptions, basic needs, and levels of required commitment from each constituent felt necessary, the broad negotiation strategy for Strategic Plan implementation will be to explain, and sell, the Plan in positive terms to the "critical mass". A spirit of cooperation will be fostered looking for win/win situations, employing compromise to balance the needs of participating constituents, however, not at the expense of Plan implementation.

The Plan will be clearly communicated to the "critical mass" as identified in the TECHNOLOGIES SECTON of this transition plan, so that there will be a full understanding of the impact of office automation on the police environment.

POLICE NEGOTIATIONS

The specific negotiation strategy to be employed with the Police Department personnel will be participative, (we need your help and support). A blanket offer will be put forth, with as much supporting information as possible, that supports police line operation activities, as well as the concept that association with this organization will be an association with a one of the most progressive law enforcement agencies in the field.

Special emphasis will be placed on the benefits of department reorganization, adoption of a proactive organizational attitude, the reinforced opportunity of organizational esteem, and dispelling the fear that high technology will promote job displacement or the "Big Brother" syndrome.

GOVERNMENT NEGOTIATION

Specific negotiation strategy for this group will be "blanket" and "association" strategies. The negotiation process with this group, the City Council, will follow endorsement of the Strategic Plan by the City Manager. The Council report and presentation will be made by as many citizen and business groups as possible, to foster a feeling of positive

"association" and to assure Council members of political support with regard to their decision to endorse the Strategic Plan, (blanket).

CITIZEN NEGOTIATION

The "participative" style will be used with the various sub-units within this group. Efforts to enlist the support/aid of other groups to develop alliances, in an effort to secure the common goal of plan adoption, will be the focus.

The first contact with this group will be made by police Department Administrative Staff members, in one-on-one contact, with formal and informal group leaders. The thrust of the contact will be to explain plan merits, benefits to all citizen groups, and negative consequences if the Plan is not adopted, or is modified substantially.

Following this contact, formal organizational and community group meetings will be promoted, and as various groups commit support, the "association" technique will be used to tie various sub-groups together through a common goal, thereby reinforcing association and Strategic Plan commitment.

MANAGEMENT STRUCTURE

To impact the application of office automation in the police environment, the Strategic Plan calls for two distinct changes.

First, the reoganization of the Police Department to include a Research and Development Unit; and, second, the creation of a Commission Advisory to the City Council on the application of high technology.

Because these two changes are at very distinct levels of the City's organizational structure, a Project Steering Team comprised of one representative from the City Manager's Office, one representative from the Police Department Administrative Staff, and the Chief of Police will be the structure used to manage the transition from the present to the future state.

The Chief of Police, the necessary driving force behind this change, will be the "linking pin" between two separate committees convened to develop implementation of the two organizational changes. From the position of Department Head, the Police Chief can act very effectively, and with authority, in coordinating each group's activities to assure that both proposals are advanced in a timely fashion to the City Council for review and approval. However, the Police Chief will not be required to expend valuable personal time in the basic functions of Plan development for the two committees.

The committee convened to address the reorganization of the Police Department, to include an "R and D Unit", will be a "diagonal slice" of the Police Department, and will be chaired by the Administrative Services Captain. The "diagonal slice" representation will promote input from all levels of the organization, and will foster short and long term commitment from Department Clerical, Line, and Middle Management personnel. This group will be comprised of five to seven members.

The committee convened to create the Commission on High Technology will be a "task force", comprised of leaders of major constituencies having a vested interest in Plan adoption. The chairperson for this group will be the Assistant City Manager. By employing the Assistant City Manager, transmission of formal and informal information/direction will be

available to and from the City Manager and the Council regarding the formation of the Commission. By using leaders of constituencies identified in the "critical mass", community input and support is generated, not only for Commission development, but in a subtle way, for the long term issue of improving police services through the application of office automation.

By employing this two committee concept, with the Police Chief acting as the "linking pin" between the two, the transition management structure has employed the energy, resource, and commitment necessary from the "critical mass" for Plan implementation.

TECHNOLOGIES

To facilitate the achievement of the future state, the Chief of Police must first meet with the Steering Committee to communicate the MASTER PLAN TRANSITION. Inital meetings will be to explain proposed goals of the Strategic Plan, purpose of the committee, and to provide an overview of potential and existing problems, short and long term. Subsequent Steering Committee planning meetings will be for the identification, and use of organization and community resources, (personnel, constituencies, and financial), responsibility charting, coordination of concurrent activities, and monitoring of progress and feedback.

Although the two planning groups comprise a different participant make-up, the technologies to bring these groups up to speed and to assist in group development to facilitate the transition plan will be similar. Both groups will participate in the following phases of the transition plan process with progress overseen by the Steering Committee:

PHASE 1 - ORIENTATION (2 to 4 meetings, one month)

* Following selection of group participants by the Steering Committee, the Chief of Police will provide futures orientation using trend and event forecasts developed in the initial stages of the Strategic Plan to define the future state. He will also explain the design of the new structure, and the positive impact on the delivery of City services through the management driven application of high technology. Additionally, he will outline the transition plan,team, and timeframe.
* During these orientations, team members will participate in exercises designed to identify personal biases, as well as to develop an awareness and process to mitigate them. Committee members will learn to focus on the "big picture", describe the desired future, and "fine tune" the Strategic Plan by setting common goals and objectives.

PHASE 2 - TRANSITION PLANNING (5 to 8 meetings, three months)

* Committee members will establish agendas, and assign members to lead meetings. Participants will learn about and participate in the change process, and use the committee forum as the focus to reinforce, and inspire, further organizational pride and Strategic Plan support.
* Phase Two will address the new organization's:
  ** task and work flow
  ** formal structure
  ** management processes
  ** personnel selection criteria
  ** political impacts

** commission/unit organizational interaction and communications

** selection process

** staff reports to the Steering Committee

PHASE 3 - APPROVAL (2 meetings, one month)

* Steering Committee to advance sub-committee reports to City Council

* allocation of resources

PHASE 4 - IMPLEMENTATION (2 to 4 meetings, one month)

* movement of people into Unit/Commission

* orientation and training

* start of new functions

TECHNOLOGY CONCLUSION

By employing these technologies, the members of these two groups, and other "critical mass" peripheral to the groups, will be well equipped to implement the Strategic Plan. They will not only understand the Plan objective of assessing high technology as it applies to the automated office, but they will understand what part they play in the overall Plan design in relation to fellow constituents and the overall issue.

The Committees will, additionally, be prepared for setbacks and conflicts, but will have, as a result of properly employed technologies, resolutions to problems before they arise. With vision and organization as the norm, the Committees will enjoy the confidence necessary to advance the Strategic Plan in a fashion that all "critical mass" will support and promote.

CONCLUSION

CONCLUSION

It is scarcely possible to engage in a conversation with progressive police administrators these days without encountering the topic of computers and office automation as it applies to the law enforcement environment. Police journals today compete to establish their "high-tech" image by publishing "high-tech" feature stories dealing with computer technology. Newspaper and magazine articles about the computer revolution are exceedingly popular. Computer "buzzwords" and jargon have permeated the police vernacular as the norm.

One bit of jargon that has attained exceptional popularity amid the most progressive police managers is the speculation of what the police office of the future may look like which in turn leads to the term "Paperless Police Department", which initially was the central theme of this monograph.

Superficial analysis suggested that with the rapidity and ease with which text can be moved electronically, and then displayed on a visual display unit led to the unwarranted conclusion that the "paperless office" is one of the primary characteristics of office automation.

Very early in my literature scan on the topic of office automation, and then in subsequent interviews with experts and visionaries in the field, it became apparent that it is not the paper that is expensive, but rather the labor cost which surrounds its use that causes the "big money" to be spent. Thus my focus, with substantial additional research and tremendous input from a five person Assessment Group, moved far beyond the elementary position of the"Paperless Police Department" to the

examination of office automation as a number of elements, the most important of which being the "human" element.

As the issue of "Office Automation's Impact on Municipal Law Enforcement" was forecasted by the Assessment Group, five trends were identified as having the potential for substantial future issue impact. These trends are:

1. Ergonomics - The human elements associated with office automation.
2. Technology - New technologies impacting office automation.
3. The Office Environment - The office setting, integrated work-stations, acoustics, etc..
4. Organizational Design - Oraganizational structure change resulting from office automation.
5. Security and Legal Concerns.

With these trends identified and forecasted through the year 1998 then cross-impacted with five selected potential events, scenarios were developed to identify the normative future.

The normative future identified technological innovation as the most exciting aspect of office automation moving us closer to the true productivity of individuals, groups, and organizations. The technological innovations that are most talked about today are those based on office communications.

To briefly forecast this one aspect of office technology, office communications in past generations has been limited to text, (characters). Many current systems have recently incorporated graphics and drawings into the existing system. In today's best systems, the user is able to include graphics with the text of a document and have them printed

together in final form as this monograph was printed. Having text, graphics, drawings and other media in the same document is only the beginning of multi-media communications.

Multi-media systems will include voice and images in the immediate future. Thus, a document could include a voice message dictated into the text of the document at specific places designated by the user. In order to review the document, the user would display the text and graphics on the screen and playback the voice through a speaker in the terminal. "Voice annotation" of documents adds flexibility of voice for comments, notes, and messages without the need for typing.

Documents will also include images which are scanned into the system using image scanners. Images such as pictures, diagrams, and different types of font can become a part of a document just as a graphic can be in current systems. The impact on law enforcement from the line through the administrative level will be substantial in terms of providing improved services.

The impact on users of office automation will become more important than it is now. There seems to be a "centralization of technology" pervading the organizational environment at this time, probably due in large part to the novelty of personal computers, the most recent office phenomenom. When the preoccupation with technology subsides, new ways of working will come about through the use of office automation communications. Organizations will divest themselves of their hierarchical structures as information access to various organizational levels will be enhanced. Tasks and organizational esteem of future office personnel will be enhanced. Additionally, this communication will promote work-group collaboration as suggested in one scenario which

illustrated a regional police information center. This center and agency organizations will be linked together through high-speed communication tools, such as messaging and conferencing, all of which will increase law enforcement's efficency.

With the advancement of technology, and enhanced office communications, will come personal privacy issues. Issues of computer privacy, security and individual trust are no difference than what we have had all along with paper-based information systems except that these issues are now becoming more pervasive because the volume of communications is increasing at a rapid rate. The shared electronic file, easily created and easlily accessible to a peer group, is one of the essential prerequisites for a well-functioning electronic office. These advantages, however, also create problems in preserving privacy and in maintaining organizational control.

Unless the electronic files are explicitely locked by passwords, or even by encryption, all network information is accessible if one knows where, and how, to look for it. In order to protect law enforcement organizations from losses of confidential information, and to guard individuals against invasion of privacy, electronic network security and protection must be of a much higher order than with conventional paper documents, letters, or telephone traffics. Some critics of the electronic age insist that privacy and security matters will emerge in the forefront of concerns within the next ten years. The Assessment Group did not agree. They felt that with sufficient amounts of money for appropriate equipment, and with some inconveniencies to the users, privacy and security matters will remain manageable.

As indicated, the human element is the most important to the

successful use of technology in the office. Through the late 1970's and early 1980's, technology seemed to dominate the interest in office automation as investment in people is hard to illustrate an immediate "quanifiable" return. Consequently, investment in understanding users' needs, proper planning, responsible management, user-orientation, implementation, and evaluation were relegated to only discussion topics and not practiced as the norm. Trend forecasts and scenarios discussed and illustrated environmental, (physical), ingredients of tomorrow's office, including such elements as lighting, acoustics, work-stations, and office layout. Also discussed were psychological ingredients such as office socialization, office supervision, alternative work schedules and locations, and enhanced job esteem.

The base conclusion is that the human issues must be dealt with if we are to reach the full potential of office automation. Successful office system implementation requires complete harmony of the worker and technology. The focus of police management must be to promote a condition in which jobs, computer systems, equipment, the work environment, motiviation, and psychological needs of the office worker are all woven together.

With a normative future identified, and drawing on our experience of technological innovation driving our office environment change in the past, a Strategic Plan was developed to move municipal law enforcement's application of office automation into the future. This Strategic Plan was drawn on the environment of a typical municipal law enforcement agency serving a residential population of approximately thirty thousand. Following the identification of community, and organizational, "stakeholders" felt to have a prominent interest in the office automation

issue, three mutually exclusive alternative plans were developed.

With "pro/con" assessment of "stakeholder" concerns, and folding in the philosophy of the organization mission statement, the three alternatives were distilled to the "implementation of a Research and Development Unit within the Police Department" to identify, evaluate, and promote high technological systems to enhance the delivery of police services, and to create a "Commission" comprised of community members appointed by the City Council to evaluate the application of high technology from the entire city's perspective.

With the additional development of a logistical implementation time frame and planning system it was the grand strategy of the Plan that the thrust of the high technology application in the City be broad based, community oriented and enjoy governmental priority both organizationally and fiscally.

With the Strategic Plan in place a Transition Plan was then developed to apply the Strategic Plan from the present environment to the future.

To assure an orderly evolution of the Police Department's Research and Development Unit and Commission on High Technology, a number of constituencies, (Critical Mass), felt necessary to provide the required energy to promote the necessary change we identified.

These constituencies, segmented into police organization, government, citizens, and the private sector, were assessed in terms of their current state of commitment and further identified as their future state of commitment necessary to bring about the necessary change. With this assessment and negotiation tactics in place, techologies were established to guide the two committees, established a Transition Plan to implementation of the Strategic Plan.

Now with the issue of the automated office forecasted through the year 1998 in the law enforcement environment, and with a Strategic Plan to provide a management driven guide to this future, and with a Transition Plan to employ the Strategic Plan from the present to the future, law enforcement can now move forward with VISION, CONFIDENCE, and ORDER.

END NOTES

END NOTES

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CANDIDATE TREND	FOR THE PURPOSE OF FORECASTING THE IMPACT OF OFFICE AUTOMATION ON MUNICIPAL LAW ENFORCEMENT, HOW VALUABLE WOULD IT BE TO HAVE A REALLY GOOD LONG RANGE FORECAST OF THIS TREND				
	PRICELESS	VERY HELPFUL	HELPFUL	NOT VERY HELPFUL	WORTHLESS
PART TIME/FLEXTIME COTTAGE WRKER		X			
DEMOGRAPHICS				X	
RIGHTS TO PRIVACY	X				
JOB FUCTION CHANGES		X			
INFORMATION DEMAND		X			
WORKSTATION DESIGN	X				
OFFICE WORKER TRAINING		X			
SMALLER HARDWARE			X		
LESS STORAGE SPACE				X	
EMPLOYEE WORK ENTHUSIASUM	X				
PRIVATE SECTOR TAKEOVER OF PUBLIC SECTOR FUNCTIONS					X
OFFICE ENVIRONMENT HEALTH PROBLEMS		X			
ARTIFICIAL INTELLIGENCE				X	

CANDIDATE TREND	FOR THE PURPOSE OF FORECASTING THE IMPACT OF OFFICE AUTOMATION ON MUNICIPAL LAW ENFORCEMENT, HOW VALUABLE WOULD IT BE TO HAVE A REALLY GOOD LONG RANGE FORECAST OF THIS TREND				
	PRICELESS	VERY HELPFUL	HELPFUL	NOT VERY HELPFUL	WORTHLESS
HARDWARE PROGRESS			X		
VOICE RECOGNITION CAPABILITY			X		
SHARED GOVERNMENT SERVICES		X			
ACCOUNTING/AUDIT STANDARDS	X				
MANAGEMENT RESTRUCTURING		X			
ORGANIZATIONAL COMMUNICATION			X		
DESKTOP COMPUTING				X	
INTIGRATION OF O.A. HARDWARE	X				
HARDWARE/SOFTWARE COSTS		X			
FACILITY IMPACTS			X		
SECURITY/LEGAL CONCERNS	X				
ENVIRONMENTAL SETTING	X				
FEEDBACK / PERSONNEL REVIEWS		X			

CANDIDATE TREND	FOR THE PURPOSES OF FORECASTING THE IMPACT OF OFFICE AUTOMATION ON MUNICIPAL LAW ENFORCEMENT, HOW VALUABLE WOULD IT BE TO HAVE A REALLY GOOD LONG RANGE FORECAST OF THIS TREND				
	PRICELESS	VERY HELPFUL	HELPFUL	NOT VERY HELPFUL	WORTHLESS
PUBLIC CONCERN OVER CRIME	X				
FISCAL CONSTRAINTS	X				
HOME COMPUTER			X		
COMPUTER FAMILIARITY			X		
NUMBER OF PEOPLE WORKING AT HOME		X			
MICROELECTRONICS			X		
HIGH RESOLUTION DISPLAY				X	
IN OFFICE TELECOMMUNICATIONS	X				
COMPUTER HANDLING VOICE			X		
OFFICER WORKER COST		X			
OFFICE WORKER PRODUCTIVITY		X			
OFFICER WORKER DISPLACEMENT		X			
SOFTWARE PROGRESS			X		

ATTACHMENT TWO

EVENT BRAINSTORM

EVENT # 1 - Legislative mandate regulating software/hardware format to vendors of law enforcement office automation systems.

EVENT # 2 - Data transmission satellite launched to facilitate automated office systems.

EVENT # 3 - A Federal or State Supreme Court case that will be a landmark decision in the area of personal privacy and use of high-tech information systems by law enforcement.

EVENT # 4 - Tax reform restraint of government spending.

EVENT # 5 - Consolidation of Police Departments and/or services at County, or regional, level.

EVENT # 6 - Federal and State funding for improved office automation in law enforcement.

EVENT # 7 - Private organizations contract to maintain law enforcement office systems.

EVENT # 8 - Citizen groups demand a more efficient law enforcement organization.

EVENT # 9 - A world-wide depression begins (i.e. unemployment reashed 15-20%) in the advanced industrial nations.

EVENT #10 - Crime control legislation.

CAPABILITY ANALYSIS: RATING

Instructions – PRESENT

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					
technology					
equipment					
facility					
money					
calls for service					
supplies					
management skills					
P.O. skills					
supervisory skills					
training					
attitudes					
image					
Council support					
C.M. support					
growth potential					
specialties					
mgmt. flexibility					
sworn/non-sworn ratio					
pay scale					
benefits					
turnover					
community support					
complaints rec'd					
enforcement index					
traffic index					
sick leave rates					
morale					

STRATEGIC NEED AREA Office Automation Implementation

CAPABILITY ANALYSIS: RATING 2

Instructions = Future

Evaluate Each Item For Your AGENCY as to what type of activity it encourages:

I	Custodial	- Rejects Change
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	1	7		9	2
Skills/Talents	4	3	8	4	1
Knowledge/Education	5	5	7	2	
ORGANIZATION CLIMATE:					
Culture/Norms		3	10	5	2
Rewards/Incentives	1	2	5	7	2
Power Structure	1	9	6	5	
ORGANIZATION COMPETENCE:					
Structure					
Resources		1	4	12	2
Middle Management		5	4	10	1
Line Personnel			6	10	4