

LAW ENFORCEMENT MANAGEMENT INSTITUTE

ACQUISITION OF MICROCOMPUTER INFORMATION SYSTEMS
FOR SMALL POLICE DEPARTMENTS

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ABSTRACT

Automation and computerization has entered virtually every business, industry and profession in the world. It takes little thought to examine our daily routine to find many types of computerization that impact most things we do. Computers are in our offices, homes and just about everywhere we go. We have computers in our cars, our watches, our microwave ovens, and there is even a computerized toilet (Brown, 1991). Even our children in the lowest school grades are using business class personal computers as part of their education curriculum.

So why have many small to mid size police departments in Texas resisted the change from a totally paper based reporting and record keeping system to some type of computerization? Lack of funds, lack of computer knowledge, and horror stories of poorly planed computer systems are some of the reasons cited by police executives for not automating their departments.

As common as computers are today and the more people are using personal computers, the less likely the public or elected officials will be sympathetic when a police executive can not provide the types and quality of information when demanded. This resistance to change may be the demise to long, loyal and otherwise outstanding careers of police executives.

Despite predications about innovative uses of computers in law enforcement, they have not been used routinely for predictive analysis. Instead they have been used primarily for data storage and retrieval. In other words, they have been used as "electronic shoe boxes" (Rogers, Craig, 1996).

INTRDUCTION

More than 75 percent of the law enforcement agencies in this country are operating in the dark ages. While not intended to be an indictment, it is an accurate reflection on the number of departments that do not know how to take advantage of computers and computerized information (Pilant, 1994). To some administrators, automation takes a back seat to such nitty-gritty problems as keeping the patrol cars running. But consider the benefits of automation, even in a very small department: a dramatic reduction in paperwork, freeing officers to return to patrol; the identification of links and relationships that might be missed by even a crack investigator; the elimination of redundancies in records processing; more efficient generation of statistics and monthly reports; an end to the paperwork nightmare in the property room; and the standardization of incident reports.

The law enforcement executive and managers are today faced with making significant and difficult decisions regarding the acquisition of computer technology. Some will be silently allowing others to make police technological acquisitions for them, with little or no law enforcement input (Morden, 1986). While it is not necessary or even desirable for police executives and managers to become experts in computerization, it is incumbent for every administrator to become familiar with the basics of microcomputer systems (Rodriquez, 1988). Clearly it is understood that information can certainly be valuable. Doctors, lawyers, and accountants make their living by dispensing it (Gotlieb, 1985). Similarly, a police executive's livelihood is centered around the dispensing of information.

The capability of many departments to function adequately is totally dependent upon their abilities in the information collection process. Since law enforcement is heavily dependent upon information, improving the collection process, data analysis, and redistribution of information requires the implementation of computer systems (Hickman, 1995).

The purpose of this paper is to give police executives basic guidelines that determine the decisions and actions needed to establish and achieve the computing objectives in the acquisition of microcomputer systems.

HISTORICAL, LEGAL, AND THEORETICAL CONTEXT

In 1986, the Lockhart Police Department found itself in a crisis. The paper flow process was bottlenecking and the only reports being typed and filed were those that someone or another agency was demanding. With each passing week, the amount of untyped reports continued to increase. Compounding the problem were those frequent requests from the City Manager or City Council for some type of statistical information or special report that had to be manually compiled.

Every police department has a reporting system. A system that takes the police officers field notes, investigative information, witness statements and other information and reduces this information to a typed formatted case report.

In Lockhart, the officer would fill out a field note sheet for the offense and then would hand write his supplemental reports detailing the events and investigations. If an arrest was made, additional forms were hand written.

When the officer completed his reports, they were submitted for review. Trying to read some of the officer's hand written reports was very difficult. More times than not, the reports were returned to the officer for corrections. The officers would correct their reports and re-submit them for review. If the reports passed review, they were forwarded to the clerical staff for typing. When the case report was completed, (our work product) it was reviewed again before going to another agency. This quality control step usually discovered several minor corrections that needed to be fixed. The case report was sent back to the clerical staff for corrections. Once the case reports passed all reviews, two, three and sometimes four weeks may have passed.

The philosophy at the Lockhart Police Department has always been that case reports are the Department's work product. It is by these reports that both the Department's and an individual officer's creditability is judged. In an attempt to speed up the paper flow process, several things were considered. Among these was the option of compromising (reducing) the quality of the reports; however, this was not considered a viable option. Another option considered was increasing the number of clerical support staff. The resistance by the City Management and Council to increase the number of clerical support staff due to budget constraints, forced a paradigm change in the police department. The paradigm change was automation.

Funding was appropriated for the purchase of two microcomputers that started the transition from a totally paper based to an electronic based system.

REVIEW OF LITERATURE OR PRACTICE

Interviews with other police officials reveals that other agencies have experienced the same problems in their paper flow process as the Lockhart Police Department. Sergeant Kenneth Ponder, a 17 year veteran with the Galena Park Police Department, says his agency started the transition to microcomputers in 1990. Prior to microcomputers, personnel with the police department would make manual searches for information. Police personnel would sometimes spend hours searching files for specific information. During this era, the Galena Park Police Department had 17 officers and were generating 40 to 50 offense reports per month. Realizing that police time was better spent on the street rather than in the office doing manual searches, Galena Park Police Department looked at microcomputers.

Galena Park Police Department first surveyed small to medium size police agencies to learn what computer support systems they were using and why. The two primary types of computer systems in use by the departments surveyed were minicomputers and microcomputers. Due to the expense of minicomputers, Galena Park Police Department focused its attention on the microcomputer.

City Hall's microcomputer system was an 80286 processor running in an Unix environment. From the survey, those agencies using microcomputers used MS-DOS as their operating system. The number of available software packages was cited as the reason for choosing this operating system.

The long range goal for Galena Park Police Department was to have a microcomputer at every workstation that would eventually be networked together.

Galena Park Police Department was awarded a grant for the acquisition of two microcomputer systems. Personnel within the department, who had experience with dBase III, wrote database programs for arrests, evidence / property tracking, training, and offense reports. Over the years, more microcomputers were added, making sure that they were compatible with the existing microcomputers and would adapt to the future networking system.

According to Kenneth, Galena Park Police Department should have budgeted more money for training of personnel in the uses of microcomputers. While employees embraced the new technology, there was a lot of time spent in educating themselves. The undocumented costs of this type of training probably exceeded what a structured training course might have cost.

Another growing problem Kenneth shared is the amount of police staff time it takes to maintain all the computers. Galena Park had twelve workstations in the police department. Some of the systems are several years old and are failing. Time is spent each day keeping the system operational. The City of Galena Park budget will not support an Information Systems Manager. The options are to out source the maintenance or do as much as possible in-house (Ponder, 1998).

RELEVANT ISSUES

Too often agencies start the acquisition process by visiting a computer store and selecting a system on the assurance of a salesperson that a particular system will satisfy all of the agency's requirements (Morgan, 1988). Every agency should develop an overall plan for the acquisition

and management of its current and future microcomputer system. The major gain from writing the plan is the establishment of common methods of doing business (Buckley, 1996). The following discusses some of the key issues police executives need to understand before the acquisition of a microcomputer system.

Organizational Assessment

The implementation plan is necessary to prevent such traps as investing in microcomputers that are later found to be incompatible with the existing or larger computer systems or buying a microcomputer that quickly becomes obsolete and useless. Each plan needs answers to some general questions;

Who will maintain control over the purchase and maintenance of the microcomputer? Larger cities have information system departments established which are responsible for the acquisition and maintenance of all computer support equipment. In small cities, this responsibility may be left to each department or is delegated to a single department like data processing or finance.

How will the microcomputers communicate with a larger computer system? Many smaller cities have invested in a minicomputer to support critical operations like utility billing, payroll processing, and accounts receivables / payables. These systems contain very useful data provided you can access it. Thought needs to be given to special hardware, interface boards and cabling.

What process is used to justify the purchase of microcomputers? The crucial first step in selecting an appropriate microcomputer is to define precisely what you want a microcomputer system to do for you; what problems do you want it to solve (Morgan, 1988).

Through careful analysis of the information flow - where information comes from, who needs it, what is done with it, and what happens because of it, these tasks and problems can be easily identified (NCJRS, 1983). Also there should be a function and cost analysis process to determine what functional areas will benefit from the microcomputer.

Once the specific user is identified, software and hardware should be selected that best suits the needs of the user. Your agency's purchasing process may be centralized or decentralized. A centralized system provides control over compatibility and makes it easier to negotiate volume discounts, site licenses and maintenance contracts. Centralized purchasing may be cumbersome and time consuming. Decentralized purchasing system may be quicker and more flexible, but can lead to software and hardware compatibility problems and purchasing inefficiencies. The strategy for software and hardware purchases is to insure that there are no compatibility problems in sharing data. One idea to avoid incompatibility between microcomputers is to establish a list of approved software and hardware. This list may include both high and low end systems and software packages that meet the organizational goals.

When considering hardware purchases, "compatibles" or "clones" may be a good alternative to the name brands. Many "compatibles" offer exceptional speed and functionality for less money than the name brands. However, not all "compatibles" are equal and technical support may be limited. Research a vendor's reputation for quality, service and technical support.

Licensing Agreements

Another issue that needs to be addressed is the software licensing agreements. The opening of most commercial software packages constitute the user's acceptance to the terms of the

software licensing agreement. Most software licensing agreements are limited to one computer per one package. Installing software on multiple computers may be a violation of the licensing agreement and may subject the user to possible criminal or civil penalties. As an alternative to buying multiple copies of the same software, most software companies offer site licensing. Site licensing is an agreement with the software developer that allows the user to make the required number of copies and make the required number of installations of the software. In exchange, the users pay the software developer an additional fee. This additional fee is considerably less than the purchase price of the multiple copies of the software. When purchasing site licensing, the computer manager should get the details of the upgrade policy from the software developer. Do they charge and if so, how much? Will upgrades include new documentation? What technical support is part of the licensing agreement?

Backup Systems

Another important issue regarding microcomputer systems is the backup system. One of the most time consuming and frustrating experiences a user has is redoing work that was lost because it was not backed up properly. It is extremely important to have policies and provide the necessary training that make backups easy for the user. There are many types of backup hardware and software and several methods for backing up your data. A study of the pros and cons of each method should be reviewed to choose the best method for your organization.

Training

One of the most important, but least thought about costs associated with microcomputers is related to training. It doesn't make any difference how sophisticated the microcomputer system is, if the user is not adequately trained. Most organizations will have different types of microcomputer users; some will occasionally use the microcomputer while others will use them daily. Specific training for each user should be identified. Training may come from many sources. Some users have the ability to teach themselves while others require a structured course. The effectiveness of a training program depends on several factors, including its ability to simulate the work environment, its interactivity, and its ability to provide feedback (Doyle, 1991).

Maintenance

Microcomputer systems will require maintenance. As part of the acquisition plan, managers should decide the best way to maintain the system. When considering maintenance options, the manager should not forget the peripheral devices like modems, printer and monitors. Having the vendor who sold the equipment to do the maintenance has some benefits; he should be familiar with the equipment and have spare parts. The disadvantages come when the purchase was mail order or from several different vendors. The down time and confusion can be costly. Another thought is to out source all your computer maintenance. Using a company that is convenient to the location reduces down time. There are difference of opinions about purchasing maintenance contracts. The cost / benefits should be closely analyzed.

Security

Security management involves protecting sensitive information found on microcomputer systems by controlling access points to that information (Leinware, 1992). Security and control have been cited as key management issues in every opinion survey of information systems (IS) managers since the early 1980's (Jonathan, 1988).

Microcomputer systems require security to protect the system and user processes from unauthorized entry to the system, and against unauthorized use of the system even by authorized users (Englander, 1996).

While a detailed discussion of microcomputer security and control considerations goes beyond the scope of this paper, management needs to identify what quality control activities are most beneficial to their agency and what facilities, people and skills are required to implement these activities.

CONCLUSION

Computer technology and information systems have radically changed the way law enforcement is handling information. Nothing - not even the automobile - has had a more powerful effect or exerted such a strong influence on the police profession and its operations. Just as law enforcement adapted to the automobile, it is making a continuing effort to adapt and incorporate new technology. The benefits have been tremendous, with savings realized not only in dollars and man power, but lives. And with technology advancing at what seems like the speed of light, more sophisticated operations are as close as the development of the next computer chip (Pilant, 1994).

Moving from a paper based system to a computer automation system requires a period of adjustment. During the adjustment period, new relationships are formed and the basic organizational norms are replaced. If managed properly, the transition can be short and painless. If managed improperly the results may be tedious and traumatic (Henderson, 1992). Inadequate or lack of planning will leave a police agency with a mixture of incompatible systems, limited flexibility and increased costs (Denno, 1992).

By using the ideas discussed here, your agency will manage the acquisition of its micro computer systems more effectively.

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