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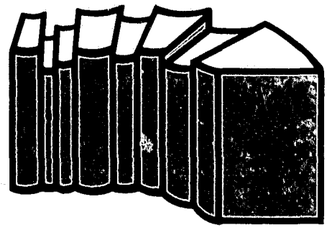

Computers in Criminal Justice Administration and Management

Introduction to Emerging Issues and Applications

Introduction

How can computers, especially microcomputers (commonly called personal computers), help the management of police, courts, corrections, and juvenile justice organizations? What factors should buyers and users of microcomputers consider before purchasing equipment or software? *Computers in Criminal Justice Administration and Management* attempts to answer these questions. It examines the effects of fast-changing computer technology on criminal justice operations, identifies the uses for mainframe computers (huge, state-of-the-art computers) and microcomputers in contemporary criminal justice agencies, examines computer assisted instruction in criminal justice education and training, and discusses emerging issues in computer technology. The text also contains a glossary and bibliography. This *Book in Brief* focuses on data base management applications for the criminal justice policymaker.

Data base management applications

The staffs of today's criminal justice organizations are dependent on the rapid and accurate collection, analysis, and dissemination of information. When a police officer investigates a crime, a probation officer prepares a presentence investigation report, a court schedules a case for trial, or a parole board tracks an inmate's parole eligibility date, information is collected, analyzed, and stored for future use. Data base management refers to a systematic approach to storing, updating, and retrieving the massive amounts of information needed by these agencies. Another interrelated concept in computer applications is the use of management information systems, which are specifically designed to furnish management and supervisory personnel with information required for decisionmaking.

Advances in microcomputer technology have permitted a greater variety of criminal justice personnel to have easier and faster access to mainframe data bases, and also have aided the development of smaller data bases for specific departments. Microcomputers have four main uses in criminal justice agencies: data base management networking with mainframes; small business management applications; field-report writing and investigation; and information systems networking.

Data base management networking with mainframes. This type of networking is possible in two ways. First, terminals are linked through a communications chain to a mainframe central processing unit. Telephone lines are the usual links, but radio links are sometimes used. Second, microcomputers with functionally independent central processing units and memories can be linked to a mainframe unit.

Three of the best-known mainframe data base systems in criminal justice are the National Criminal Justice Information Center (NCIC), the Uniform Crime Reports (UCR), and The Sourcebook of Criminal Justice Statistics. To benefit from the information stored in these data bases, an agency must have the access codes and authorization to link up with the mainframes. Federal, State, and local authorities use these systems to plan

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and manage resources, to develop psychological profiles of criminals, and to construct descriptions of potential criminal subjects, for example.

Four other data management systems have been developed by the Bureau of Justice Statistics and the International Association of Chiefs of Police to allow police departments using the same software to share information through mainframe computers:

1. The central program is called POSSE (Police Operations Systems Support-Elementary). POSSE permits field information input and report preparation, file searching, and recordkeeping. It serves as a central clearinghouse for all information stored in the program components of the software systems.

2. CASS, Crime Analysis System Support, tries to standardize the future development of computerized crime analysis.

3. IMIS, Investigative Management Information System, interfaces with POSSE and CASS and allows field investigators and managers to use the staff and material involved in case investigations more efficiently.

4. FMIS, Fleet Management Information Systems, allows a police agency to deploy and maintain its vehicles efficiently.

Small business management applications. Every criminal justice organization is a business in the sense that it has revenues, resources, and personnel. Thus, the software developed for business can be very useful for criminal justice agencies. Especially useful software includes: electronic spreadsheets; electronic accounting, inventory management and personnel records systems; and statistical packages.

An electronic spreadsheet is a program which presents an electronic ledger sheet. Using a range of commands, the user can input headings and numbers and perform mathematical and statistical analyses, generate multiple and integrated reports, and do forecasts. Popular spreadsheets for small departments are VisiCalc, Advanced VisiCalc, Multiplan, and SuperCalc. For larger agencies, software packages for business applications include the Peachtree, Lotus, IBM, Wang, Applied Business, and Ashton-Tate accounting, inventory control, and project management software.

In personnel management, a microcomputer can perform Computer Assisted Personnel Evaluation (CAPE). Other microcomputer programs allow agencies to improve scheduling and staff allocation. Software is also available for payrolls, records, income tax preparation, addresses, and other uses.

Although statistical data analysis is made easier with microcomputers, a recent analysis of 24 statistical packages concludes that no package is best for all situations.

Field report writing and investigation. Microcomputers, because of their size and flexibility, can be adapted to many different field reporting functions which would not be possible with mainframe computers. Police investigators can collect field note information and reports from a variety of different sources, then assemble them into a simple data set. The information can be verified before inputting it into a mainframe data bank. This is an advantage in criminal investigations because information coming from a mainframe data base information system gives the impression of complete truth and accuracy which may not be justified prior to completion of an investigation. Microsystems are also valuable in tracking informants whose identities need to be kept secret and whose activities need to be monitored by several investigators.

Information systems networking. The microcomputer opens a vast array of information systems to the user, in addition to the data base systems for management applications listed above. Information retrieval services allow the use of telephone modems to access thousands of data bases. For example, DIALOG permits computerized literature searches of the National Criminal Justice Reference Service, social sciences and humanities literature, and many other data bases with criminal justice information. WESTLAW and LEXIS permit computer-assisted searches of Federal and State laws, case precedents, and legal opinions.

LANS, Local Area Networking Systems, refers to a special hardware and software combination allowing individual microcomputers to share common data bases, operating systems, programs, memory, and storage. What distinguishes LANS from the system of terminals of a mainframe computer is that what is being connected is a series of microcomputers—all of which are capable of autonomous processing and possess independent memory. LANS is useful in settings where several individuals (police officers, investigators, etc.) are working independently on a joint case or project and the day's work is combined into a single report. LANS operates in a limited area only.

Telecommunications information networking operates worldwide and links multiple microcomputers to each other or to mainframe computer systems through the use of telephones, closed-circuit cable television, and microwave satellite connections. There are seven types of networking services available to microcomputer users:

1. Information utilities. This type provides both information and services to subscribers—electronic mail services, job finder services, Telex, and airline reservations.

2. Encyclopedia data bases. These include such services as DIALOG, described above, the *Congressional Record*, and legal reference services.

3. News and business information data bases. This service provides general news coverage, and industrial and business information newsletters.

4. Computer bulletin boards. These are valuable for agencies with various offices physically separated—they can provide notification of meetings, changes in schedules, deadlines for reports, etc.

5. Electronic shopping, banking, and barter. This is a category which allows the user to purchase catalog items by computer, or to conduct banking.

6. Computerized conferencing. This permits several individuals to have interactive audio-video conversations.

7. Telecommuting. This permits people to transmit work from a computer at one location to a computer at another location.

System requirements for microcomputer telecommunications

To engage in telecommunications, a microcomputer must have the required optional equipment:

- It must be capable of telecommunications—it may need the addition of "cards" or microchips if this capability is not built in.
- It must have an RS-232 port or have one connected.
- It needs communications software to coordinate all the system components and to interact with the computer at the other end of the line.
- It needs a telephone modem to serve both for input and for output, and receiving and transmitting electronic impulses to other computers.

In choosing a modem, the user should consider cost, the ability to minimize online service time, compatibility with the mainframe system or other computer network, and the need to have both the transmitting and receiving systems operating simultaneously.

Written communications in criminal justice

Criminal justice bureaucracies are known for their great volumes of written communications. In recent years, the volume has increased dramatically because of court-imposed standards, EEOC guidelines, and the ever-increasing caseloads processed by criminal justice agencies and institutions. Other communication problems within these agencies are the need for supervisors' permission before sharing information across department lines, distortion of information as it goes from one organizational level to another, and readability and reading comprehension of written policies, procedures, directives, and memoranda.

Microcomputer technology offers possible solutions to criminal justice organizational communication problems.

Computer assisted writing (CAW). CAW is the use of computer technology in preparing, editing, printing, distributing, and electronic storage of written (printed or video) materials, including policies and procedures, correspondence, reports (budgets and statistics), client records, case investigation materials, training manuals, and other agency-specific forms. Word processing, the most common form of CAW, has many advantages:

- It permits fast typing, flexible and immediate editing, and rearrangement and reprinting of individually produced documents.
- It permits operators to automatically center and make boldface headings and other printing changes before a printout is made.
- It permits the use of auxiliary programs to edit and refine the text before printing. These programs check spelling, grammar, reading comprehension levels, and many other aspects of writing.

There are two types of word processors. Dedicated word processing uses a machine designed exclusively for word processing. In contrast, microcomputer word processing uses a microcomputer (which also handles other functions) with a word processing software system. Microcomputers are more complicated to use than dedicated processors and require careful operator training. Microcomputer word processing systems cost from $1,000 for the simple system to $5,000 for a professional system.

Word processing programs. Popular word processing programs include Wordstar, Apple II Writer, Word Juggler, Word Perfect, Easy Writer II, Peach Text 5000, and The Word. Auxiliary word processing programs include the Random House Proofreader, an electronic dictionary; Lexichecker, a dictionary; Spell Perfect, an electronic dictionary; the Random House Electronic Thesaurus; Grammatic, a program that checks a document for style inconsistencies and for grammatical errors. Other programs can handle mailing lists, indexes, numbering and editing footnotes, and automatic paragraph and section numbering.

Printers. The selection of printers is important, because printing speed and quality varies. Not all printers work with all computer systems or all types of word processing programs. Most printers are made by about six manufacturers and fall into the following categories:

- Dot matrix. Quality is determined by the density of the dots. Good quality printers cost from $300 to $1,000. Impact printers are most common and practical for most purposes.
- Ink jet spray. Almost of letter quality. Technology has not been fully developed and they are not as reliable as dot matrix printers for heavy workloads.
- Letter quality. Those capable of intermittent use cost $600 to $1,000. High quality printers capable of agency use cost 2 to 10 times as much as dot matrix printers.

It is advisable to choose software before hardware and to consider total system cost. Having both a dot matrix printer and a letter quality printer is cost-effective—the dot matrix should be used for drafts and the letter quality printer for final copies because ribbons for the dot matrix cost considerably less than those for the letter quality printer. The minimum software needed for professional computer writing is a good word processing program, a spelling checker, and a grammar checker. A thesaurus is also desirable.

Planning microcomputer data base systems

Careful planning is essential before putting microcomputers into a criminal justice agency. Planners should take these steps prior to purchasing equipment:

- decide the order in which work functions are to be computerized;
- consider both the potential and limitations of total system capacities;
- determine whether each computer application has fixed, flexible, or optional requirements—whether or not computer operations have to be performed in the same way each time;
- consider whether or not features of the system can meet intended use, both present and future.

- compare the costs and benefits of different systems with different companies;
- establish a support system of user groups, seminars, and product evaluations—problems solved by one user may be the problem currently faced by another;
- consider the availability of software and be aware of hidden costs;
- form quality control (QC) circles in each major department or subdivision, made up of workers who either own microcomputers, know about mainframes, or are in charge of units dependent on information; and
- assign these QC's to categories of computer usage—word processing, fiscal accounting, records, etc., and have them review literature, visit dealers, and write reports.

While management will make the final decisions on equipment and software purchasing, the information obtained from these steps will be valuable. In addition, the people who will use the equipment will be involved in the decisionmaking process.

Other issues

The information age is a reality which is creating pressures for radical changes in management strategy, organizational structure, and technology. If criminal justice is to cope with the increasing demands of the future, it must continue to expand the creative applications of microcomputer technology.

No one can yet predict the consequences of an information-dependent and computerized society. The long-term effects on American justice of the justice agencies' growing dependency on computers are yet to be learned.

Further readings:

Automated Correctional Data Systems. By J.M. Tien, et al., Rensselaer Polytechnic Institute. Sponsored by the National Institute of Justice. 1982: 155 pp. Availability: free microfiche from NIJ/NCJRS. NCJ 93404

The Police Chief, Special Focus—Police Technology. V 51, N 4 (April 1984), pp. 33–50, 52–54, 56–58. NCJ 93533

Survey of Computerized Information for Lawyers—LEXIS, JURIS, WESTLAW, and FLITE. By J.T. Soma and A.R. Stern. *Rutgers Computer and Technology Journal*, V 9, N 2 (1983), pp. 295–314. NCJ 92531

National Assessment of Police Command, Control, and Communications. By K.W. Colton, et al., Public Systems Evaluation, Inc. Sponsored by the National Institute of Justice. 1983: 137 pp. Availability: free microfiche from NIJ/NCJRS. NCJ 87679

Microfiche copies are available from National Institute of Justice/NCJRS Microfiche Program, Box 6000, Rockville, MD 20850. Specify title and NCJ number on all requests.

Sources on this topic:

Department of Criminal Justice Services
Information Systems Division
805 East Broad Street
Richmond, VA 23219
804–786–7802
Publishes annual directory of local criminal justice systems and quarterly criminal justice systems associations newsletter; responds to telephone inquiries.

National Criminal Justice Reference Service
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Distributes selected documents related to topic; performs custom searches of data base; subject specialists make referrals; has reading room.

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