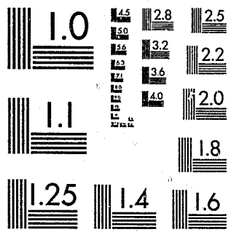

NATIONAL EVALUATION PROGRAM
PHASE I SUMMARY REPORT
PROSECUTION MANAGEMENT INFORMATION SYSTEMS

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ABSTRACT

The report summarizes the results of the National Evaluation Program (NEP), Phase I Study of Prosecution Management Information Systems (PMIS's).

The report includes discussions and findings regarding: the nature and scope of PMIS use; state-of-the-art in PMIS use; transfer potential of PMIS projects; funding of PMIS systems; organization of PMIS projects; the availability of evaluation data; and the feasibility of PMIS evaluations.

Significant findings include:

1. Integrated systems, supported by a centralized computer facility serving multiple criminal justice agencies that share the data base, are the most common and most effective type of PMIS.

2. Existing automated systems are being used effectively, in general, to support prosecutors' day-to-day case processing operations. However, few prosecutors, with the exception of PROMIS users, are using their PMIS as a strategic management tool to support their policy development and decision-making processes. The periodic exchange of information and ideas among prosecutors attending PROMIS User Group meetings appears to be the reason for this exception. PMIS contributions to attainment of prosecutor goals have been less than expected by the prosecutors. This situation also indicates a need for prosecutors to exchange information about PMIS operations to either develop more realistic expectations or to learn about applications that will help their PMIS to meet their expectations.

3. PMIS transfer has not yet proven less costly than development from scratch as a means of acquiring an automated system. In previous PMIS transfers, agencies have tended to underestimate the difficulty of modifying the incoming system to meet local requirements. Frequently, technical assistance should be sought from experienced data processors to effectively implement the PMIS.

4. Federal funding has been a primary factor in both the transfer and local development of PMIS projects. Local jurisdictions have, thus far, assumed the financial burden of supporting PMIS operations when Federal funds run out. Future PMIS implementations will continue to rely heavily on Federal funding and local jurisdictions will be expected to fund future PMIS operations when Federal funds are exhausted. Allocation of funds for PMIS development, transfer and operations should encourage the capture of benefits resulting from previous investments in such systems at all levels of government.

5. Data for PMIS cost-benefit analysis and feasible methods for measuring PMIS impact on the criminal justice system are available to support in-depth PMIS evaluations. Independent PMIS evaluations are needed to provide Federal, state and local government officials the information that they need to justify PMIS funding.

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EXECUTIVE SUMMARY

This National Evaluation Program (NEP), Phase I Study of Prosecution Management Information Systems, sponsored by the Law Enforcement Assistance Administration (LEAA), was conducted by Westat, Inc. in affiliation with the Center for Management and Policy Research, Incorporated (CMPR).

For this study, a prosecution management information system (PMIS) is defined as the people, procedures, hardware (e.g., office and computer equipment), and software (e.g., computer programs and associated documentation) used by a prosecutor to create and use case information to achieve prosecution goals.

The study was conducted in two segments. The objectives of the first segment were: to identify and describe the nature and extent of PMIS usage and the problems, costs and benefits of such use; and to determine the availability of data for in-depth evaluations. Information to meet these objectives was gathered by a literature search, mail and telephone surveys of more than 600 prosecution agencies, on-site visits to 17 operational PMIS projects and discussions with members of the nationwide criminal justice community.

The second segment of the study was designed to determine the extent to which PMIS's can be objectively evaluated and to test evaluation methods. These objectives were met by performing evaluation feasibility tests using data collected from six PMIS projects that were selected as test sites.

Increasing criminal caseloads combined with limited resources have motivated many prosecutors to consider automation as a means of improving office operations and the management of resources. Survey data, collected during the first segment of this study, indicate that PMIS projects are being used or planned extensively among larger prosecution offices. About 80 percent of offices with 25 employees or more either use a PMIS or are planning a PMIS. Of those reportedly using a PMIS, 37 percent had some version of PROMIS. Of those reporting plans to use a PMIS, 70 percent were planning some version of PROMIS, indicating a trend toward the use of PROMIS. (For the purpose of this report, the acronym "PROMIS" refers to a group of software packages developed for LEAA by the Institute for Law and Social Research (INSLAW); the acronym "PMIS" includes both PROMIS and non-PROMIS systems.)

Based on survey data, it is estimated that more than $30 million has been spent over the past 10 years on PMIS development and in excess of $20 million is spent each year on PMIS operations. PMIS evaluations will be useful to Federal officials and state planning agencies in assessing PMIS funding policies and allocating funds among competing projects, particularly in light of diminishing criminal justice budgets. Criminal justice agencies that use a PMIS and data processing facilities that operate them will find PMIS evaluations useful in budget negotiations because PMIS costs and benefits will be identified and PMIS impacts on the criminal justice system will be defined.

Evaluation results will also assist PMIS users and operators in determining changes or additions to PMIS operations to make them more effective.

Several sets of issues were developed during the course of the study. The first set of issues concerns the organizational context of PMIS projects. Several types of PMIS projects were observed. One type is the prosecutor dedicated PMIS. In this type of system, a small computer is housed in the prosecutor's office complex and operated by members of the prosecutor's staff; only prosecution personnel have direct access to the system, although PMIS outputs (e.g., schedules and caseload reports) may be provided to other agencies, such as the courts. Another type of project is where the computer system is housed and operated by one agency (e.g., the prosecutor), and data is shared with another agency (e.g., the courts or the police) via direct, on-line access to the PMIS. For the purpose of this study, these systems are said to have "limited data sharing."

The other types of projects observed are called, here, "integrated systems." In these types of systems, a central data processing facility (city, county or state) operates a large scale computer in support of PMIS operations, and the PMIS data base is shared by several criminal justice agencies. Among integrated systems, data may be shared within a jurisdiction by several criminal justice agencies (e.g., police, prosecutor, courts, and corrections); data may be shared between jurisdictions (e.g., on a regional basis); or data may be shared on a statewide basis.

Integrated systems, as a group, are used by most of the jurisdictions surveyed: among respondents to the mail and telephone surveys, 80 percent indicated that their PMIS is shared extensively; of the projects included in the site surveys, 82 percent operate integrated systems. It is difficult to secure the interagency cooperation needed to develop an effective integrated criminal justice information system involving extensive data sharing among criminal justice agencies. Yet, in jurisdictions where such extensive data sharing was observed, the projects appear to be more cost-effective than those projects characterized by limited data sharing.

The second set of issues concerns PMIS development and operation. Due to budgetary and staffing constraints, an essential ingredient of the wide adoption of PMIS's has been LEAA funding support. LEAA policies have encouraged technology transfer, as evidenced by the strong interest in PROMIS with 37 jurisdictions operating some version of PROMIS and 134 other jurisdictions either transferring or planning PROMIS. There is little evidence from this study to support the theory that PMIS transfer is less costly than development from scratch; in fact, respondents to the mail survey reported median development costs of $150,000 for 15 non-PROMIS projects and $175,000 for nine PROMIS projects. Several possible reasons for this are explored in the text. Examination of the state-of-the-art in PMIS use focused on applications and the degree to which they are employed for management purposes. The most common applications of PMIS projects were directed at day-to-day operations by improving scheduling and logistical control through case and defendant tracking and caseload reporting. The use of PMIS outputs to support strategic

management policy development and decisionmaking was not a common practice, particularly in non-PROMIS sites where many prosecution managers do not understand the potential of the PMIS as a management tool.

The third set of issues concerns the impact of PMIS projects on the criminal justice system. Prosecutors were able to rate the relative importance of various PMIS related goals of their offices. They ranked "improve scheduling and logistical control" and "allocation of staff based on prosecution priorities" most highly. Some operational PMIS projects have fallen short of prosecutors' expectations; however, this varies with different applications and types of systems. In general, survey results indicate that prosecution management's statistical information needs are satisfied more often by PROMIS projects than by non-PROMIS projects, while the reverse holds for day-to-day operational support needs, such as case and defendant status reporting. A majority of the PMIS projects report that they generate measures of workload, court delay, and disposition rates. Such performance measures are useful in assessing PMIS impact. The collective experience in prosecution MIS development and operation have advanced to the point where uniform criteria can be applied and comparable measures of costs and performance can be developed for groups of projects. Such an in-depth analysis has been designed for a proposed Phase II NEP study.

In response to a special evaluative interest expressed by LEAA, the final set of issues concerns the evaluation of PROMIS projects as a group. Several versions of PROMIS were identified, some markedly different from others. Indeed even for particular versions, the study found that transfers often involved substantial software and procedural modifications. This may have limited the advantages of PROMIS transfer in lowering development costs and facilitating cross-city comparisons. Without the application of uniform criteria and measurement techniques, it is difficult to compare relative costs of projects. Based on the limited data available from the Phase I surveys, little evidence was found to support the notion that such transfers lowered development costs. A limited scope, cross-city analysis of PROMIS projects was accomplished by INSLAW. However, the effort involved was time consuming and difficult despite the aid of a generalized report generator package, supplied by INSLAW. What appears to be special about the effort was the continuity of funding and cooperative working relationship established between the jurisdictions and the contractor, rather than intrinsic attributes of the PROMIS data bases. The text of this report provides further evaluative information on the various PROMIS versions. Present LEAA funding policies favor the use of PROMIS, and a new PROMIS software version, with attractive tailoring features, is being implemented.

Also in response to LEAA concerns about how future PMIS funds should be allocated, the study team developed recommendations that funds be allocated on a priority basis: first, to provide technical assistance for PROMIS transfer, in order to realize maximum benefit from the heavy investment already made to this system; second, to jurisdictions seeking alternative approaches to PROMIS, because some alternatives may have more innovative and economical applications; and third, for the development of new PROMIS applications (as

opposed to development of new systems), to provide even greater flexibilities to those PROMIS versions that already exist. Assigning priorities in this manner will help capture a return on investments already made in systems development and transfers by the Federal and local jurisdictions, and will allow prosecutors to gain more experience with existing applications before investing in new enhancements.

Data collection experiences and testing of evaluation methodologies, performed during the feasibility study, have resulted in the findings that: following a period of 24-26 months of PMIS operations, data are available from PMIS projects in sufficient detail to support cost-benefit analysis; PMIS performance measures can be derived from records such as the PMIS computer files, statistical reports generated either by the PMIS or manually, and/or abstracted from manually kept case files; and time series analysis, employing factor analysis techniques and supplemented by a set of control variables derived from on-site interviews and observations, provide feasible though not infallible methods for evaluating the PMIS impact on the criminal justice system.

The field investigations reported here have been necessarily limited in scope. They have indicated the feasibility of conducting in-depth evaluations of PMIS projects, but they have not constituted such in-depth evaluations. Also, with just six test sites, the sample is too small to do any cross-sectional analysis. The latter type of design, coupled with time series analysis, offers the best opportunity for performing in-depth evaluations. Thus, it remains to examine the feasibility of constructing and analyzing a cross-jurisdictional time series data base for evaluating PROMIS and non-PROMIS projects. In the process of constructing and analyzing such a data base, a set of actual in-depth evaluations should be carried out as an extension of the research methodology tested in the field investigations reported here. The research should include the use of non-PMIS generated data to supplement the analysis.

Several classes of PMIS projects were identified during the study. Projects classified as integrated systems with data sharing among criminal justice agencies appear to be more cost effective than others. A cooperative research project involving about 30 jurisdictions in constructing a cross-sectioned time series data base would create a powerful vehicle for performing in-depth evaluative research.* It would also create the opportunity for exchanging user information, disseminating research results and, in general, educating and upgrading PMIS users. By including both PROMIS and non-PROMIS users, more broadly applicable and realistic evaluations and exchanges of information would result. This would provide the greatest opportunity to assure that the PMIS is well understood and used for both operational and management purposes, and that the impact of such use can be measured and evaluated. The implications of such research for the Bureau of Justice

*Much of the necessary data are being compiled under the National Institute of Justice Cross-Jurisdictional Analysis.

Statistics program are apparent. The participating PMIS projects could be used to generate a wide array of comparable criminal justice statistics in support of both longitudinal and cross-sectional analysis.

Another issue to be explored in evaluating PMIS projects is the prediction of criminal justice system costs and performance. The application of stochastic (probabilistic) modeling and simulation techniques should be explored because such predictions are relevant in evaluating PMIS projects. Comparisons of actual with predicted results should assist in advancing the state of the art of evaluative and modeling research, as well as being intrinsically useful in improving PMIS and criminal justice statistics programs.

An evaluation of the comparative utility and of PMIS generated statistics versus periodic surveys by independent statistical agencies (Census or BLS models) should be performed. There are inherent advantages and disadvantages in developing and utilizing both approaches in an ongoing BJS sponsored statistical program.

I. INTRODUCTION

A. Purpose of Report

This report summarizes the results of the National Evaluation Program, Phase I Study of Prosecution Management Information Systems, conducted for the Law Enforcement Assistance Administration (LEAA) by Westat, Incorporated of Rockville, Maryland in affiliation with the Center for Management and Policy Research, Incorporated of Washington, D.C. It provides a description of the methodology used in the study and a summary of the issues and findings.

B. Background

The prosecutor, in addition to prosecutorial duties, is responsible for management of the information that flows through his or her office. The information of primary concern to the prosecutor pertains to cases filed in court for prosecution. Case information includes data regarding: the defendant; the offense; witnesses; investigations; assignment of assistant prosecutors, defense attorneys and judges; schedules for hearings, trials and sentencing; and, final disposition of the cases.

The people, procedures, hardware, and software used by the prosecutor to manage case information is called, for the purpose of this study, a Prosecution Management Information System (PMIS).

A PMIS may be operated by manual methods; it may be automated by employing a general purpose computer; or, it may be semi-automated, that is, it may function by using a combination of manual and automated techniques.

In a manual system, the procedures include: the origination of data by preparing documents in handwritten form or by use of a typewriter; the distribution of those documents to users of the information; and, storage of those documents in containers such as file cabinets. The hardware, then, consists of the office equipment (typewriters and file cabinets, for example) used to prepare and store the data. The manual PMIS was excluded from the scope of of this study.

An automated PMIS uses a computer to store, manipulate, retrieve, and disseminate case information. Computer capabilities provide prosecution personnel a quick and easy method of tracking cases and defendants; and they permit the automatic production of reports to support daily operations (e.g., schedules and dockets), management of resources (case loads for assistant prosecutors, for example), and statistical analysis (e.g., case disposition rates and case processing times).

Automated PMIS procedures vary widely. The origination of data, for example, may be accomplished in the same manner as in a manual system with

an extra copy of documents being prepared as the "source document" for entering data into the computer system. Data originated in this manner may be prepared for entry into the computer system by either "off-line" or "on-line" methods. Using the off-line method, source documents are normally delivered to a processing facility where data are prepared for entry into the computer by keying the data into punched cards or onto magnetic tapes, without involving the computer. On a scheduled basis, the batch of records thus generated are fed into the computer for processing, hence the term "batch processing".* On-line data entry may also be accomplished by sending source documents to a central data processing facility for keying directly into the computer. However, the most common method of on-line data input is to use remote data entry devices, usually located in the office originating the data.

On-line operations are accomplished with terminals (keyboard devices), such as electric typewriters, that are connected to the computer either directly by a cable or from a remote location** by telephone lines. In either case, the terminals provide direct access to the computer system.

The type of terminal employed will determine whether the computer is engaged for every terminal operation. Some devices, called "buffered" terminals, have the capability to store data within themselves and some, called "intelligent" terminals, have the capability to be programmed to perform basic functions such as data editing. "Intelligent" or "buffered" terminals do not engage the computer for every operation (e.g., information may be stored in the terminal during data entry operations and subsequently fed, on-line, to the computer in a single data stream consisting of all the records stored in the terminal). Unbuffered terminals, on the other hand, do not have a storage capability and, therefore, engage the computer for each operation.

The equipment configuration for terminals also varies widely. A common practice is to include with the keyboard a video display device (cathode ray tube - a TV screen) as a component of the terminal. This device is used to display formats (called "screens") that aid the terminal operator in entering data or aid in keying in commands to the computer to perform specific processing transactions (e.g., to inquire about the trial date for a defendant).

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* Batch processing, as used in this study, also refers to the processing that is accomplished at given intervals (e.g., daily) whereby data that have been entered into the PMIS during a specific period of time (preceding 24 hours, for example) have been sorted into groups (batches) before the processing of scheduled reports begins. Batch processing usually involves the manipulation of many records, in comparison with on-line processing which may involve retrieving only one or a few records; and, batch processing is usually accomplished during a time period when on-line operations are minimal.

**Remote location, as used here, means that a terminal is too far from the computer to be connected by cable; it may be located in the same building, an adjacent building, or miles from the computer facility.

Another terminal configuration may include an on-line printer. This configuration permits the rapid generation of printed reports or documents in response to a request by the terminal operator.

Use of an on-line printing capability allows variations to data entry procedures. As an example, rather than preparing source documents for use in data entry operations, as previously discussed, certain data or commands can be transmitted, on-line, to the computer from a remote terminal. The so-called source document can then be generated by the PMIS via the on-line printer (e.g., arrest reports using on-line booking operations, or generation of subpoenas, as performed by Norfolk's TRACER system).

Various documents (such as arrest reports, prosecution work sheets, schedules, dockets, and disposition reports) are needed in hard copy form to satisfy prosecutor and court operating procedures and to comply with established recordkeeping requirements. In a non-automated system, all of these documents are prepared by manual methods, whereas in an automated system the extent of PMIS generation of such documents will depend on: what data elements are entered into the system; and, what computer programs have been written to satisfy PMIS processing and output requirements.

Computer programs are instructions, usually written in a standard programming language such as the Common Business Oriented Language (COBOL), that tell the computer how to handle and store input data, how to manipulate the data to satisfy processing requirements, and what outputs are to be generated. These programs, along with other documentation that describes system procedures, constitute the software for an automated PMIS.

The data elements that may be entered into the PMIS consist of items such as: the defendant's name, age, sex, race; offense charged; date of offense; witnesses names, addresses, phone numbers; dates of hearings, trial and sentencing; and so forth. The number of different data elements, relevant to a specific defendant or case, entered into a PMIS depends largely on which criminal justice agencies are "users" of the PMIS.

A PMIS user, for the purpose of this study, is an agency that has direct access to the PMIS and is authorized to retrieve and/or update PMIS defendant or case records. Users, then, "share" the PMIS data.

The extent of data sharing is a major PMIS characteristic and influences the number of different data elements stored in the system. A PMIS may support only the prosecutor. In this type of system only data of concern to the prosecutor are entered into the PMIS; items of interest to other agencies, such as the police (e.g., identification of stolen property) or the court (e.g., accounting for the collection of fines), would be excluded from the system. Another type of PMIS is one shared by the prosecutor and courts. The extent of data sharing is rather limited in this type of system, but the data elements would include items of interest to both the prosecutor and courts. In other words, the greater the number of system users, the greater

the number of data elements in the data base. An automated system, in fact, may include several or all criminal justice agencies within a jurisdiction. This type of system, called an "integrated system" in this study, would have specific files, within the data base, devoted to each user. Users, then, would update (add or change records) their own files; with appropriate interagency ageements, they could retrieve information from other user files (or portions of the other files); but, in general, they would not be able to update the files devoted to other users.

The capability to "talk" to computers via telecommunication facilities allows data sharing by more than one jurisdiction, and, if desired, can be accomplished on a statewide, national, or worldwide basis.

The capability to talk to computers is not limited to man-machine communications; computers can talk to one another (machine-machine communications). This type of arrangement, called a computer "network", is accomplished through telecommunications facilities and by the use of computer programs written specifically to control the network operations.

Computer networks provide processing capabilities that are, obviously, beyond the realm of single computer operations. In the criminal justice community, for example, individual jurisdictions could have their own computers linked to a state level computer system. On a prearranged schedule (e.g., daily), the computer at each jurisdiction could automatically transmit selected data (e.g., warrants) about local offenders. If an offender from one jurisdiction is apprehended in another jurisdiction, the apprehending jurisdiction could make an inquiry to its local computer to determine the status of the offender. If the offender is not wanted in the apprehending jurisdiction, the local computer file will not contain the warrant information. The inquiry would then be automatically transmitted to the state system; the warrant information would be retrieved from the state system and automatically transmitted back to the apprehending jurisdiction; and the jurisdiction that issued the warrant could be automatically notified of the apprehension via the computer network.

A computer network, such as described above, could also be used to process periodic reports at the state level, using the data transmitted regularly by individual jurisdictions. This arrangement would relieve the individual jurisdictions of those reporting requirements. An expansion of this approach could be the use of the state level system (or some centralized system) to perform the processing necessary to generate most of the hard copy documents required by individual jurisdictions, even those needed on a daily basis. This approach would reduce processing requirements within the individual jurisdictions, thus reducing the size requirement for computers at those locations.

Many makes and models of computers are available to support PMIS operations. The predominant characteristic, however, is the computer size. A PMIS designed to support only the prosecutor, for example, may employ a

minicomputer or medium scale computer that could be housed and operated in the prosecutor's office complex. Another approach to a prosecutor dedicated system could be the use of a large scale computer located in and operated by a centralized city, county, or state data processing facility. In the latter situation, the computer system would have files devoted to the PMIS and accessible only by the prosecutor.

A centralized, large scale computer would also be used to support an integrated system or a system designed to support multiple jurisdictions. In a computer network, as previously discussed, individual jurisdictions could be equipped with minicomputers that would be linked to a large scale computer at a central (state or regional) facility.

Several characteristics can be used to describe the difference between, mini, medium and large scale computers. The most distinguishing characteristics concern physical size, costs, main memory capacities* and personnel resources required to operate the different systems. [1, 2] (See Appendix A for references.**)

Minicomputers are small in size and relatively inexpensive. Some are about the size of a desk and a few models (microcomputers) are small enough to place on top of a desk. In a typical minicomputer installation, two or three terminals may be used for data input and system control; one tape drive or one disk drive may be used for secondary data storage; and a printer would be connected to the system to provide hard copy outputs. The main memory unit may contain from 4,000 to 512,000 storage locations. However, memory capacities are being continuously increased without increasing the physical size of the memory unit, through the advancement of miniaturization techniques. The cost of purchasing a minicomputer may range from $50,000 to $200,000 or one may be rented for $1,250 to $5,000 a month. Such a system could be operated by as few as one or two people.

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* Computer main memories (often called the "core") consist of electrical circuits within the central processing unit. The "on" or "off" condition of a circuit is used to represent the 0 (off) and 1 (on) digits in the binary numbering system. In computer jargon, a binary representation (the 1 or 0) is called a "bit". Combinations of bits (usually seven or eight) are used to code characters for storage in the computer memory (e.g., in one seven bit coding scheme, 1000001 = A). The circuits used to code a character (seven circuits in this example) are referred to as a storage "location". Memory capacities, as discussed here, are measured by the number of storage locations contained in the core.

**Definitions of different size computers are taken from publications printed in 1977-1978. Costs included in these definitions may differ somewhat in today's market because of inflation, but the relativity of these costs between computers remain the same and they relate to the costs encountered during the surveys conducted for this study.

Medium scale computers normally have the capability to handle more peripheral devices than minicomputers; their main memories have greater capacities; and their physical space requirements are somewhat geater than for the mini's. These computers may range in price from $200,000 to $1,000,000, or they may be rented for between $5,000 and $25,000 a month. Usually, four or five people, including a couple of programmers, are employed to staff a medium scale computer operation.

Large scale computer facilities are typically laden with equipment and people. It is not unusual to find two large scale computers in one such facility with over 50 people employed to operate the equipment and to write computer programs. The extensive capabilities of these computers permit the use of many peripheral devices; the use of remote terminals, which may number over 100, requires special telecommunications equipment (modem and monitors). Thus, a large area is required to house a large scale computer and its peripheral equipment, and separate office space is needed for the programming staff. Typical memory capacities range from 64,000 to 4,000,000 locations - some of the biggest systems have 30 billion locations. The costs of purchasing or renting large scale computers ranges widely, of course, depending on memory capacities and the equipment configuration. Some systems may be purchased for about $500,000 while others may range up to $3,000,000. Rentals may start around $12,500 a month and range to $50,000 or more.

Hardware for an automated PMIS, then, consists of standard office equipment plus the equipment that makes up the computer configuration, typically:

- A central processing unit (CPU) - the computer main frame - contains the main memory (storage) unit;
- Secondary storage (tape and/or disk drives);
- Input/output devices (terminals and printers, for example);
- Telecommunications monitors and modems (where remote terminals are used); and
- Data preparation devices (keypunch or key to tape machines - where off-line data entry is employed).

There is also a correlation between the size of a computer and the speed at which it operates. Large scale computers operate at speeds measured in nanoseconds (one-billionth of a second) while medium scale and minicomputer speeds are usually measured in microseconds (thousands of a second).

Computer speed is an important factor when selecting a system to efficiently process very large volumes of data. Some organizations, however, may have a data volume that is insignificant as far as computer speed is concerned: it may not matter to a prosecutor, for example, whether a computer operates in nanoseconds or microseconds; what will matter is that a computer can efficiently process a volume of data that has surpassed the capability of the prosecution staff to handle efficiently using manual methods.

Increased caseloads, resulting in increased data volumes, and the desire to improve the efficiency of case processing has prompted prosecutors across the nation to consider automation of their prosecution management information system.

A variety of automated PMIS's have been developed and implemented over the past 10 years to assist prosecutors in their daily operations and in management of resources. Of these, the largest single program has been the Prosecutor's Management Information System (PROMIS).*

PROMIS was developed by the founders of the Institute for Law and Social Research (INSLAW) for the U.S. Attorney for the District of Columbia in 1971. The original PROMIS was a batch processing system (no on-line operations) designed to run on a large scale computer. Subsequently, with LEAA funding, PROMIS was redesigned as a transferable system and implemented in other jurisdictions, such as New Orleans and Indianapolis. In Milwaukee, Wisconsin, substantial modifications** were made to PROMIS, and the modified system was then transferred to other jurisdictions, such as Louisville, Kentucky. Improvements resulting from redesign and modification included the addition of on-line capabilities and the development of additional software designed to operate on minicomputers.

Two minicomputer versions of PROMIS software have been developed: one, called MINI-PROMIS, was designed to operate with unbuffered terminals; the other system, called MAXI-PROMIS or new-PROMIS, has been designed to use buffered terminals. The two minicomputer versions of PROMIS can be run on large scale computers as well as on minicomputers, and both software packages feature a "tailoring" capability.

The PROMIS tailoring capability[3] allows individual jurisdictions to design their own: data base (files and records); data entry screen and edit criteria; inquiry displays; indexes; and formats for output reports. This tailoring is accomplished by use of an on-line, interactive computer program (using a question and answer format) that takes the user, step-by-step, through a series of tables that define the files, transactions, data element characteristics, and so forth, as specified by the individual jurisdiction.

MINI- and MAXI-PROMIS programs have been written in the COBOL programming language and have been designed to operate on a number of different computers.

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* For the purpose of this report, the acronym "PROMIS" refers to the system developed for LEAA by INSLAW; the acronym "PMIS" refers to both PROMIS and non-PROMIS systems.

**For the purpose of this report, modified versions of PROMIS, such as Milwaukee's JUSTIS, are called Hybrid versions of PROMIS. This designation reflects inclusion of Milwaukee as an "operational" PROMIS project in INSLAW publications, while LEAA officials and Milwaukee staff consider JUSTIS as a non-PROMIS project.

These features, plus the tailoring capability, are intended to give the prosecutor maximum flexibility in designing system software and in the selection of hardware.

In addition to the batch, on-line, hybrid, MINI-PROMIS and MAXI-PROMIS versions, manual and semiautomated versions of PROMIS also exist. As of January 1980, INSLAW reported that: 37 jurisdictions are operating some version of PROMIS; 71 other jurisdictions are in the process of transferring PROMIS; and 63 other jurisdictions are planning for or evaluating PROMIS.[4]

One might expect that a system developed primarily by one organization, such as INSLAW's PROMIS, would be similarly configured in many of its operational sites. In fact, PROMIS project configurations vary widely. In three PROMIS sites (Los Angeles, New Orleans and the District of Columbia, for example), data entry is accomplished in a batch processing mode with on-line inquiry capabilities; two of those systems run on large scale, centrally located computers and share their data base with other users; the New Orleans system, however, is run on a large minicomputer that is operated and used only by the prosecutor. At other PROMIS sites (Louisville and Milwaukee, for example), large scale, county operated computers function in an on-line mode and the system is shared extensively by other users. Large scale PROMIS operations, such as Tallahassee, Florida, provide on-line support to multiple jurisdictions; and MAXI-PROMIS is being implemented in Colorado using a large scale computer to provide support on a regional basis. In Portland, Oregon, on the other hand, MAXI-PROMIS is being implemented on a large scale, county operated computer, but will be used only by the prosecutor.

Non-PROMIS projects also vary widely, insofar as system configuration and extent of data sharing are concerned. In Oakland, California (the DALITE system) and Boston, Massachusetts (the Case Management System), for example, minicomputers operated by prosecution personnel are dedicated to functions of the prosecutor's office. A more common situation is a large scale computer, operated by a central city or county data processing facility, providing on-line support to the prosecutor and other system users. The extent of data sharing will vary among these centralized systems. In Baltimore, Maryland, for example, the system supports the courts and the prosecutor; other systems, such as those located in Miami, Florida, and in Fort Worth, Texas, support all criminal justice agencies throughout Dade and Tarrant countries, respectively; and, the PMIS in Norfolk, Virginia, supports criminal justice agencies within the Tidewater Region.

The system used in Norfolk can also be used as an example of a computer network: the PMIS, called TRACER, interfaces with the Tidewater Electronic Network of Police Information (TENPIN) which, in turn, interfaces CPU to CPU with the Virginia Criminal Information Network (VCIN) and, in turn, the National Crime Information Center (NCIC).

Another variation to large scale PMIS operations can be seen in Oklahoma City, Oklahoma where a county data processing facility provides support on a statewide basis: five counties operate terminals connected on-line to the

computer for data input and for query/response transactions; the other counties send source documents to the Statistical Analysis Center (SAC) of the Oklahoma Crime Commission for input to the computer and are able to obtain responses to inquiries by telephone contact with SAC where the inquiry is made via on-line terminal and the response received by SAC is relayed verbally using the telephone.

Implementation of non-PROMIS systems has, for the most part, been based on independent development by individual jurisdictions; transfer of non-PROMIS systems is not a common practice.* Development of non-PROMIS systems and transfer of PROMIS have been accomplished by in-house personnel, contractors, or a combination of the two, depending on the availability of in-house personnel with the appropriate expertise.

C. Need for PMIS Evaluation

Increasing criminal caseloads coupled with limited resources have motivated many prosecutors to consider automation as a means of improving management and operations. Indeed, over 175 of the larger prosecution offices surveyed by mail during this study (having more than 25 employees), either have an operating PMIS or are in the process of planning such a system.

Based on the survey data collected during this study, it is estimated that in excess of $30 million has been spent in the last decade developing various types of automated systems to serve prosecutors and over $20 million is spent each year on the operation of such systems. Until quite recently, the outlook was for substantial expenditures to continue due to increasing interest of prosecutors in automation, the current funding policies of LEAA, and interest in criminal justice research. In light of diminishing criminal justice budgets, it is expected that the results of an evaluation of PMIS's will be useful to Federal officials and state planning agencies in assessing PMIS funding policies, reviewing grant applications, and allocating funds among competing projects. Prosecutors, courts, other criminal justice agencies, and state and local government data processing service organizations should find evaluation measurements useful in identifying elements of PMIS's, and their associated implementation projects, that have been successful and effective in improving prosecution and court performance. Prosecutors, judges, and prosecution/court administrators will gain insights into factors

*The LEAA 1976 Directory of Automated Criminal Justice Information Systems lists 24 systems with the function of "prosecution management"; of the 20 non-PROMIS systems on this list, none are transferred systems. The Criminal Oriented Records Production Unified System (CORPUS), operated by Alameda County, California, was originally transferred from Santa Clara County, California, but extensive modifications have been made to the original system; CORPUS is the only transferred non-PROMIS system that was examined during this study.

contributing to PMIS success and failure, methods of measuring performance, and approaches to improving PMIS projects and prosecution/court performance. Information resulting from evaluations should also assist in determining changes or additions to make PMIS projects more effective.

D. Purpose and Scope of the Study

This NEP Phase I study was conducted in two segments. The first segment, performed during the period of October 1978 through November 1979, was designed to identify and describe the nature and extent of prosecution MIS usage and the problems, costs and benefits of such use. This segment was also designed to determine if data are available to support in-depth, objective evaluations (NEP Phase II studies). Information needed to meet the study objectives of this first segment was gathered by means of a mail survey of 594 prosecutorial agencies and by site visits to 17 locations where automated information systems used by prosecutors are currently in operation. Mail survey and site visit data were augmented by information obtained from available literature (see Appendix B) and from telephone contacts with individuals throughout the judicial system.

The second segment, initiated in January 1980 and concluded in June 1980, was designed to determine the extent to which prosecution management information systems can be objectively evaluated and to test evaluation methodologies. Site surveys of six PMIS projects were conducted for the purpose of satisfying the objectives of this study segment. These surveys included four PMIS projects that had been visited during the first segment of the study plus two other sites that were in the process of implementing the latest version of PROMIS (MAXI-PROMIS).

Appendix C contains a list of personnel interviewed during site visits in both segments of the study.

E. Documentation of the Study

This study has been documented in a report entitled "National Evaluation Program Phase I Final Report, Prosecution Management Information Systems," which consists of three volumes:

- Volume I - Evaluability of Systems - defines the objectives and scope of the study; outlines the evaluation framework used; describes various types of prosecution management information systems that were observed; discusses the state-of-the-art and state of knowledge about these systems; and presents the findings from the first segment of the study regarding quantitative results, surveys of PROMIS projects, and the investigator's judgmental assessments of PMIS projects.

- Volume II - Feasibility Tests - covers the second segment of the study and defines the purpose of the tests and data collected;

outlines the evaluation design; identifies the test sites and describes the criteria used for their selection; and discusses the test results.

- Volume III - Site Visit Reports - contains a case study of each project surveyed during the first and second segments of the Phase I study. Each report describes the characteristics of the organization and PMIS surveyed, describes the judicial process within the jurisdiction, and discusses the findings, observations and investigator's judgmental assessments regarding the PMIS.

II. EVALUABILITY OF SYSTEMS

A. Introduction

Since the characteristics and environments of PMIS projects vary widely, the first segment of this study was designed to survey these projects and develop comparable information within a structured evaluation framework. A major objective of this segment was to assess the evaluability of the various PMIS projects.

B. Methodology

Two primary techniques were employed in gathering information about what exists: (1) a mail survey with telephone followup, and (2) a set of site visits.

1. Mail Survey

The sample for the mail survey was selected from a Bureau of Census tape file which contained a total of 8,715 agencies.* Excluded from the sampling process were agencies with less than five employees and agencies which:

- Provide legal services only;
- Deal exclusively with juvenile cases;
- Deal exclusively with traffic violations; or
- Are branch offices.

After eliminating out-of-scope agencies that could be identified by data on the tape, the remaining 1,533 agencies were stratified by number of employees. All agencies in stratum A (25 or more employees) were included in the sample. Agencies in stratum B (10-24 employees) and C (5 - 9 employees) were sequenced by level of jurisdiction (state, county and municipal) and by census division; choosing two sites at random out of each block of four sites on the list, half of stratum B was selected; and similarly every fourth agency in stratum C was selected. As shown in Table 1, the result was a sample of 699 agencies from which 105 were deleted as out-of-scope. The remaining 594 in-scope agencies formed the basis for the mail survey.

*State and Local Prosecution and Civil Attorney Systems, U. S. Department of Justice, March, 1978.

Stratum	No. of employees	No. of agencies selected	Sample percent	No. of agencies selected	No. of agencies out-of-scope	No. of agencies in sample
A	25 or more	287	100 %	287	47	240
B	10 - 24	400	50 %	200	17	183
C	5 - 9	846	25 %	212	41	171
Total		1533		699	105	594

Table 1. Mail Survey Sample

2. Site Surveys

The following criteria were used to select projects for site surveys:

- Automated system operational for at least three months;
- Staff is cooperative;
- Documentation and data are available;
- Applications are of general interest;
- Availability of data for performance measures;
- Project is innovative and widely applicable;
- There is an interesting organizational aspect, such as regional time-sharing or an integrated police/prosecutor/court/corrections interface; and/or
- A significant number of prosecutor MIS applications are represented.

Based on a review of available literature, 50 PMIS projects were selected as prime candidates for on-site surveys. As a result of telephone contacts with site personnel and responses to mail surveys, a final selection of 17 locations for site visits was made. A list of these sites, and a description of the type of PMIS used is shown in Exhibit 1.

Exhibit 1. Projects Selected for Site Survey

PROJECT NAME (ACRONYM) AND LOCATION (COUNTY)	TYPE OF SYSTEM
1. Prosecutor's Management Information System (PROMIS) Los Angeles (Los Angeles) CA	Integrated system Large scale computer Operated by county Limited data sharing
2. Criminal Oriented Records Production Unified System (CORPUS) and District Attorney Automated Legal Information System (DALITE) Oakland (Alameda) CA	CORPUS - Integrated system Large scale computer Operated by county Extensive data sharing DALITE - Prosecutor dedicated system Minicomputer Operated by prosecutor Access by prosecutor only
3. Criminal Justice Information Center (CJIC) San Jose (Santa Clara) CA	Integrated system Large scale computer Operated by county Extensive data sharing
4. Superior Court/County Clerk Information System (SUPER/CC) Santa Ana (Orange) CA	Integrated system Large scale computer Operated by county Extensive data sharing
5. Automated Court Information System (ACIS) San Bernardino (San Bernardino) CA	Integrated system Large scale computer Operated by county Extensive data sharing
6. Dade County Criminal Justice Information System (CJIS) Miami (Dade) FL	Integrated system Large scale computer Operated by county Extensive data sharing
7. Judicial Automated Records System (JARS) Waukegan (Lake) IL	Integrated system Large scale computer Operated by county Extensive data sharing

Exhibit 1. Projects Selected for Site Survey (Continued)

PROJECT NAME (ACRONYM) AND LOCATION (COUNTY)	TYPE OF SYSTEM
8. Prosecutor's Management Information System (PROMIS) Indianapolis (Marion) IN	Prosecutor dedicated system Minicomputer Operated by county Access by prosecutor only
9. Commonwealth Attorney's Tracking and Case History System (CATCH) - PROMIS Louisville (Jefferson) KY	Integrated system Large scale computer Operated by county Limited data sharing
10. District Attorney's Record Tracking Systems (DARTS) - PROMIS New Orleans (Orleans Parish) LA	Prosecutor dedicated system Minicomputer (large) Operated by prosecutor Access by prosecutor only
11. Case Management System (CMS) Boston (Suffolk) MA	Prosecutor dedicated system Minicomputer Operated by prosecutor Access by prosecutor only
12. Arrest Disposition Reporting System (ADRS) Oklahoma City - Statewide OK	Integrated system (statewide) Large scale computer Operated by county Extensive data sharing
13. Tarrant County Criminal Justice Information System (TCCJIS) Fort Worth (Tarrant) TX	Integrated system Large scale computer Operated by county Extensive data sharing
14. Total Recall Adult Criminal Element Record (TRACER) Norfolk - Regional VA	Integrated system (regional) Large scale computer Operated by city Extensive data sharing
15. Justice Information System (JUSTIS) - PROMIS Milwaukee (Milwaukee) WI	Integrated system Large scale computer Operated by county Extensive data sharing

Exhibit 1. Projects Selected for Site Survey (Continued)

PROJECT NAME (ACRONYM) AND LOCATION (COUNTY)	TYPE OF SYSTEM
16. Prosecutor's Management Information System (PROMIS) Washington, D.C.	Integrated system Large scale computer Operated by city Limited data sharing
17. Maryland Court System (MCS) Baltimore MD	Integrated system Large scale computer Operated by state Extensive data sharing

C. Evaluation Framework

PMIS evaluation is based on the notion that a prosecutor has defined, at least implicitly, goals for the operation of his or her office. These goals are normally defined in such terms as conviction rates, evenhandedness, delay, or other attributes of the criminal justice system.[5] The PMIS is developed and operated in the hope that it will assist in the achievement of goals, i.e., that it will have a positive impact. A logically structured impact evaluation must be carried out within a methodological framework that:

- Provides a general theory linking PMIS operation to impact on the criminal justice system.
- Defines prosecutor goals in terms of specific elements of PMIS impact.
- Defines indicators of success -- operational measures of these elements that can be used to quantify the extent to which PMIS operation has impacts that advance the prosecutor's goals.

Figure 1 summarizes a theory of how PMIS development and operation are linked to impact on the criminal justice system. Ideally, development of a PMIS takes place in four steps: requirements analysis, system design, system software development or transfer, and system implementation. Once the PMIS is operational, it may produce three categories of outputs: operational outputs, such as lists of witnesses, charging instruments, or subpoenas; records of operations and decisions such as in individual cases, attorney assignments, hearing dates or motions granted; and statistical displays in which these case-level operations are aggregated into such measures as dismissal rates, average delay, or case mix.

In turn, these outputs may modify the prosecution or judicial process in a variety of ways. For example, witness lists, including accurate addressses and/or telephone numbers, may be used to administer the "on-call" feature of a witness assistance program to avoid unnecessary trips to the courthouse, only to learn that a hearing has been continued. Up-to-date and accurate records of attorney assignments and hearing dates may be used to reduce the incidence of schedule conflicts for individual assistant prosecutors. Statistical displays of case duration may be used to monitor compliance with a speedy trial law.

Such modifications of the process as these comprise the PMIS impact. In addition, by monitoring various indicators over time, the PMIS ideally provides feedback not only on its own impact, but on the impact of external changes in the criminal justice process.

With the background provided by this overview of the theoretical linkage between PMIS operation and criminal justice system impact, it is possible to define more specifically the elements of PMIS impacts on prosecution and to relate them to goals of prosecution. Figure 2 identifies two general goals

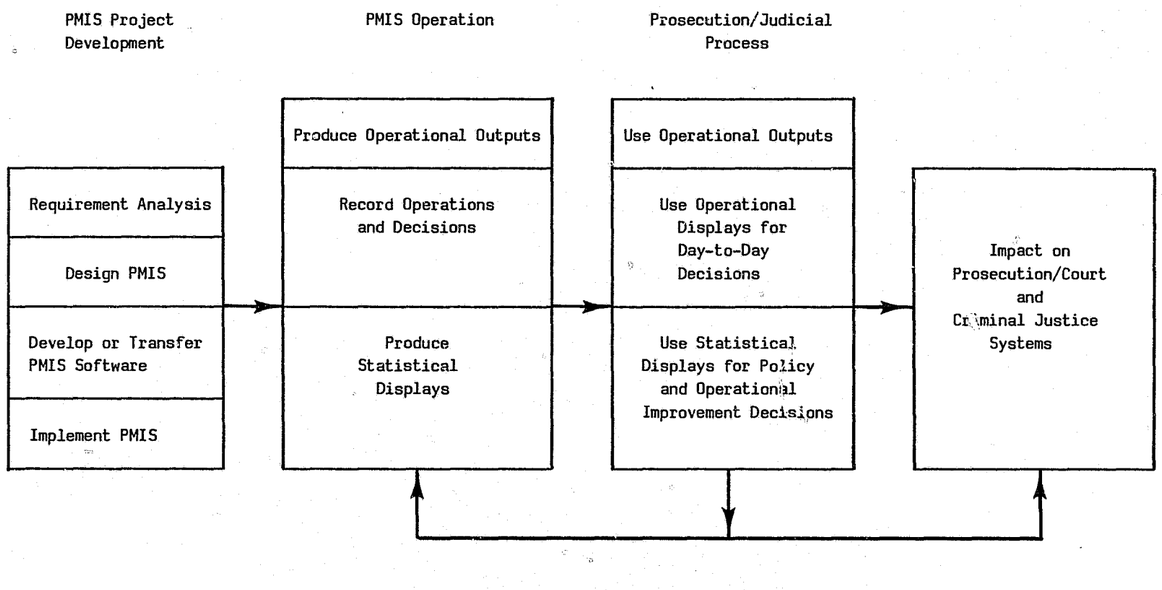

Figure 1. Assumptions Linking Prosecution MIS to Impact on Prosecution/Court Criminal Justice System

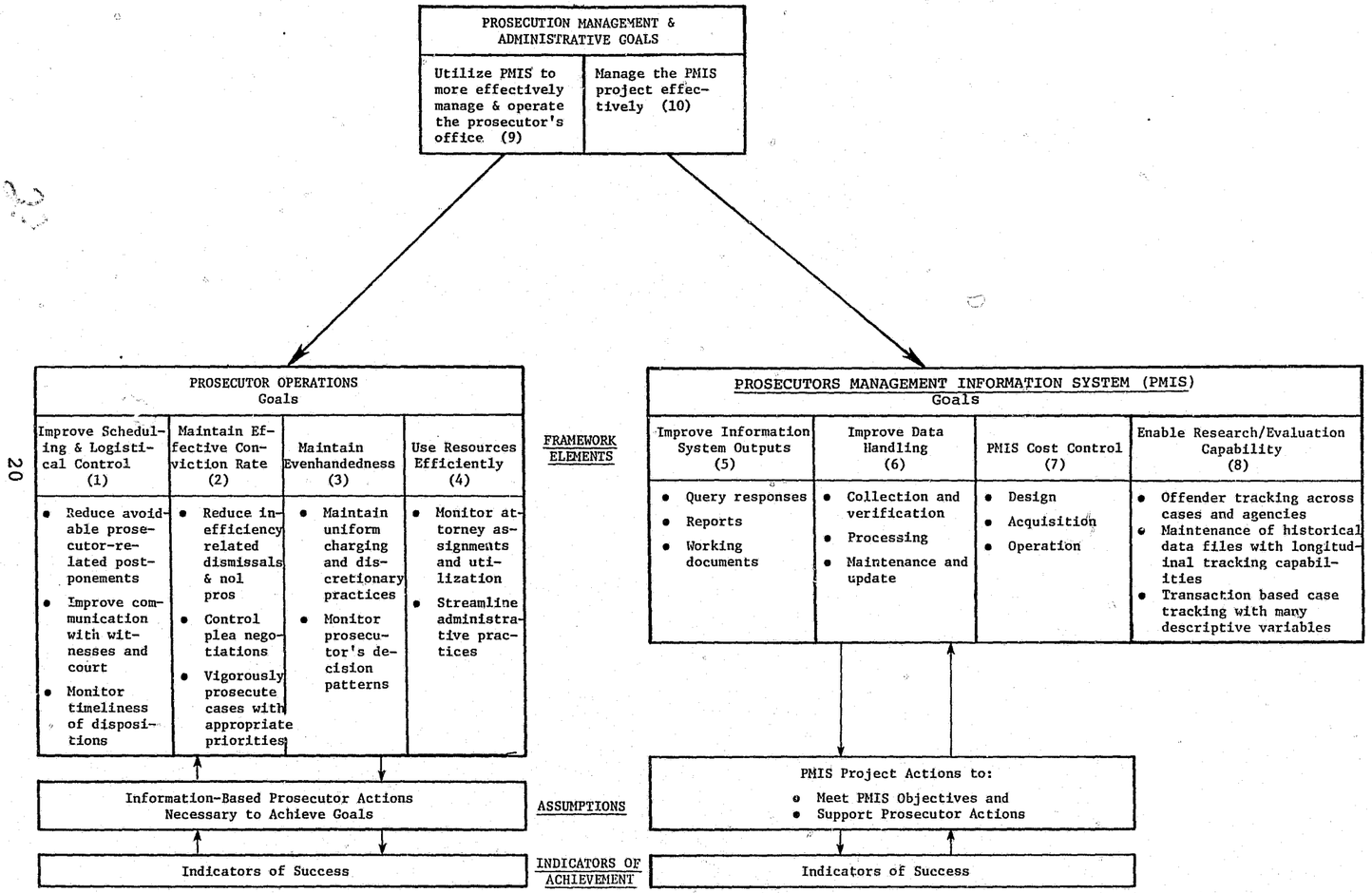

Figure 2. Evaluation Framework

assumed to be important to the prosecutor implementing a PMIS: to manage the PMIS project itself effectively, and to use the PMIS to improve office management and operation. The former general objective is broken down into four more concrete prosecution goals: improving information system outputs, improving data handling, controlling PMIS cost, and developing a research and evaluation capability. The latter objective is broken down into four operational goals: improving scheduling and control, maintaining an effective conviction rate, maintaining evenhandedness, and using resources efficiently.

Assuming that the prosecutor takes actions to manage the PMIS project effectively and to use PMIS outputs to satisfy his management goals, the third function of an evaluation framework is to define indicators of PMIS success. In other words, the evaluator must define operational measures that can be used to quantify the extent to which the PMIS advances the prosecution goals identified in Figure 2. These indicators are defined in Section II, Volume I of the Final Report.

D. Analysis of PMIS Usage

Three size groupings of prosecution offices were surveyed by mail in August and September 1979. A comprehensive telephone survey was conducted in October 1979 to tabulate a minimal set of characteristics of the non-responsive prosecution offices. From this telephone survey, it was determined that certain offices in the sample were actually out-of-scope, according to the survey criteria. It is apparent that the smaller the office, the less likely it was to respond, possibly due to a lack of staff time or a lack of interest in the subject matter.

The response rates are shown in Table 2. To what extent are any statistics developed from this set of responses indicative of the universe of prosecution offices in the nation? First of all, the data should be analyzed by size group due to the differences in rate of response as well as expected need for an MIS. Second, researchers should be aware of any systematic bias that might exist in the responding population. Based on a comparison of the characteristics of the non-responsive group to those of the responding group, there does not appear to be an appreciable non-response bias in the proportions who have or plan to have an MIS, nor between PROMIS and non-PROMIS sites.

The statistical tables that follow, then, should be understood for what they are. They present evidence that may be considered to support or refute certain hypotheses; they indicate patterns of PMIS use, problems, costs, and benefits, and comparable characteristics. They do not purport to constitute a representative sample of the population of prosecutors' offices, sufficient to make statistical inferences concerning the universe at large. Given the limitations inherent in that disclaimer, the data have been analyzed in various formats to yield insights on issues relevant to this study.

Information gathered during the 17 PMIS site surveys substantiate the fact that PMIS environments and characteristics differ in each jurisdiction. A detailed description of each surveyed PMIS project is contained in Volume III of the Final Report.

The analysis and evaluation of individual PMIS support functions is an NEP Phase II task. PMIS support, for the purpose of this Phase I effort, has been synthesized to illustrate PMIS relationship to the judicial process, to compare prosecutor controlled systems with integrated systems, and to describe the types of output reports that support operational and managerial functions.

The first analysis to be presented will indicate the nature and scope of PMIS use throughout the nation, based on data from the mail and telephone surveys. The second analysis addresses the nature of PMIS support, based on the combination of PMIS functions observed during the site surveys.

Table 2. Adjusted Response Rates

Strata	Number of Employees	Question-naires Sent Out	Total In Scope	Number of Valid Responses	Adjusted Percent Response*
A	25 or more	287	240	109	45
B	10-24	200	183	55	30
C	5-9	212	171	45	26
		699	594	209	35

*Based on in-scope agencies.
Source: PMIS Assessment Mail/Telephone Survey, Westat, Inc., August/September 1979

1. Nature and Scope of PMIS Use

The first set of findings from the mail survey describe the extent to which prosecution MIS's are being used or planned.

As Table 3 shows, MIS's are used predominately by the larger offices. It is interesting to note that the proportion of MIS's planned in the smaller offices is substantially greater than the proportion used, which may indicate the effect of the trend toward smaller and less expensive computers.

The extent to which automation has been adopted by the nation's larger prosecution offices is impressive. Of 109 prosecution offices with 25 employees or more, approximately 80 percent either use or plan to use an MIS. On the other hand, only about 19 percent of the smaller offices either use or plan to use an MIS.

Comparisons of jurisdictions using an MIS with those planning an MIS reveal a substantially higher proportion plan to use PROMIS than currently use PROMIS. Of 43 jurisdictions that reported having a prosecution MIS, 37 percent had some version of PROMIS; of 63 reported planning a prosecutor MIS, 70 percent were planning to install some version of PROMIS. This may reflect the trend in LEAA funding policy or the effect of a recently introduced minicomputer version of PROMIS. These possibilities are examined later in this report.

In order to obtain insights to the nature of the various prosecution MIS projects, a question was asked concerning the types of systems that prosecutors use or plan to use. Of 43 responding prosecution offices having an MIS, about 23 percent report using a minicomputer; while of 60 offices planning an MIS, about 40 percent report planning for a minicomputer. This indicates a trend toward the use of minicomputers.

Table 3. Proportion of Prosecutors' Offices Using or Planning an MIS (PROMIS/Non-PROMIS) (percentages in parentheses)

Response on MIS	Total	25 or More Employees	Less Than 25 Employees
Use MIS			
PROMIS	16 (7.7)	15 (13.8)	1 (1.0)
Non-PROMIS	27 (13.0)	25 (22.9)	2 (2.0)
Sub-total	43 (20.6)	40 (36.7)	3 (3.0)
Plan MIS			
PROMIS	44 (21.2)	35 (32.1)	9 (9.0)
Non-PROMIS	19 (9.7)	12 (11.0)	7 (7.0)
Sub-Total	63 (30.1)	47 (43.1)	16 (16.0)
Not Planning MIS	103 (49.3)	22 (20.2)	81 (81.0)
Total	209 (100.0)	109 (100.0)	100 (100.0)

Source: PMIS Assessment Mail Survey, Westat, Inc. July, 1979

Since the number of prosecution offices, with less than 25 employees, that have or plan to have an MIS is too small to analyze further, the remainder of this analysis will focus on the larger prosecution offices, i.e., those with 25 employees or more.

A question was asked concerning the jurisdictional area served by the prosecutor. The results show that about three-quarters of the responding offices are county prosecution offices.

What prosecution goals are relevant to the MIS project, and what applications are planned or in use in prosecutor MIS projects? The ratings reported by 100 of the larger prosecution offices responding to the mail survey indicated that the highest priority goals relevant to a prosecution MIS are control of scheduling and logistics, and allocation of staff based on prosecution priorities. Any assessment of PMIS projects should consider the capacity and impact of the MIS relative to these goals. Case status reporting and workload reports were the two applications most often in use or planned by prosecutors, followed in popularity by calendaring and scheduling capabilities.

Due to the interest expressed by LEAA, a special telephone survey was conducted of PROMIS projects to supplement the data obtained in the mail survey. Information was obtained on sites contained on an INSLAW provided list as well as sites included in the mail survey. A total of 100 sites, thought to be operating, installing or planning PROMIS, were surveyed. Of these, 78 sites reported involvement with PROMIS.

The PROMIS transfer program has been successful in promoting and accelerating the adoption of automated MIS capabilities in prosecutors' offices. The May 1979 user's conference was attended by over 260 people, representing over 75 user jurisdictions in varying stages of PROMIS transfer. Since LEAA funding support for prosecution/court information systems now strongly favors the use of PROMIS, this program can be expected to grow in the future.

Several versions of PROMIS have evolved, from the original batch version to the latest buffered or MAXI version. Substantial modifications have been made in certain implementations. It is, therefore, difficult to discuss PROMIS as a single system; one must consider the various versions of PROMIS in any evaluation.

More PROMIS systems (taking the various versions of PROMIS as a group) are planned or have already been implemented than any other single approach. These projects have involved transfer at the software level to a variety of hardware and jurisdictional environments. Evidence of the increasing trend in the adoption of PROMIS projects was revealed in the mail survey.

Table 4 shows the overall status of the surveyed sites as of October 1979 broken down by the various PROMIS versions. For the purpose of the survey,

PROMIS versions refer to the source of the original software package, and are defined as:

- PROMIS I - the basic batch system provided by INSLAW;
- PROMIS II - the basic batch system with an on-line inquiry capability provided by INSLAW;
- MINI-PROMIS - unbuffered terminal version, provided by INSLAW;
- MAXI-PROMIS - buffered terminal version, provided by INSLAW;
- HYBRID - a combination of PROMIS versions or a PROMIS version that has been extensively modified (e.g., JUSTIS - the large scale, on-line system developed by Milwaukee, transferred to and modified at other locations).

Among operational PROMIS projects, the version most often used for transfer was PROMIS II, which combines batch updating with on-line inquiries. The second most popular operational version is Milwaukee County's JUSTIS, a highly modified version of the original batch PROMIS. JUSTIS was modified to operate on-line in a shared prosecution/court environment. The version of PROMIS most in demand by those prosecutors planning for an MIS is the MAXI-PROMIS.

Table 4. Status of PROMIS Versions

PROMIS Version	Status			
	Operational	In Transfer	Planning	Total
PROMIS I	3			3
PROMIS II	12	2	1	15
MINI-PROMIS	1	1	5	7
MAXI-PROMIS		36	1	37
HYBRID	9	2	2	13
MANUAL			3	3
TOTALS	25	41	12	78

Source: Westat Mail/Telephone Survey, 1979

Only one operational system (Sacramento, California) was reported for the MINI-PROMIS version (unbuffered terminals) released in December 1978. Because of the desire for buffered terminals and the tailoring features, planners of PROMIS projects have opted for MAXI-PROMIS.

2. Nature of PMIS Support

All PMIS components (hardware, software, procedures, and types of people who operate the system) differ among all jurisdictions surveyed for this study. PMIS support functions also differ, but the primary difference is the number of functions supported by the PMIS; the purpose of a PMIS support function is usually the same among the various jurisdictions (e.g., in all jurisdictions where the PMIS produces prosecutor's caseload reports, those reports are used by managers as an aid in assigning new cases).

The overall nature of PMIS support can best be described by combining (synthesizing) the various support functions that have been observed, regardless of individual PMIS environments and characteristics.

Figure 3 is a synthesized version of felony and misdemeanor caseflow observed during the site visits. It shows the points within that process where MIS functions occur and where performance measures may be made.

In the 17 jurisdictions visited, 14 of the information systems were shared by more than one criminal justice agency, and 11 were shared by all (or almost all) of the criminal justice agencies within the jurisdiction. It is considered appropriate to describe and analyze the prosecutor's segment of the MIS as it relates to the overall criminal justice system rather than confining the analysis to the prosecution functions per se.

Exhibit 2 shows the relationship of MIS capabilities to the stages of prosecution:

- Events in the process -- actions taken and decisions made;
- MIS activities -- functions performed using an automated system;
- Data recorded -- the type of information entered into the MIS;
- Performance measures -- measures of effectiveness that can be taken provided the appropriate data have been entered into the system; and
- MIS impact -- results that can be achieved by effective analysis of the performance measures.

As mentioned earlier, the primary differences in PMIS support functions are the number of functions supported by the PMIS. These differences can be seen by comparing a synthesized, integrated criminal justice information system (Figure 4) with a prosecutor controlled information system (Figure 5).

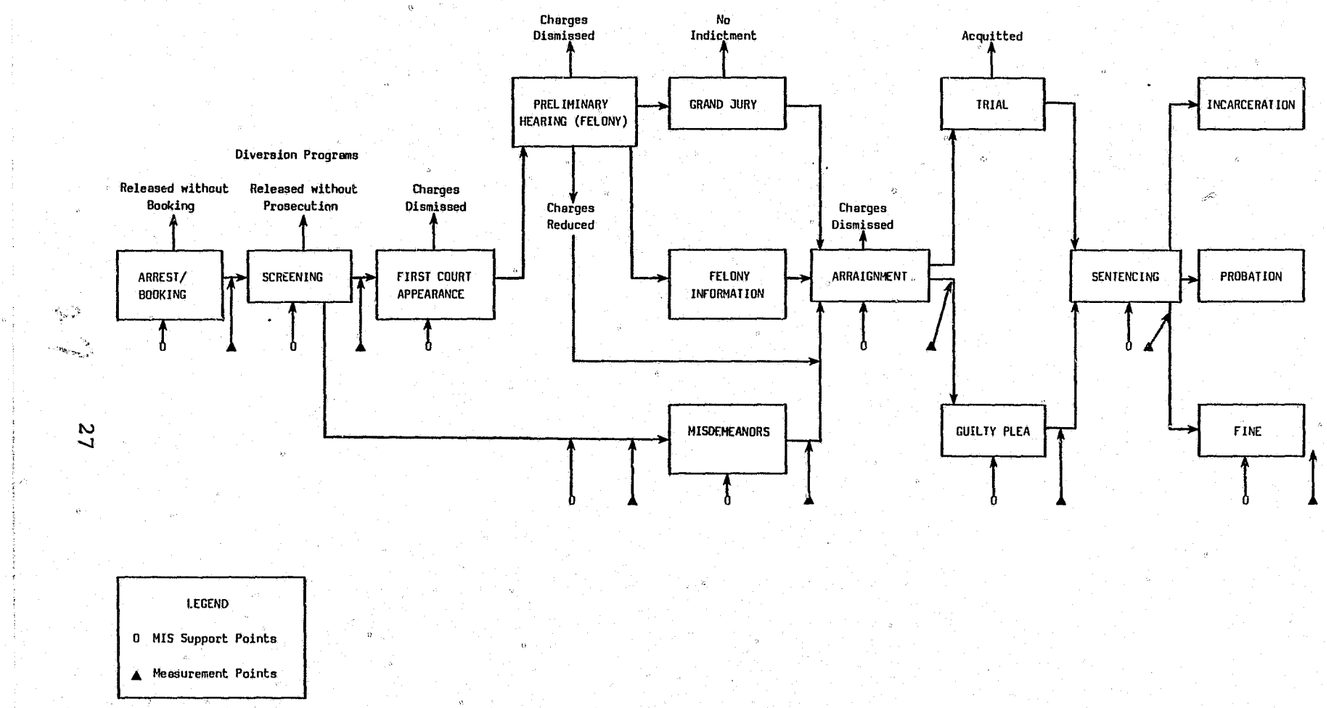

Figure 3. Synthesized casefolow process

Exhibit 2. MIS Relationship to Judicial Process

A EVENTS IN THE PROCESS	B MIS ACTIVITIES	C DATA RECORDED	D PERFORMANCE MEASURES	E MIS IMPACT
1. ARREST AND BOOKING • Suspect arrested • Suspect identified • Arrest report prepared • Suspect booked or released • Bond hearing - bail granted or denied • Suspect jailed or released	• Inquiries - Criminal history (local, State, national) - Fingerprints (local) - Wants, warrants (local, State, national) - Probation • Data entered • Outputs produced - Arrest report (booking packet) - Arrest warrant (commitment order)	• Person/status - Defendant, name, sex, DOB, address, employment, location (jail, bail) - Co-defendants (same as above) - Witnesses - Bondsman - Arresting Officer • Offense	• Arrest rates, by - Type of charge - Police officer - Geographical area • Bail decisions, by - Type of charge - Magistrate	• Quicker persons identification - Positive ID - Career Criminals - Across jurisdictions • Improve police/prosecutor coordination/cooperation • Improve/monitor evenhandedness (bail bond policies and uniform charging) • Identify high crime/specific crime areas • Reduce clerical tasks • Minimize duplicate data recording
2. SCREENING • Review police report • Interview arresting officer • Add, change or drop charges • Evaluate witnesses • Accept or decline prosecution • Identify cases for special handling	• Inquiries - Criminal history (local, State, national) on defendant, co-defendants, and witnesses - Defendant status (jail, bail, etc.) • Data entered • Outputs printed on-line - rap sheet • Outputs printed off-line - Disposition reports	• Added, changed or deleted charges • Nol pros and reason • Prosecutor's name assigned to case • Victim/witness data	• Nol pros rates, by - Reason - Charge - Prosecutor • Case filing rates, by - Reason - Charge - Prosecutor • Backlog measures	• Improve/monitor even-handedness (uniform charging policies) • Monitor screening policies in relation to case backlogs • Reduce clerical tasks • Minimize duplicate data recording

Exhibit 2. MIS Relationship to Judicial Process (Continued)

3. FIRST COURT APPEARANCE

• Bail decisions (pre-trial release or detention • Diversion programs • Charges dismissed • Date set for next court appearance • Appointment of defense attorney	• Inquiries - Defendant tracking (status, bond information) - Criminal history - Schedules for judges, court-rooms, police, attorneys • Data entered • Outputs produced - Disposition reports	• Diversion program data • Bail decisions • Charges dismissed and reasons • Date of next court appearance • Defense attorney's name	• Bail decisions, by - Charge - Judge • Dismissal rates, by - Charge - Judge • Attorney, judge, court-room assignment statistics	• Improve/monitor evenhandedness (uniformity in bail decisions and dismissals) • Minimize scheduling conflicts • Reduce recidivism • Reduce case processing time • Reduce clerical tasks • Minimize duplicate data recording

4. PRELIMINARY HEARING (FELONIES)

• Case presented (partial) • Charges dismissed • Case dismissed • Charges reduced, referred to misdemeanor court • Case referred to Grand Jury • Grand Jury waived, case scheduled for arraignment	• Inquiries - Case status (Case age) - Defendant tracking - Criminal history - Schedules for Grand Jury, judges, court-rooms, police, attorneys • Data entered • Outputs produced - Disposition reports	• Charges dismissed/reduced and reasons • Date of next event in the process	• Dismissal/reduction rates - Charge - Judge • Attorney, judge, court-room, Grand Jury assignment statistics • Case aging	• Improve/monitor even-handedness (uniformity in dismissals and reductions) • Minimize scheduling conflicts • Reduce case processing time • Reduce clerical tasks • Minimize duplicate data recording

5. GRAND JURY/FILINGS

• Case presented (sufficient evidence to indict) • Charges accepted or changed • Indictment (true bill) or refuse to indict • Informations filed	• Inquiries - Charging prose - Case status - Defendant tracking - Cases scheduled for Grand Jury • Data entered • Outputs produced - Cases scheduled for Grand Jury - Grand Jury selection - Disposition reports	• Charges changed and reasons • No indictments and reasons • Date of next court event • Judge/court-room assignment	• Indictment/no indictment rates, by - Charge - Attorney • Case aging	• Evaluate/improve attorney performance • Reduce case processing time • Reduce clerical tasks • Minimize duplicate data recording

Exhibit 2. MIS Relationship to Judicial Process (Continued)

A EVENTS IN THE PROCESS	B MIS ACTIVITIES	C DATA RECORDED	D PERFORMANCE MEASURES	E MIS IMPACT
6. ARRAIGNMENT • Defendant arraigned • Motions heard, accepted or rejected • Charges accepted, reduced or dismissed • Trial date set	• Inquiries - Case status - Defendant tracking - Cases scheduled for arraignment - Attorney's schedules • Data entered • Outputs produced - Cases scheduled for arraignment - Schedules/dockets - Witness subpoenas/ notices (for trial) - Disposition reports	• Motions and results • New arraignment date (continuance) • Charges reduced/ dismissed and reasons • Trial date	• Postponement rates, by - Charge - Judge - Attorney • Dismissal rates, by - Charge - Judge - Attorney • Case aging • Plea rates • Failures to appear	• Improve/monitor evenhandedness (uniformity in dismissals and reductions - plea bargaining • Evaluate/improve judge/ attorney performance • Reduce case processing time • Reduce clerical tasks • Minimize duplicate data recording
7. TRIAL • Defendant tried by judge or jury • Guilty plea accepted or rejected • Attorneys present evidence • Witnesses testify • Verdict reached • Date set for sentencing	• Inquiries - Case status - Defendant tracking - Criminal histories - Schedules • Data entered • Outputs produced - Schedules/dockets - Disposition reports	• Guilty pleas • Verdicts • Date set for sentencing • Mistrials and reasons	• Conviction rates, by - Charge - Judge - Jury - Attorney • Case aging • Disposition rates • Career criminal statistics • Recidivism statistics • Plea rates	• Evaluate/improve judge/ attorney performance • Reduce pretrial case processing time • Reduce clerical tasks • Minimize duplicate data recording
8. SENTENCING • Arguments presented • Sentence invoked	• Inquiries - Criminal history - Defendant tracking (for the already served, if not on release) - Case status • Data entered • Outputs produced - Commitment order - Disposition reports	• Sentencing decision	• Sentencing decisions, by - Charge - Judge • Case aging	• Improve/monitor evenhandedness (uniformity in sentencing) • Reduce case processing time • Reduce clerical tasks • Minimize duplicate data recording
9. POST-SENTENCING • Incarceration, fine and/or probation	• Inquiries - Defendant tracking • Data entered • Outputs produced - Jail/prison population reports - Time payment bills and	• Name of corrections facility and cell assignment • Amount of fine, time payment arrangements • Name of probation officer	• Probation violations, by - Charge - Defendant social characteristics - Probation officer • Failures to pay fines, by - Charge - Defendant social characteristics	• Improve/monitor probation policies • Improve/monitor policies for time payments of fines • Improve/monitor conditions in corrections facilities (by prisoner transfers)

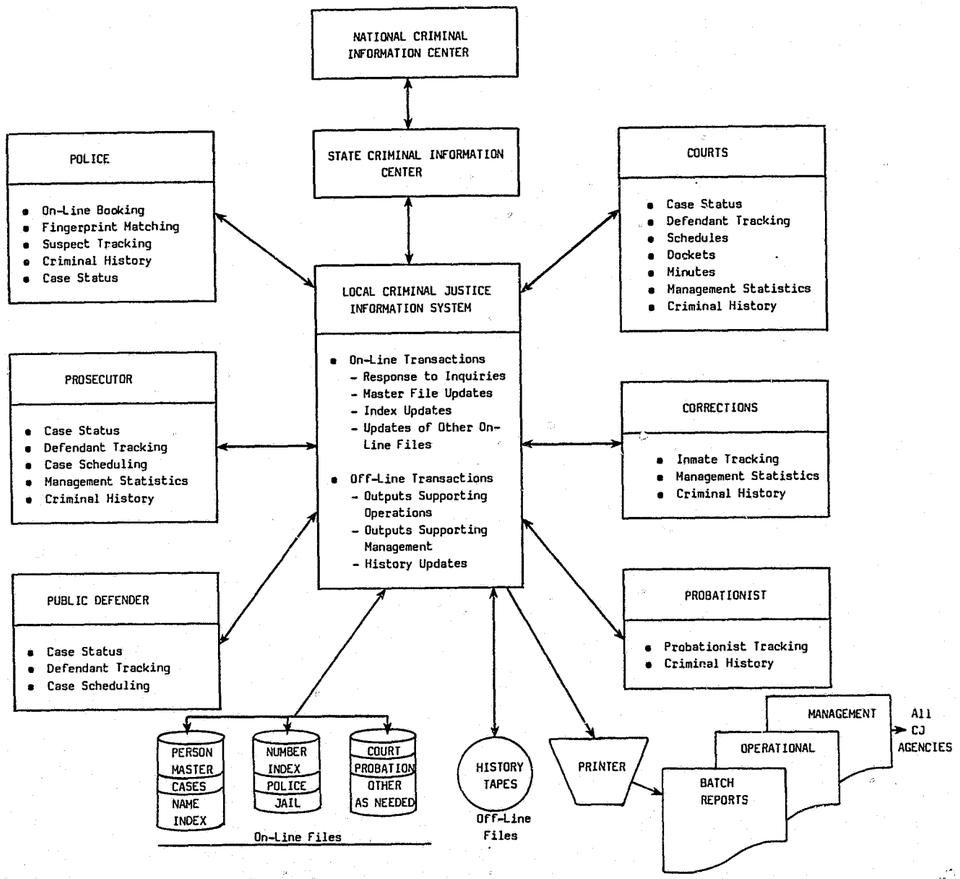

Figure 4. Synthesized Integrated Criminal Justice Information System

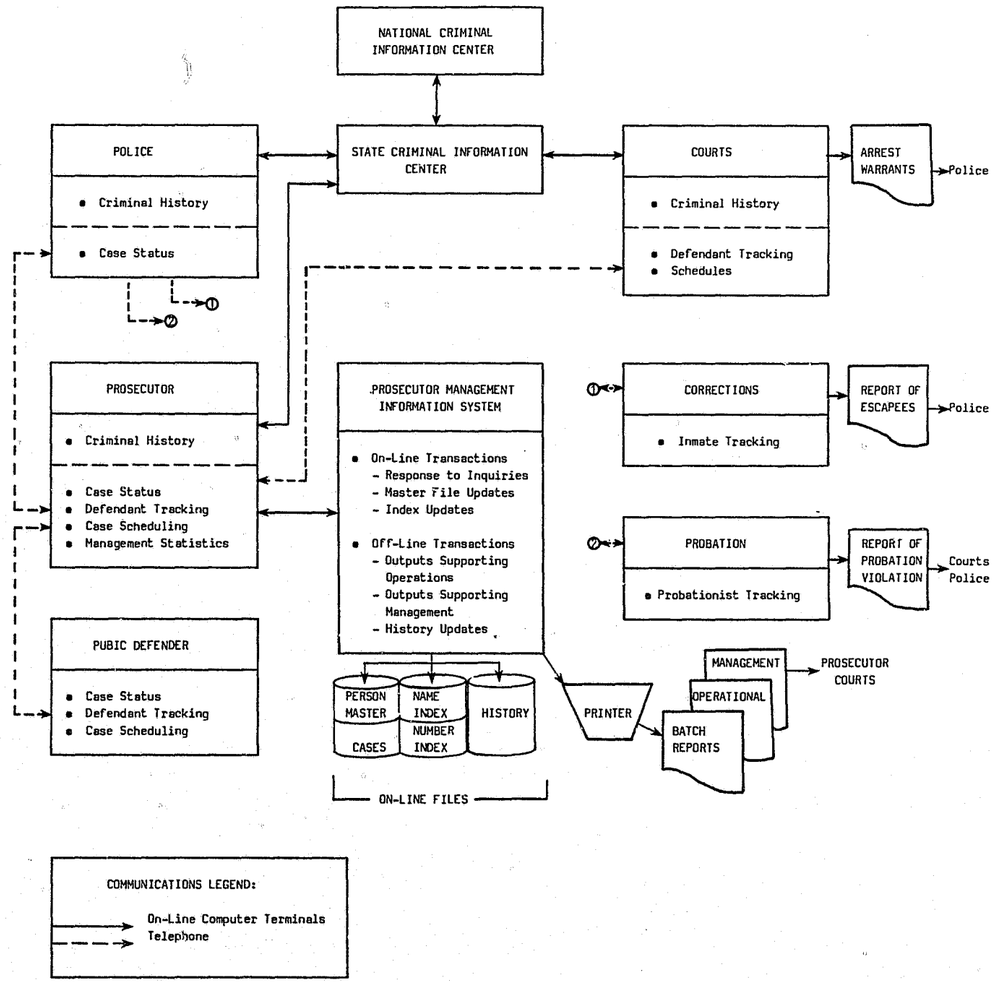

Figure 5. Prosecutor Controlled Information System

Figure 4 represents an integrated system where all criminal justice agencies in the jurisdiction are users of the system; and, the system is part of a network that links the local computer with computers at the state and national levels.

Figure 5 represents a prosecutor controlled system where only the prosecutor's office has direct access to the PMIS; the prosecutor and other agencies may have access to state and national level systems, but the local PMIS is not linked to those systems.

Some prosecutors believe they are best served by a system under their own control. They believe that their data collection procedures would be more reliable and they could maintain and improve the programs as needed. The advantages and disadvantages to this form of organization are discussed next in Section II E.

Differences between the integrated and prosecutor controlled systems concern, primarily, information exchange, data recording, and MIS processing.

Information Exchange. Integrated systems allow the updating of centralized records as events occur throughout the judicial system; data are immediately available to all system users and could have an impact on decisions made at each stage of the process. In the prosecutor controlled system, information about the status of individuals, such as outstanding arrest warrants, escapees, and persons on probation, is disseminated by the responsible agencies via manually prepared printed reports. Case tracking, defendant tracking, and person tracking is accomplished through the automated system by the prosecutor; other agencies requiring updated information must communicate via telephone and resort to manual records for data retrieval.

Data Recording. In integrated systems, user agencies enter their subject-specific data into the automated system. A prosecutor controlled system generally has line prosecutors recording data, or clerks recording data from prosecutors' notes. Clerical staff generally enter data on events outside their purview (e.g., arrest report data).

MIS Processing. The integrated system provides both on-line and off-line support to daily operations and management functions of all user agencies. The system controlled by the prosecutor provides on-line processing support to the prosecutor; off-line processing support is limited to outputs that can benefit the operations and management functions of only the prosecutor and the court (schedules and statistics, for example).

The integrated system generates reports to support the operations and management of all user agencies. Reports generated by a prosecutor controlled system are applicable to the operations and management of the prosecutor's office and the courts. The capability exists in both systems, however, to generate the same types of reports for the prosecutor and the courts. A list of these reports is shown in Exhibit 3.

A. Calendars/Dockets/Schedules

1. Cases Scheduled for Preliminary Hearing, by:
   - Court/Judge
   - Prosecutor
2. Cases Scheduled for Grand Jury
3. Cases Scheduled for Trial, by:
   - Court/Judge
   - Prosecutor
   - Defense Attorney
4. Subpoenas/Appearance Notices
   - Witness Supoenas
   - Notices to Arresting Police Officers
   - Notices to Defense Attorneys
   - Notices to Bondsmen

B. Case Status

1. Master Lists of Pending Cases, by:
   - Case Number
   - Defendant Name/Status of Defendant
   - Type of Case (felony or misdemeanor)
2. Case Aging Lists - showing oldest cases first, by:
   - Court/Judge
   - Prosecutor
   - Pending Grand Jury Action
3. Disposition Reports, by:
   - Court/Judge
   - Prosecutor
   - Defendant
   - Case Number

C. Case Load

1. Number of Cases Assigned, by:
   - Court/Judge
   - Prosecutor (individually or grouped by prosecutorial unit)

Exhibit 3. MIS Generated Reports

2. Specially Assigned Cases, by:

- Court/Judge
- Prosecutor

D. Research and Analysis

1. Caseflow analysis

- Number of Bookings
- Numbers of Cases Accepted for Prosecution
- Dismissal Rates/Reasons for Dismissal
- Conviction Rates by Type of Offense
- Sentences by Gravity of Crime
- Probation Rates
- Incarceration Rates

2. Work Load analysis

- Caseload by Court
- Caseload by Prosecutor
- Caseload by Type of Offense (felony and misdemeanor)

3. Defendant analysis, by:

- Age
- Sex
- Race
- Offense

Exhibit 3. MIS Generated Reports (Continued)

E. Issues and Assessments

Research conducted in this study has indicated certain primary areas of concern in the development, implementation, and operation of prosecution management information systems. These primary areas are:

- Issues Concerning the Organizational Context of a PMIS Project. These issues are concerned with (a) whether the PMIS should be controlled by the prosecutor or be part of a state, city or county court or criminal justice information system shared with other criminal justice agencies; (b) resource requirements for system development and improvement; and (c) the intra- and inter-organizational relationships required to effectively manage a PMIS project.

- Issues Concerning the Development and Operation of a PMIS. These issues concern (a) the identification of management information requirements; (b) the evaluation and selection of alternative hardware and software approaches; (c) the staffing required for effective systems development and operation; and (d) procedural controls required for effective system operation.

- Issues Concerning the Impact of a PMIS on the Criminal Justice System. These issues are concerned with (a) the extent to which PMIS's meet their goals and provide their intended capabilities; (b) the impact of the PMIS on prosecution/court processes and personnel; (c) the impact of a system on prosecution performance; and (d) the evaluation of such impact.

- Issues Concerning the Evaluation of PROMIS Projects. These issues are concerned with (a) the comparability and evaluability of PROMIS projects; (b) cost effectiveness of PROMIS projects; and (c) expectations of PROMIS projects.

Each issue will be analyzed from three perspectives: first, the issue will be defined and discussed; second, where survey data applicable to that issue are available, they are summarized; third, the results of all aspects of data analysis are interpreted in making a judgmental assessment.

1. Issues concerning the organizational context of a PMIS Project.

ISSUE: Are there significant advantages to the prosecutor controlling his own system, as compared to participating in an interagency shared criminal justice information system?

A crucial issue that has emerged in this study, one that has generated wide differences of opinion and wide variations in project organization, is to what extent should the prosecutor control the collection, processing and reporting of prosecution data? There are at least four types of project

organization that have been identified in the literature and observed in the field:

- Computer operations and data base controlled by local prosecutor;
- Computer operations and data base controlled by a statewide prosecution/court agency;
- Computer operations centrally controlled by local government data processing agency; data base extensively shared by local criminal justice agencies; and
- Computer operations centrally controlled; data base controlled by local prosecutor or court; limited data sharing.

Among the advantages cited for a self-contained computer facility controlled by the prosecutor are assured access and operation, priority on programmer expertise, and total security of the case files.[6] Security and privacy could be controlled under a system shared by only criminal justice agencies; however, most prosecutors' offices are headed by elected officials, and performance measures can be politically sensitive.

Polansky points out that county commissioners and state legislators are usually not happy about a court (or any other agency in their jurisdiction) operating an independent facility.[7] Independent computer operations can lead to costly redundancy in hardware and staffing.

Closely related to the issue of degree of system sharing is the issue of resources required for developing and operating the PMIS. Resources are limited and one of the major reasons for sharing the system with other county or state agencies is to keep the costs down. Most county data processing operations cannot afford a separate criminal justice unit for programming or operation. Due to these budgetary constraints the prosecutor will have to wait until other possibly higher priority systems (e.g., tax collections) are completed. This can be particularly frustrating when waiting for improvements in an existing PMIS.

Management of the PMIS project is a complex task requiring coordination among all units of the prosecutor's office, probably with other criminal justice agencies, and possibly with the county or state data processing center.

A recent Search Group, Inc. research report observed that criminal justice information systems have the potential advantage of avoiding duplication of effort by the several agencies involved in the criminal justice process.[8] The same report asserts, however, that some questions of propriety are raised by the mere fact that courts are using the same data base as police and prosecutors. In these instances, care must be taken to partition data sets so that each agency is assured of data privacy and can access only the

information to which it is entitled. The main point is that avoiding duplication of effort, particularly in data recording, avoids errors and therefore provides users with better quality data.

Applicable Survey Data. Prosecutors who reported that they use or plan to use PMIS were asked whether access is provided to other criminal justice agencies. Responses indicate that 80% of the systems are shared, primarily among prosecutors, courts and police. However, it was evident in site visits that the degree of data sharing varies. For example, in one site the court receives copies of certain PMIS reports but has its own separate court information system. In another site, both the prosecutor and court are tied into the same data base and system, each having designated data input and access.

Judgmental Assessment. Formal organization structures may not be as important as the informal organization structures and interpersonal relationships that evolve. Three PMIS projects were observed where the prosecutor was unhappy with the support from the central data processing facility (run by a central county data processing agency). Two of these prosecutors were not satisfied with the degree of confidentiality of office records in a system not under his control. In these situations, characterized by scarce resources and inconsistent priorities between user agencies, prosecutors desired their own computer and data processing staff. Such an approach usually requires a lower cost computer operation -- a minicomputer or purchase of outside services. The personalities of the prime movers of the PMIS project, be they prosecutors, judges or city/county data processing administrators, strongly influence the level of interagency cooperation achieved.

Extensive data sharing among criminal justice agencies was observed in 11 of the 17 sites surveyed. Individual agencies had primary responsibility for data collection and updating of the PMIS data base at these 11 sites. Those jurisdictions where extensive data sharing was observed have a higher level of interagency cooperation and mutual trust than was observed in the limited data sharing jurisdictions. This was true even in non data processing activities. Users in extensive data sharing systems have a higher level of satisfaction with their systems, particularly when compared to jurisdictions having large-scale systems with limited data sharing. Projects characterized by extensive data sharing avoid duplication of effort in data collection and processing, which results in budgetary savings. In these 11 jurisdictions where agencies assumed responsibility for updating specific items of data consistent with their functional responsibilities, the accuracy of the shared data was better than in jurisdictions with duplicate data collection procedures. Safeguards on the confidentiality of court/prosecution records seemed to be satisfactory.

If interagency relations permit it, there are significant advantages to an integrated criminal justice or prosecutor/court information systems approach. These advantages include budgetary savings, data reliability, and more effective interagency coordination of criminal justice activities. As lower cost and ever more powerful minicomputer based systems become more

available, it may become economically feasible for more prosecutors to establish computer systems and supporting staffs of their own. However, even with minicomputers, staff support costs remain substantial; moreover, the other advantages of the integrated system are not realized under this structure.

2. Issues concerning the development and operation of PMIS.

a. ISSUE: To what extent have prosecutors' management information requirements and alternative systems approaches been analyzed and defined prior to designing the PMIS?

How does a prosecutor determine which functions should be included in a PMIS and what kinds of information are needed? Organizations that have been most successful in developing and implementing a useful management information system have started with a thorough analysis of their requirements. Of the 17 sites surveyed, a thorough analysis and documentation of requirements was noted in only four non-PROMIS and one PROMIS site. Users who make the mistake of first deciding to get a computer or deciding to acquire a particular software package before they have defined their own requirements and resource constraints are likely to become disillusioned with the burdens of making the software work and modifying it to meet their own needs. An office could survey the applications that are successful in other jurisdictions. An outside consultant who is familiar with the literature, state-of-art, and relevant experience in the field could also be helpful.

Many publications provide expert opinion on the type of data needed by prosecutors. Standards have been developed for case management needs.[9] Information needs for caseflow management, docketing and recordkeeping for trial court information systems have been documented by other studies.[8,10]

Various models exist which include PMIS applications that have been found useful in other jurisdictions. For example, one widely circulated report lists various uses of a PMIS by prosecutors.[11]

After the requirements analysis and preparation of the system concepts, the prosecutor's office is ready to consider alternative hardware and software systems approaches. The most convenient and economical approach is to use existing city/county or state computing facilities and data processing systems staff, as was the case in 15 of the 17 jurisdictions surveyed. There are potential problems in such an arrangement, but many jurisdictions (12 or 15 surveyed) have been successful in such arrangements; the success of a system does not depend on ownership of the computer.[12]

The use of minicomputers[6,11] (such as in Boston and Oakland) and microcomputers[13] may make prosecutor-owned computer systems more feasible; however, the office should still weigh the potential advantages of sharing computer facilities and software development and maintenance costs at least with the court and other criminal justice agencies, as identified under the previously discussed issue on project organization.

Judgmental Assessment. In all but five jurisdictions visited, it was difficult to obtain documentation or other evidence that a systematic analysis of prosecution information requirements and a feasibility study had been prepared prior to proceeding with the development of the PMIS. Few alternatives, if any, to the eventual PMIS approach had been examined. Much of this can be attributed to the embryonic state of PMIS applications and the lack of data processing systems expertise in most prosecutors' offices. Most projects appeared to evolve from a combination of inadequate manpower to cope with large caseloads, frustration with court delay and logistical problems, a general idea that computers are synonymous with modernization and improved control, sales pitches by vendors or consultants, and the availability of Federal funding to support the development of PMIS projects. As a result of all of the above, unrealistic expectations and unsatisfactory cost-effectiveness characterize many projects.

On the other hand, those PMIS projects that have been based on systematic requirements analyses have evolved in phases, adding new applications in accordance with a conceptual design and master plan. In these cases, expectations have been realistic and have been met. The adaptation or tailoring of concepts and/or software transferred from other sites has also been accomplished more effectively when the recipient site had a well-defined statement of its requirements.

b. ISSUE: To what extent have prosecutors transferred PMIS's operating in other jurisdictions, and what advantages have been observed?

Various prosecution/court MIS or criminal justice information systems exist which have the potential for satisfying a prosecutor's needs. One series of software system packages, PROMIS, has been transferred to many types of jurisdictions and hardware configurations.[14]

There are potential disadvantages to transfer. One is the possibility of wasting a great deal of time and money finding out that the system being transferred cannot perform the required functions at the new location. Most jurisdictions differ markedly in legal procedures, organizations, staff capacity, hardware environmment, management style, etc. This means that substantial modifications must be made in transferring a system. One advantage in developing a system from scratch is that all the capabilities are specifically developed for that jurisdiction. Additionally, the prosecutor and his staff develop pride of ownership (and resultant enthusiastic use), and they are involved in the learning curve from the beginning. Two jurisdictions (Chicago's Automated Case Management and Oklahoma's ADRS) report a low cost of development from scratch of a prosecution system.[6,15] On the other hand, such development can be a costly experience if one does not have the proper technical staff available.

Nevertheless, transfer can make good sense not only because of the potential savings in time and cost, but because of the uniformity it provides for consideration of information requirements. System transfer has been encouraged by LEAA funding policies. New LEAA funding policies related to

prosecution or court information systems provide grants for statewide PROMIS under LEAA's "Incentive Fund Program." This policy encourages multi-jurisdictional implementation of PROMIS in prosecutors' offices and trial courts.[16]

Applicable Survey Data. Fifty (about 57%) larger prosecution offices (over 25 employees) with operational PMIS projects or planning a PMIS indicated PROMIS as their type of system. This suggests a very high interest in technology transfer.

Most prosecutors who undertake PMIS transfer projects do so to save time and money. They can also assess their needs better when they can observe a well defined model in operation at another jurisdiction.

Judgmental Assessment. As discussed later in Sections II E.4.b and c, little evidence is available from this study to support the notion that transfer of PMIS systems has resulted in lower development costs. Unfortunately, with the current state of the art, many transfer projects have required substantial investments in modifying software to fit different hardware/software environments, as well as different organizations, and local rules and procedures. Under these circumstances, it can indeed be more costly to invest the time and effort to study, test, evaluate, modify and debug an existing package.

The state-of-the-art in software systems packaging, modular design, data base management systems, tailoring facilities, pre-compilers, and parameterized report generators has been advancing so rapidly that the picture on economics of technology transfer may be undergoing a significant change. Even the approach to technology transfer needs a thorough review. It may not make sense to think of transferring an entire system, only certain modules, application programs, or software facilities. One should expect to do some special programming or modification; the issue is to minimize the extent of it. For example, San Bernardino has developed a single interface control program which communicates with all application programs. In any transfer to a different hardware/software environment, only the interface control program would need to be modified. The application programs are all written in a highly transferable ANSI COBOL. More flexible vendor-supplied software packages, including tailoring, report generation, data base management, generalized inquiry and statistical packages will also have an impact on technology transfer strategies.

c. ISSUE: To what degree has external funding support and technical assistance been necessary in PMIS projects?

Prosecutors generally have very limited financial resources. Is it therefore wise to seek external funding, at least for the development of the system? The dual problem of obtaining both the funds to develop and install a court information system, and to continue operating the system (i.e., institutionalizing it) was raised in one research report [17] and is a question all prosecutors planning as PMIS must confront.

Another recent evaluation found that apparently little thought was given to local funding of the criminal justice information system after Federal funding ran out.[18] City police agencies were among the users that expended more effort as data providers than as data users; hence, they did not feel they were benefiting enough to contribute to the cost of operation. This evaluation recommended providing management information reports (e.g., arrest statistics by arresting officer's name) in return for data input by the police. Agencies which were equally data users and data providers were quite willing to absorb a share of operating costs.

Prosecutors also generally have very limited staff resources. To what extent should they attempt to use their own personnel to design and develop a PMIS? To what extent should they use outside consultants? A recent study reports that both extremes ("Turnkey" or total outside consultant, and "Total In-House") possess inherent problems and disadvantages which outweigh any possible advantage of either approach.[2] The same study concludes that a combination of consultant support with professional in-house staffing is the proper solution and recommends outside consultants conduct the initial feasibility study.

Applicable Survey Data. Approximately 46 percent of the offices using a PMIS reported that a contractor was involved in development of the system. Offices that reported using a PMIS were queried on the source of funding for their projects. Responses indicate that external funding support was necessary in over 80 percent of the 40 operational PMIS projects responding. The significance of LEAA for development of PMIS's is shown by the data indicating that two-thirds of the projects relied on LEAA funding support.

Judgmental Assessment. None of the sites visited would have undertaken their PMIS project without LEAA funding support. Indeed, due to limited budgets and staffing, and a natural resistance to automation on the part of many attorneys, the rate of adoption of automated PMIS projects would probably have lagged considerably had LEAA support not been available. Only the recent advances in lower cost computer technology would otherwise have stimulated interest.

The need for LEAA funding is usually associated with technical assistance which the majority of projects utilized. Of the 17 PMIS sites visited, ten used an outside contractor, in varying degrees, to advise and/or carry out software development. Outside contractors have been used most effectively where there is an in-house systems capacity present to properly direct the effort and utilize the results.

d. ISSUE: Have constraints, such as privacy/security safeguards and budgets, inhibited the development and operation of PMIS projects?

What are the appropriate controls for safeguarding security and privacy, and to what extent have they been implemented in the existing systems? Federal regulations pertaining to privacy focus on "criminal history record information" compiled by criminal justice agencies on criminal offenders.

This information is recorded as the result of arrest, detention, or other initiation of criminal proceedings. It does not include intelligence, analytical and investigative reports, or statistical records and reports in which individuals are not identified and from which personal identifiers are not ascertainable.[19] The rules and regulations provide specific exceptions for certain original records of entry, court dockets, and court records of public proceedings.[20] Although these exceptions appear to exempt the courts, court managers have been cautioned that the exemptions apparently relate to manual records and case files not to automated files created therefrom. This satisfies the definition of a criminal history record.[7]

Most state and Federal regulations have failed to address the issue of when a current court/prosecution record becomes a criminal history record. PMIS defendant records with no current cases pending may be purged and placed on a criminal history file.[11] At such time, they may come under the criminal history regulations.

One purpose of the privacy regulations was to eliminate the use of FBI rap sheets (criminal histories) which did not record the court dispositions of arrests. Dispositions must be entered into the files within 90 days and most PMIS's provide this capability. Generally, dissemination of automated information is restricted to criminal justice agencies.

There are statutory provisions for sealing or expungement, physical security, individual access, and review (including defendants and incarcerated persons).[19,21] The PMIS should provide logging of all access requests, terminal I.D., password controls, physical control, backup, and other techniques designed to safeguard privacy and confidentiality of records.[15,22]

Applicable Survey Data. Reasons for not using or planning to use a PMIS were solicited and the results reveal that budget and staff are the most important constraints for both larger and smaller offices. Next in importance was the opinion that there was no need for a PMIS. This opinion often appeared to coexist with the budgetary and staffing factors. Privacy was considered the least important constraint.

Judgmental Assessment. Privacy and security constraints have had substantially less of an inhibiting effect than budgetary and staffing limitations on PMIS development and operation. Nevertheless, in two sites visited, there was concern expressed by the prosecutor about safeguarding the confidentiality of his records, particularly when the PMIS operation was outside of his control. The political nature of the district attorney's position makes the distribution of statistical measures of performance highly sensitive in many jurisdictions.

In all sites visited, prosecutors perceive very tight budgetary and staffing constraints on their operation. Many of those not perceiving a need for a PMIS believe that they have neither the staff nor budgets to even consider it. Even those who do plan or use a PMIS would have been unlikely to do so had not external funding support and technical assistance been available.

e. ISSUE: Are PMIS computer programs and procedures being adequately documented so that the system can be maintained and improved, and technology transfers accomplished?

An important factor in assessing PMIS projects is the extent and quality of the available documentation. Sound documentation is crucial to proper maintenance of the system, particularly in the event of personnel turnover, as well as system transfer. LEAA has observed that two of the largest obstacles to be overcome, once the decision has been made to transfer a system, are inadequate documentation and the fact that certain computer languages restrict themselves to one computer manufacturer.[23] Hence, LEAA developed a set of special conditions for grants involving automated data processing. Among other conditions, applicants must agree:

- To use, to the maximum extent practical, computer software already produced and available without obligation. To assist in this area, LEAA publications and regional systems specialists should be consulted.
- That all application programs be written in Federal Standard COBOL or ANSI FORTRAN whenever possible. Programs may be written in ANSI BASIC for microcomputers and minicomputers, subject to certain conditions specified by LEAA.
- To provide complete documentation in accordance with Federal Information Processing Standards (FIPS Pub. 38).

Applicable Survey Data. Almost 90 percent of offices responding to the mail survey indicated they had systems flow, data base and output reporting documentation; fewer (74%) had documented their programs. In 11 of the 17 surveyed projects, documentation was available in various forms. However, only five non-PROMIS sites had finalized and organized their documentation in a fashion suitable for technology transfer.

Judgmental Assessment. Most PMIS projects have tried to document the various components of their system. Many programmers, however, make documentation the final task and sometimes never get around to completing it because of other crises that develop. Because of the challenge in writing separate technical and non-technical manuals for different audiences, a complete set of well organized documentation, prepared in several volumes to address management, systems/programmer personnel, data entry personnel, operators and user needs, is rare.

PMIS project managers desire to complete their documentation, but usually run out of external funding support before documentation is completed. As a group, PROMIS projects have above average documentation supplied by INSLAW under the LEAA-funded PROMIS transfer program. However, many projects have made substantial modifications and these are often not well documented. INSLAW has, however, designed some self documenting facilities into its latest version, MAXI-PROMIS.

3. Issues Concerning the Impact of a PMIS on the Criminal Justice System.

a. ISSUE: Have PMIS projects specified their goals and intended capabilities, and to what extent have these goals been met?

By the effective use of information, prosecutors should be able to meet goals they have set for improved office performance. Before one can attempt to assess impact, it is important to assess whether PMIS's are providing the capabilities that they set out to provide. A recent evaluation of a multi-agency criminal justice information system found that managers were expecting much more than they were receiving. Many felt the system only supported clerical functions.[18] City officials thought the system primarily supported county functions; county officials viewed the criminal justice system as primarily a supporter of police functions of cities. The evaluator concluded that this was symptomatic of early project over-selling of the intended capabilities of the system.

Applicable Survey Data. Prosecution offices were asked to assess the contribution that an ideal PMIS could make to the attainment of certain office goals. Those offices that actually had a PMIS were asked to rate the expected and actual contributions of their system.

Table 5 summarizes the comparative contributions of the ideal PMIS to the expected and actual contributions of their own PMIS projects. The first column shows, on a scale of 0 to 100, an index of the contribution that responding prosecutors, on average, believe an ideal PMIS could make to attaining office goals. Scheduling and logistical control are perceived as the highest area of payoff and an increased conviction rate as the lowest area of payoff. Comparison of expected and actual contributions of their own PMIS projects reveals a gap, particularly for attaining evenhandedness. On the other hand, the gap is smaller for the scheduling goal.

A large gap between actual and expected performance can lead to a sense of frustration on the part of prosecutors. Table 6 summarizes the ratio of the perceived actual contribution to the expected contribution as well as the ratios between the actual and ideal contributions. The ratio of actual to expected contributions indicates that PMIS projects fall short of prosecutors' expectations. This is true for both PROMIS and non-PROMIS projects. PROMIS projects fare better than non-PROMIS projects in contributing to the goal of priority allocations of staff; they are less helpful in scheduling and logistical control and improving the conviction rate. On the ratio of expected to ideal PMIS contribution, PROMIS projects score consistently higher than non-PROMIS, which suggests that PROMIS users continue to have relatively high expectations for their projects.

Table 5. Comparison of Ideal to Expected/Actual Contribution of Prosecutor MIS to Management Goals - Jurisdictions With 25 or More Employees (median percentage contribution)

Prosecutor Goals	Contribution of Ideal MIS to Management Goals N = 75	Expected MIS Contribution N = 73	Actual MIS Contribution N = 30
Allocate staff by priorities	79	70	33
Monitor even-handedness	80	70	12
Control schedules and logistics	89	80	73
Perform research and analysis	81	74	33
Evaluate office/ prosecutor performance	75	60	24
Increase conviction rate	49	30	10

Source: PMIS Assessment Mail Survey, Westat, Inc., July 1979
NOTE: N's vary slightly for each goal. N's for the "ideal" and "expected" columns include jurisdictions operating and planning a PMIS; the "actual" column represents only operational PMIS projects.

Given the ratios shown in Table 6, one would like to combine them into a single composite index that could be used in making an overall assessment of project types. A simple mean of the ratios across all the goals would amount to giving each goal equal weight. An alternative, used in this analysis, is to weight the ratio of actual to expected for each goal by the relative importance weight given that goal, and then computing an average across all goals. Two methods of computing the relative importance weights were used and are displayed in Table 6. The first, composite index A, uses each individual respondent's own goal importance rating as a weight; the second, composite index B, uses the mean of the goal importance weights given by all respondents as a weight for each goal. The ratio for each goal is then multiplied by the appropriate goal importance weight and averaged across all goals to compute each respective composite index. On the basis of the individualized goal importance weights (Composite Index A), there is almost no difference between PROMIS and non-PROMIS

Table 6. Perceived PMIS Contribution to Goal Attainment, Jurisdictions With 25 or More Employees

Prosecutor Goals	Ratio of Actual/Expected Contribution		Ratio of Actual/Ideal Contribution		Ratio of Expected/Ideal Contribution	
	Non-PROMIS (N=20)	PROMIS (N=8)	Non-PROMIS (N=20)	PROMIS (N=8)	Non-PROMIS (N=24)	PROMIS (N=12)
Allocate staff by priorities	.54	.64	.39	.58	.74	.90
Monitor even-handedness	.44	.45	.32	.38	.71	.82
Control schedules and logistics	.84	.61	.73	.56	.86	.87
Perform research and analysis	.61	.55	.49	.53	.85	.94
Evaluate office/prose-cutor performance	.56	.51	.40	.44	.76	.87
Increase conviction rate	.61	.48	.43	.39	.69	.82
Composite Index A (Individualized goal weights)	.45 (11)	.44 (6)	.37 (13)	.40 (6)	.58 (15)	.65 (11)
Composite Index B (group mean goal weights)	.43 (14)	.34 (7)	.33 (17)	.31 (7)	.53 (19)	.58 (12)

Source: PMIS Assessment Mail Survey, Westat, Inc., July 1979

Note: The N's for non-PROMIS sites varied slightly for each goal.

projects in the ratio of actual to expected contributions. Using Composite Index B, the non-PROMIS projects have a higher composite index of actual to expected contribution. The individualized weights result in a somewhat higher composite index for PROMIS than for non-PROMIS with respect to the actual to ideal ratio. Again, weighting each goal the same across the entire population results in a less favorable position for PROMIS projects. This suggests that PROMIS users have somewhat different goals and expectations than non-PROMIS users, and that their actual projects are more in line with their own goals and expectations than with the group average.

One variable that should be controlled in assessing the perceived gap between actual, expected and ideal PMIS contributions to office goals is the length of time that a system has been operational. Normally, one would expect the ratio of actual to ideal to increase over time, as "bugs" are eliminated from the system and capabilities are tailored to office needs.

Table 7 presents analyses of the ratios of actual to expected, actual to ideal and expected to ideal PMIS contributions, controlling for length of time the PMIS has been operational. The composite index was computed using the individualized goal importance weights defined earlier.

PROMIS users score higher than non-PROMIS users in the ratio of expected to ideal PMIS contribution; i.e., they expect their projects to approach the ideal PMIS. This is consistent with the earlier finding for Table 6. However, when one compares the ratios of actual to expected or actual to ideal, the non-PROMIS projects score higher for most goals than the PROMIS projects.

Duplication of effort was observed in eight of the 17 jurisdictions surveyed. The degree of duplication, however, varied widely: in two of the eight projects (both non-PROMIS sites), card files containing extensive duplicative data were being maintained as backup to the PMIS; in two other jurisdictions (one PROMIS, one a non-PROMIS site), separate forms (source documents) were being prepared for PMIS data input operations, thus data were being recorded three times (original report, source document, and entry into PMIS); and, in the other four jurisdictions (one non-PROMIS and three PROMIS sites), statistics were being kept manually because users were not satisfied with the accuracy of the data.

Judgmental Assessment. A written statement of PMIS goals and requirements had been prepared in only five surveyed projects. The prosecutors' expectations of PMIS capabilities usually came from contacts with other jurisdictions, vendors, outside consultants, magazine articles and professional association meetings. A common method by which prosecutors learn of PMIS capabilities is through the exchange of information with other prosecutors. Even if prosecutors do not specify their goals in advance, they do have certain expectations of their PMIS projects.

The most common applications of PMIS projects are on-line defendant and case tracking or status reporting, workload reports and calendar displays.

Table 7. Preceptions of PMIS Contribution to Prosecutor Goal Attainment for Projects Operational 1-3 years - Jurisdictions with 25 or More Employees

Prosecutor Goals	Ratio of Actual to Expected		Ratio of Actual to Ideal		Ratio of Expected to Ideal	
	Non-PROMIS	PROMIS	Non-PROMIS	PROMIS	Non-PROMIS	PROMIS
N	7	7	7	7	8	8
Allocate staff by priorities	.66	.58	.58	.54	.85	.94
Monitor even-handedness	.49	.42	.42	.35	.84	.79
Control schedules and logistics	.82	.60	.77	.56	.95	.90
Perform research and analysis	.58	.59	.53	.58	.93	.98
Evaluate office/ prosecutor performance	.72	.48	.61	.43	.89	.92
Increase con-viction rate	.67	.39	.52	.35	.84	.85
Composite Index	.52	.44	.44	.40	.63	.71

In one jurisdiction, prosecutors have effectively used on-line facilities to prepare one case by examining data across several cases for particular defendants and witnesses. This information can be used in plea bargaining or in discrediting witnesses with prior records. In another jurisdiction, judges have used on-line facilities to check defendant or attorney supplied information in support of continuance motions.

As prosecutors and their systems staff obtain more experience in using their PMIS's and exchange information, an increasing number of innovative and more sophisticated applications can be anticipated. For example,

Alameda County's DALITE and Los Angeles' PROMIS projects have been attempting to use case weighting approaches to assist in determining staff needs. The weights reflect the staff requirements of different case types. Several informative research designs and findings have been reported by INSLAW using the PROMIS data base of the U. S. Attorney's office of Washington, D. C., as well as a cross-city analysis of other PROMIS projects. Oklahoma's ADRS project has a sophisticated statistical analysis and reporting capability which can serve as a model for management analysis applications. Other examples of innovative PMIS applications can be seen: in Tarrant County, Texas, where the prose for various charges are stored on computer files so that charging documents can be rapidly generated whenever charges are changed (e.g., by Grand Jury action); and, in Norfolk, Virginia, where arrest reports and arrest warrants are automatically generated using on-line booking operations.

Analysis of the mail survey responses and site visits indicate a general shortfall in the degree to which PMIS projects have met prosecutor's goals. The situation is better with respect to scheduling and logistical control applications than it is with research and analysis applications. The gap between expected and actual goal attainment will narrow as prosecutors gain more experience in using their PMIS. Implementation of new applications will help the situation, but it is also anticipated that prosecutor's expectations will become more realistic with PMIS experience.

b. ISSUE: Have PMIS projects been useful in generating performance measures, and are they used to improve management and operations?

PMIS introduces a capability for performance evaluation that did not exist previously. Even though PMIS information is a tool of the prosecutor, the existence of information which can be used for evaluation purposes must introduce an awareness of performance evaluability which is a new factor in prosecution behavior. What is the effect of this new awareness? Is it to make the prosecutor more cautious? Does it motivate the prosecutor to adopt particular measurable goals and to try to devise strategies and tactics to implement these? Does it really motivate and enable more effective prosecution management practices?

More research than ever before is being devoted to improving measures of prosecution performance and the quality of justice. A performance measurement program has been proposed and a preliminary analysis has been made of the usefulness of PMIS's in satisfying those requirements.[24] Recent awards have been made by the National Institute for Law Enforcement and Criminal Justice to study the area of performance measurement for prosecutors and for courts. Various research reports have been published related to the subject of prosecution performance measurment, based on data generated by a PMIS.[25]

One problem in developing and interpreting performance measures is the wide variation in procedures and terminology among local jurisdictions. It could be very illuminating to compare various jurisdictions with respect to uniformly-defined performance measures. For example, Church, et al.,

recently defined uniform measures of court case processing time in a study of court delay.[26] By taking a systematic sample of felony cases terminated in 21 courts of general jurisdiction, they were able to develop cross-comparable measures of case processing time and certain court characteristics. The potential advantages of having a number of jurisdictions routinely collect a set of uniformly-defined data are very attractive as demonstrated by Brosi in a recently released research report.[27]

Applicable Survey Data. The mail/telephone survey examined the availability of statistical data for possible evaluation purposes. Table 8 summarizes those responses. For the types of data specified, PROMIS users appear to perceive a greater availability of statistics than non-PROMIS users. Among users, case load statistics are more available than either delay or disposition statistics.

Table 8. Percentage of Sites Reporting Data Available from MIS - Jurisdictions With 25 or More Employees (N's in parentheses)

Type of Data	Planning MIS		Using MIS	
	Non-PROMIS	PROMIS	Non-PROMIS	PROMIS
Case load	40.0 (10)	56.3 (32)	72.0 (25)	85.7 (14)
Case disposition rates	45.5 (11)	56.3 (32)	56.5 (23)	78.6 (14)
Court delay	33.3 (9)	48.1 (27)	63.6 (22)	76.9 (13)

Source: PMIS Assessment Mail Survey, Westat, Inc., July 1979

Judgmental Assessment. A majority of the PMIS projects report that they generate measures related to workload, court delay, and disposition rates of prosecution/court performance. In most of the sites visited where such information was available, the prosecution managers were using the statistics to manage their workloads, e.g., assigning cases to individual prosecutors, prodding judges to move cases faster, and developing office plea bargaining strategies. PMIS performance measures have influenced policy development and decisionmaking as in the establishment of witness assistance/notification

units, career criminal programs, joint prosecution/court projects to reduce court delay, special projects aimed at specific types of crime and development of uniform charging policies and procedures.

c. ISSUE: How cost-effective have various types of PMIS projects been in collecting, processing and displaying information?

Cost-benefit analyses have proved effective in justifying prosecution management information systems.[28] An extensive set of projections can be computed on the cost reductions expected through such capabilities as automated subpoenas and more efficient use of personnel and/or equipment.

It has been reported that court personnel often have negative reactions to the introduction of computer systems.[29] There are, however, certain intangible benefits which are difficult to measure, including:

- Improvement in the adjudication process through more effective, efficient and timely operations;
- Improved public image resulting, hopefully, in improved cooperation; and
- Improved operations and management through research results made possible by the availability of data.[7]

Case scheduling and logistical control capabilities are useful for both prosecution and court management. Capabilities of the PMIS are also of potential use to prosecutors for research, performance evaluation capabilities and monitoring evenhandedness in prosecutory and judicial decisions. The ability to track cases and defendants from arrest through final court disposition is important to police, prosecution, court and correctional agencies. Nevertheless, while PMIS projects prove useful to prosecutors, are they worth the costs in staffing and computer time? Are certain types of projects more cost-effective than others?

Applicable Survey Data. Prosecution offices that reported having a PMIS were asked to give their development and operation costs. Among 24 responding jurisdictions with 25 or more employees, the median development cost was $150,573. The median monthly operating cost was $3,500.

The number of offices that have a PMIS and could provide cost data in responding to the mail survey was relatively small, making any inferences from the sample to the population problematic. Given that caution, Table 9 reports the average development and monthly operating costs per case screened and per case prosecuted in 24 offices that responded to both cost and workload questions. The table compares PROMIS and non-PROMIS projects to the extent that data were available from the mail survey. All else being equal, one would expect projects such as PROMIS, which involve systems transfer, to

show lower development costs than other PMIS projects. However, there is no support for this theory in the data provided by this limited sample of PMIS projects.

Table 9. Development and Operating Cost
Jurisdictions With 25 or More Employees

TYPE OF COST	NON-PROMIS	PROMIS	TOTAL
DEVELOPMENT			
- Median	$150,000 (15)	$175,000 (9)	$150,573 (24)
- Mean cost per case screened	$ 30.32 (6)	$ 38.29 (4)	$ 33.51 (10)
- Mean cost per case accepted	$ 40.79 (9)	$ 43.68 (5)	$ 41.82 (14)
MONTHLY OPERATIONS			
- Median	$ 3,077 (15)	$ 5,000 (9)	$ 3,500 (24)
- Mean cost per case screened	$ .39 (7)	$ .34 (4)	$ .37 (11)
- Mean cost per case accepted	$ .50 (11)	$ .49 (5)	$ .50 (16)

Source: PMIS Assessment Mail Survey, Westat, Inc., July 1979

Judgmental Assessment. The data gathered in Phase I give some indication of patterns associated with apparently effective PMIS projects, as distinguished from apparently ineffective ones. Some projects were more effective in certain aspects of data processing than other aspects; e.g., some projects had apparently effective operational support applications, but inadequate management information generation facilities.

Certain characteristics were observed in PMIS projects with apparently cost-effective data processing operations. One of the most effective project situations was one characterized by extensive data sharing either in an integrated prosecution/court MIS or an integrated criminal justice information system, supported by effective large-scale central data processing facilities.

In most of the effective projects, the prosecutor relied principally on court supplied data with the prosecution staff supplying data on attorney assignments and prosecution witnesses. Assigning the data entry role to the single agency responsible for originating the particular data has systematic advantages in achieving greater reliability and reduced costs (by avoiding duplication of data collection effort).

Another type of project with apparently high cost-effectiveness was one based on the use of a minicomputer, under the prosecutor's control. To be effective, these projects relied on a few experienced data entry clerks who were capable of either directly recording activities in court or coding data from the prosecutor's case file.

A third type of project that was apparently cost-effective was a large-scale system that served multiple jurisdictions with remote on-line terminals or remote batch data entry facilities for participating agencies. The various jurisdictions received apparent economies of scale by sharing a competent central systems staff and facilities.

On the other hand, some types of projects surveyed were not perceived as cost-effective. One class of such projects is characterized by limited data sharing, prosecutor control of data entry, use by a single jurisdiction, and use of large-scale computer facilities operated by a central city or county data processing unit. In some situations, problems were caused by a lack of interagency cooperation and conflicting priorities.

During the site visits, it appeared that sites with limited data sharing also had limited interagency cooperation in areas other than data processing, while the opposite was observed in sites with extensive data sharing. The cost-effectiveness of these projects suffered from unresponsive central data processing support for needed system improvements or modifications, more burdensome data collection procedures than expected, questionable data accuracy, and higher than expected operating costs.

Another ineffective class of PMIS projects was one characterized by a large-scale, ambitious integrated criminal justice information system but without either the necessary interagency cooperation and leadership or the required central data processing support capacity.

The 17 PMIS projects surveyed have been effective in supporting day-to-day operational data processing needs. Four of these systems, however, have not satisfied prosecution desires for information on such subjects as crime specific performance measures and disposition rates, but such capabilities have been planned as a next step in a logical evolution of increasing capacity. Thirteen projects have produced satisfactory management reports. However, special problems or crises often arose creating the demand for an ad hoc research inquiry. Those projects that had the most effective management information reporting capacity usually had generalized and flexible statistical and management inquiry software. In two jurisdictions with recent turnover in

prosecution management personnel, prosecution managers were not aware of the types of PMIS information that would be useful to them. In two other jurisdictions, the prosecutors were well aware of these needs but were frustrated by the delay in getting such information.

d. ISSUE: To what extent can the cost, benefits, and impact of PMIS projects be objectively evaluated?

An in-depth evaluation of the impact of a PMIS project must describe the project's objectives, activities, intended effects, and the changes that occur in the environment. In addition, it should assess whether changes result from the PMIS or from other intervening events.

In their publication, "Intensive Evaluation for Criminal Justice Planning Agencies," Weidman, et al. present various designs for conducting an in-depth evaluation.[30] They state that many evaluations fail to link program activities and results, or definitively describe what actually occurred after funds were expended. The collection of information for intensive evaluation of prosecutor management information systems may be difficult because much of the necessary data may not be available or may be very costly to obtain.

The availability of baseline data is one consideration in determining whether a project's impact can be properly evaluated. Phase I of the NEP is designed to document the chain of assumptions linking the expenditure of funds to project intervention, the project activities to immediate outcomes, and the immediate outcomes to the impact on the problem addressed by the topic area.[31]

Applicable Survey Data. Descriptive statistics have to be used with care. They should be verified and any analysis should be carefully controlled to avoid spurious conclusions due to ignoring certain variables. To determine the reliability of the responses to the mail survey, a question was asked on whether or not the data came from records. The responses are summarized in Table 10 and indicate that caseload data are apparently more available than delay data and that some delay statistics are more available than others.

There is a clear pattern that those jurisdictions using an MIS were able to supply more delay data from records (43.7%) than those planning a PMIS (19.1%) or those neither planning nor using a PMIS (16.8%). Among offices planning a PMIS, prosecutors planning for PROMIS appeared to acquire their delay data from records more often (30.3%) than those planning non-PROMIS projects (7.9%).

Judgmental Assessment. The Phase I study of literature and other data sources revealed many diverse methods of calculating costs and assessing project benefits. These resulted in noncomparable measures among PMIS projects. Objective assessments of benefits and impact can be accomplished only if uniform definitions of cost elements, performance measures and sound evaluative research methodology are applied across projects by a disinterested qualified third party.

Table 10. Percent Reporting Data Acquired From Records - Jurisdiction With 25 or More Employees (N's in parentheses)

Delay Data	No MIS	Planning MIS		Using MIS	
		Non-PROMIS	PROMIS	Non-PROMIS	PROMIS
Arrest To:					
Filing	12.5 (16)	11.1 (9)	28.6 (28)	27.8 (18)	70.0 (10)
Indictment	14.3 (7)	14.3 (7)	33.3 (21)	64.7 (17)	57.1 (7)
Trial verdict	26.7 (15)	11.1 (9)	34.5 (29)	40.0 (20)	66.7 (9)
Misdemeanor guilty plea	21.4 (14)	11.1 (9)	30.0 (20)	29.4 (17)	33.3 (3)
Felony guilty plea related to indictment	16.7 (6)	0 (8)	25.0 (20)	42.9 (14)	25.0 (4)
Nolle/dismissal	9.1 (11)	0 (6)	30.4 (23)	41.7 (12)	25.0 (4)
Case Load Data					
Intake and dispositions	81.8 (11)	66.7 (3)	65.2 (23)	70.0 (20)	72.7 (11)

Source: PMIS Assessment Mail Survey, Westat, Inc., July 1979

Sufficient data exist to determine development and operating costs of PMIS projects. Uniformly defined data collection instruments can be used both in extracting data from records and in conducting key informant interviews. Reasonable estimates can be made to fill in gaps.

Since it is not feasible to evaluate the PMIS project intervention within a controlled experimental framework, a quasi-experimental design must be used. To attribute changes due to the PMIS intervention, the design should provide sufficient observations, and statistical controls for variation in case

characteristics, court characteristics, policy and other variables that might affect performance simultaneously with the PMIS. This requires an in-depth analysis beyond the scope of the Phase I site visits.

Measurement of PMIS effectiveness and impact is quite different from the usual program evaluation situation. PMIS projects have an advantage in that they can be self-monitoring; i.e., they generate the prosecution/court performance measures that, in turn, can be used to measure PMIS impact. A data base can be developed from PMIS case/defendant history files to show changes over time in a time series format.

One problem that occurs in many program evaluations is the unavailability of reliable base line data (conditions existing before the program intervention). However, PMIS project evaluations have an advantage over other types of project evaluations in the collection of baseline data in that the nature of the PMIS project is a chain of events:

(1) Install PMIS;
(2) PMIS measures prosecution/court activity;
(3) PMIS users review statistical reports;
(4) PMIS users make policy and operational decisions; and
(5) Repeat cycle, starting from (2) above.

The PMIS-generated measurements of prosecution/court activity (Step 2) would need to precede the use of that information and any impact on prosecution/court performance. Thus, the data collected in Step 2 constitute a set of baseline data. However, since prosecution/court users must assimilate the technology of the PMIS and learn how to use it effectively, the impact of the PMIS is not expected to be immediate.

Some effects of the PMIS project may result from the development effort itself and the associated staffing and organization activities. The baseline data for analyzing these effects can usually be gathered from key informant interviews, and reviews of office records and procedures. Manual samplings of court case records also can be conducted to fill in data gaps in the PMIS data base and develop baseline data for the period preceding the PMIS operation.

e. ISSUE: Have PMIS's had any measurable impact on the prosecution/court process and criminal justice system?

A PMIS that provides its intended capabilities may still fall short of having any impact on the prosecution/court process. For example, the PMIS can enable prosecution management to monitor evenhandedness. Beyond monitoring, however, is the attainment of evenhandedness itself. It is possible that PMIS, especially in the presence of particular prosecutorial policies, creates greater evenhandedness in charging, plea bargaining, trial outcomes, and in sentencing. This potential PMIS impact should be systematically investigated in any in-depth evaluation.

Some published research reports demonstrate that the PMIS can be employed to evaluate aspects of police and judicial performance.[25] Recidivism studies have obvious implications for the corrections process as well as for prosecution and sentencing policies.

Judgmental Assessment. The Phase I effort revealed no instances where the impact of an MIS on the prosecution/court process had been adequately measured. Any impact assessments in Phase I are necessarily judgments.

About one third of the 17 project sites visited appeared to have utilized their PMIS's to a sufficient extent that the project might have a measurable impact on prosecution or court performance. Fifteen projects reported improvements in case scheduling and logistical control; nine projects reported reduced backlogs and improved rates of disposition.

Prosecutors participating in the PROMIS cross-city analyses have focused on reducing attrition (losses of cases through declinations, nolles and dismissals), or on dropping cases earlier to conserve resources. Some prosecutors may be able to achieve increased effectiveness in dealing with certain crimes and certain types of offenders, e.g., career criminals, with assistance from their PMIS projects. Through more systematic use of their PMIS capabilities, some jurisdictions may be able to show an increase in the proportion of arrests that end in convictions.

Only two sites were observed which systematically reviewed measures of evenhandedness. One site did compare disposition rates across prosecutors to attempt to evaluate individual performance and flag an imbalance in the proportions of pleas, trials, nolles and dismissals.

In two situations, the PMIS was reported to have a negative impact on prosecution/court performance by siphoning off scarce manpower to prepare computer inputs rather than process cases. These PMIS projects received only limited use and could be expected to have no discernible impact.

4. Issues Concerning the Evaluation of PROMIS

a. ISSUE: Are PROMIS projects more comparable and evaluable than non-PROMIS projects?

One significant advantage expected from PROMIS projects has been that the uniform concepts, common terminology, data definitions and other common features would make these projects comparable and thus permit cross-city comparisons. To the extent that common terminology and procedures were used, there might be economies of scale in the availability of technical assistance, research and development and education/training programs.

Applicable Survey Data. During the site visits, the typical site generated adequate operational and management statistics on a periodic basis. Three non-PROMIS sites had available a general purpose statistical software package which could be used in special evaluative analyses. The typical PROMIS project has such a statistical software package.

Another important dimension in examining the evaluability of PMIS projects is the range of applications in use. These have been recorded for all sites visited.

In reviewing applications designed to support operational control, it was observed that case, charge and defendant tracking applications are common for 100% of the PMIS projects surveyed. There is a drop-off to 80% in calendar displays and persons tracking capacity (witnesses, victims, attorneys, etc.); and witnesses notices are produced by only 41% of the surveyed sites. On-line booking is non-existent, of course, among non-integrated projects, but used in seven out of 10 of the integrated systems.

A review of applications designed to support management uses of the PMIS reveals that case inventories are produced at all 17 survey sites. Workload reports are produced at 83% of the sites, while case aging (at 30%) and case weighting (at 12%) are much more rare. The latter features constitute a method of estimating manpower requirements based on case complexity; i.e., the case is given a different weight based on the degree of complexity or other attributes which affect staffing requirements. PROMIS projects score substantially higher (83%) than non-PROMIS projects (30%) in crime-specific and attrition analysis capacity. In general, a higher proportion of PROMIS projects in the sites visited supported management information needs than did the non-PROMIS projects (e.g., across the six PROMIS sites, 70% of the management type applications were produced; across the 11 non-PROMIS sites, 38% were produced).

Judgmental Assessment. Experience among PROMIS user jurisdictions has been that wide diversity still exists in terminology, data elements and procedures. Many of these differences are built into the legal and political structure of each jurisdiction and will not be changed by any information system. Substantial software changes have been made in modifying PROMIS in most jurisdictions in which it has been implemented. This requirement has been recognized by INSLAW in its latest MINI and MAXI versions of PROMIS which highlight a tailoring facility to simplify modifications of data definitions, file structures, etc.

INSLAW produced a cross-city analysis of performance measures in 13 jurisdictions using PROMIS. This effort took over two years to accomplish, although not on a full-time basis. On the scale carried out, it is a commendable achievement, especially important for its focus on prosecutorial discretion and crime specific analysis. Even though each jurisdiction used PROMIS, the technical and data manipulation tasks were very difficult due to all the variations. There have been other cross-city analyses not relying on PROMIS; for example, the National Center for State Court's study of delay in 21 general jurisdiction courts[26] and a revealing study of the judicial process in three cities by Jacob and Eisenstein.[32] In view of the potential for cross-city analysis, the surface has only been scratched by these publications. Questions remain as to the special need for PROMIS projects in such studies, as opposed to inclusion of other PMIS's, or the use of survey techniques by independent statistical agencies.

What is special about the INSLAW study is its focus on the exercise of prosecutorial discretion, the potential for crime specific analyses, and the working relationship built up between INSLAW and the district attorneys of the participating jurisdictions. This relationship probably could not have been developed without the mutual experience of the LEAA-funded PROMIS transfer program. Over the years, INSLAW personnel have demonstrated sensitivity to prosecutors' concerns, competence in their technical fields, and understanding of the prosecution court processes and the pitfalls of inter-jurisdictional comparisons. If funding is continued, the cross-city program may result in the creation of a unique multi-jurisdictional time series data base for analysis of prosecutorial discretion, court performance, policies, and impacts of various types of interventions.

As a group, PROMIS projects make more use of management and statistical information than comparable non-PROMIS projects. Many of them have had cost and benefit studies performed by INSLAW in assessing the feasibility of their adoption of PROMIS projects. As a result of the above considerations, and common conceptual models, the PROMIS projects as a group should be easier to evaluate than non-PROMIS projects.

b. ISSUE: To what extent are PROMIS projects more or less cost-effective than non-PROMIS projects?

One of the assumptions LEAA has made in supporting technology transfer is the potential for saving development costs and improving systems quality and effectiveness. After more than six years of funding PROMIS transfer projects, it seems appropriate to explore their cost-effectiveness relative to non-PROMIS projects.

First, it is fair to recognize the extreme challenge inherent in attempting to develop a portable PMIS. There is great diversity among jurisdictions in their prosecution and court systems. Legal procedures, court organization, statutory constraints, management philosophy, resources, and staff capacities vary to such an extent that many question the basic concept of transfer at the software level. The ability to economically and conveniently adapt or revise data definitions, data entry formats, data processing procedures and output displays is essential for software portability.

Applicable Survey Data. Of 13 operational PROMIS projects, the median development costs are in the range of $100,000 to $199,000. As shown in Table 9 above, this is comparable to the costs for non-PROMIS projects as compiled from the mail survey.

One possible explanation for the lack of substantial development cost savings in transferring PROMIS is the extent of software modifications needed. Table 11 presents a tabulation of the opinions of PROMIS site personnel on the degree of difficulty experienced in transferring PROMIS. More than half (13 of 24 agencies) considered transfer to be more difficult than expected, while none of the agencies considered it to be easier than expected. It is noteworthy that when one compares the different versions, the MINI- and MAXI-PROMIS versions have a much higher ratio of "more difficult than expected"

implementation experience. Of the 13 projects reporting that the transfers were more difficult than expected, seven attributed the difficulties to basic software problems, such as program bugs, as shown in Table 12.

Table 11. Difficulty Experienced in Transferring PROMIS Operational and In-Transfer PROMIS Projects

PROMIS Version	Degree of Difficulty Experienced			
	Easier	As Expected	More Difficult Than Expected	N (100.0)
PROMIS I	0	67%	33%	3
PROMIS II	0	50%	50%	6
MINI-PROMIS	0	33%	67%	3
MAXI-PROMIS	0	33%	67%	6
HYBRID	0	67%	33%	9
TOTAL	0	46%	54%	24

Source: Westat Mail/Telephone Survey, 1979

Table 12. Cause of Difficulty in Implementing Operational and In-Transfer PROMIS Projects for Which Data Are Available (N=13)

PROMIS Version	Primary Cause of Difficulty			
	Software*	Local Cooperation	Redesign for Local Use	Technical Reason Unknown
PROMIS	1	1		
PROMIS II	1	1	1	1
MINI-PROMIS	1			1
MAXI-PROMIS	3		1	
HYBRID	1	1		
TOTALS	7	3	2	2

*Software problems mentioned include bugs in programs and difficulty in compiling.

The survey data indicate that those who have operational PROMIS projects are generally satisfied, although this situation is less so for PROMIS II users.

Judgmental Assessment. From the limited data collected on operational projects in Phase I, there is little support for the theory that PROMIS projects are more cost-effective than non-PROMIS projects. The development costs do not appear to be less, possibly because of the necessity for substantial software modifications to accommodate interjurisdictional differences, including among other factors, software/hardware incompatibilities. It may be true that future PROMIS transfers will be less costly than those to date because there are more hardware and software configuration versions from which to choose. As shown in Tables 6 and 7 above, there is also no evidence that PROMIS projects have been more effective than non-PROMIS projects, except possibly in providing management and statistical information.

c. ISSUE: What are the expectations for PROMIS projects?

With the extensive promotional materials and support available, it is interesting to ask three questions about the expectations of PROMIS users. First, are their expectations unrealistic, leading to projects that are too

ambitious with resultant disenchantment and low cost effectiveness? Second, and related to the first question, how do the expectations of PROMIS users compare with non-PROMIS users? Third, what changes are occurring in the development and use of PROMIS projects, and what expectations are realistic for the future?

Applicable Survey Data. Tables 6 and 7 compared expectations of PROMIS with non-PROMIS projects. Table 13 provides information on PROMIS projects either desiring or planning changes. Of 23 operational or in-transfer PROMIS projects responding, 14 or 61 percent either desired or planned changes. The table shows that only 3 (27%) of 11 PROMIS I and II projects plan to stand pat. The largest swing is to MAXI-PROMIS; 7 (30%) of the 23 projects are switching to that system.

Judgmental Assessment. With no clear evidence of cost and effectiveness advantages, why have so many prosecutors opted for PROMIS projects? It is apparent, from the Phase I site visits and telephone survey, that the type of user who is most enthusiastic about PROMIS projects is the chief prosecutor, that is, each jurisdiction's district attorney. INSLAW has enjoyed success in reaching top management in prosecutors' offices; this is by no means a trivial accomplishment. The PROMIS User's Group has been successful in providing for cross-city communication and exchange of insights on prosecution management policies, use of PROMIS management reports, and funding opportunities. The Phase I survey found that a relatively high proportion of PROMIS users experience more difficulty than expected in transferring and implementing their systems, especially with software problems and data collection burdens. At the same time, from responses to the mail survey, it was apparent that prosecution managers held high expectations for their PROMIS projects.

One of the contributing factors to high expectations for PROMIS appears to be LEAA's continuing funding for PROMIS development. Indeed, since implementation of PROMIS, like implementation of many new software packages, often takes longer than planned, PROMIS transfer completions have occasionally been outpaced by the release of enhanced versions of the system. For example, the highly publicized MINI-PROMIS package was released by INSLAW for field installation in December, 1978. In a telephone survey taken during September and October of 1979, which included sites listed by INSLAW as planning or having PROMIS projects, only one operational MINI-PROMIS as found. While this 9-month lag from release to operation is not in itself surprising, the survey revealed that very few of the sites were still planning to implement MINI-PROMIS. Many were switching to a still newer version, MAXI-PROMIS.

MAXI-PROMIS, the latest version of PROMIS, was released by INSLAW in a preliminary stage in August 1979 for field installation. Of seven sites contacted who were in process of transferring MAXI-PROMIS, all reported major software modifications were needed. Systems personnel at these sites reported that they were doing extensive software development and modification to make MAXI-PROMIS work. As of October, 1979 no sites were found where MAXI-PROMIS

was operational. The system is still new and undergoing change. However, expectations remain high for the many attractive features of this new version, e.g., the tailoring and self-documentation features.

Table 13. Changes Planned or Desired Operational and In-transfer PROMIS projects (N=23)

Existing Version	Totals	Types of Changes					
		To MINI-PROMIS	To MAXI-PROMIS	Add Users	Add Applications	Add On-line Inquiry	None
PROMIS I	3		2			1	0
PROMIS II	8	1	3		1		3
MINI-PROMIS	2		1		1		0
MAXI-PROMIS	2						2
HYBRID	8		1	2	1		4
TOTALS	23	1	7	2	3	1	9

Source: Westat Mail/Telephone Survey, 1979

III. FEASIBILITY TESTS

A. Introduction

1. Evaluability of PMIS Projects

An LEAA report suggests three conditions which must be met for projects to be evaluable.[33] The conditions are:

- Users of evaluation results must agree on definitions of activities, the conditions to be changed, and the kinds of expected outcomes.
- The key project assumptions must be stated in terms which can be tested objectively.
- Program or project managers must clearly define at least one use for evaluation information in making a decision or in initiating administrative action.

Few projects surveyed in the first segment of Phase I had explicit statements of their goals and expected outcomes. However, there were enough models available through transfer projects and other well conceived PMIS projects to infer a set of implicit prosecution goals from interviews and the literature search. The evaluation framework, developed from observations in the first segment of Phase I and discussed in Section II C and in Volume I, presents what our generalizations of definitions of activities, conditions to be changed, and kinds of expected outcomes.

Although the key project assumptions linking PMIS implementation to expected impacts were not explicitly stated in any project, the study enabled the research team to infer an implicit chain of assumptions. The evaluation framework also specifies both quantitative measurements and judgmental assessments by independent observers as a means of objective evaluation.

The final evaluability condition, identification of a clear use for the evaluation results, is the most significant factor. As stated earlier, large sums have been invested at the Federal, state and local levels in developing and operating PMIS projects. Interest in PMIS development is expected to continue. However, particularly in light of recent Federal budget uncertainty, Federal, state and local government decisionmakers must allocate increasingly scarce funds to competing program areas. In the past, many PMIS decisions have been made based on intuitive, emotional, or political motivations, rather than objective information. In the future, funding decisionmakers and prospective PMIS project managers and users will almost certainly require a more complete understanding of the characteristics of successful PMIS development and operation, the situational variables that encourage or hinder successful PMIS implementation, and the expected results, costs and impacts.

Analysis of the data collected during the first segment of Phase I indicated that all three conditions for evaluability appeared to be present and data required to measure performance/impact of PMIS projects appeared to be available. Thus, testing the feasibility of a Phase II evaluation design for PMIS projects was initiated.

2. Purpose of Feasibility Tests

Due to the large number of projects surveyed in the first segment of Phase I, only a limited amount of time could be spent on each. Even where site visits were made, the project team had to rely on available reports and documentation or information gathered in interviews with a few key personnel on site. Thus, it was not possible to elicit detailed information considered crucial for a definitive evaluation of PMIS projects. One purpose of the feasibility tests, then, was to determine the actual availability of data needed for in-depth evaluations, and, where study team and/or PMIS project resources permitted, to collect that data for the purpose of testing evaluative methods.

Once data were collected in sufficient detail, tests were conducted to determine feasible methods of measuring and assessing PMIS impact on the prosecution and judicial processes, PMIS cost-effectiveness, and PMIS transfer potential.

3. Evaluation Approach

Within the context of the general evaluation framework, the evaluator's specific approach was conditioned by two factors beyond his control: the age of the PMIS being evaluated, and the resources available to conduct the evaluation. Therefore, the project team tested the feasibility of both a priori and a posteriori evaluation designs (to be applied, respectively, to relatively new and relatively old PMIS installations), and the feasibility of evaluation approaches involving both intensive and non-intensive data collection.

For relatively new projects, the a priori design provides for thorough measurement of baseline conditions, and monitoring of changes in performance during the evaluation data collection period as measured by predefined indicators of success. For projects that have been operational two or more years, the a posteriori design focuses on the construction of a time-series from historical data files in a retrospective analysis of changes over time. At sites where system enhancement is occurring, these two approaches can be combined. For example, impact of operational support applications may be evaluated on an a posteriori basis while a newly introduced management/statistics capability may be evaluated on an a priori basis.

Each design perspective has advantages and disadvantages. On recently implemented projects, it is easier to reconstruct an accurate set of measurements of baseline conditions. Memories are fresher for interviews on situational variables; judgmental observations can be made, and

manual records on court performance are more readily available. The disadvantage in a priori design is the limited time frame available for observing changes. For example, on newly implemented projects, only about six months of operation can be observed during the course of the feasibility study. Of course, this time frame will vary somewhat depending on the date the particular project became operational.

The a posteriori design has the advantage of providing about up to 24 months of data in a time series format. Such data are amenable to constructing more valid evaluative research designs to measure project impact. To the extent that gaps exist in the definition of baseline conditions, it is more difficult to reconstruct those from sources external to the PMIS itself because of failing memory, warehoused court records, etc. However, a properly constructed a posteriori design can yield the data necessary to measure project impacts.

The a priori and a posteriori approaches involve the use of both PMIS data and samples of manual records. Resource constraints on the feasibility study precluded intensive data collection and analysis at all evaluation sites. Therefore, both intensive and non-intensive data collection approaches were used.

The intensive approach, attempted in three sites, incorporated collection and analysis of PMIS-generated time-series data on indicators of success, as well as sampling and analysis of manual records to attempt to compute performance measures and to assess the quality of PMIS data. The non-intensive approach involved, instead, an assessment of the availability of PMIS time-series data to support impact evaluations and of the availability and comparability of manual records to support analysis of PMIS data quality. While use of the intensive approach at all sites would have been desirable, the non-intensive approach nonetheless generated valuable insights into the feasibility of PMIS evaluation.

4. Test Sites

Six PMIS projects were used as test sites for determining the feasibility of PMIS evaluations. Sites were chosen because of their characteristics and a preliminary indication of being an evaluable PMIS project.* Figure 6 depicts the division of PMIS projects by classes. This set of classes constitutes an initial division of PMIS projects for assessment of general characteristics of each group. The feasibility study was not intended to provide sufficient information for generalizing class characteristics; rather it was designed to test methods for developing such information. The

*Selection criteria for feasibility test sites and comments relevant to their selection are contained in Volume II, Final Report.

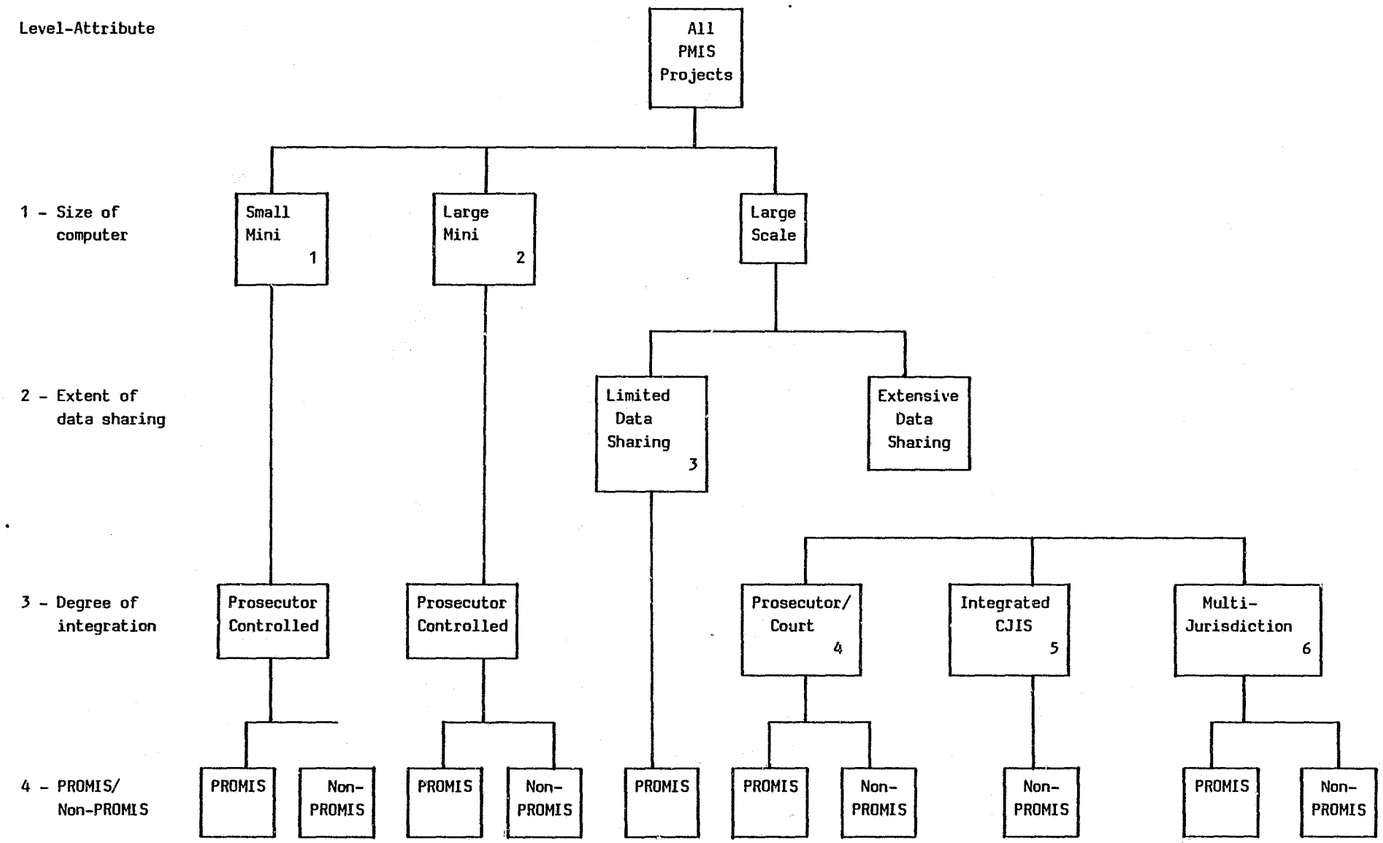

Figure 6. PMIS Project Class Structure

class numbers shown below are indicated by the numbers in the appropriate box in Figure 6. The sites selected within each class were:

- Class 1 - Boston (Suffolk County), MA - Case Management System (CMS);
- Class 2 - Oakland (Alameda County), CA - District Attorney Automated Legal Information System (DALITE);
- Class 3 - Portland (Multonomah County), OR - MAXI-PROMIS
- Class 4 - Golden, CO - Colorado Regional PROMIS (MAXI-PROMIS)
- Class 5 - Norfolk, VA - Total Recall Adult Criminal Element Record (TRACER), a regional system; and
- Class 6 - Oklahoma City, OK - Arrest Disposition Reporting System (ADRS), a statewide system.

The PMIS classes, the sites selected to represent each class, and the data collection/evaluation approaches are summarized in Exhibit 4.

B. Availability and Quality of Data

1. Data Availability

Survey teams spent three days collecting data at non-intensive sites and five days at the intensive sites. The primary survey teams consisted of two persons for each site visit. The survey teams visiting Norfolk and Oakland were each augmented by a Westat field representative. These field representatives were trained interviewers/ data abstractors employed to test the feasibility of abstracting case/defendant information from manual records.

A data collection instrument was prepared for gathering information at the test sites. The collection instrument consisted of a separate section for each agency or office (prosecutor, courts, police and data processing facility) from which information was sought. Face-to-face interviews were conducted in each office or agency. The collection instrument was used as an interview guide and used to record data that were extracted from records or opinions expressed by the respondent. Exhibit 5 lists the general categories of information covered by the collection instrument and shows the availability of data within each category from the agencies (sources) at the six test sites. As indicated in Exhibit 5, most data sought in general information categories were either obtained during the surveys or it was determined that collection of such data is feasible.

PMIS CLASS	SELECTED SITES	DATA COLLECTION APPROACH		EVALUATION APPROACH	
		Intensive[1]	Non-Intensive[2]	A Priori[3]	A Posteriori[4]
1. Small minicomputer	Suffolk County, MA (CMS)		X	X	X
2. Large minicomputer	Alameda County, CA (DALITE)	X			X
3. Large scale computer limited data sharing	Portland, OR (MAXI-PROMIS)		X	X	
4. Large scale computer, extensive data sharing, prosecutor/court	Golden, CO (PROMIS/MAXI-PROMIS)	X			X
5. Large scale computer, extensive data sharing, integrated CJIS	Norfolk, VA (TRACER)	X			X
6. Large scale computer, extensive data sharing, multi-jurisdiction	State of Oklahoma (ADRS)		X		X

1/ Collect data for time series analysis.
2/ Determine availability of data for time series analysis.
3/ A priori - before PMIS implementation.
4/ A posteriori - after PMIS implementation.

Exhibit 4. Data Collection/Evaluation Approach

Exhibit 5. Availability of Data by General Category

Category of Data Expected From Test Sites (Outline of Collection Instrument) *	Actual Data Availability Status												
	Norfolk				Oakland	Oklahoma City			Boston	Portland		Golden	
	TRACER				DALITE	ADRS			CMS	PROMIS		PROMIS	
	PR	CT	PO	DP	Prosecutor	PR	SAC	DP	Prosecutor	PR	DP	PR	DP
A. Personnel													
1. Number assigned	Y	Y	Y	Y	Y	FS	Y	Y	Y	Y	Y	Y	Y
2. Salaries	Y	Y	Y	Y	Y	FS	Y	Y	Y	Y	Y	Y	Y
B. Equipment													
1. Makes, models, quantities	Y	Y	Y	Y	Y	NA	Y	Y	Y	Y	Y	Y	Y
2. Costs	Y	Y	Y	Y	Y	NA	Y	Y	Y	Y	Y	Y	Y
C. Input to PMIS													
1. Methods	Y	Y	Y	Y	Y	NA	Y	NA	Y	Y	Y	Y	Y
2. Volume	Y	Y	Y	Y	Y	NA	F	F	Y	FO	FO	FO	FO
D. Output use and utility	Y	Y	Y	NA	Y	FS	Y	NA	Y	FO	NA	FO	NA
E. Data Quality													
1. User judgments	Y	Y	Y	NA	Y	FS	Y	NA	Y	FO	NA	FO	NA
2. Comparison of PMIS data with manual records	Y	Y	Y	Y	Y	NA	F	F	F	FO	FO	FO	FO
F. Prosecutor goals for PMIS													
1. Identification of Goals	Y	NA	NA	NA	Y	FS	NA	NA	Y	Y	NA	Y	NA
2. Prosecutor ratings of PMIS contributions to goal attainment	Y	NA	NA	NA	Y	FS	NA	NA	Y	FO	NA	FO	NA
G. Interventions	Y	Y	Y	Y	Y	FS	F	F	Y	F	N	Y	Y
H. System operations													
1. Methods and procedures	Y	Y	Y	Y	Y	NA	Y	Y	Y	Y	Y	Y	Y
2. Costs	Y	Y	Y	Y	Y	NA	Y	Y	Y	FO	FO	FO	FO
I. Monthly caseload/caseflow statistics	Y	Y	NA	Y	N	NA	F	F	F	FO	FO	FO	FO
J. PMIS development													
1. Methods	NA	NA	NA	Y	Y	NA	Y	Y	Y	Y	Y	Y	Y
2. Costs	NA	NA	NA	Y	Y	NA	Y	Y	Y	Y	Y	Y	Y
K. Transferability													
1. Hardware/software characteristics	NA	NA	NA	Y	Y	NA	Y	Y	Y	NA	Y	NA	Y
2. Documentation status	NA	NA	NA	Y	Y	NA	Y	Y	Y	Y	Y	Y	Y

LEGEND: Y = Yes, data obtained
N = No, data not available
F = Feasible to collect data, not obtained at non-intensive sites
FO = Feasible to collect data when system is fully operational
FS = Feasible to collect data, needed on a statewide basis
NA = Not applicable to agency, no attempt made to collect data

*Agencies: PR = Prosecutor; CT = Court; PO = Police; DP = Data processing facility; SAC = Statistical Analysis Center

The availability of specific data and the sources from which such data can be collected varied among the surveyed sites.

Time Series Data

The availability of time series data is shown in Exhibit 6. Data to support time series analysis were sought from three sources: (1) PMIS historical files maintained by the ADP facility; (2) monthly statistical reports for the preceding 24-36 months (either PMIS generated or manually prepared by the prosecutor and courts); and (3) case files maintained by the prosecutor and courts.

History tapes were obtained from Norfolk, Oakland and Golden. History tapes were not available from Boston because the project uses disk packs for secondary storage and no tape drive was connected to the system for use in outputting an historical file; the system in Portland was not yet operational; and, there was not sufficient time available to obtain approval from prosecutors statewide for the release of Oklahoma tapes.

Only the tape from Norfolk was used in testing evaluation methods, because of time and money constraints. It was determined, however, that appropriate data could be obtained from PMIS files at all test sites.

Exhibit 6. Availability of Time Series Data

Data expected from test sites	Site Location/PMIS Acronym					
	Norfolk	Oakland	Oklahoma City	Boston	Portland	Golden
	TRACER	DALITE	ADRS	CMS	PROMIS	PROMIS
A. Computer history tapes	Yes	Yes[1/]	No[2/]	No	No	Yes[3/]
B. PMIS generated statistical reports for the past 24-36 months	Yes	No[4/]	Partial	No	No[5/]	No
C. Manually prepared statistical reports for the past 24-36 months	Yes	No	Partial	No	No	No
D. Manually maintained case files	Yes	Yes	Yes	Yes	Yes	Yes
E. Prospective PMIS generated reports probably obtainable	Yes	Yes	Yes	Yes	Yes	Yes

1/ History tapes from HP system could not be processed on IBM systems.

2/ History tapes exist and could probably be obtained, but would require authorization from prosecutors statewide.

3/ History tapes were made available from original PROMIS system; new PROMIS not yet operational.

4/ No statistical reports have been generated from DALITE; statistics generated by CORPUS are considered unreliable.

5/ PROMIS not yet operational; statistical reports are provided to the court in computer listings generated by the State Judicial Information System.

The feasibility of abstracting information from manually maintained case files, for the purpose of collecting time series data for periods prior to PMIS implementation, was also considered. Testing of abstraction procedures was conducted at Norfolk and Oakland. The time and cost involved in the data abstraction procedures are shown in Exhibit 7. The cost of extracting data using these procedures averaged $1.57 per case.

Once needed data are abstracted, processing of that data is required to produce statistics for specific time periods (monthly, for example) to facilitate time series analysis. To accomplish this processing by computer, it would be necessary to enter the data into a computer record and then process that data to generate desired statistics. The cost estimated to accomplish this processing (see Exhibit 8) is estimated at $.87 per case. Computer programming to accomplish this processing would be a one-time estimated cost of about $350 if "canned" statistical packages (such as SAS or SPSS) are to be used.*

The cost to develop time series data for a jurisdiction such as Boston (where statistics are not available for the preceding 24-36 months), is estimated to be from $14,640 (24 months - 6,000 cases) to $21,960 (36 months - 9,000 cases) based on approximately 3,000 cases per year at a cost of $2.44 per case (for abstracting, entering, and processing the data). Considering the labor force for such an operation, the data abstraction on 6,000 cases would require approximately 215 person days; for 9,000 cases, 322.5 person days.

Cost-Benefit Data

The purpose of collecting cost-benefit data was to determine the feasibility of performing cost-benefit analysis of systems representing the six PMIS classes. There was no intent to develop a model for cost-benefit analysis for this study as several models were available**, and others probably have been used for predicting cost or benefits in jurisdictions not included in this study. It seems appropriate that if an analysis is to be performed for a PMIS for which cost or benefits have been predicted, the model used for those predictions should again be used for that jurisdiction to permit comparisons of common data (for before and after PMIS implementation), and for validating the model.

Exhibit 9 shows the availability of cost-benefit data at the test sites.

* Programming costs will be substantially higher unless the analyst has structured the case abstract as a fixed-length record.

**INSLAW cost-benefit model; MULTNOMAH COUNTY OREGON cost-benefit package; National Center for State Courts cost-benefit methodology for Evaluation of State Judicial Information Systems.

Exhibit 7. Abstracting Data from Manually Maintained Case Records

Items regarding test sites	Norfolk	Oakland	Totals
1. Number of records from which data were abstracted	67	73	140
2. Total time (minutes) needed to abstract data (time needed to retrieve case file not included)	1,124	1,278	2,402
3. Average time (minutes) per record (case) needed to abstract data	16.8	17.5	17.2
4. Average wage rate ($ per minute) of person abstracting data	$ .075	$ .108	$ .091
5. Average cost per record (case) to abstract data	$1.26	$1.89	$1.57

Exhibit 8. Estimates Regarding the Processing of Abstracted Data

Items involved in processing	Estimates
1. Average time (minutes) needed to enter on record (case) into PMIS	5.0
2. Average wage rate ($ per minute) for data entry clerk	$ .060
3. Average cost per record (case) for data entry	$ .30
4. Average monthly computer processing cost to produce all monthly statistics needed for time series analysis	$97.00
5. Average number of cases processed monthly as input to statistical reports	5,491
6. Average cost per record (case) for computer processing of monthly statistical data	$ .57
7. Total estimated cost per record (case) to process abstracted data (data entry + computer processing)	$ .87

CONTINUED

1 OF 2

Exhibit 9. Availability of Cost-Benefit Data

Cost-Benefit Items	Site Location/PMIS Acronym: Norfolk / TRACER	Oakland / DALITE	Oklahoma City / ADRS	Boston / CMS	Portland / PROMIS	Golden / PROMIS
A. Cost Items						
1. Total development costs for PMIS	$222,240[1]	$265,000	$248,000[1]	$137,785	$140,000	$406,416[1]
a. analysis, design, programming	$ 54,100[2]	$ 42,185	$217,510[2]	$ 58,985	$136,900[2]	-
b. documentation	$ 18,532	-	-	$ 15,000	-	-
c. equipment purchase	$ 63,360	$222,815	$ 30,490	$ 63,800	$ 3,100	-
d. other (testing, training, etc.)	$ 86,248[2]	-	-	-	-	-
2. Local prosecutor's share of operating costs	$ 30,419[3]	$155,821	N/A[5]	$ 33,600	$ 65,678[4]	-
a. personnel costs (salaries and fringes) for local prosecutor's office	Yes[6]	$ 44,878	$ 84,986[5]	$ 27,300	$ 21,740[4]	
b. equipment leasing	Yes	$ 7,080	$ 31,461[5]	N/A	$ 10,150[4]	
c. equipment maintenance	Yes[6]	$ 23,642	$ 2,775[5]	N/A	$ 8,000[4]	-
d. communications	Yes[6]	N/A	$ 19,245[5]	N/A	$ 12,288[4]	-
e. other operations costs (depreciation of equipment, supplies, technical assistance)	$ 4,584[2]	$ 80,221[2]	$ 24,261[5]	$ 1,200	$ 3,000[4]	-
f. computer processing (charge for CPU time)	See below	N/A[7]	$ 87,272[5]	N/A[7]	$ 10,500[4]	-
(1) on-line processing (inquiries/ entry)	$ 10,610[8]	No[7]	F[8]	No[7]	FO[8]	FO[8]
(2) batch processing (output reports)	$ 12,345[8]	No[7]	F[8]	No[7]	FO[8]	FO[8]

Legend: NA = Not applicable
No = Data not available
Yes = Data available
F = Feasible to obtain data, not collected at non-intensive sites
FO = Feasible to obtain data after system is fully operational

1/ Regional systems: TRACER (Norfolk) serves multiple criminal justice agencies in multiple jurisdictions.
2/ PROMIS (Golden) serves prosecutors in multiple jurisdictions. ADRS (OKLAHOMA) is a statewide system.
3/ Further breakdown of costs for individual items is available.
4/ Operating costs were taken from current budget documents ($27,539) plus the estimated annual cost for data entry ($2,880)
5/ Estimated for first year of operations.
6/ PMIS serves prosecutors statewide; figures refer to cost of PMIS operations as they apply to the Statistical Analysis Center (SAC) of the Oklahoma Crime Commission as estimated in latest budget request.
7/ Norfolk ADP facility charges users according to CPU time. In determining chargeout rates, Norfolk indicates users share of personnel and equipment costs which equate to the costs for batch and on-line processing as shown on lines 2f (1) and (2)
8/ Minicomputers surveyed do not maintain a record of CPU time used for various transactions.
9/ Central ADP facilities using large scale computers maintain records of CPU time usage by transaction; it is therefore feasible to obtain these data.
10/ Estimates not applicable to prosecutor, but can be made by other criminal justice agencies.
Figures represent three year average.

Exhibit 9. Availability of Cost-Benefit Data (Continued)

Cost-Benefit Items	Site Location/PMIS Acronym: Norfolk / TRACER	Oakland / DALITE	Oklahoma City / ADRS	Boston / CMS	Portland / PROMIS	Golden / PROMIS
B. Benefit items - annual savings						
1. cost displacement (personnel, equipment or supplies no longer a recurring expense)	See examples	None indicated	None indicated	None indicated	See examples	None indicated
Examples: • eliminate second (night) shift of clerks	None indicated	-	-	-	$ 49,000 estimated	-
• eliminate filing cabinets, card-vendor, vistu-triever, etc.	Estimates possible[9]	-	-	-	$ 480 estimated	-
• reduce office supplies needed for manual records that are replaced by PMIS operations	Estimates possible[9]	-	-	-	Estimates possible	-
2. Cost avoidance (personnel, equipment costs not expended due to increased productivity or efficiency)	See examples	See examples	None indicated	See examples	See examples	See examples
Examples: • PMIS generation of reports, warrants, subpoenas, etc., reduces clerical & typing time	Estimates possible	None indicated	-	None indicated	$ 12,000 estimated	Estimates possible
• reduce or eliminate need to periodically increase staff to cope with increased caseload	Estimates possible[9]	None indicated	-	None indicated	$ 25,360[10] estimated	None indicated
• reduce the need to obtain answers to case or defendant inquiries	Estimates possible	Estimates possible	-	Estimates possible	$ 8,000 estimated	Estimates possible
• reduce or eliminate need for periodic procurement of additional equipment to cope with increased caseload	Estimates possible[9]	-	-	None indicated	$ 1,700[10] estimated	None indicated

Legend: NA = Not applicable
No = Data not available
Yes = Data available
F = Feasible to obtain data, not collected at non-intensive sites
FO = Feasible to obtain data after system is fully operational

1/ Regional systems: TRACER (Norfolk) serves multiple criminal justice agencies in multiple jurisdictions; and PROMIS (Golden) serves prosecutors in multiple jurisdictions. ADRS (Oaklahoma) is a statewide system.
2/ Further breakdown of costs for individual items is available.
3/ Operating costs were taken from current budget documents ($27,539) plus the estimated annual cost for data entry ($2,880).
4/ Estimated for first year of operations.
5/ PMIS serves prosecutors statewide; figures refer to cost of PMIS operations as they apply to the Statistical Analysis Center (SAC) of the Oklahoma Crime Commission as estimated in latest budget request.
6/ Norfolk ADP facility charges users according to CPU time. In determining chargeout rates, Norfolk indicates users share of personnel and equipment costs which equate to the costs for batch and on-line processing as shown on lines 2f (1) and (2)
7/ Minicomputers surveyed do not maintain a record of CPU time used for various transactions.
8/ Central ADP facilities using large scale computers maintain records of CPU time usage by transaction; it is therefore feasible to obtain these data.
9/ Estimates not applicable to prosecutor, but can be made by other criminal justice agencies.
0/ Figures represent three year average.

Exhibit 9. Availability of Cost-Benefit Data (Continued)

Cost-Benefit Items	Site Location/PMIS Acronym: Norfolk TRACER	Oakland DALITE	Oklahoma City ADRS	Boston CMS	Portland PROMIS	Golden PROMIS
3. Value added (improved services, performance, and decisionmaking capabilities)	See examples	See examples	See examples	See examples	See examples	See examples
Examples: • more inquiries can be answered than with manual system - better service to public and users	Judgment possible	Judgment possible	None indicated	Judgment possible	$ 5,000 judgment	Judgment possible
• new statistical reports - aid decisions	Judgment possible	Judgment possible	Judgment possible	Judgment possible	$ 22,000 judgment	Judgment possible
• case rating/case-weighting capability enhanced	None indicated	Judgment possible	None indicated	None indicated	$146,250 judgment	None indicated
• more efficient use of resources through improved scheduling and notifications to appear in court (continuances reduced)	Judgment possible	Judgment possible	None indicated	Judgment possible	Judgment possible	Judgment possible

Legend: NA = Not applicable
No = Data not available
Yes = Data available
F = Feasible to obtain data, not collected at non-intensive sites
FO = Feasible to obtain data after system is fully operational

1/ Regional systems: TRACER (Norfolk) serves multiple criminal justice agencies in multiple jurisdictions; and PROMIS (Golden) serves prosecutors in multiple jurisdictions. ADRS (Oklahoma) is a statewide system.
2/ Further breakdown of costs for individual items is available.
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7/ Minicomputers surveyed do not maintain a record of CPU time used for various transactions.
8/ Central ADP facilities using large scale computers maintain records of CPU time usage by transaction; it is therefore feasible to obtain these data.
9/ Estimates not applicable to prosecutor, but can be made by other criminal justice agencies.
10/ Figures represent three year average.

Development costs were taken from grant documents and records that account for expenditures for various development components such as analysis, design, and programming.

Operating costs were taken from current budgets for those systems that were fully operational at the time of the survey (Norfolk, Oakland, Oklahoma City, and Boston). Estimates of operating costs were taken from a cost-benefit package prepared by Portland. Operating costs for the old PROMIS system in Golden were obtained, but have not been included in Exhibit 9 which refers to new PROMIS.

Benefits could be identified for the fully operational PMIS projects and predictions of the value of benefits have been made for the two PROMIS projects (Portland and Golden). Portland used the Multnomah County cost-benefit model to predict benefits while the INSLAW developed cost-benefit model was used for Golden. The model used by Portland defines benefits in general terms allowing for the recording of specific benefits in an open-ended manner. This format is conducive to illustrating the availability of cost-benefit data at the test sites and has been used as the outline of benefits listed in Exhibit 9.

Exhibit 9 shows the cost savings predicted by Portland. The comment "estimates possible" indicates that a fairly accurate cost savings can be attached to the defined benefit; "judgment possible" indicates that cost savings attached to the defined benefit would represent a "best guess" by experienced personnel; and "none indicated" means that there was no indication that the defined benefit is applicable to the PMIS surveyed. In general, value estimates are more generally available for benefits in the "cost displacement" and "cost avoidance" categories than in the "value added" category; therefore, cost/benefit evaluation becomes more judgmental as the mix of benefits includes more of the latter group. At one end of the spectrum, Portland, anticipating several types of cost displacement and cost avoidance benefits, has completed a cost/benefit analysis largely in financial terms. For Oakland and Boston, and particularly for the Oklahoma statistical system, the benefits are almost completely of the value-added type. The fact that this makes cost/ benefit analysis of these systems more subject to judgment does not imply that the systems are less desirable than the others.

Data Concerning Transfer Potential

A number of environmental and system factors may influence the transfer potential of a PMIS. Exhibit 10 shows the data collected at the test sites regarding PMIS environment and characteristics.

Detailed cost data on the analysis, design, and programming components of PMIS development were not available at all sites: Oakland and Boston did not identify these costs; and Oklahoma City, Portland, and Golden could calculate these costs fairly accurately. Norfolk, on the other hand, had complete cost details on all developmental components. Since any jurisdiction considering acquisition of a PMIS by transfer will incur costs relating to all

Exhibit 10. PMIS Environment and Characteristics

Environment and Characteristics Descriptors	Site Location/PMIS Acronym					
	Norfolk	Oakland	Oklahoma City	Boston	Portland	Golden
	TRACER	DALITE	ADRS	CMS	PROMIS	PROMIS
A. Environment 1. Area served by PMIS	Region	County	State	County	County	Region
2. Population served	1,250,000	1,100,000	2,766,000	723,000	1,000,000	1,500,000
3. Number of local prosecutors	16	120	316	106	60	25
4. Local prosecutor's annual caseload	2,900[1/]	9,800[1/]	50,000	3,000[1/]	12,200	2,000[1/]
5. Agency controlling computer operations	City ADP	Prosecutor	County ADP	Prosecutor	County ADP	County ADP
6. Extent of PMIS usage	multiple agencies and jurisdictions	prosecutor only	multiple agencies and jurisdictions	prosecutor only	prosecutor only	prosecutors of multiple jurisdictions
B. Characteristics 1. Date MIS became operational	7/76	10/74	1/77	11/77	not operational[2/]	1/80
2. Method of PMIS development	in-house/ contractor	in-house/ contractor	in-house	in-house/ contractor	in-house/ transfer	in-house/ transfer
3. Cost of development	$158,880	$ 42,185	-	$ 73,985	$136,900	$172,722
4. Cost of equipment	$ 63,360	$222,815	-	$ 63,800	$ 3,100	$233,694
5. Total developmental cost	$222,240	$265,000	$248,000	$137,785	$140,000	$406,416
6. Annual operating cost for entire PMIS	$270,768	$155,821	$250,000	$ 33,600	$ 65,678	-
7. Local prosecutor's annual operating cost	$ 30,419[3/]	$155,821	NA	$ 33,600	$ 65,678[4/]	-
8. Hardware a. size of computer	Large	Mini	Large	Mini	Large	Large
b. central processing unit	IBM 370/145	HP3000/III	IBM 370/158	Nova 2/10	Amdahl 270	Honeywell 662C
c. terminals used by prosecutor (make-type)	IMB - CRT's	HP - CRT'S	RACAL - MILGO CRT's	Data Terminal, Inc. - CRT's	IBM - CRT's	Hazeltine CRT's

1/ Felony cases.
2/ For the purpose of this study, a PMIS was considered operational if data were being entered and if outputs (visual displays in response to inquiries and/or printed reports) were being produced at the time of the survey.
3/ Operating costs were taken from current budget documents ($27,539) plus the estimated annual cost for data entry ($2,880).
4/ Operating costs are estimates for the first year of operation, taken from the cost-benefit package.

Exhibit 10. PMIS Environment and Characteristics (Continued)

Environment and Characteristics Descriptors	Site Location/PMIS Acronym					
	Norfolk	Oakland	Oklahoma City	Boston	Portland	Golden
	TRACER	DALITE	ADRS	CMS	PROMIS	PROMIS
9. Software a. operating system	DOS/VS	MPE - III	DOS	MICOS - II	OS/VS1	GEOS
b. data base management system	CICS - VS	IMAGE 3000	IMS	None	ADABAS	I-D-S
c. teleprocessing monitor	CICS	MTS 3000	CICS	None	COMPLETE	TDS
d. programming language	ANSI COBOL	ANSI COBOL 74	ANSI COBOL	BASIC	ANSI COBOL 68	ANSI COBOL 74
10. Input method	on-line	on-line	on-line by 5 counties, forms mailed by others, then on-line by SAC	on-line	on-line	on-line
11. Processing capabilities a. on-line inquiry/ response	Yes	Yes	Yes	Yes	Yes	Planned
b. on-line printing (e.g., forms, notices)	Yes	Yes	Yes	Yes	Yes	Planned
c. on-line report generation	Yes	Yes	No	Yes	Yes	Planned
d. off-line report generation	Yes	Yes	Yes	No	Yes	Yes
12. Types of support and reports a. on-line booking	Yes	No	No	No	No	No
b. on-line arrest reports	Yes	No	No	No	No	No
c. on-line warrants	Yes	No	No	No	Yes	Yes
d. schedules	Yes	Yes	Yes	Yes	Yes	Yes
e. workloads	Yes	No	Yes	Yes	Yes	Yes
f. statistics	Yes	No	Yes	Planned	Yes	Planned
13. Documentation status a. general system description	Complete	Complete	Complete	Complete	Complete	Complete
b. system design	Complete	None	Complete	None	Complete	Complete
c. program source listings	Complete	Complete	Complete	Complete	Complete	Complete
d. logic flow charts	Complete	None	Complete	None	Complete	Complete
e. operational manual	Complete	None	Complete	Complete	Complete	Complete
f. users manual	Complete	None	Complete	Complete	Complete	Complete

1/ Felony cases.
2/ For the purpose of this study, a PMIS was considered operational if outputs were being produced at the time of the survey.
3/ Operating costs were taken from current budget documents ($27,539) plus the estimated annual cost for data entry ($2,880).
4/ Operating costs are estimates for the first year of operation, taken from the cost-benefit package.

aspects of system development, it would be helpful to be able to compare costs of each development component between transfer systems and those fully developed at a jurisdiction.

2. Judgmental Assessment of Data Quality

Crucial Feasibility Issues

The data collection effort in the field investigations included three types of tasks. First, the project itself was described, e.g., data on staffing, costs and computer facilities. Second, the MIS was described, including its operational capacity and interventions over time, its inputs, and its outputs. Third, it was desirable to collect sufficient data on the operation of the criminal justice system, e.g., monthly caseload and dispositions, to permit the construction of a time series data base.

As expected, much of the data collection was straight forward. The three types of data that were most difficult to obtain were comparable project costs, external checks on the accuracy of computer data, and time series data on criminal justice system performance. Thus, the assessment of feasibility was most concerned with these three data collection issues.

Given the collection of adequate time series data, another major issue was the availability of appropriate techniques for analyzing the impact of the prosecution MIS. These techniques had to be able to measure changes in criminal justice system performance in the time frame of the PMIS interventions. In addition to detecting changes in performance patterns, techniques were needed to assist in attributing any changes to the PMIS interventions. Thus, data were required to describe significant variations in caseload mix, personnel, policies, organization, facilities, and other factors that could affect performance in addition to the PMIS itself.

Commonality of Data Across Test Sites

Common data were available from all test sites regarding:

- Personnel - their salaries, fringe benefits and their workload relevant to PMIS operations
- Equipment - makes, models, quantities, cost of purchase or lease and maintenance costs
- Operation of PMIS - methods of input, processing, and output; use, utility, and quality of outputs (from fully operational sites); hardware and software characteristics; and status of PMIS documentation
- Development of PMIS - methods of development.

Data lacking commonality among sites includes:

- Caseload - caseload data differs within jurisdictions as well as among jurisdictions. In Norfolk, for example, caseload statistics maintained by the prosecutor represent "adult felony indictments"; in the Circuit Court, the caseload figures represent counts (there may be several counts in an indictment) of felonies and misdemeanors; and the District Court statistics represent the number of hearings held. Caseloads do not necessarily represent workload, as far as PMIS operations are concerned. In all test sites except Norfolk, the prosecutor (or SAC in Oklahoma City) is responsible for entering all data pertaining to a case or defendant. In Norfolk, the police enter arrest data and the courts enter disposition data. It is important, then, to define the manner in which caseload counts are made; if cost per case is a factor to be considered, a common denominator for counting "cases" should be used.
- Cost of PMIS Development - developmental cost data vary not only in degrees of detail, but also in components included (e.g., contractor cost only or in-house staff as well) and treatment of "soft" costs (e.g., management efforts by chief prosecutor). Moreover, when comparing development costs per case, report, inquiry, population, and prosecutors served across jurisdictions, it is important to take note of the area served by the overall PMIS. In systems serving regional (Norfolk) and statewide (Oklahoma City) areas, it is difficult to allocate the cost of development for one specific prosecutor's office. Therefore, in some sites, developmental costs were stated in gross terms and not equated to the support provided one prosecutor's office. In Golden, on the other hand, the grant application shows expected development costs for each district.
- Operational costs - total costs of operation can be determined for each PMIS. Cost backup data leading to those totals vary among PMIS projects. Centralized ADP facilities, such as Norfolk, Portland and Golden, charge prosecutors for ADP services. In Norfolk, the prosecutor is charged for his share of PMIS operations based on his usage of CPU time. The rate per CPU minute is set to cover the costs of ADP personnel, ADP equipment, and ADP equipment depreciation. In Portland and Golden, charges are made

according to CPU time used plus the cost of personnel time. In Oklahoma City, SAC budgets for PMIS operations and individual prosecutors are not charged for the service. Cost of operations for prosecutor owned systems (Oakland and Boston) involve primarily direct costs for personnel, equipment rental, and supplies devoted to the PMIS. In the latter cases, realistic costs per transaction (input, inquiry, and report) could not be determined within the available time and resource constraints, thus precluding the comparison of such costs across all test sites.

3. Comparison of Expected Versus Actual Availability of Data

It was expected that caseload and caseflow statistics would be more readily available; if not being produced by the PMIS, it was expected that manually kept records would be on hand. Monthly statistical reports are currently PMIS generated only by Norfolk and Oklahoma City; such reports are planned for Boston, Portland, and Golden. Only one manually prepared statistical report (from the Norfolk Circuit Court) was available.

More cost-benefit data were expected to be available. Cost savings have been predicted for only two sites using cost-benefit models; none of the other four sites have documented either predicted or actual savings.

It was expected that more data would be available regarding new-PROMIS operations in Golden. INSLAW newsletters and contacts with site personnel indicated that the system was "operational." As used by INSLAW, "operational" means that the software has been installed on the hardware system, and data are being entered into the systems. At the time of the site visit, between 500-700 cases had been entered into the Golden new PROMIS system and inquiries could be made on those cases; however, no scheduled output reports were being produced. Also, the proportion of cases entered to date was so small that the system was not being used in day-to-day operation. Except as indicated above, the availability of other data was as expected.

C. Analysis of Test Data

1. Cost-Benefit Analysis

Quantifying PMIS costs is a relatively easy task compared to quantifying PMIS benefits. Only Portland identified a reduction in prosecutor's staffing and equipment that is expected because of PMIS implementation; these benefits, if reductions actually take place, can be easily quantified. None of the other prosecutor's offices could identify such clearly defined benefits. In Norfolk, however, the police and the courts are active, on-line users of the system and those agencies can identify and quantify extensive benefits directly related to the PMIS.

One important PMIS benefit identified at all sites is the improved capability to track cases. The fact that cases will no longer "fall through the cracks" (an expression used repeatedly), or "fewer cases are dismissed because of age," are improvements indicated by the prosecutor. The PMIS query and response capabilities reduce the burden of manually retrieving case and defendant information, a PMIS benefit of concern to line prosecutors and the support staff. More efficient use of personnel time, a result of improved scheduling using PMIS capabilities, is another benefit often cited by prosecution personnel.

Benefits derived from new reports, which would not be economically feasible without the PMIS, are difficult to define and may be impossible to quantify in many jurisdictions. Portland has used the method of estimating the cost of manually producing new reports and subtracting from that the estimated cost of PMIS report generation to determine a cost savings. This method may be valid for certain types of reports (for example, statistics to satisfy state reporting requirements), but other factors should be considered in determining the value of new reports. A report, although similar or identical in content, may be used differently among jurisdictions or even within a jurisdiction. In Norfolk, for example, the Circuit Court used TRACER case aging and caseload reports to aid in identifying problems regarding the time involved in case processing; the result was that less court time is now being spent on felony 1 and 2 cases. Similar benefits were not identified in the prosecutor's office, although his office receives similar outputs. Utilization of the TRACER outputs differ between the prosecutor and the court; and the value placed on those outputs would therefore differ between the two agencies. In the prospective INSLAW cost/benefit analysis prepared for Golden, this difficulty is addressed by use of "willingness to pay" as the evaluation measure; however, even that measure is difficult to assess in advance of PMIS implementation.

Benefits can be identified and quantified where PMIS outputs replace manually generated products such as warrants, subpoenas, witness notices, and scheduled reports. Clerical/secretarial personnel can give fairly accurate estimates of the time required to manually produce such items, so costs of manual production can be determined by knowing the wage rate of the producers. The CPU time required to by the PMIS to produce these items can be determined and costs derived from the rate charged for CPU usage. A valid estimate of cost savings can be made for those functions actually replaced by PMIS operations.

Benefits change over time. In the Norfolk situation, discussed above, the benefit of decreasing case processing time occurred approximately 20 months after PMIS implementation; the benefit resulted from the initiation of new reports as part of a phased plan for implementing PMIS support.

Other factors will effect the time when PMIS benefits occur:

- In Portland, for example, dual operations (PMIS and manual) are planned for a 6-9 month period, and dual operations took place in Boston for an extended time.

- A "learning curve" will be involved for prosecutors who receive management-type reports never before provided to them, and benefits will accrue only after experience has been gained in the utilization of these reports.

- Benefits expected or benefits actually accrued may be reduced or negated by management decisions made after the PMIS has been operational for some time. In Norfolk, for example, two police booking stations were consolidated into one because of the on-line booking capability of TRACER, resulting in a substantial savings in manpower and equipment. Now, because of transportation problems and fuel consumption, the police are re-opening the second booking station, thus reducing, to a large degree, a PMIS benefit. Other examples include jurisdictions that continue, or revert to, manual recordkeeping because of inaccuracies in PMIS outputs, although the PMIS continues to generate the outputs; the PMIS generated report may have originally been considered a benefit, but has emerged as an added cost in such situations.

In those jurisdictions where technical resources are limited (Oakland and Boston, for example), benefits are slow in developing because PMIS personnel must devote full time to daily operations. In both jurisdictions, the PMIS is primarily a case/defendant tracking system with printed outputs to support scheduling, case assignments, and retrieving of information. Both jurisdictions plan to have statistical reports but neither jurisdiction will reap benefits from such outputs for some time. The quantification of benefits at these sites would depend, primarily, on the value judgments of the prosecutors because little in way of personnel and equipment cost savings can be identified. It was interesting to note, however, that the Oakland PMIS had an impact on legislation* and that the Boston PMIS has proven helpful to the police**, which are examples of other benefits that would require judgments to quantify -- or possibly cannot be quantified at all. Even though very few

*DALITE was used by the Alameda County prosecutor's office to aid in the research of cases involving a "Ballard Motion" which requires rape victims to submit to psychiatric treatment prior to trial. Cases that involved a motion (the Ballard Motion, per se, could not be identified by the system) were selected and listed by the PMIS. The prosecutors performing the research then retrieved file jackets for only those cases on the list, precluding the need to look at all file jackets for motions. The research revealed extensive delays in trial proceedings because of the Ballard Motion. The resulting court decision on the matter led to repeal of the Ballard Motion legislation.

**One Boston police investigator uses the PMIS generated schedule of cases to identify persons scheduled to appear in court who are "friends of fugitives." On the day of trial, the investigators visit the court to see if the fugitive shows up as a spectator at his friend's trial. A number of fugitive arrests have been made using this procedure.

quantifible benefits can be identified for these systems, the prosecutors are enthusiastic about the improved capabilities provided by the PMIS and, at this point, certainly consider the system to be worth the cost.

The main points emerging from this analysis of cost-benefit data are:

- A PMIS may provide benefits to more than just the prosecutor, even in those jurisdictions where the prosecutor has sole access to the system, and particularly where the system is shared by other criminal justice agencies. An analysis of PMIS costs and benefits should, therefore, include the examination of capabilities and outputs provided to all agencies concerned.

- A number of benefits can be identified that may be difficult or impossible to quantify. Some benefits can be quantified merely by comparing the cost of manual versus PMIS functions; while other benefits require a judgment of their value by the users, for which there is no standard measurement.

- The results of a cost-benefit analysis may be invalidated by subsequent events that violate the assumptions of the analysis and affect the magnitude of a given cost or benefit element.

2. Performance Measures

Of the six sites selected for field investigations, two were considered as a priori evaluation sites because their PMIS's or certain key applications were not operational over a sufficient period of time.* Portland's MAXI or new PROMIS system was not yet operational** at the time of the site visits and Boston's statistical and management reporting capability was not yet operational. In these two sites, the feasibility study focused on the issue of constructing a baseline on criminal justice performance and following changes prospectively.

In the four sites selected for a posteriori analysis, the intent was to construct a data base spanning at least two years, consisting of monthly summaries of case dispositions, delay, and other pertinent performance measures identified in the evaluation framework. It was also desired to include data on control variables, such as caseload and type of case. The field investigation included an examination of alternative methods of data collection, e.g., derivation of data from processing of computer files, tabulations drawn from copies of previously produced monthly statistical reports, and tabulations drawn from a manually retrieved sampling of court case files.

* Operational two or more years.

**For the purpose of this study, a PMIS was considered operational if data were being entered and if outputs (e.g., visual displays in response to inquiries and/or printed reports) were being produced.

A data base consisting of 36 monthly summaries was constructed for the city of Norfolk, starting with January 1977, or six months after the PMIS became operational. The following performance measures were computed for felony 1, felony 2, and other felony cases:

- number and rates of cases terminated, by plea;
- number and rates of cases terminated, by court dismissal;
- number and rates of cases terminated, by nolle by prosecutor;
- number and rates of cases terminated, by trial;
- mean days from arrest to indictment;
- mean days from indictment to trial;
- mean days from trial to sentencing;
- number of fugitives added;
- number of fugitives apprehended; and
- cases set for trial.

In addition, certain workload variables were available, including the number of cases commenced: type, number of hearings, and jury-trial days. A measure of court backlog was available through a special manual system maintained by the court administrator, but was not kept in the computer system.

In order to discern patterns of change, each performance measure was plotted against time in producing a two dimensional graph. To facilitate visual comparisons of the relative magnitude of change across the various plots, the values on the vertical scale (i.e., the impact measures) were standardized to vary from -2 to +3, with some outliers.

Several performance measures exhibited a change in pattern following this PMIS implementation. The number of felony 1 and 2 cases terminated by guilty plea had been declining between January, 1977 (time period 1 in the data) and March, 1978 (time period 15); then appeared to start increasing in a parabolic fashion as depicted in Figure 7. A possibly related pattern of change was observed for mean days from indictment to trial; this pattern changed from a rising one to a leveling off around the 15th month, as shown in Figure 8. The third variable for which a change in pattern occurred also would appear to be related. A rising pattern in the number of felonies dismissed by the court, other than felony 1 and felony 2, was observed starting about the 14th month (see Figure 9). These three patterns could be consistent with a policy of reducing backlong and delay of serious cases through more intensive plea bargaining and court dismissals. This hypothesis was examined during the impact analysis described below.

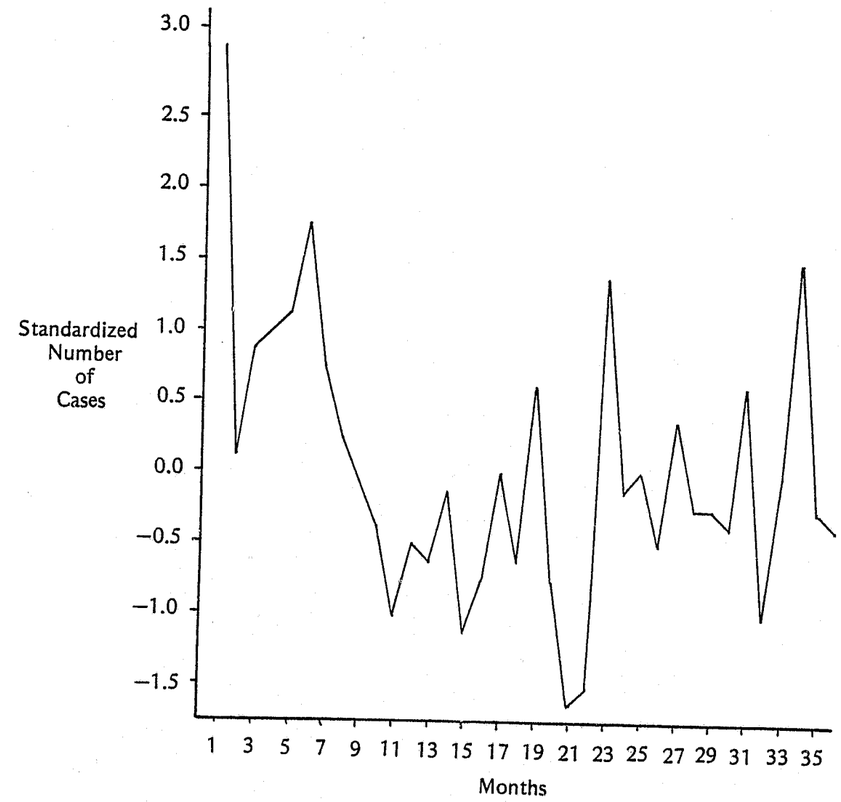

Figure 7. Cases terminated by guilty plea, felony 1&2

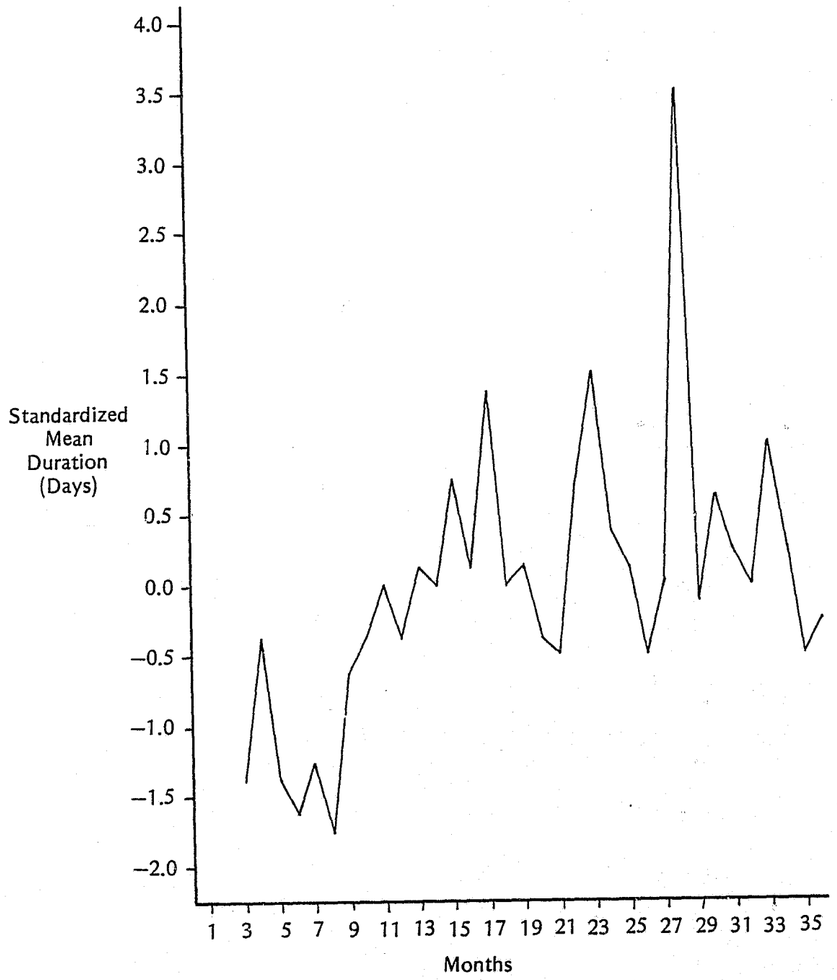

Figure 8. Mean days, indictment to trial

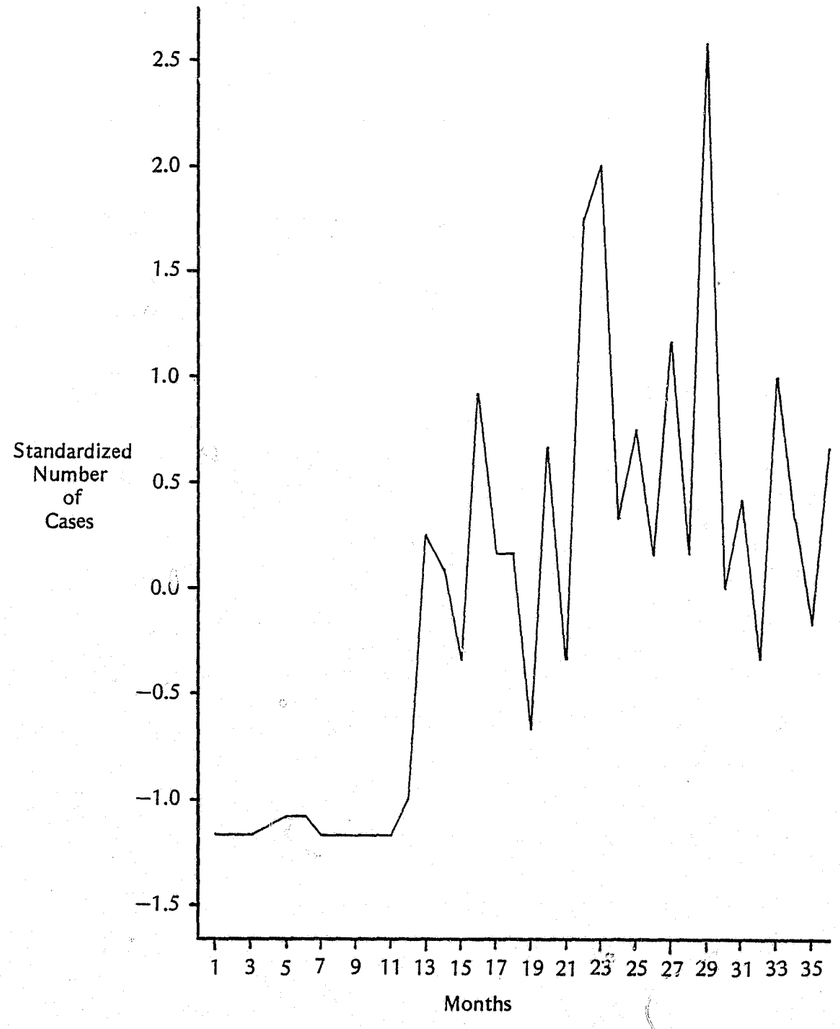

Figure 9. Other felony cases dismissed by court

It was desirable to attempt to adjust performance measures to indicate relative efficiencies, that is to divide by caseload volume. We would like to have divided each month's figures by the backlog (defined as cases pending for prior month, plus cases commenced, less cases terminated). However, because the backlog of pending cases was not available in the computer system, a surrogate measure, cases commenced, was used to adjust for workload.

The analyses indicated no substantial change in patterns of performance over the 36 month period for many of the measures, whether or not account was taken of the court's workload, as indicated by cases commenced. For example, Figure 10 depicts the pattern observed for the proportion of felony cases terminated by trial.

Additional data for measuring performance are maintained on Norfolk's TRACER system, but these data were available for only a portion of the 36 month time series period. These data include:

- Trial outcomes -- guilty, not guilty
- Convictions -- on original charge, or reduced charge
- Cases terminated -- filed this term, filed five months or less

3. Impact Analysis

The measurement of the impact of the PMIS on the prosecution/court process involves two aspects of analysis -- descriptive and explanatory. First, changes in patterns of prosecution/court performance need to be detected. Second, the analysis must attempt to determine whether the change can be attributed to the PMIS. The latter explanatory analysis attempts to rule out effects of external events such as policy or personnel changes.

Each variable was plotted over the 36 month time frame. The pattern of variation in several of the performance measures exhibited a change around March, 1978, the 15th month. Thus, a change in performance was observed. This raised the question -- did the change arise due to the use of TRACER? As indicated in the discussion on the performance measures, the observed changes could have been due to the change in chief judge and the institution of a master calendaring procedure for assigning judges to cases. According to the clerk of the court, it also could have been partially due to the improved utilization of TRACER. This finding would be consistent with a hypothesis that after a 15-month "break-in" period TRACER assisted the prosecutor and court in monitoring cases more efficiently; thereby increasing pleas and reducing time delays. Insufficient information was available to decide this aspect of the analysis.

In order to identify and measure any impacts of the PMIS, it is useful to hypothesize a set of expected impacts. Such hypotheses were formulated for Norfolk's TRACER system as part of the Evaluation Framework. Of course, the hypotheses actually tested were limited by the availability of data.

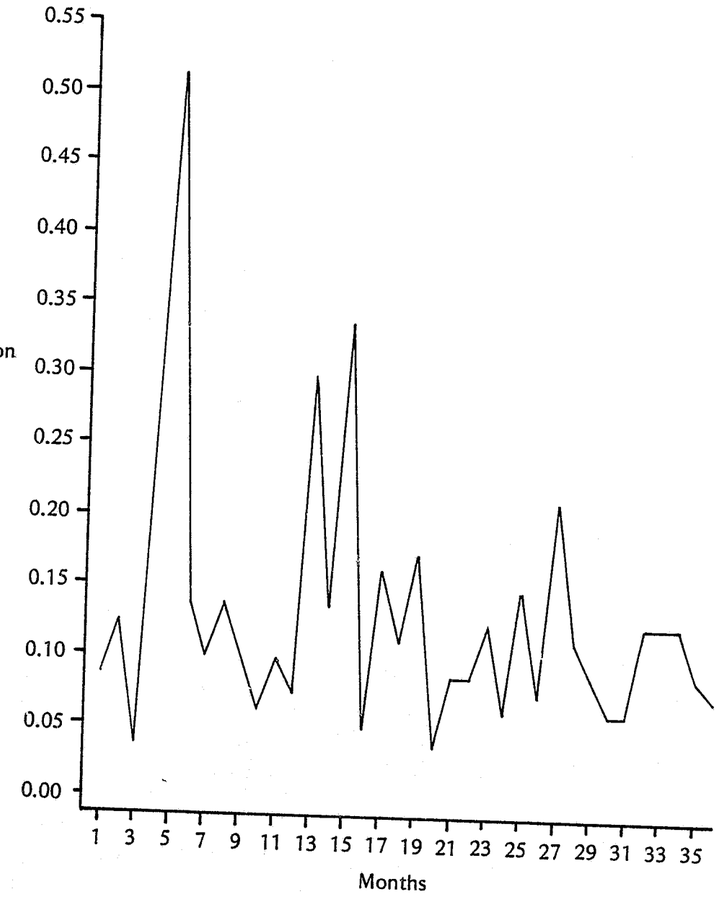

Figure 10. Felony cases terminated by trial

One hypothesis was discussed above, i.e., that improved case tracking added by TRACER enabled the increase in guilty pleas for felony 1 and 2 cases and helped the court reduce time delays. In order to further examine possible impact, a productivity index was hypothesized. This index was structured to combine measures of efficiency and effectiveness. It was hypothesized that productivity would rise as the impact of the PMIS (TRACER, in this case) was felt. The productivity index was assumed to vary directly with cases terminated by plea, cases terminated by trial, cases set for trial, and fugitives apprehended. It was assumed to vary inversely with mean days from arrest to trial, cases nolled and dismissed, and fugitives added. These assumptions were tested for each class of felonies by means of factor analysis. Following validation of these assumptions, the factor loadings were used to construct the productivity index. The index, in turn, was used to test the hypothesis that the PMIS improved productivity.

Seven variables were selected for inclusion in the factor analysis, consistent with the hypotheses to be tested, the availability of data, and examinations of preliminary data plots. The seven variables were total cases terminated by plea, by dismissal and by trial, fugitives added, fugitives apprehended, cases set for trial, and mean time from arrest to trial. The factor analysis had the effect of reducing the number of variables from seven to three.

The three factors are summarized below, indicating those variables which are highly correlated (.7 or higher factor loading):

(1) Factor 1 (positive productivity)

- Cases terminated by plea - factor loading .887;
- Cases terminated by trial - factor loading .768;
- Cases set for trial - factor loading .744;

(2) Factor 2 (negative productivity)

- Cases terminated by dismissal/nolle - factor loading .696;
- Fugitives added - factor loading .814;
- Fugitives apprehended - factor loading .872, and

(3) Factor 3 (delay)

- Mean days from arrest to trial, factor loading .949.

Plots of each factor against time were then performed to attempt to detect any changes in patterns, especially in testing the hypothesized impact relationships.

The fluctuations in Factor 1 identified with positive productivity showed very little change in trend over time. A similar lack of any identifiable impact of the PMIS (see Figure 11) resulted when the variables were converted to rates, i.e., divided by the corresponding figures for cases commenced. The fluctuations in Factor 2 associated with negative productivity variables also appeared to be random either in unadjusted form (see Figure 12) or when adjusted for workload. The delay factor also showed no substantial change in pattern. Thus, there was no support for any hypothesized impact relationships on the total caseload. However, it remained to be tested whether impacts were masked by lumping all felonies together.

A finding that there was little impact of TRACER on the court and prosecution system would have been consistent with certain observations during the site visits. TRACER was being used by the prosecutor for case and defendant status monitoring via terminal inquiry. However, based on interviews of the prosecutor's office in Norfolk, it was concluded that TRACER was underutilized by the prosecutors. The court and police appeared to understand and use TRACER capabilities, but the prosecutor's office needed to be educated and upgraded especially in the use of management statistics.

The above factor analysis showing no discernible impact occurred using variables that measure "all felonies" as one class. When classes of felonies were looked at separately, some changes were observed, as discussed in the performance section. The observed changes in pattern of felony 1 and 2 pleas, average days from indictment to trial and court dismissal rates lent some support to a theory that TRACER was having some impact by helping to expedite case processing. A followup phone call to the Norfolk Circuit Court revealed that the court started to use TRACER outputs, during the observed time period, to examine the age of cases and as an aid in enforcing stricter controls on case processing. Emphasis was placed on the most serious charges in indictments by seeking guilty pleas in favor of dismissing lesser included charges. The court believed that as a direct result, the number of felony 1 and 2 pleas increased, the rate of dismissals increased, and the average days from indictment to trial decreased. The data appeared to support the court's belief that TRACER had such an impact. The project staff also learned that a new chief judge took over about the time that the change was observed. He had a reputation for being tough and instituted a master calendaring procedure to preclude judge shopping, i.e., a judge was not assigned to a case until the day of trial. This change might also help to explain the observed change in disposition rates.

A more conclusive time series analysis would be possible through the use of cross-sectional data involving a group of jurisdictions. This type of design would enable the inclusion of additional control variables.

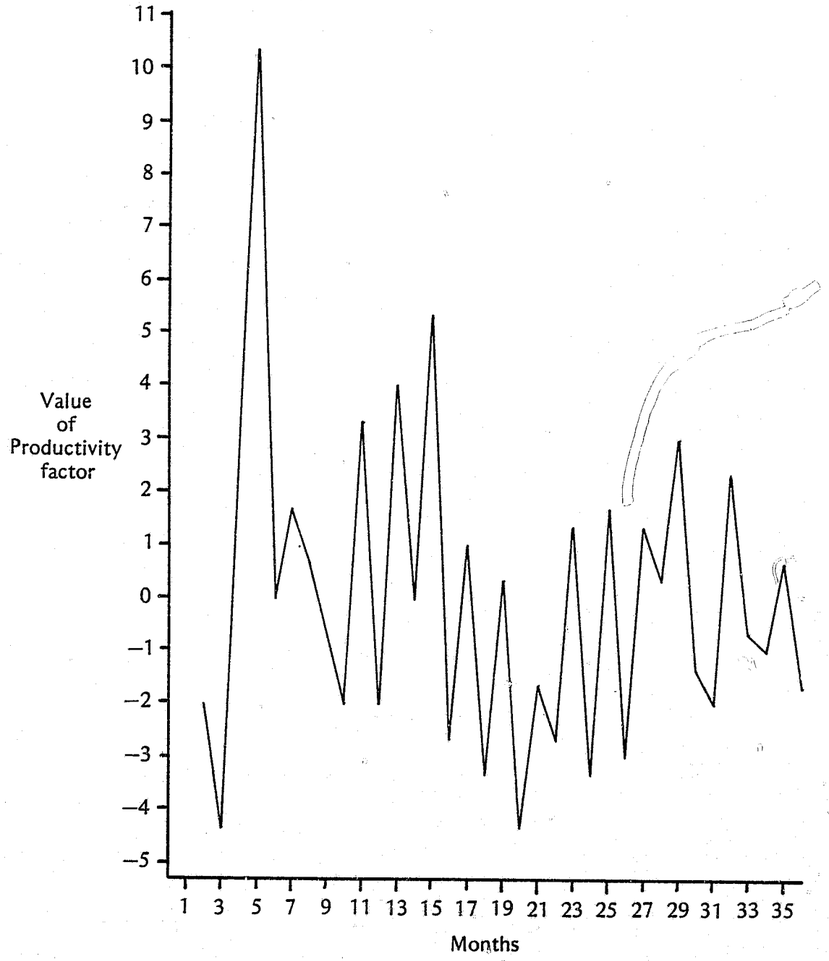

Figure 11. Value of positive productivity factor (dispositions by plea, trial, cases set for trial), by month

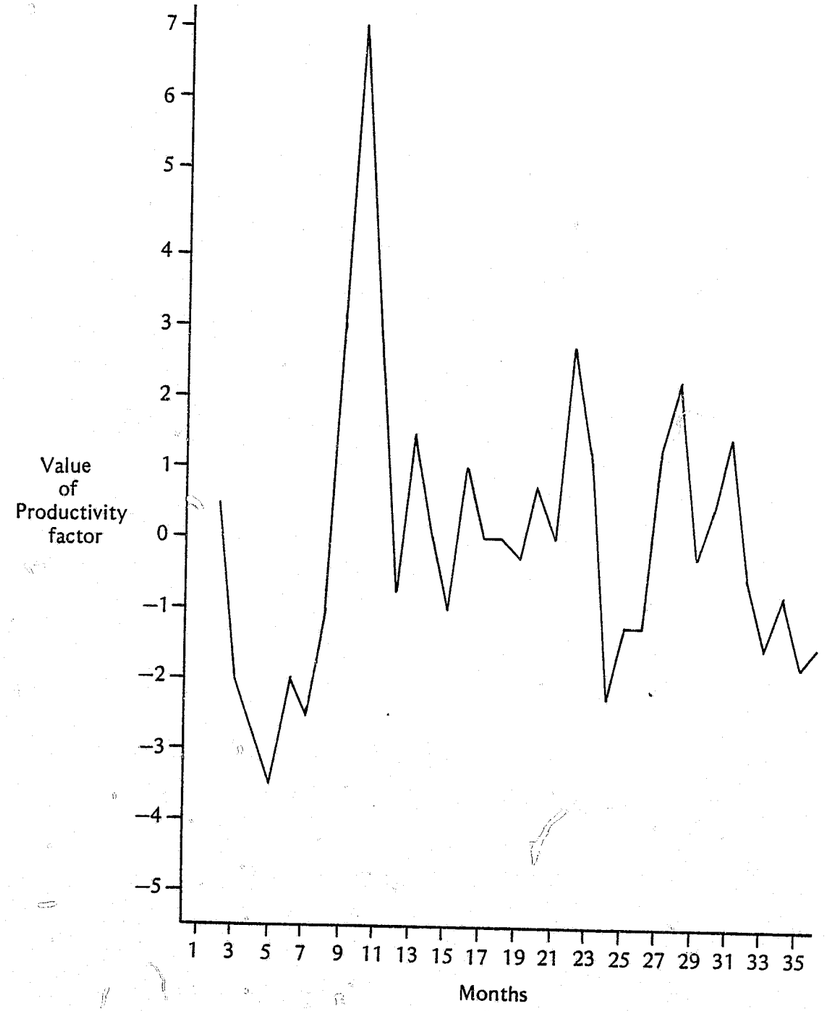

Figure 12. Value of second prodictivity factor (dismissals/nolles, fugitives added, fugitives apprehended), by month

D. Conclusions Regarding Feasibility Issues

1. Cost-Benefit Analysis

Although several cost-benefit models exist and these models have been used for predictions (predominantly PROMIS sites), no evidence was found among the 19 jurisdictions visited during this entire study that retrospective cost-benefit analyses have been performed after PMIS implementation. Analysis after PMIS implementation will require close cooperation among the PMIS users, particularly to obtain agreement that users are willing to provide value judgments (i.e., give dollar values) for intangible benefits.

The goals that a prosecutor establishes for his PMIS are helpful in identifying PMIS benefits. During this study, prosecutors were asked to identify their PMIS goals, and to rate the PMIS regarding "expected" and "actual" contributions toward goal attainments. The ratings were given on a scale of 1-100, but the same approach can be helpful in assigning a dollar value to related benefits.

Many PMIS projects are implemented in phases. The most common practice is to start by entering data for one type of case (e.g., felonies). Once satisfied with the data entry and basic day-to-day operations of the system for the initial case type, the next type of case (e.g., misdemeanors) will be initiated. PMIS applications may also be implemented in phases. The trend is for daily outputs, such as calendars and schedules, to be initiated first, followed sometime later (usually months later) by management reports, such as statistical outputs. PMIS support to daily prosecution operations will reflect some benefits. If cost-benefit analysis is to be used in conjunction with the analysis of PMIS impact on the prosecution process, such an analysis should not be attempted until after management outputs have been produced for 9-12 months (which will also allow time for a "learning curve" regarding use of such outputs).

Performing retrospective PMIS cost-benefit analysis is considered feasible provided that the PMIS is operational for 24-26 months prior to analysis.

2. Availability of Baseline Data for A Priori Impact Analysis

A feasible approach toward construction of the baseline is to combine the use of several data sources, i.e., available statistical reports and special tabulations drawn from a sampling of case records, to generate performance measures.

Where reports on caseload and dispositions are available, they can provide a point of departure in constructing the baseline. Comparability and reliability of annual reports are open to question, and some effort needs to be made to check validity through an external source. A statistical sample of several hundred cases should be drawn manually from the files of cases terminated during the baseline year. Most data could be obtained from court

files. Some data could be obtained from the prosecutor's files. Experience in the field investigations indicated that it would be feasible to construct such a data base for computation of the required performance measures if staff time of about 20 minutes per case could be allocated to the data collection effort.

3. Availability of Time Series Data for A Posteriori Impact Analysis

During the field investigations, the manually maintained prosecution and court case files were examined to ascertain the feasibility of extracting data for constructing a time series. Most jurisdictions maintain their case files in sequence by court case number, and generally these numbers are assigned chronologically on the date the case is filed in court, i.e., accepted for prosecution. In order to obtain statistics on cases for which prosecution is declined, one would have to search the prosecutor's files. Such cases are usually filed by defendant's name or police complaint number. Thus, the most convenient method of selecting the sample is based on the date of case filing. If a large enough sample is drawn, starting with cases filed about one year before installation of the computer (to allow time for building up case terminations), then a representative time series could be constructed. The sample would need to be large enough to generate a sufficient sampling of all the desired subpopulations, e.g., cases declined, cases going to trial, cases dismissed, and other categories for which separate performance measures are desired. The size of the sample required will also depend on the purpose of the task. For example, to produce a set of baseline statistics for a single time frame, a sample of about 400 cases should be sufficient. However, to generate the complete time series data base for impact evaluation would require about 24 monthly summaries. To construct such a data base would probably require a sample exceeding 1,200 cases to be followed through to disposition. Using an estimated 20 minutes per file, about 400 person hours would be required to tabulate the data. The latter type of effort is considered neither feasible nor necessary by the project staff. Since the purpose of the task is to evaluate the impact of the PMIS, it is reasonable to assume that the PMIS would be available to monitor its own performance, and require manual samplings only as supplemental data.

The feasibility of collecting time series data from computer based records was investigated by obtaining computer tapes from Norfolk, Golden and Oakland. The Oakland tape was not readable on Westat's IBM 370 due to some hardware incompatibilities. Oklahoma City could have provided the tape, but required that a written request be submitted to the Governor's Commission for approval. This was not feasible, in view of some potential political sensitivities to release of such data and because of time constraints of the project. The Norfolk (IBM) and Golden (Honeywell) tapes were readable. The project budget did not permit the use of the Golden tapes in time series analysis. However, based on use of the Norfolk tapes, it was the judgment of the staff that it would be feasible to construct a time series data base from the Golden tapes if more time and resources were made available.

4. Analytical Techniques

Analytical techniques were examined for feasibility in three areas:

- cost analysis;
- performance measurement; and
- impact evaluation.

In respect to the first two areas, there are major problems in constructing an adequate data base for subsequent analysis. The need to define appropriate and comparable measures of cost and performance, and collect the required data over the relevant time periods are discussed elsewhere in this report. However, given uniformly defined data elements, the analytical techniques for estimating development and operational costs and productivity/performance for prior periods of activity are conventional. Quantitative techniques for predicting project costs or criminal justice system performance are more challenging. Some predictive cost models were applied by sites, e.g., Portland's cost estimates are discussed elsewhere in this report. Various models for predicting criminal justice system performance exist in the field.* These are considered outside the scope of this feasibility study.

The feasibility issue examined, with respect to analytical techniques, concerned the adequacy of methods of evaluating the actual impact of the PMIS on the court environment. In accordance with the interrupted time series design presented earlier, a data base of monthly activity, spanning at least two years of criminal justice operations, was desired preferably including a period preceding the date the PMIS was considered operational. Given such a data base, techniques were needed to (1) detect any changes in the patterns of criminal justice system activity, and (2) determine the extent to which those changes are attributable to the intervention of the PMIS.

The data base assembled for the Norfolk TRACER system was used in examining the feasibility of applying interrupted time series analysis techniques for impact evaluation. The methods employed combined judgmental assessments of information obtained through on-site interviews and observations, with information obtained through interpretations of statistical analyses of the time series data.

Techniques for detecting changes in the patterns of criminal justice activity appeared to be sufficient. We examined monthly statistics on basic performance measures such as case load, rates of case terminations by plea, trial and dismissal, delay, fugitives apprehended and added, and scheduling

*For example, see "Criminal Justice Model: An Overview," J. Chalken, et al, National Institute of Law Enforcement and Criminal Justice, April 1976.

activity. Bivariate relationships were analyzed first, i.e., the data variables were plotted against time to detect any changes in patterns. For example, was there a change in the rate of dismissals or in the average number of days from arrest to trial of felony cases? We next tried to adjust for the possibility of "noise" in these bivariate relationships, that is, the presence of errors, random variation, and confounding effects of one variable on another. Factor analysis techniques were used and the factors were plotted against time.

This analysis also involved hypothesis testing, i.e., examination of the results in the light of certain hypothesized effects of a PMIS, as discussed above in section III C.3,"Analysis of Time Series Data." The results of the statistical analysis were also compared with the judgmental assessments obtained from the site visit. The project staff concluded that while limited in scope, the techniques for detecting changes in patterns of criminal justice activity are reasonably sensitive and adequate. Again, a crucial aspect of this task is data base development. For example, data on comparative staff attitudes and capacities were obtained only through imprecise anecdotal and observational methods in one site visit. Such information obtained through more systematic observation over the time frame of analysis would have more accurately detected change.

The second set of analytical techniques -- to attribute changes to the PMIS intervention -- is much more demanding. To attempt to perform this attribution, a non-experimental interrupted time series design was adopted as described earlier. A set of hypotheses was formulated to predict the potential impact of the PMIS. Given such a theoretical framework with a sufficiently rich set of control variables, supplemented by judgmental assessments derived from site interviews and observations, it was felt that a credible impact evaluation could be accomplished. The Norfolk PMIS was the only one for which a usable time series data base for impact measures could be constructed in the feasibility study. The data base was limited; it was sufficient for measuring change but not for attribution analysis due to an inadequate number of control variables. In the judgment of the project staff, an adequate time series data base could be constructed in the test sites, using the available PMIS to monitor changes over time, if sufficient time and resources were available. Given an adequate data base, the techniques for analyzing time series data to test hypotheses are considered adequate for impact evaluation, especially if supplemented by judgmental assessments of experienced evaluation researchers.

IV. SUMMARY OF FINDINGS

A. Introduction

Issues emerging from this study have been discussed throughout the report. These discussions include findings that are based on analysis of the collected data, a literature search, opinions of PMIS users and planners, and judgmental assessments made by the study team.

The purpose of this chapter is to summarize the findings of major importance. References to the sections of this report where discussions of the findings can be found are shown parenthetically.

B. Nature and Scope of PMIS Use

Automated PMIS projects, are being used or planned primarily by larger (25 or more employees) prosecution offices, (Section II D.1). More PROMIS projects (as a group) are in use or being planned than any other single project, (Sections I B and II D.1).

Types of PMIS projects in use include: systems dedicated to and controlled by the prosecutor; systems controlled by one agency (prosecutor or court, for example) and shared by the prosecutor and courts; integrated systems, controlled by a central data processing facility and shared by two or more user agencies; and, integrated systems, controlled by a central data processing facility and shared by multiple jurisdictions, as well as multiple agencies. PROMIS, as well as non-PROMIS projects, are employed in all of these types of systems, (Section I B).

The most common and most effective type of PMIS is the integrated system. Advantages of the integrated system include: avoiding duplication of hardware, staffing and work effort; better data quality; and, greater depth in data processing expertise. Greater interagency cooperation and a higher degree of user satisfaction are found more frequently in integrated systems than in dedicated projects; and, confidentiality safeguards in the observed integrated systems were satisfactory (Sections II E.1 and II E.3.c).

C. The State-of-the-Art in PMIS Use

Assessments made by the project staff, during the first segment on-site surveys, indicated that many PMIS's were used effectively to support day-to-day case processing operations, but few were used effectively as strategic management tools, i.e., to support management policy development and decision-making. (For five of seven features supporting day-to-day operations, more than 90 percent of the PMIS projects had some capability and more than 80 percent had state-of-the-art capability. The same was true for only one of nine management features (Sections II E.3.b and II E 3.c). Nothing was

observed in the field investigations, during the second study segment, to change this impression. Indeed, the evidence gathered reinforced the contention that these systems are not yet being utilized to anywhere near their capacity as management information systems. In order for such systems to have an impact, they first must be understood and used. In the course of the site visits, the project staff found that many prosecution managers did not sufficiently understand the potential of the PMIS as a tool for management.

There are notable exceptions, however, to the above observations on the apathy of prosecution managers toward the PMIS as a management tool. Many district attorneys participating in the PROMIS Users Group are highly motivated toward understanding and using PROMIS as a tool in policy development, management decisionmaking and court reform. The difference between PROMIS and non-PROMIS jurisdictions with respect to top management backing is quite noticeable. Non-PROMIS jurisdictions could benefit by establishing user organizations of their own, under the auspices of the National District Attorneys' Association or similar associations, for the purpose of sharing PMIS concepts and technology.

D. PMIS Transfer Potential

PROMIS is the most commonly transferred PMIS, with 37 jurisdictions already operating some version of the system on various hardware configurations, and 134 other jurisdictions reported as either in the transfer process or planning for PROMIS implementation (Section I B).

The transfer of PROMIS was not proven by this study to be less costly than developing a PMIS from scratch. The need to modify PROMIS software to meet requirements of the local jurisdictions has been a primary factor contributing to transfer costs (Sections II E 2.b and II E 4.b).

The transfer of non-PROMIS projects is not a common practice and where transfer has taken place extensive software modifications have been necessary as with PROMIS (Section I B).

Detailed PMIS documentation is essential for technology transfer, but only five non-PROMIS projects surveyed had documentation that was considered adequate enough to support technology transfer (Section II E 2.e). Among the well documented systems, however, interesting applications (e.g., automatic generation of arrest reports and warrants from Norfolk's on-line booking operation - Section I B, and generation of charging documents by the Fort Worth PMIS - Section II E 3.a), and innovative approaches to programming (e.g., San Bernardino's interface control programs - Section II E 2.b) do offer the potential for transfer of non-PROMIS projects, or at least certain applications within those projects.

PROMIS, on the other hand, has been well documented and the latest versions of PROMIS contain self-documenting features (Section II E.2.e). Several versions of PROMIS have been designed as a transferable system with

new capabilities and features being added at each stage of development. The MINI and MAXI PROMIS tailoring features and their capability to run on various hardware configurations offer prosecutors flexibility in adapting the system to meet local requirements and in selecting the type of computer system for their project (Section I B).

Tailoring and self-documenting features of the MINI and MAXI PROMIS versions (Section I B) should help reduce transfer costs; however, experience with PROMIS tailoring had not progressed far enough at the time of the study to make this determination (Section II E 4.c).

E. Funding of PMIS Projects

PMIS projects, both PROMIS and non-PROMIS, have relied heavily on Federal funds and outside consultants to develop or transfer their systems (Section II E 2.c). Lack of money and people is the main reason, cited by both larger and smaller prosecutor's offices, for not using or planning a PMIS (Section II E 2.d).

Federal funding policies (e.g., LEAA's Incentive Fund Program) encourage PMIS transfer (Section II E 2.b), as indicated by the number of operational, planned, and in-transfer PROMIS projects discussed above. Because of the extensive funding of PROMIS, LEAA asked that recommendations be developed as to where future PMIS funds should be concentrated (e.g., further PROMIS development, technical assistance for PROMIS transfers, or development of non-PROMIS projects). Based on the findings summarized above, it is recommended that future Federal funds be allocated in the following manner:

- First priority - technical assistance to PROMIS transfer projects, particularly where experienced data processing personnel are not readily available to cope with PROMIS implementation. In any case, consultants or contractors who have had experience in transferring PROMIS to one jurisdiction will be able to provide valuable assistance to other jurisdictions. If maximum benefits are to be gained from the heavy investment in PROMIS, effective implementation of the systems should be the primary concern to LEAA.

- Second priority - development of non-PROMIS projects. Although the latest PROMIS versions offer prosecutors flexibility in system design, there may be valid reasons for selecting a non-PROMIS approach. For example, it may be more economical or more desirable to expand an existing criminal justice information system (e.g., a court or police system) to incorporate the prosecutor's requirements, rather than attempting to interface PROMIS with the existing system or rather than implementing a separate system just for the prosecutor. Effective PMIS projects have been developed in this manner, such as the TRACER system in Norfolk, VA, which started as a police system.

System modifications will be necessary in every transfer situation. PROMIS tailoring features may help simplify such modifications, but many data processors believe that the disadvantages of transfer (Section II E 2.b) outweigh the advantages; and, many of them hold to the premise that a PMIS should be designed to fit the specific procedures of the jurisdiction and that the jurisdiction should not have to alter procedures to fit a PMIS.* Efficiency of operations is another factor that may prompt modifications. In Golden, Colorado, for example, consideration was being given to modifying new PROMIS to utilize the central computer's own operating system rather than the one contained in the PROMIS package.

Although most non-PROMIS systems may not be documented well enough to support system transfer (Section II E 2.e), innovative approaches, such as interface control programs developed in San Bernardino (Section II E 2.b), do offer the potential for transfer. PROMIS, therefore, is not the only alternative to PMIS support, and prosecutors should not be discouraged from examining those alternatives by denying them Federal funds for that purpose. The Justice Department should encourage innovation and non-PROMIS projects have demonstrated techniques that compare favorably with PROMIS projects.

- Third priority - further PROMIS development. PROMIS has been in various stages of development since 1971. Each version of PROMIS, emerging from this developmental effort, has provided improvements over previous versions, with the latest one (MAXI PROMIS) offering the greatest potential for transfer because of increased flexibilities. Some jurisdictions have delayed PROMIS implementation pending the availability of the latest version.** Other jurisdictions, operating some version of PROMIS, are planning to change to MAXI PROMIS (Section II E 4.c). Among jurisdictions planning to change to MAXI PROMIS and among those planning a PMIS, but who have not decided on what system to acquire, PMIS planners are anxious to see the latest version in operation in order to assess its capabilities and to determine the degree of difficulty in implementing MAXI PROMIS.** Users and developers of automated projects are seldom completely satisfied with the operations of their system; they will (and should) continuously make improvements. At some point, however, priorities should be shifted from system development to system operations in order to gain maximum benefit from the developmental work already accomplished.

  Assigning priorities in this manner would have the effect of first capturing a return on Federal investments already made in reprogramming and enhancing PROMIS for transfer; secondly, capturing

* Based on interviews during on-site surveys.
**Based on comment received from PMIS planners during Westat telephone survey of jurisdictions operating, transferring or planning PROMIS.

benefits on investments made by local jurisdictions in criminal justice systems already in operation; and thirdly, allowing prosecutors to gain more experience using existing applications before investing resources in new enhancements.

F. Availability of Evaluation Data

In general, data needed to evaluate PMIS projects are available; and, it is feasible to collect the data in varying degrees of detail and from various sources (Section III B).

- Caseload data needed for time series analysis is available, but the source for those data will vary. Sources include: PMIS files (e.g., history tapes); monthly statistical reports (either PMIS or manually produced); and/or, case files from which data can be manual extracted (Section III B.1).

- Data concerning total PMIS developmental and operational costs can be obtained, but will vary in the detailed backup data leading to those totals (Section III B.2).

- PMIS benefits are relatively easy to identify, but many benefits are difficult to quantify because they require value judgments by the PMIS users (Sections III B.1 and III C.1).

G. Feasibility of PMIS Evaluations

1. Cost-benefit Analysis

Criminal justice agencies, other than the prosecutor, benefit from PMIS operations. All agencies with direct access to the system, or which receive PMIS outputs indirectly, should be included in any PMIS cost-benefit analysis (Section III C.1).

Cost-benefit analysis should be conducted only after the PMIS has been in operation long enough (24-26 months) to stabilize (i.e., planned dual operations, PMIS and manual functions, have been discontinued; all phases of PMIS implementation have been completed; and, users have reached the apex of the learning curve) (Section III D.1).

If a jurisdiction has made cost and benefit predictions (pre-PMIS implementation), the cost-benefit model used for those predictions should also be used when conducting the cost-benefit analysis (post-PMIS implementation) (Section III B.1).

Prior to conducting cost-benefit analysis, PMIS users within the jurisdiction must agree that they are willing to provide dollar values for intangible benefits (Section III D.1).

Under the conditions summarized above, performing retrospective PMIS cost-benefit analysis is considered feasible (Section III D.2).

2. Performance Measures

A number of performance measures were tested (e.g., numbers and rates of terminated cases, resulting from various actions; mean days from arrest through intermediate court actions to sentencing, and various workload measures) (Section III C.2).

It was determined that a baseline or criminal justice performance for a priori evaluation can be constructed from: data contained in manually prepared statistical reports, where such reports are available; or, by manually abstracting data from case files, if sufficient resources (money and people) are made available (Section III B.1).

It was further determined that data needed for a posteriori evaluations are available from PMIS files (Section III B.1): in some cases, periodic (monthly, for example) computations of performance measures are generated as part of scheduled PMIS processing (e.g., Norfolk and Oklahoma); in other cases, (e.g., Boston and Oakland) additional processing of available data can be programmed to generate the performance measures.

3. Impact Evaluation

The evaluation of PMIS impact on the prosecution/court process requires the detection of changes in prosecution/court performance over time and a determination of whether such changes can be attributed to the PMIS (Section III C.3).

An interrupted time series analysis was tested as a method of detecting changes in prosecution/court performance. It was determined that available statistical techniques are adequate for detecting changes in the patterns of prosecution/court performance. It was also determined that these techniques are useful in determining whether changes can be attributed to the PMIS, but the PMIS data base must be supplemented by a rich set of control variables derived from on-site interviews and observations by experienced evaluation researchers (Section III D.4).

H. PMIS Institutionalization

The extent of current PMIS use and planning for PMIS implementation (Sections I.B and II D.1) indicate a trend toward PMIS institutionalization. PMIS projects have demonstrated usefulness in on-line case and defendant status monitoring. Progress in utilizing the PMIS as a management tool has been very slow. The extent of future PMIS use will depend on a number of factors: the availability of external funds and technical assistance to support PMIS development or transfer; the availability of funds and qualified people to operate and maintain the PMIS after external funds and technical assistance have been discontinued; and the degree that PMIS operations meet prosecutor's expectations.

Since Federal funding and outside technical assistance have been so essential to PMIS implementation thus far (Sections II E.2.c and II E.2.d), PMIS implementations can be expected to continue in the future only if such support is continued.

In jurisdictions where the PMIS is operated by a centralized data processing facility, retaining qualified personnel has been a problem because the pay scale for data processors is usually lower in the local government than in the private sector.* In jurisdictions where the PMIS is operated by the prosecutor, personnel in the prosecutor's office have been trained to operate the PMIS (as noted in three out of four prosecutor operated systems surveyed); these personnel are also looking forward to transferring their newly acquired skills to better paying jobs.* Between the two situations, the centralized facility offers the best opportunity for the prosecutor to obtain access to and retain qualified data processing personnel to support PMIS operations, because of the large personnel staff (Section I B) usually associated with such a facility.

Local funds are currently used to sustain PMIS operations in those jurisdictions where Federal funding has expired. It is only reasonable, however, to expect local budgetary decisionmakers to insist on some evidence that PMIS benefits and/or impacts on the judicial system are worth their cost before increasingly scarce funds are allocated to continue PMIS operations. None of the jurisdictions surveyed had performed a retrospective cost-benefit analysis based on actual experience. However, cost-benefit predictions had been made in some cases (Section III B.3). Although PMIS benefits have not been quantified, top prosecution managers remain enthusiastic about their PMIS capabilities (Section III C.1), particularly where they have been directly involved in PMIS development and display a "pride in ownership" (Section II E.2.b). In these cases, user enthusiasm may offset the lack of documented evidence of PMIS worth, to justify funds for PMIS operations. In other cases, where prosecutor's expectations are not being met by the PMIS (Section II E.3.a), less support for continued PMIS operations can be expected. Therefore, in-depth PMIS evaluations need to be performed to provide users with sufficient justification for continued funding of their PMIS.

In the opinion of the study team, PMIS utilization will continue to expand in the future provided that Federal funding is available to stimulate such projects. Unless the value of PMIS projects can be sufficiently demonstrated through independent evaluations, the availability of Federal funding can be expected to decline. It is also expected that state and local government funding of PMIS projects will not pick up all the slack, unless cose effectiveness can be demonstrated through credible evaluation processes.

*Based on interviews with data processing personnel during site visits.

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Vol. II - System and Program Description
Vol. III - Data Preparation Guide
Vol. IV - Software Implementation Guide

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2.	Expanding the Perspective of Crime Data: Performance Performance Implications for Policymakers, 1977
3.	Curbing the Repeat Offender: A Strategy for Prosecutors, 1977
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APPENDIX C. Persons Interviewed at PMIS Sites

Los Angeles (Los Angeles County), California

Neil Riddle, Data Systems Coordinator
Robert Johnson, Assistant Director, Bureau of Special Operations
Florence Linn, Assistant Director, Central Operations
Michael Genelin, Head, Career Criminal Unit
Joseph Siler, Special Assistant to District Attorney
Larry Donoghue, Deputy District Attorney
Eloise Williams, Data Systems Analyst

Oakland (Alameda County), California

D. Lowell Jensen, District Attorney
Don Ingraham, Deputy District Attorney
Rod Rolefson, Deputy District Attorney
Kathy Bergland, Deputy District Attorney
Richard Haugner, Deputy District Attorney
Ruby Freitas, Administrative Assistant
Dave Budde, Administrative Assistant
Peggy Richmon, Records Clerk
Ninfa Wood, Secretary to District Attorney
Don Whyte, Deputy District Attorney
William M. Baldwin, Deputy District Attorney
Bill McGuinness, Deputy District Attorney
Yvonne Ayres, DALITE Manager/Programmer
Diane Bullock, DALITE Operator
William Kleeman, Deputy District Attorney
Mike Scanlon, Administrative Office, Public Defender's Office
Bill Cook, Records Section Director, Hayward Police Department
C.J. Moret, Chief, Criminal Division, Clerk's Office, Oakland Piedmont Municipal Court
Peggy Hunter, CORPUS Input Section, Alameda County Superior Court
Dan George, CORPUS Project Manager
Herbert L. Pike, Office of Court Administrator, Superior Court
Beverly Graves, Criminal Clerk's Office

Santa Ana (Orange County), California

Truman T. Legg, Senior Systems Analyst
Alan Slater, Assistant Court Administrator
Walter F. Germond, Deputy District Attorney
William J. Morrison, Administrative Services Officer, District Attorney's Office
Don McClure, Manager, Systems and Programming, Computer Sciences Corporation
Keith L. Concannon, Director, Orange County Criminal Justice Council
Ross F. Penne, Center Director, Computer Sciences Corporation

San Bernardino (San Bernardino County), California

James M. Cramer, District Attorney
Rex Victor, Assistant District Attorney
Kay Skawienski, Office of the Public Defender
Debra A. Haskins, Data Processing Coordinator, San Bernardino County Clerk
Jesse Pointer, Data Processing Coordinator, San Bernardino Municipal Courts
Thomas H. Hudson, Manager, Automated Court Information System
James R. Johnson, Vice President, Application Development Systems, Inc.

San Jose (Santa Clara County), California

Robert Webb, Assistant Prosecutor
Jim Hagen, System Manager
Ray Rule, Senior Management Analyst, County Executive Office
Joel Berger, Adult Probation
Alice Wheatly, Municipal Court
Pete Kiefer, Superior Court

Golden, Colorado

Nolan L. Brown, District Attorney
Dan B. Fahrney, Chief Deputy District Attorney, District Courts
Maurice H. Bennett, Jr., Administrator
Kristen M. Beauchamp, Data Entry Technician
Mary L. Simon, Data Entry Technician
Larry Webster, PROMIS Supervisor
Jerry L. Jorgenson, Chief Deputy District Attorney, Intake and Screening
Ray Kechter, Chief Screening Officer
Steve Siegal, Director, Pretrial Services
C. Stephen Cantrell, Deputy District Attorney, Preliminary Hearings
Judi Webb, Paralegal, Preliminary Hearings
Pat Blackard, Clerk, Preliminary Hearings
Diane Edes, Systems Manager, Regional PROMIS, Colorado District Attorney's Council
Deyrol E. Anderson, Deputy Director, Colorado District Attorney's Council
Roger H. Allott, Chairman, Regional PROMIS Board of Directors and Chief Deputy District Attorney, 18th Judicial Circuit
James Opp, Director, Jefferson County Department of Data Processing
Don Haakinson, PROMIS Team Leader, Jefferson County Department of Data Processing
Lt. Bruce Glasscock, Detective Division, Lakewood Police Department
Honorable Anthony F. Vollock, Judge, First Judicial Circuit
Honorable Daniel J. Shannon, Presiding Judge, First Judicial Circuit

District of Columbia

Terry Russell, Special Assistant
David Hetzel, Chief, Misdemeanors
H. Greene, Chief, Superior Court Division
Joe Valder, Deputy Chief, Grand Jury Unit
John Hume, Chief, Felony Trials
John DePaolis, Assistant U.S. Attorney
Gloria Dellavalle, Chief, Systems
John Middleton, Systems, D.C. Office of CJ Analysis
Sue Ellen Hais, Systems, U.S. Attorney's Office

Miami (Dade County), Florida

Henry N. Adorno, Prosecution Management
Jay Kolosky, Assistant Prosecutor
Steven Levenson, Administrative Assistant
Ed Peabody, Office of Computer Services and Information Systems
Robert Castille, Systems Analyst, Dade County Criminal Justice Council
Bill Stoiloff, Clerk's Office, Dade County Court

Waukeegan (Lake County), Illinois

Randall Murphy, Administrator, Lake County Department of Management Services
Richard Hilton, Department of Management Services
Rhonda Brandhorst, Department of Management Services
John Roberts, Project Leader - Justice Systems, Department of Management Services
P. Randall Knowles, Assistant State's Attorney
Honorable Harry D. Strouse, Judge, 19th Judicial Court
Lt. Eugene McGaughey, Lake County Sheriff's Department

Indianapolis (Marion County), Indiana

Stephen Goldsmith, Marion County Prosecuting Attorney
Beth Walpole, PROMIS Coordinator, Office of the Prosecuting Attorney
Bill Divine, Deputy Prosecuting Attorney
Bill O'Connor, Marion County Data Processing
E.W. (Chick) Wieting, Business Manager, Office of the Prosecuting Attorney

Louisville (Jefferson County), Kentucky

Paul Richwelvky, First Assistant
Richard Cooper, Assistant Prosecutor
William Chiquelin, CATCH Project Manager

New Orleans (Orleans Parish), Louisiana

Ralph Capatelli, First Deputy
John Meyer, Assistant Prosecutor
Robert Early, Assistant Prosecutor
Lance Afrik, Assistant Prosecutor
Denis Waldron, Assistant Prosecutor
Emmett Fremaux, Chief Deputy Clerk, District Court
Glen Christina, System Manager
Jim Rousselle, Assistant System Manager

Baltimore, Maryland

Barbara Daly, Office of the State's Attorney
Maryann Willin, Deputy State's Attorney
Mike Nieberding, Project Director, State Judicial Information Systems
Jim Salb, Project Manage, Baltimore Courts Project
George Riggin, Criminal Assignment Commissioner, Supreme Bench of Baltimore
Linda Crowley, State Judicial Information Systems

Boston (Suffolk County), Massachusetts

Dave Rodman, Executive Assistant to District Attorney
Paul Buckley, First Assistant to District Attorney
Jim Caffrey, Assistant Prosecutor
Bob Long, Assistant Prosecutor
George Gushue, Office Supervisor, Assignments Section
John Duffett, Systems Manager, Assignments Section
Mary McCarthy, Data Recorder/Coder
Bernie Dwyer, Assistant Prosecutor
Bob Powers, Assistant Prosecutor
Jim Lynch, Assistant Prosecutor
Daniel C. Mullane, Assistant Prosecutor
Marion Walsh, Legal Administrative Assistant
Detective John V. Nee, Boston Metropolitan Police Department
Bob Mitchell, Judicial Information System, Superior Court, Middlesex County
Bob Stacey, Judicial Information System, Superior Court, Middlesex County

Oklahoma City, Oklahoma

Dr. Glen Wallace, Director, Statistical Analysis Center (SAC), Oklahoma Crime Commission
Jim Wilson, ADRS System Manager, SAC
Jon Steen, Data Analyst, SAC
Neal Gilson, ADRS Training Officer, SAC
J. Patrick Sweeney, Systems Analyst, SAC
Del Woodruff, Oklahoma County District Attorney's Office, System Manager
Jane Bluejacket, Programmer
Paul D. Boyd, Chief, Identification Section, Oklahoma State Bureau of Investigation
Tom Elliott, Director, District Attorney's Training Coordination Council
Niles Jackson, Attorney, District Attorney's Training Coordination Council
Tom Thompson, First Assistant District Attorney, Pottawatomi County, Shawnee, OK

Portland (Multnomah County), Oregon

Jack Pessia, PROMIS Coordinator
Chrys A. Martin, Staff Assistant
Suzanne Lewis, Data Input Control Clerk
Dorthea Anderson
Kelly Bacon, Executive Assistant
Wayne C. Pearson
Jack Wilson, Systems Analyst, Data Processing Authority
Bob Davidson, Financial Administrator, Data Processing Authority
Charles Benard, Criminal Coordinator, Circuit Court
Adele Goggins, System Specialist, Circuit Court

Fort Worth (Tarrant County), Texas

Wayne Hyde, System Manager
J. J. Heinemann, Assistant Prosecutor
Steve Chaney, Assistant Prosecutor

Norfolk, Virginia

Tommy Miller, Assistant Prosecutor
Tom Baldwin, Administrative Assistant, Commonwealth's Attorney's Office
J.W. Nixon, Data Processing Manager, General Services
A.C. Hooper, Clerk of Court's Office, District Court
Charlie Greene, Clerk of Court's Office, Circuit Court
Bill Garbee, Systems Analyst, Data Processing Division
Sgt. D.H. Mason, Central Files Division, Norfolk Police Department

Norfolk, Virginia (Continued)

Capt. Niel Koch, Commander, Central Files Division, Norfolk Police Department
Martin Mendelsohn, Director of General Services
Rich Nichols, Systems Analyst, Data Processing Division
Jim Barnhill, Norfolk Police Department
Ginger Nicholson, Commonwealth Attorney's Office
Carol Marx, Commonwealth Attorney's Office
Tom Rutherford, Commonwealth Attorney's Office
Lee Ann Diller, Systems Analyst, Data Processing Division

Milwaukee (Milwaukee County), Wisconsin

Louis A. Metz, III, Judicial Information Systems Coordinator, Clerk of Courts
Honorable William Gardner, Judge
Sgt. Richard Krizan, Milwaukee County Sheriff's Office
Donald Thorgaard, Chief Deputy, Clerk of Court's Criminal Division
Robert Erdman, Calendar Clerk, Clerk of Court's Criminal Division
Franklin Lotter, Superintendent, Milwaukee County House of Corrections
Herman B. John, Deputy District Attorney

END