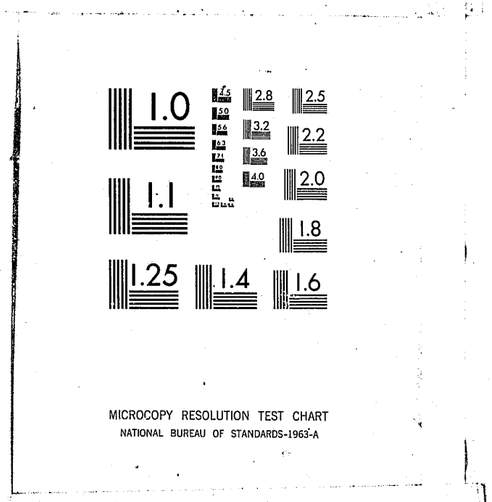

FUNCTIONAL REQUIREMENTS ANALYSIS OF STATE IDENTIFICATION BUREAUS

October 1980

Report of work performed under Grant Number 78-SS-AX-0040 and Supplemental Grant Number 80-BJ-CX-0037 awarded the International Association for Identification (IAI), Inc., of Utica, New York, by the Bureau of Justice Statistics, U. S. Department of Justice.

Points of view or opinions stated in this document do not necessarily reflect the official position or policies of the U. S. Department of Justice.

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FOREWORD

This report has been prepared by the International Association for Identification (IAI) under an LEAA grant intended to promote the "Improvement of the State-Level Identification Function."

The goal of this study is to provide information for the identification, definition and prioritization of the needs and operational requirements of state identification bureaus. This document is one of a series of three documents produced in this project effort. These three documents are as follows:

- **Executive Summary** — *This document presents the highlights and major findings, conclusions and recommendations of the overall study primarily for the general reader.*
- **Functional Requirements Analysis** — *The detailed findings, conclusions and recommendations of the study are presented here, which are designed to be of greatest interest to bureau managers and their technical staff.*
- **Systems Development Plan** — *This work builds upon the findings, conclusions and recommendations of the Requirements Analysis and presents the general framework and priorities for implementation of improvement opportunities.*

ACKNOWLEDGMENTS

The input and assistance of a great many people who participated in the project is gratefully acknowledged. It was found that all who participated in the project were vitally concerned with the current operational needs of state level identification bureaus and interested in proposed solutions.

Key staff in 46 state identification bureaus, the FBI Identification Division, and the Washington, D. C., Metropolitan Police Identification and Records Division responded to the survey questionnaire. Six state bureaus and two local identification agencies hosted the project team during in-depth site assessments. Special thanks are extended to all those involved as well as to members of the IAI Advisory Committee for their invaluable assistance and direction.

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SECTION 2
OPERATIONAL AND TECHNICAL

INTRODUCTION

The purpose of this document is to present a functional requirements analysis of state level identification bureaus. While the report is designed to discuss the various functional needs of the bureaus, it also is cognizant of the fact that each bureau, while having similar functions and goals is unique and has its own set of special concerns, problems, and needs.

This report represents an analysis of data about state identification bureaus obtained by two methods. The project team participated in site visits to six state bureaus and two local agencies. The sites visited are listed below:

- Florida Department of Law Enforcement
- Georgia Crime Information Center
- Pinellas County Sheriff's Office
- San Antonio Police Department
- Texas Department of Public Safety
- Utah Department of Public Safety
- Washington State Patrol
- Wyoming Attorney General

In each site visit, the operation, organization and technology of the bureau was examined through interviews with staff and by the collection and review of pertinent documentation. This data included information on activities, volumes, reporting requirements and the operational environment.

The second method of data collection was through the use of a mailout questionnaire to the fifty state bureaus, the District of Columbia and the FBI (for federal offenders). The questionnaires gathered essentially the same range of data obtained during the site visits including fiscal data, personnel position descriptions, salary structures, operational procedures, and, included a section of prioritization of needs. Forty-eight of the fifty-two questionnaires were returned, which is indicative of a high degree of interest in this area.

It is not the intention of this report to set out blanket solutions or design specific programs but rather to identify in functional terms the current status and needs of the identification bureaus as a whole. Once those needs and problems

have been identified the groundwork will have been laid for the systematic application of remedial action and the development of individual solutions to those needs.

This document is divided into two main sections. The first section discusses the requirements of fingerprint bureau administration and management including such areas as the duties, responsibilities and organization of the bureau as well as budget, staffing and fiscal matters. The second section of the document deals with the requirements of the bureaus in the performance of their technical services such as name/fingerprint search, disposition reporting and the like. It also encompasses the operational relationships between the state bureau, the FBI and local identification agencies as well as special topics such as the national criminal history interchange and local agency requirements that impact the operation of the state identification bureau. Issues related to high technology such as fingerprint scanners were purposely omitted from this document since it was felt that this technology, due to cost, could only be available to the large states.

SECTION 1

ORGANIZATION AND ADMINISTRATION

1.0 Duties and Responsibilities

The duties and responsibilities of state level identification bureaus are governed and controlled principally by individual state legislation, and as such, there is some variance among states. It was not within the purpose or scope of this study to compile or analyze the separate state legislation governing the identification function. Rather, states were asked to indicate if they perform certain common identification functions, and whether those functions are legislatively mandated or performed through the discretion of the bureau or its parent agency. The functional requirements of identification bureaus which are discussed in this document are based upon the duties and responsibilities of state bureaus as outlined here. Over the full range of state bureaus, these consist of the following principal areas:

- Fingerprint Identification
- Maintenance of Criminal Histories
- Preparation of Uniform Crime Reports
- Latent Processing

1.0.1 Fingerprint Identification

Fingerprint identification is of course, the primary functional requirement of state identification bureaus, and forms the central requirement for nearly all other functions. Most states mandate the reporting of criminal fingerprints to the state bureau although not all offenses may be included in the mandatory requirements. In a recent survey[1] for example only two of 32 states reporting had no statewide fingerprint submission law. Of those states which do have such a law however, the average compliance rate was 74 percent. The extremes ranged from a high of 100 percent to a low of 20 percent compliance statewide.

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[1] An Assessment of the Status of the National Computerized Criminal History Program (Menlo Park, CA: SRI International, 1979).

In addition to criminal fingerprint submissions, the state bureau may be responsible for the processing of "applicant" fingerprints. An applicant is anyone who has applied to a public agency or private employer for employment, a license or a permit and is required to submit fingerprints. The scope of employment categories and types of licenses and permits are generally specified by legislation or statute. For example, applicants to law enforcement agencies are commonly required to have their fingerprints submitted to the state bureau although other states may require real estate, insurance or auto sales persons among others to submit fingerprints.

It is highly important to note, as will be pointed out again in this document, that the processing of applicant or non-criminal prints has and is increasingly becoming a major workload requirement of state identification bureaus. Field study revealed for example, a few states in which about half of all fingerprint submissions were applicant. Licenses and permits are also becoming a larger part of the overall workload. Gun permit applicants alone comprised a full 20 percent of all fingerprint submissions in one state with a gradual increase each year.

State bureaus may process applicant fingerprints in a somewhat different manner than criminal prints. They may undergo only a name search and not a technical search and/or be processed as a lesser priority. Other states do however, perform a full name and technical search on applicant fingerprint submissions. In either event, this category of fingerprint submission constitutes a sizeable and increasingly large percentage of state bureau fingerprint identification requirements.

1.0.2 Maintenance of Criminal Histories

The creation, maintenance and dissemination of criminal histories is an important end product of the fingerprint identification function. Criminal history records are generally created at the time of second fingerprint submittal to a state bureau although policy may vary somewhat in this regard. Most, if not all states maintain records of arrests made in their state alone although "rap sheets" from the FBI or other states are typically maintained in individual file jackets.

Following the identification of a subject, a copy of the criminal history record or "rap sheet," may be sent to the contributing agency. In the survey questionnaire for example, about two-thirds of states indicated that they respond

to their contributors with a "rap sheet." Most of these responses are made through the mail although about one-fourth of those who respond also have on-line computer response capability.

Disposition reporting may be part of the criminal history reporting system. It is generally recognized that disposition reporting should be part of a criminal history program at least in terms of whether or not an arrest has terminated in a conviction. Court disposition and correctional outcome information are integral parts of the criminal history and Offender-Based Transaction Statistics (OBTS) reporting modules. There is however, a substantial difference in the current status of states in development of these systems. Where operative, to one degree or another, the disposition reporting requirements associated with these programs typically place additional requirements on the state identification bureau.

1.0.3 Preparation of Uniform Crime Reports

It may be the responsibility of the state identification bureau to collect and compile criminal arrest data from local law enforcement agencies as part of the FBI Uniform Crime Reporting Program. Forty-six percent of the 43 states responding to this part of the survey questionnaire indicated that their state bureau was responsible for this function.

Where this function is performed by the state bureau, it also typically includes the training of personnel and coordination of data collection from the local agencies involved, as well as the development of a quarterly and/or yearly crime activity profile report for the state.

1.0.4 Latent Processing

Of those states reporting through the survey questionnaire, 44 percent indicated that they are responsible for latent fingerprint identification. This function often is included with crime scene investigation activities supported or conducted by latent fingerprint examiners. Latent fingerprint examiners may also perform some laboratory analysis functions such as photography or the testing of illegal or controlled substances, particularly marihuana. This however, should be distinguished from the activities and functions of a full laboratory operation.

1.0.5 Other Duties and Responsibilities

In addition to the primary duties and responsibilities cited above, state identification bureaus are called upon in a

few states to perform other related functions. These duties include the following:

- Statistical Analysis Center (SAC)

As part of the OBTS-CCH development efforts of states previously mentioned, the bureau may serve as the coordinator of programs and activities in this regard. These include the possible development of law enforcement, prosecutional, court and correctional information systems. As the SAC, the bureau may coordinate the fiscal and operational aspects of these projects and assist in their development and monitoring.

- National Crime Information Center (NCIC)

The NCIC national network may utilize a control terminal or message switching unit in and through the state bureau. This national data base on wanted and missing persons, stolen vehicles and property and related matters may then be accessed through equipment housed in the bureau. The personnel used to manage this function may or may not be included in the bureau's budget and personnel assignment.

- National Law Enforcement Telecommunications Systems (NLETS)

The NLETS is a national message carrying system linking major law enforcement agencies throughout the nation. The NLETS control terminal in some cases may be located in the state identification bureau. As in the case of the NCIC terminal, personnel assigned to this function may or may not be part of the state identification bureau as such.

As one can see from this overview of primary and secondary duties and responsibilities, state identification bureaus can and frequently do incorporate a rather broad range of functions. The depth of operational requirements needed to fulfill these duties will make this clearer as they are reviewed later in Section 2 of this document.

1.1 Central Organization of State Bureaus

State identification bureaus are organized rather differently within the state government, based particularly on the nature of the cabinet positions within the state. For example, where all statewide law enforcement is combined under a department of public safety, the bureau of identification will typically be located in that department and in a support services division. Where no department of public safety exists a

popular organizational structure may find the bureau within the state police with similar powers.

To determine the types and relative frequency of such central organizational relationships, the survey questionnaire asked respondents to identify their parent organizations to which forty-five bureaus responded. While the organizational designations vary substantially, they generally fall within one of three overall groupings--a law enforcement agency a division of the state department of justice or a separate state service agency.

1.1.1 Law Enforcement

The largest percentage of state bureaus are organizationally linked to a central agency which provides law enforcement services. Sixty percent of all respondents to the survey questionnaire indicated that they are organized in this manner either within a state department of public safety, the state police or state highway patrol.

1.1.2 State Department of Justice

The second most frequently cited organizational type places the state bureau within an office of the attorney general or a department of justice. Twenty-two percent of the forty-five survey respondents indicated that their bureaus were organized in such a manner. Similar to those bureaus which fall within a state police agency, bureaus under a department of justice or similar designations may be organized in a separate division of law enforcement which provides state level law enforcement services.

1.1.3 Service Agencies

The remaining eighteen percent of responding identification bureaus indicate that they are organized as service bureaus to state law enforcement agencies rather than as part of these agencies.

There are, as one can see, a number of organizational arrangements which are used by the states in the placement of the state identification bureau. There was however, no indication from the states visited that any of these arrangements had noticeable positive or negative effects on either required interfaces with related agency functions or upon operational and functional requirements of their bureaus.

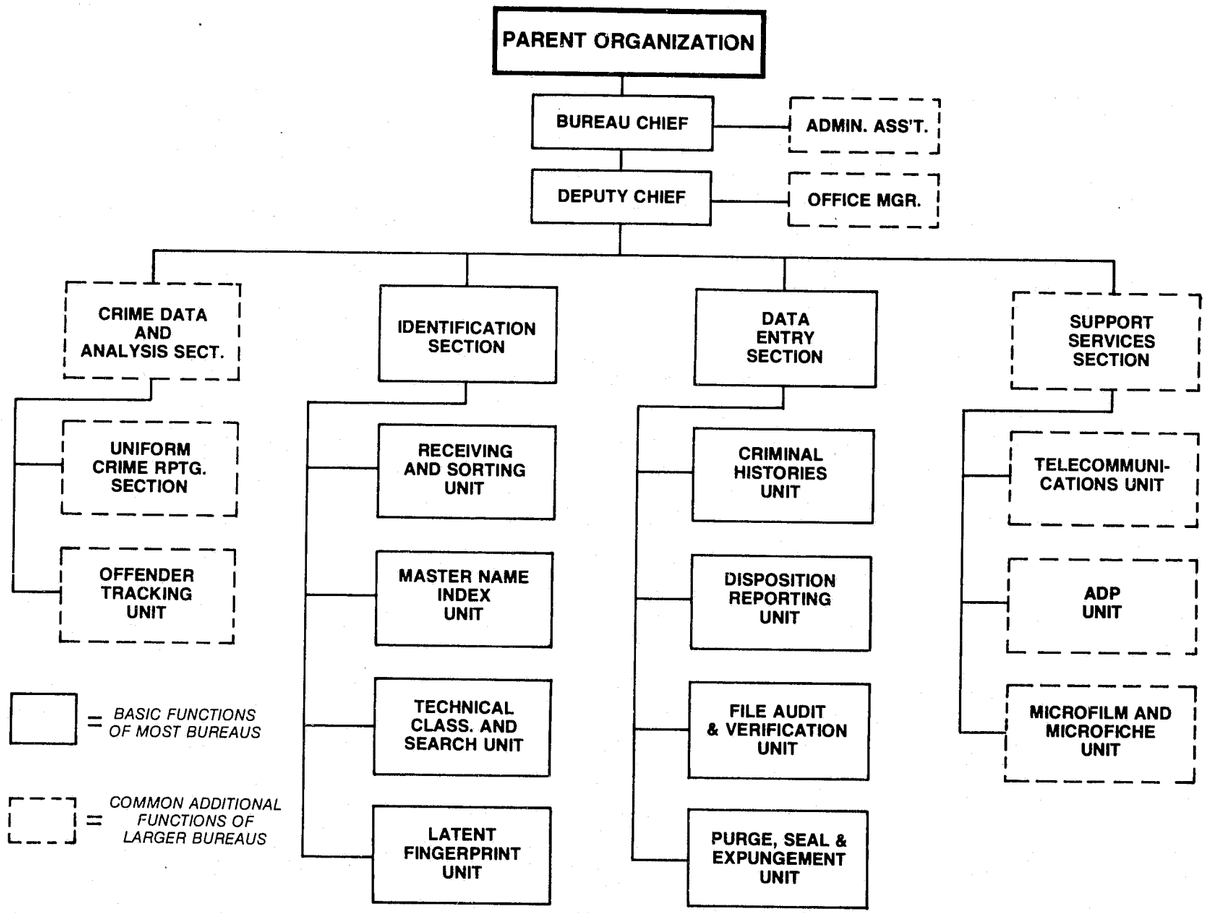

Figure 1
"Typical" Organizational Alignment
Of A State Identification Bureau

1.2 Internal Organization of State Bureaus

The internal organization and lines of control with state identification bureaus follows a variety of functional requirements and operational capabilities available to each b reau. The structure of small manual bureaus is, for example, quite different from those which are larger and fully or partially automated.

For purposes of general introduction to those who may not be completely familiar with bureau organizational structures, this section briefly outlines the nature of those relationships. The operational duties of and linkages between these bureau units will be developed in Section 2 of this report in the overall discussion of functional requirements.

While there is no "typical" organizational structure for identification bureaus, lines of control often take on some common patterns. Figure 1 presents the basic elements of this pattern of organization, as well as additional functional components of bureaus which often are part of those basic structures in the larger state identification bureaus.

1.2.1 Bureau Chief or Director

The bureau chief assumes final responsibility for bureau operations and program development. In larger bureaus, the chief may be assisted in these functions by a deputy director or assistant bureau chief, and in larger bureaus possibly by an administrative assistant and/or office manager.

1.2.2 Deputy Director

Where present, a deputy director is generally the overall coordinator of line operations. The deputy director is available to insure the implementation and functioning of line operations and to keep the director informed of its ongoing status.

1.2.3 Office Manager

The director and possibly the deputy director may be aided in their planning and management roles by an office manager. Depending upon the size of the organization, the office manager may report directly to the director or be involved directly as a first-line supervisor for operations. Duties of the office manager may include staff training, overall systems monitoring and evaluation, and planning for systems improvements.

1.2.4 Administrative Assistant

Aside from the secretarial and clerical staff the director may be aided by an administrative assistant (AA). In cases where an office manager is not available, the AA may assume some of those planning functions. More typically however, the AA will handle accounting and fiscal control activities, purchasing, various liaison with interactive agencies, as well as personnel and their work records.

Line operations are typically subdivided into two to four areas of supervision and control depending on the size, complexity and operational capabilities of the bureau. For purposes of this discussion, we will use four areas of line operations.

1.2.5 Crime Data and Analysis Section

This area of operations serves to coordinate, organize and in some cases provide analyses of criminal activity and incidence reporting as this data flows through the bureau. This responsibility may be subdivided into two separate reporting units or functions--Uniform Crime Reporting and Offender Tracking.

- Uniform Crime Reporting (UCR) Unit

Where this activity is part of the responsibilities of the identification bureau, this unit compiles data on reported crime from local and state law enforcement agencies in the respective state. The unit typically compiles quarterly and annual profiles of the incidence and distribution of reported crime and is responsible for the coordination of data submitted by local agencies. Field Representatives are often attached to the UCR unit for purposes of field training to contributing local agencies.

- Offender Tracking Unit

Where UCR data is crime incidence or activity oriented, offender tracking data relates to data pertaining to the offenders themselves. Data collection in this regard may be subdivided operationally into three separate reporting areas. These are:

Criminal Histories - Data on overall and individual histories of criminal activity are often of primary concern to operational law enforcement agencies. The compilation of complete and/or short form criminal histories may be coordinated by this unit and data compiled as possible for analytical purposes.

Disposition Reporting - The actual process and coordination of local reporting of criminal dispositions from local and state law enforcement, prosecutorial, court and correctional agencies is handled by this unit. The local coordination and training inherent in this function are typically closely coordinated with field training activities of the UCR unit.

Offender Based Transaction Statistics - This unit is predominantly analytical in nature. It uses composite data on criminal histories and disposition reporting to perform assessments of the nature, composition of any changes in the events of criminal events as they relate to the overall criminal justice system. This unit may in some instances comprise the state's Statistical Analysis Center (SAC) which assumes overall coordination of data in these regards and the compilation of analytical summaries.

1.2.6 Identification Section

The fingerprint classification function is nearly always separated from other bureau functions as a "technical section" or through some other designation. The sub-units associated with fingerprint classification vary considerably depending upon individual bureau operations. Some characteristic functions or sub-units are as follows:

- Receiving and Sorting Unit

This unit receives all incoming fingerprints, categorizes them for processing and tallies cards by contributing agency and other means.

- Master Name Index (MNI)

The Master Name Index unit searches fingerprint cards by name against the MNI file. This may be done in an automated fashion in which case this function may serve as a data entry unit, to be discussed later. MNI candidates are thereafter sent to the Technical Classification Unit for verification.

- Technical Classification and Search Unit

Candidates produced by the MNI unit and those that could not produce a candidate through the MNI are forwarded to this Unit for comparison or full technical classification.

o Latent Fingerprint Unit

In most bureaus, the latent fingerprint function if performed is separate from the identification bureau. In those cases where the bureau is in charge of latent processing, the unit may be under the control of the Fingerprint Classification Section.

1.2.7 Data Entry Section

The third major line operation of an identification bureau may involve the actual entry of data to records and files. The composition of this section varies substantially depending upon the operational capabilities of the identification bureau. For example, data may be entered automatically by terminal operators to a computer-based system or, individual records may be created and maintained manually. Procedures such as auditing and verification of records may be performed as separate functions or combined with other data entry activities depending chiefly upon the size and complexity of the bureau operations.

Computer-based systems and manual systems undergoing conversion to automation are generally the most divergent in their operating procedures. Automated systems may for example allow for direct access in creating and updating files or allow only for off-line inputs. Each of these systems result in various differences in operational procedures. Many of these differences will be discussed in Section 2. For purposes of this discussion it is only necessary to indicate that the process of data entry is typically set apart organizationally and operationally whether it pertains to criminal histories, disposition reporting, changes in the identification record or other data entry responsibilities.

1.2.8 Support Services Section

A Support Services Section may exist within an identification bureau to incorporate those functions which literally support and serve the bureau's primary functions. Three areas of operations which are common to many bureaus should be noted in this regard.

- Telecommunications Unit

The Telecommunications Unit operates the communications linkages to the state bureau and, where appropriate, from the state bureau to the statewide law enforcement network. Principal among these are the NLETS and the NCIC systems which were previously noted.

- ADP* Unit

The ADP unit may consist of staff member(s) who are totally responsible for ADP development on dedicated bureau equipment, or more likely, staff who work with ADP personnel in systems development. The ADP Unit is the key point for development, maintenance and changes of ADP operations.

- Microfilm/Microfiche Unit

This unit is responsible for the conversion of hard copy files to microfilm or microfiche for both operational records and those which may be retired to archives.

These are typical of many identification bureaus in terms of the various functions performed as well as organizational alignments of those functions. However, this organizational format has been used more for purposes of illustration in this discussion than as an example of a particular bureau or an "ideal" structure. Moreover, the ideal structure for a given bureau is one that incorporates the particular needs and operational requirements of a bureau. In this respect, it has not been possible in this study to find any two bureaus which are exactly alike.

1.3 Budget

In state identifications bureaus, as in most other agencies, effective management and planning are closely tied into the budgeting process. In some states, bureau chiefs may not be directly responsible for developing their budget requests. Most state bureaus however, must develop and be accountable for their budgets whether to an overall parent organization or directly to a legislative body. In either event, it is essential that bureau administrators be completely familiar with the budget process, and most particularly, be capable of providing concrete justification for budget requests.

The survey questionnaire attempted to provide some insight into the budgets of identification bureaus by requesting budget data in six separate areas. These were:

- Personnel
- Computer Equipment and Terminals
- Communication Lines
- Software
- Other
- Total Budget

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*Automated Data Processing

Only 26 of the 46 states reporting were able to complete information in these regards. The total budget for those bureaus ranges widely from a low of $51,000 to a high of about $14.6 million. "Average" total budgets for identification bureaus under such circumstances have very limited value. A more useful basis for analysis and comparison may be total operating costs to the total annual volume of fingerprints processed. However, several caveats should be mentioned in regard to such an analysis.

First, the variety and extent of bureau duties and responsibilities are not limited to fingerprint identification as discussion in Section 1.0 indicated. Many bureaus provide services that others do not and so a budget comparison based only on the fingerprint function may be a bit misleading.

There are also operational differences which should affect the cost of processing fingerprints. Computerization should for example, theoretically bring the overall costs of processing down through time savings and other savings. As well, not all states may process to the same degree. Civil fingerprints may in particular be searched on the basis of name and then as a secondary priority to criminal print processing. This also will reduce overall operating costs. As well some states are operating with a backlog of fingerprints that cannot be handled. In these circumstances it is also difficult to compare agencies on the basis of budget to annual fingerprint receipts.

Finally, budget comparisons are subject to the limitations of states to itemize and fully account for monies received. Communications lines, computer costs, facilities and related budget items may be paid for by other state agencies, or if shared, their cost to the identification bureau may be difficult to specify.

Even in light of these limitations it is important to examine identification bureaus from a budgetary perspective. A first step in this regard is to establish, to the degree possible, the overall cost of state identification bureaus on a national basis. In order to do this, states which were able to clearly delineate their budgets were identified in the questionnaire survey. The population of each of these states, as a percentage of the national population, was then established. The sum total of these known budgets and their states' combined population percentages was then determined and used to extrapolate a national cost for all identification bureaus. According to these calculations, the nation's state identification bureaus are budgeted to spend nearly $60 million in fiscal 1980.

The above figure does not include the identification functions of the Commonwealth of Puerto Rico or the District of Columbia, nor the FBI. If one adds the budget of the FBI Identification Division to that of the states the national cost for identification operations approaches $119 million. The total cost for identification on a nationwide level is of course much higher than this when considering that a large percentage of the larger county and municipal law enforcement agencies also support identification operations.

Another manner of examining identification costs is to compare total costs to "units" of service. For example, one often hears of the costs of providing hospital health care based on the daily cost for a single bed. In the cost of constructing institutions such as jails, prisons, mental health facilities or the like, the "unit" of measurement is also expressed in the cost per bed even though it is recognized that a variety of operational and support functions make up that unit cost.

By analogy, one may regard the operational costs of an identification bureau based on its principal "unit" of service or production which is commonly regarded as the fingerprint card. As was recognized in Section 1.0 of this document, identification bureaus perform a varied and extensive variety of functions. But, by and large they all are based upon the processing and identification of fingerprint cards. Therefore, if one compares the annual operating costs of all state identification bureaus and uses an approximate figure of 5 million fingerprint cards as processed in 1979, the nationwide cost of state level identification bureaus is in excess of $10.00 per fingerprint card.

While "cost per card" will probably not exactly parallel the total operating costs of any specific state bureau it is an interesting if not surprisingly high unit cost from a nationwide perspective.

The tremendous cost associated with fingerprint identification nationwide is a good testament to the need not only to recognize its fiscal significance in the criminal justice system but the need to explore all possible mechanisms to increase efficiency and effectiveness in this regard. In this latter sense, means for reducing the overlap and duplicative functions between local, state and federal identification operations are highly important. These relationships are discussed later in this document. In addition, it is necessary that individual state bureaus take an increasingly hard look at the efficiency and cost effectiveness of their own operations. In this respect it was surprising to note the number

of bureau administrators who could not clearly delineate the costs of their bureau operations.

This inability of some bureaus is most often related to the general removal of fiscal accounting from the bureau to an overall parent agency or other state agency, and the failure of budgeting methods to clearly identify the relationship between the functional operations and requirements of bureaus and their respective costs. Budgeting methods such as "line item" approaches, which are commonly employed by bureaus, are quite ineffectual in providing administrators with a clear understanding of what is being expended to accomplish various bureau requirements and functions. Nor do they reflect the degree to which changes in the allocations of bureau funds between operational and functional areas impact effectiveness or efficiency.

Whether budgets are the responsibility of bureau administrators or another state agency, and irrespective of the budgeting format used or required, it is essential that administrators be capable of linking budgets to outputs or performance. Budgeting methods such as the Program Planning Budgeting System (PPBS) or its more recent derivative, Management By Objectives (MBO), or Zero Base Budgeting (ZBB) are much more suited to achieving these ends. While these approaches vary somewhat, they all require agencies to establish agency goals and objectives, set performance objectives and functional unit accountability, and relate financial inputs in functional areas to corresponding outputs or end results.

The operational and functional nature of identification bureaus, which is nearly line production in orientation, requires a clearer understanding of these factors than most bureau administrators currently possess. With the development of responsive budgeting systems bureau administrators will be capable of providing more precise justification for budget requests as well as maintain more effective fiscal control over their operation and performance.

1.4 Personnel and Staffing

Identification bureau operations are quite intensive in terms of workload demands and the amount of labor necessary to process that workload. As such, their capability to effectively and efficiently perform the identification function depends greatly on the ability to recruit capable personnel, and retain them as employees. The essential elements that make up the organization and management of identification bureau personnel will be discussed in the following parts of

this section together with a review of some of the most significant problems in this area.

1.4.1 Job Classifications and Salary

There are a variety of functions performed in state identification bureaus although the actual number of job titles and classifications are quite limited. One may find for example, a "clerk typist" in one agency sorting incoming mail, typing and filing documentation while one designated as a clerk typist in another agency may have basic or limited fingerprint identification skills and be establishing the primary fingerprint classification or "blocking-out" prior to the name search routine. In a similar manner, a fingerprint technician or examiner may include various responsibilities ranging from basic manual name search to overall supervisory responsibilities for technical fingerprint classification and comparison. However, these dissimilarities are infrequently evident in the job descriptions and classifications used in identification bureaus. Such job classifications typically reflect several problems.

A rather common problem with job classifications is that they do not adequately differentiate between duties and responsibilities in identification bureaus as opposed to other state offices. For example, a highly trained computer terminal operator who can enter and update files, perform name searches and other functions is not comparable to a "records clerk" who may require limited training, perform tasks of very limited responsibility and require substantial supervision. However, it is not uncommon to find that the same job title is applied to both jobs where no attempt has been made to closely examine the respective levels of responsibility between the two.

The result of this is that both jobs are placed on the same salary level which often creates a problem among bureaus in the recruitment and retention of qualified personnel. Also in such cases the description of the job's duties as well as basic requirements of skills and abilities used for recruitment does not present a fair picture to applicants.

Strictly speaking, one may say that all activities, duties and responsibilities in identification fall into one of three basic categories--management and supervision; technical fingerprint classification and comparison; and records keeping. However, the range of skills required in these three areas can be quite divergent from unskilled to semi-professional by definition. Therefore it is often the case that these basic job categories need to be expanded to include first, longitudinal steps which reflect increasing competence and technical skills acquired. The most common example of this would be the

fingerprint technician with an entry or trainee position leading by step and merit increases to the top level of expertise which may or may not include latent examiner certification and/or the assumption of supervisory duties.

Secondly, the three basic job categories previously noted need to differentiate between the duties and responsibilities, as well as skills and abilities associated with the various functions of the bureau. The variety of these functions will become more apparent as we discuss the job requirements associated with each in Section 2 of this document. As previously cited for example, they need to differentiate between basic manual, routine or simplistic duties and those which require more knowledge, training and responsibility with salaries that are commensurate with those differences.

For comparison of compensation in these basic job areas, the survey questionnaire collected information on specific job classifications and salary ranges. As points of reference, the following data present the lowest entry level salary and the highest salary level attainable (i.e. the range) as separated by the survey respondents, and an average of all reported entry and terminal annual pay rates.

		Entry Level	Terminal Level
Bureau Chief	Range =	$10,416 -	$38,186
	Average =	$19,350 -	$25,812
Fingerprint Technician/Examiner	Range =	$ 7,716 -	$19,800
	Average =	$ 9,655 -	$14,840
Clerk Typist	Range =	$ 6,300 -	$16,464
	Average =	$ 7,919 -	$11,818

It is difficult to draw conclusions on the adequacy of salary levels based on national averages since regional and state differences greatly affect such judgments. However, it is important to note that as a whole, state identification bureaus listed low salaries as one of their most significant personnel problems, particularly as they affect recruitment and retention of staff.

The refinement of job descriptions and pay rates was noted earlier as a necessary step toward the solution to this problem. It is interesting to note in this regard that those states which have made some changes along these lines reveal some apparent improvement. For example, those states which differentiate between "clerk typists" and computer "terminal

operators" reveal a salary level just below those listed for fingerprint technician as the following indicates:

		Entry Level	Terminal Level
Terminal Operator	Range =	$ 8,160 -	$17,117
	Average =	$ 9,410 -	$13,136

1.4.2 Recruitment

Identification bureaus responding to the survey questionnaire indicated that recruitment of personnel is their second most serious personnel problem, second to the maintenance of enough staff. Undoubtedly these two problems are interrelated, just as low salaries also impact both of these situations.

The recruitment of personnel for identification bureaus can be regarded from two levels, first, the practices associated with the attraction of qualified applicants and second, the screening of those same applicants for suitability.

Recruitment and screening are most typically handled through procedures established by personnel offices of the primary organization such as the Department of Public Safety or State Police. While such practices vary, they may consist of an announcement of position availability, basic screening of candidates for mandatory qualifications, testing (if available) and/or interviews. Two aspects of this process deserve some comment.

First, by some accounts, identification bureaus tend to attract and some managers prefer to hire from within the parent organizations. In the case of fingerprint technicians there is often a marked preference (which is frequently based on a reported history of good experience), for the selection of personnel from other functional areas of the bureau itself. It is reasonable to expect that personnel who have been exposed to the identification function would have picked up particular knowledge that would enable them to perform better on tests, if those tests are specific to the fingerprint identification process, as well as perform better during initial training. No information is available however, on the long-term quality of these as opposed to other recruits who do not have such prior identification experience. However, one factor does seem clear, and that is that broader attempts to recruit qualified persons are needed among a large percentage of identification bureaus.

Testing, to better identify potentially well-suited fingerprint technicians, is used by about half of all states responding to the survey questionnaire. Most of these tests however, are standardized instruments which are used for a wider cross section of job applicant screening. In a much smaller number of cases, states have developed specialized tests to help specifically in the identification of candidates who have particular abilities in fingerprint pattern identification and comparison.

This study was not meant to identify or evaluate tests of this type for validity or reliability. However, examination of several such tests revealed that they have a marked tendency to overdiscriminate in favor of persons with specific experience in fingerprint identification. In other words, a test of this type should hopefully be able to test general abilities such as overall pattern recognition and comparison aptitude rather than specific fingerprint pattern recognition as is the case in those tests examined. This is not to say that such tests do not prove to be of some value in personnel selection, but that they may overly discriminate on behalf of persons who have had prior fingerprint experience and eliminate persons who may have equal or greater talent but lack that specific experience. The development of a valid and reliable testing instrument of this type would undoubtedly be of assistance to identification bureaus generally, if coupled with an effort to bring personnel salaries and benefits in line with job demands and requirements.

1.4.3 Training

Pre-service and in-service advancement training for identification bureau personnel is a matter of established policy in about 75 percent of all bureaus. The bulk of such training is performed on the job and is of a less formalized nature than classroom training.

Fingerprint examiners typically enter state bureaus in a trainee capacity unless they have had a degree of prior experience which would preclude the need to provide intensive personal instruction and supervision. This is often the case with regard to the transfer of examiners from other states or, more typically, from the Federal Bureau of Investigation's Identification Division.

Many states utilize fingerprint classification systems which are somewhat different from the Henry system, and therefore require some training even among transferees.

Pre-service as well as in-service training of fingerprint examiners varies markedly depending upon the size and workload demands of the state bureau. The larger the bureau and its workload the greater the likelihood that it will have a more systematic initial training and advancement training routine. Among smaller bureaus, there is a greater possibility that training will be less systematic through exposure to various levels of fingerprint identification. In neither case, however, is it common to find a completely formalized system of training, qualifications and systematic advancement through incremental levels of technical skills and responsiblity, or for purposes of establishing career paths and increased professionalism.

Most typically, advancement through the technical levels of fingerprint examination is based on the judgment of supervisory staff with regard to the level of proficiency which an individual has achieved, and, professional advancement is a product of time-in-grade rather than formally demonstrated or tested competence. In a major way, this is the product of many states' inability to establish performance standards for its examiners in terms of either the quality or quantity of work performed. More will be said about this later. For the present discussion however, it is important to recognize that, for the most part, technical and professional advancement of fingerprint examiners is based more on the workload demands and current personnel needs of the bureau in question rather than on defined criteria for passage from one skill level to another. While there are some notable exceptions to this general rule, this does seem to be the prevailing situation among state bureaus.

The structure of training under this generalized circumstance typically finds the examiner trainee being gradually exposed to more and more technical and responsible duties. For example, the trainee may first be exposed to the files through the name search process, proceed thereafter to bringing up a primary fingerprint classification or "blocking-out" and advancing on through full fingerprint classification, technical search, comparisons and identification, and establishing and/or confirming "raps." Trainees may not perform these functions in this exact sequence or perform these functions exclusively during training or later periods. However, generally there is some progressive exposure to the intricacies of fingerprint comparison and identification.

As previously indicated however, what is typically lacking in or during these training periods, as well as later in one's career is, clearly defined policy in the following regards:

- The basic skills and abilities which must be mastered in order to progress through various levels of proficiency leading to the designation of fingerprint examiner.
- The degree of accuracy and level of production which is acceptable during the various levels of training.
- The sequence and time frame which must be adhered to between training levels.
- The supervisory alternatives and/or sanctions (e.g. counseling, retraining, performance rating) which are adhered to in employee evaluation during training, as well as later in the career path.

Fulfillment of these and other formal requirements if set out by departmental policy would lead to the designation of "fingerprint examiner." Such procedures and requirements are set forth at the federal level by the FBI as well as by some state bureaus. However, a broader recognition of their need and value among other states is warranted if the service of fingerprint identification is to become more professionalized. Correspondingly, it should be recognized that increased professionalism typically carries with it the salary benefits which have been considered to be below par among many state bureaus.

While the idea of certification for fingerprint examiners is not necessarily advocated here, the national certification program for latent fingerprint examiners has had some positive effect on elevating the professionalism and credibility of those individuals. It may be that certification for fingerprint examiners will become one of the logical conclusive steps leading toward the professionalism of this group as well. As this section indicates however, there are many preliminary steps that states can and should take before such certification can be reasonably undertaken.

1.4.4 Staffing Levels

The number of fingerprint technicians necessary to process the volume of incoming criminal and non-criminal fingerprint cards is an important operational, planning and budgeting consideration to bureaus. The needs of bureaus vary considerably as the following data will indicate. This variation in staffing requirements is affected by two primary factors among others. These are operational capabilities and operational policy.

Operational capabilities have to do principally with the degree of automation available to an identification bureau. Fully automated name search procedures for example, greatly reduce the processing time required for this function. As well, the retrieval of fingerprint images through microfilm also offers the potential to eliminate much of the time and motion associated with hard copy file search, if the microfilm procedures are structured properly.

Operational policy on the other hand includes such matters as whether a bureau fully processes or partially processes non-criterion offences, whether or not it performs a technical search, and its policy on the priority and degree of processing with regard to non-criminal fingerprint cards, and its policy in regard to handling backlogs of work.

With these factors in mind, data on the volume of criminal and non-criminal fingerprint cards was compared to the number of technical and supervisory fingerprint examiners in each state. This comparison also included the number of examiner positions filled as opposed to those budgeted. The results reveal that for each fingerprint examiner now employed there are about 7,650 cards received annually, or about 35 cards per examiner per working day. However, the range of cards received in any case varies greatly from a high of 16,000 cards to a low of 2,200 cards per examiner each year.

The foregoing data provide only a reference point for gauging the number of technicians that may be needed to meet technical fingerprint processing requirements of state bureaus. Such a reference point should be considered with the utmost caution when attempting to gauge the requirements of specific bureaus, as previous reference to operational and policy differences has indicated. If anything, the wide statistical difference in examiners' workloads reflect the great likelihood that those operational and policy differences are quite operative in various bureaus. These statistics also may suggest that those bureaus which reflect widely divergent manpower to workload ratios from this national average may be facing serious problems in either or both operational and managerial areas.

It appears that a specific effort needs to be undertaken for the development of national staffing norms which could be related to productivity and operational differences between bureaus. In the interim however, state bureaus must fill this gap by development of their own state staffing and productivity norms. With these, planning for staffing requirements can be accurately undertaken and corresponding budget requests clearly justified where workload increases and other factors impact the bureau.

Lack of manpower among fingerprint technicians is of course not the only area of staff shortages which affect bureau operations. In fact, overall staff shortages were cited more often than any other factor as bureau's number one personnel problem. Retention of that staff was considered the number two problem. Clearly, the proper staff balance between supervisory, technical and support staffs needs to be addressed in the development of both state and national staffing norms.

1.4.5 Performance Requirements

Throughout this section, reference has been made to performance criteria for staff both in terms of the quantity and quality of work performed. While such measures are necessary for all staff this discussion will center upon the requirements associated only with the duties of fingerprint identification. This is the heart of operations of the identification bureau upon which all support operations pivot and the basis from which all other work demands flow.

- Quantity

The volume of work which should be produced by fingerprint technicians is one which has received a substantial amount of discussion. Each bureau has its own concepts about what an acceptable level of work should be. That concept will vary depending on the quality of staff, the pressures of the daily workload and the bureau's operational ability to handle that workload. But whatever the criteria, it is first important that managerial and supervisory staff resolve and formalize their expectations on productivity and make these clearly known to all technicians. Without an initial understanding of this type between all concerned, performance appraisals will become clouded by a lack of definition and charges of appraisor subjectivity. With clear policy on this and related matters, such confusion can be greatly reduced or eliminated.

- Quality

The quality of work produced is the other side of performance measurement which should be included in a personnel evaluation system. The measurement of quality or accuracy is somewhat more difficult to determine however since it goes beyond the simple tabulation of work units completed.

For example, assessment of quality or accuracy in some cases would require the placement of "ringers" (i.e. known idents) in the daily workload of name search and technical search routines. Some states perform this function and keep a

running account of personnel accuracy in positively identifying these ringers. Other state bureaus are satisfied with a personnel accounting based on "missed idents" returned by the FBI as consolidations to the state bureau, or, with the use of spot checks by ident supervisors.

Measure of work quality or accuracy is also more complex than those related to production since some types of error are more serious than others. False idents, or the positive identification of the wrong individual, is a non-acceptable form of error among most bureaus. On the other hand, minor differences in the interpretation of print patterns or ridge counts can be expected and should be considered to be a much less serious error.

Therefore, both the number and the seriousness of errors must be built into quality measures of personnel performance. As in the case of quantity measures, gradations of acceptable quality scores (i.e. Excellent, Very Good, Good, etc.) should be specified by type of job performed and the level of worker competence.

While this may appear to be a significant task, the only true effort involves the establishment of levels of acceptable quality in accordance with technician competence or experience levels and in accordance with the volume of work performed. Once this is established the accuracy rating system may be formalized by means of a matrix, as is used by some states. In such a matrix an individual in a given technician classification may be systematically and objectively graded by the number of errors committed and in keeping with the volume of work produced. Thus, the greater the volume of work produced the greater the tolerance for possible error, and correspondingly, the lesser the amount of work produced the fewer the number of errors that are acceptable.

- Rewards and Sanctions

If a bureau is prepared to judge personnel on the basis of their job performance, it should also be prepared to issue rewards and sanctions to personnel based on individual ratings. An individual's progress should be based in large measure on the ratings received in periodic performance evaluations. The bureau's possible response to one or more poor ratings should be formalized and documented. These should be presented in a hierarchy of alternatives, based on the rating, using such actions as retraining, counseling by various levels of supervisory staff and/or recommendations leading to possible dismissal.

With such a formalized system of personnel performance rating tied to corresponding sanctions and rewards, a bureau may remove much of the ambiguity and subjectivity in these areas which now frequently tend to exist.

1.5 Management and Evaluation

The effective and efficient operation of a state identification bureau relies heavily on the use of professionally accepted management techniques. Most of these management practices or principles are not specific to the identification function but are typical requirements of a broad range of agencies with diverse operational requirements.

While the need for sound management practices and procedures in the identification function is clear, there is little evidence to indicate that many agencies have systematically addressed needs and requirements in this area. The lack among many agencies for example, of a comprehensive and updated set of agency policies and procedures is indicative of shortcomings in this report. Several underlying factors which contribute to this situation can be identified.

For example in some cases bureau chiefs and first line supervisors do not possess the requisite education and training to identify managerially related agency requirements and shortfalls. Even though these individuals may be expert in the field of fingerprint identification procedures and operations, current requirements go well beyond this discipline alone. Bureau administrators today are forced to deal in a wide variety of operations ranging from the applications of modern computer technology to an evaluation of the impact of pending legislation on agency operations, workload demands and budgets. Without some specialized training, either formally or informally, many improvement opportunities invariably go unrecognized and undeveloped.

Additionally the substantial daily workload demands of most bureaus greatly reduces the availability of managerial time that can be devoted to evaluation and planning. The need to stay up-to-date with such primary functions as fingerprint identification, recording of dispositions and dissemination of criminal histories is typically an all consuming effort. Under such circumstances, the development, audit and refinement of managerial policy and procedures must frequently receive less attention.

The present study also reveals specifically that there is a significant lack of communication between state level identification bureaus. This is most noticeable in relationship

to the solution of common problems. As a result, even where potential solutions to managerial and operational difficulties exist, their existence is not widely known.

A final delimiting factor to bureau chiefs is a general lack of funds for system enhancement. Even where solutions are available, such as is often the case in regard to computer applications, financial backing for their implementation is frequently not available.

For these and other reasons, the systematic application of solutions to management and organizational problems has not been widely implemented in state identification bureaus.

While many aspects of management and evaluation activities and functions could be addressed in this section, three areas in particular stand out as principal elements of these functions which typically require attention. These are facility management, performance and system workload monitoring, and planning and evaluation.

1.5.1 Facility Management

The requirement for substantial floor space and indeed, more space than is currently available, is a typical concern of most bureaus. It is too frequently the case that bureau operations have simply outgrown the original space allocated to them and/or have failed to keep pace with available methods and techniques to utilize and manage the space that is available.

As is the case in most work places, the surroundings, both esthetically and mechanically have substantial impact on worker productivity and the quality involved in their performance. The production oriented nature of identification bureaus which typically subjects workers to substantial pressures is most subject to changes which time and motion and space management improvements can produce.

Typical operations of identification bureaus create a variety of space and operational requirements. The principal of these space demands include the following:

- Offices for management and supervisory staff.
- Open areas for free movement between multiple work stations.
- Filing and storage space for hard copy and/or microfilm of fingerprint cards.

- Work areas and stations for various independent functions.
- Separate areas of relative quiet for technical search and verification.
- Areas for hardware in automated data entry and retrieval as well as outside communication equipment.

The fulfillment of these and other functions within the confines of a single bureau is frequently cumbersome. As often as not the aforementioned space requirements are not adequately met, either because they cannot be due to facility limitations or because methods of enhancement are not fully explained. Space management techniques need to be more completely explored by most bureaus. But these need not require substantial additional monies or time such as may be the case in the conversion of hard copy files to microfilm or microfiche.

For example, they may be as simple as the development of purge criteria so as to reduce the size of active files. Purged, sealed and expunged records and general archival records may be kept in separate locations or at least in less trafficked areas.

Indeed one should be careful not to necessarily assume that the application of higher technologies will reduce problems associated with space management. For example, a generally perceived primary advantage of microfilming records is the space-saving advantages associated with this approach. While microfilm does require less storage space, it also requires additional space for microfilm readers as well as possible room for actual microfilming equipment. In addition, most bureaus do not destroy hard copy files once microfilmed so that alternative space is required for storage of these documents. If such approaches are used, they should be employed for reasons of increased records accessibility and not necessarily as remedies for space management problems.

In any event, the point to be made is that space and general facility management is an issue which should be constantly studied by bureau managers, particularly as file sizes grow. Deficiencies in these areas have direct and often serious effects in such regards as misplaced or lost records and the reduced production and accuracy of technicians.

1.5.2 System Workload and Performance Monitoring

The management of any agency, irrespective of function, service provided, or product produced, must consider questions

regarding the system and personnel capabilities to meet workload demands in an efficient and effective manner. Identification bureaus should be equally concerned with these questions. However, data indicates that at least half do not address these issues through the systematic collection of data. Those which do collect data often fail to do so in a complete fashion and/or to use that data to its full potential for planning and evaluation purposes.

In order to gain a clear understanding of the workload of an identification bureau, one must be capable of identifying the components and sources of system inputs and trace their processing through the various work stations of the bureau. While most bureau chiefs have a clear understanding of the components of the fingerprint processing routine, only about half of all states have formalized the process through a workflow diagram which clearly depicts the flow and sequence of work. About the same number of agencies maintain statistics which reflect the volume of transactions associated with the various key points in the identification process. The survey questionnaire for example, inquired as to whether agencies keep data in regard to the following events or transactions:

- Number of incoming fingerprints searched by name.
- Number of fingerprint cards searched by name that have a possible identification.
- Number of possible identifications by name confirmed by technical search.
- Number of technical searches conducted.
- Number of identifications made as a result of technical search.
- Number of missed identifications by name (i.e. technical search resulted in an identification where no possibles were determined by name).
- Number of FBI consolidations (i.e. missed identifications caught during fingerprint search by the FBI).

Even though about half of all identification bureaus keep statistics on the foregoing it is clear from site visits that many of these bureaus do not use the data systematically for planning purposes. In some instances it is collected and published only in annual reports without any extensive analysis, or is used in a limited fashion for monthly summary statistics. These data however, can be used effectively to monitor the

functioning of the overall bureau as well as its component parts.

For example, the relative change in the overall volume and composition (e.g. criminal vs applicant) of incoming fingerprints can reflect changes in legislation or changing attitudes toward the utility of fingerprint submissions. The effects of legislative changes in general can be monitored in gross terms from the volume of fingerprints submitted and changes in personnel or other bureau requirements gauged accordingly. Changes in legislation which allow or mandate the taking and submission of fingerprints in civil areas (e.g. insurance, auto sales, firearms permits etc.) have had particularly noticeable effects along these lines. This strongly suggests that bureau managers should maintain constant awareness of pending legislative and statutory changes so as to ascertain where and to what degree workload requirements may be changed at the bureau level. In order to do this however, one must have established a benchmark from which to measure such changes. Without a clear understanding of the bureau's capacity to respond to current work requirements, there is little way of accurately measuring the change which additional or altered requirements will reap.

In addition to monitoring general inputs, bureau managers need to closely monitor current activities as well as changes in functional areas of bureau operations. As requested in this study's survey questions one needs to know the number of fingerprint cards searched by name as well as those "hits" by name which are later confirmed by technical comparison.

Such data can, for example, prove valuable in gauging the relative quality of the name search. A reliable name search can be constructed by current technology to achieve no less than 90 percent reliability. That is, if a true match is in the file, it should be found at least 90 percent of the time. If technical verification of name search candidates, and/or actual technical search statistics reveal that the name search falls short of this goal, study of name search procedures would appear to be called for. As well, noticeable fluctuations from an established agency standard would also be an indication that problems may exist in agency procedures or other areas.

Similarly, changes in the "hit" rate of technical searches may present a flag to bureau administrators. Most technical searches for example, exhibit a hit rate of no more than 5 percent. This will vary slightly depending principally on the mix or relative proportion of civil versus criminal fingerprint cards received. A much higher proportion of civil prints will

generally reduce the frequency of hits of both name and technical searches simply because the chances are less likely that a criminal record will be on file. In any event, a slight fluctuation in technical search hit rates may reflect changes in the composition of fingerprint submissions and/or the quality of the technical search which is being conducted.

These are only two basic examples in which statistics on the volume and flow of prints through an identification bureau can be helpful. Numerous other applications are of course possible if procedures are first available for the collection and on-going analysis of such data. Data of this type determine the bureau manager's ability to project future requirements, such as those related to personnel budgeting, computer applications and requirements, policy and procedural changes and facilities requirements. This information is also highly important to managers in their efforts to provide firm justifications and convincing arguments for budget requests. Without data of this type, management of the identification function assumes more of a reactive than a controlled and planned operational environment.

1.5.3 Planning

The preceding section provided some thoughts on the need to develop an adequate information base upon which to make sound management and planning decisions. Here, we wish to make some general statements with regard to the planning function.

First, it is rarely the case that an identification bureau can support a full-time staff position dedicated to planning. Even in the largest of bureaus this activity is typically the responsibility of the bureau chief, the deputy administrator and first line supervisors. Results of the survey questionnaire suggest and on-site interviews generally tend to confirm the fact that planning, as a concerted active process, is the exception rather than the rule. In many cases in fact, planning in regard to personnel recruitment, budgeting and related bureau functions is diluted within a larger organizational entity such as a department of public safety or the state police. As such, planning must frequently accommodate the needs of other department line functions which have historically tended to take precedence over support activities.

Administrators have come to recognize that they cannot possess all of the technical and managerial expertise required to meet bureau demands. This is nowhere more apparent than in the application of computer technology to the identification function. Identification bureaus have evolved in the recent

past from purely manual operations to automated systems utilizing modern telecommunications and computer technology in the larger bureaus. As files grow over the years, there will be an increasing need to upgrade current applications where they presently exist and to make technology in general available to more bureaus where currently not applicable or unavailable. While the increased use and availability of computer technology is promising in its reduction of workload processing time, manpower requirements and similar matters, it places heavy demands on bureau chiefs to insure the responsiveness of such improvements.

For example, on-site review of bureaus which were at different stages in their use of computer technology revealed the following typical problems:

- Systems where the design concept was not adequately verified or validated and which fell short of requirements when implemented.
- Systems which had hardware and/or software deficiencies at the time of implementation which were not fully apparent until later.
- Systems which had been installed and had not been thoroughly evaluated for adequacy and upgrade since their original implementation.
- Systems currently under design and/or implementation which had not taken full advantage of common design and implementation problems previously solved by other bureaus.

It is evident from these and related problems associated with automated systems, that the planning, continued evaluation and on-going upgrade of such systems can be as much a problem as their actual design and implementation.

If bureau chiefs and managers do not possess the requisite technical skills to monitor systems design, then they must look elsewhere for qualified personnel to perform this function. This holds true with regard to planning for all other functions and activities.

Even though it is preferable to have a built-in capacity to perform these and related planning functions this is not always possible. In view of this, short term technical assistance is often a desirable means of filling intermittent technical needs, such as those related to computer technology previously noted. On the other hand, on-going or recurring needs such as budget and personnel planning should be met by

building in-house capabilities and skills. Specialized, executive development and in-service training programs are excellent means for gaining such skills.

1.6 ADP Interface

As has been noted earlier in this document, state identification bureaus are coming to utilize ADP applications to an ever greater degree. Increases in the daily workloads together with burgeoning files have made such conversions operationally mandatory in some cases and much more attractive in others.

The development and on-going maintenance of computerized systems however, often brings a new set of concerns to bureau chiefs and their staff. As previously noted, knowledge of ADP systems, capabilities and applications is not typically an area in which bureau personnel have been expected to be conversant. Developments in this area have in some cases forced bureau chiefs to become more familiar with applications of this nature. Yet, it has invariably created a new dimension of demands and requirements on these same individuals.

Most frequently these demands for system design, implementation and maintenance have been addressed through the bureau's parent agency--Department of Public Safety, or State Police--or through another state agency. These agencies or state departments will frequently maintain their own data processing capabilities or will interface directly with a centralized state data processing facility for this service. The ADP requirements of the state identification bureau will thereby be included with those of other state agencies. This service relationship is most often justifiable in terms of costs since it is rarely the case that the identification function can justify its own ADP operation. However, this arrangement can and has caused some difficulties related to coordination and control.

For example, state computer service centers typically serve a variety of clients with rather diverse interests. Even where criminal justice agencies are served by a dedicated system, the identification bureau must have its needs, requirements and schedules balanced against those of other agencies. This can cause difficulties particularly if the bureau cannot, for any of a number of reasons, relate its needs to the ADP staff, coordinate with other similarly situated agencies, or, appreciate the capabilities and limitations of the ADP facility.

In most cases where problems arise, it is related to the lack of adequate coordination and interface between the bureau

and the ADP Center. Bureaus which have assigned the responsibility for this coordination to one individual generally find that many of the service problems with the center can be corrected or avoided.

In states that are now undergoing conversion to a computerized system a formal liaison mechanism is essential so that the system applications and functional requirements of the bureau can be accurately translated to the ADP Center's technical staff and systems analysts. While it would be greatly beneficial if this individual were to have some ADP system experience, it is not mandatory. However, this individual's complete knowledge of the bureau's operations and reporting requirements is essential. Once the system is operational, this individual should continuously monitor its adequacy and work with the ADP staff in making required changes and developing improvements.

SECTION 2

OPERATIONAL AND TECHNICAL

2.0 Background and Methodology

The project team gathered data on the administration, management and operational procedures of state identification bureaus through on-site visits to state and local bureaus and responses to survey questionnaires furnished by 46 state bureaus. This section presents the functional requirements of state-level identification bureaus as determined by analysis of data collected. It includes a definition of major requirements, indicates the degree to which requirements are being met and provides examples of methods by which requirements are being met by various bureaus.

The material has been organized in a manner that follows the workflow of a "typical" state identification bureau. While there is no "typical" identification bureau, there are common functions shared by the bureaus in fulfilling their duties and responsibilities. A discussion of their activities provides a common ground for presenting their functional requirements.

Each bureau, whether at the national, state, or local level, has developed procedures to meet the unique requirements of its own environment. Some procedures were developed after careful study, others were put in place as stop-gap measures which became permanent features of the operation. As the various identification functions are discussed, requirements will be identified and the problems that are symptomatic of the requirement remaining unsatisfied will be presented.

The solutions offered by various identification bureaus will be addressed as appropriate. It is not the intention of this document to provide a catalog of solutions but rather to identify the problems and their relative priorities providing a basis for a system development plan to attack the problems over the next three to five years. While this methodology seems cumbersome and lengthy, it is necessary to proceed carefully to insure the most judicious use of dwindling funds to resolve the most critical problems of the state identification bureaus. Their needs must also be presented in the light of changing responsibilities in the state to federal relationship.

While these changes are not clear at this time, there must be an awareness of changes currently contemplated which could have a far-reaching effect on the functions of the state identification bureaus.

2.1 The State Level Identification Function

Typically most state identification bureaus function as a central repository for source documents concerning individuals who enter into contact with the criminal justice process within the state. They receive, edit, error check, collate, summarize and retrievably store this information and make it available to various criminal justice agencies, upon request. In certain instances, where required by law, they provide similar service to non-criminal justice users.

2.1.1 Levels of Service

The types of identification services at the state level vary. Some bureaus receive non-idents as well as idents from local agencies, others perform initial identifications for local users and many perform both types of service. Some state bureaus act as the interface between local agencies and the Identification Division of the FBI in forwarding arrest fingerprint records for both idents and non-idents, while in other states the local agencies deal directly with the Identification Division (see Figure 2).

2.1.2 Fingerprint Identification Processing

Generally the state identification bureau's data base is comprised of three major files: the jacket file, the master fingerprint file and the master name index file.

The jacket file consists of case folders. Within each folder is contained all the source documents processed pertaining to a given subject. The folders are filed in numerical sequence by a unique State Identification (SID) number assigned to each subject at the time of initial entry into the data base.

The master fingerprint file contains a single fingerprint card for all individuals included in the master name index and jacket file. Each fingerprint record is annotated with an SID number.

The master name index file contains a record of the name, SID number and other annotations for all individuals whose fingerprint record is included in the master fingerprint file.

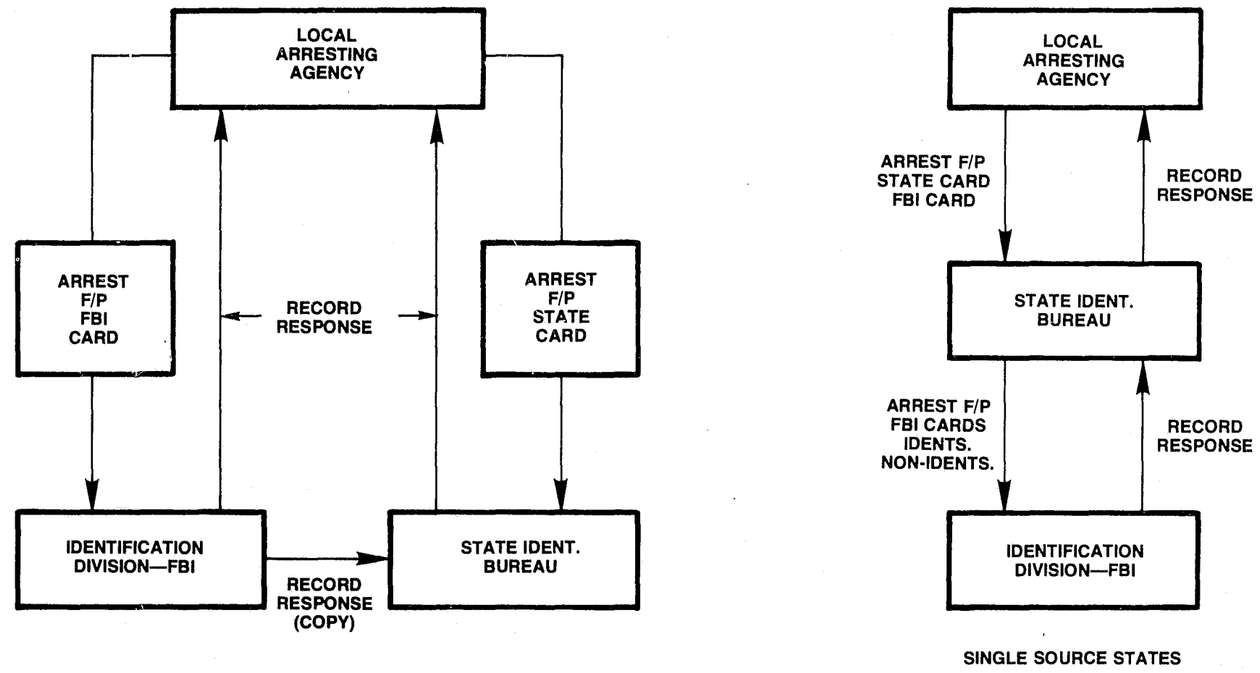


Figure 2
Typical State Bureau Interactions

The principal operational activity of most state identification bureaus is the processing of arrest fingerprint records submitted by local arresting agencies. While procedurally this process varies among the fifty state bureaus, it is functionally similar. Figure 3 depicts the logical flow of the process. A fingerprint card is received. A search is made to find a matching card in order to visually verify the identity of the subject from the fingerprint images, and positively link him/her to an SID number. The SID number is subsequently used to retrieve the appropriate information.

2.1.3 Effectiveness and Productivity

Typically it is estimated that approximately 60 percent of arrest fingerprint cards submitted to state bureaus relate to repeat offenders. As a consequence the "hit-rate" (number of matches made between incoming fingerprint records and file records) of criminal fingerprint submissions approaches 60 percent for the majority of state bureaus.

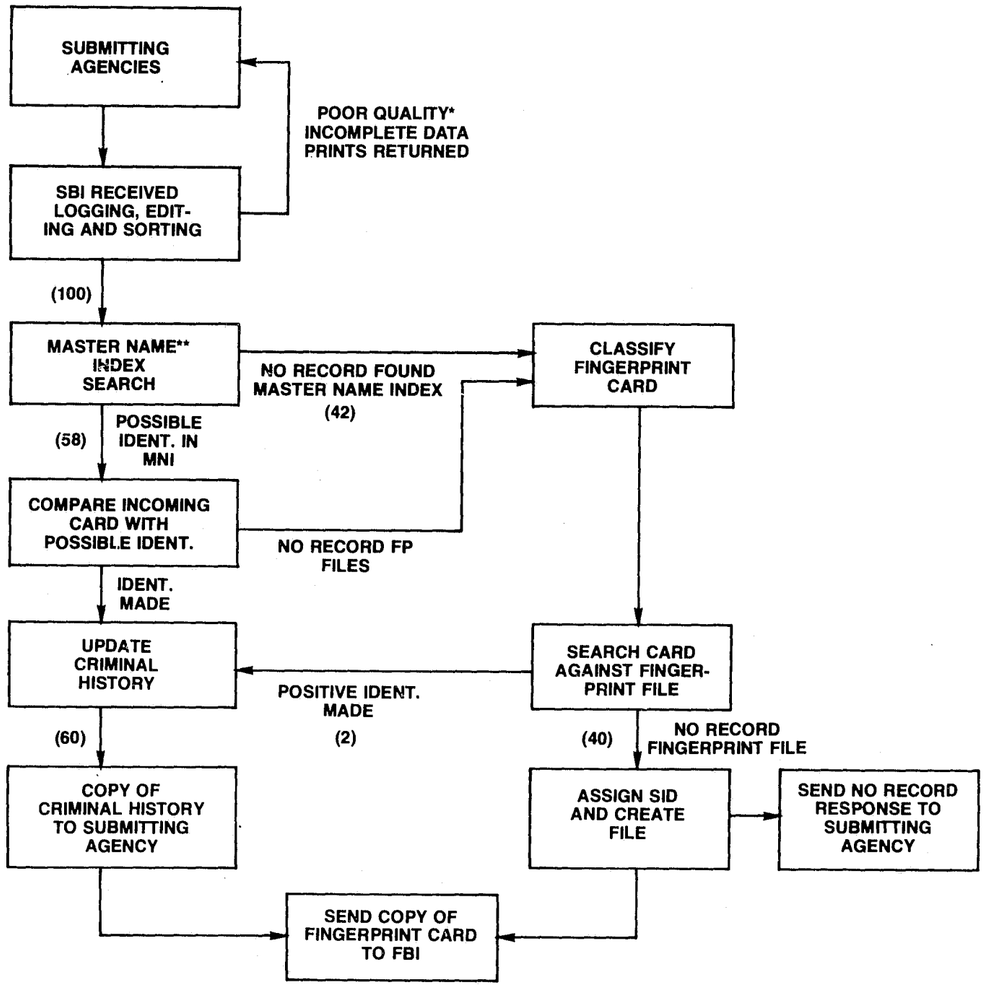
In effecting criminal offender identifications on the basis of the foregoing statistic, the name search activity produces from 90 percent to 95 percent of these identifications. The remainder are produced by a fingerprint data search (technical search).

In the context of productivity, a name search identification can usually be accomplished in less than half the time it takes to conduct a technical search. This is attributable, in part, to the necessity of manually deriving a classification formula for the incoming fingerprint record before the master fingerprint file can be accessed, for technical searching. This operation generally requires approximately six minutes to complete for a set of ten good quality inked fingerprint impressions.

Computer automated name searches and fingerprint classification searches significantly reduce the time and labor of both of these functions, while generally improving their effectiveness. These subjects will be addressed later in this report.

2.2 User Inputs

Identification bureaus are fairly unique in their operation in that they have little control over the record input, volume or timing of the entry into the workflow. The patterns of arrest, dispositions, mailings, and delivery all contribute to the uneven distribution of work. While this activity is the least controllable aspect of the work performed by the



* Returns average 2% to 25% of total receipts
** Numbers of parentheses indicate typical volume of cards processed by function from a batch of 100 cards beginning at name search

Figure 3
Typical Basic Work Flow of State Identification Bureaus In Processing Criminal Fingerprints

bureau, it has the greatest potential for adversely impacting the work of the bureau.

The main volume of work flowing into the identification bureau consists of hard copy documents. The traditional fingerprint card with its ten inked and rolled fingerprints provides the largest volume of work for the identification bureau.

The submission of a fingerprint card to the state identification bureau has as its main purpose the positive identification of the individual whose prints appear on the card. This is true of both criminal and civil (or applicant) prints.

In addition to fingerprint card submission, identification and record bureaus also process a volume of arrest disposition forms. These reported dispositions range from straightforward arrest disposition reporting, utilizing the carbon copy created when the fingerprint card is prepared, to sophisticated transaction/tracking systems involving prosecutors, courts and corrections. In any case, this input contributes an extensive workload to the records processing functions of the bureau.

Most bureaus remain tied to a manual reporting system; however, a few are experimenting with automated or semiautomated reporting methods. These experiments utilize tracking numbers assigned at the time of the arrest and reported on the arrest fingerprint card. Subsequent transactions rely upon this number, sometimes in conjunction with a check number (such as local OCA) or name to match the disposition to the arrest. As the state criminal history programs have developed, the reporting requirements for dropped charges, up/down graded charges, plea-bargained and other charges have increased. This increased level of detail has placed additional burdens on both the identification and records personnel in the identification bureaus.

There is a distinct requirement for the continued development of state level disposition reporting programs. Although considerable attention has been directed to this subject, there are still many associated problems. The cost of the processing of the disposition workload will remain high unless systems are devised where this reporting is a by-product of other reporting procedures.

The third major input to the identification process is the special request. Requests may be in the form of name check requests, special processing for fingerprint cards or for other identification bureau services. Special requests, from both in-state and out-of-state requestors, make up a significant part of name check volumes.

The majority of these requests are for special name searches and/or criminal histories (rap sheets). Such requests are typically delivered via the state and national telecommunications systems, but others also come in by mail, particularly from non-criminal justice agencies. The request must be searched in the name file in the same manner and using essentially the same procedures and personnel as when processing fingerprint cards. Criminal histories are usually provided to the requestor but with notations indicating that the record is not verified by fingerprint.

There is an increasing requirement for the state level identification bureaus to provide this service. Although not widely accepted as a standard practice, some agencies have allowed (with some restrictions) direct access to the internal identification Master Name File via the state criminal justice telecommunications network. Query capability may be limited to name and DOB or SID number and responses furnished may be limited to the index record (identification segment) and may include a criminal history summary.

The burden of special requests, especially when associated with a legislative mandate such as a licensing function, is becoming a "growth" area for the identification bureaus. The bureaus are undergoing a workload increase that is essentially created by the public and private demand for name checks and not by the growth of criminal activity which could be predicted.

2.3 Quality of Data Received

The major aspect of quality is the taking of the fingerprint image. In spite of experimentation with automated and semi-automated methods and the appearance of several commercial products, the majority of agencies still take the prints in the traditional manual method.

The quality of submitted prints varies from one type of agency to another due mainly to the personnel turnover rate in the agency. Most large cities do not have this problem as their identification personnel are permanent. It is more of an issue in the smaller and rural agencies.

In the national survey, the percentage of rejected cards based on bad fingerprints (defined as not classifiable) varied from a stated 3 percent to 25 percent. This discrepancy can be accounted for by a number of factors. The first is the point in the work flow where the quality check is made. If the check is not made until after name search, then approximately 50 percent will be identified and will not require

classification. A second factor is the definition of "classifiable." For various state systems, the fingerprint detail requirements vary. For example, some states require a whorl ridge count rather than just the tracing. Another factor is the degree that the state fully processes fingerprints; if a state does not utilize a fingerprint search but relies upon the FBI, then the criteria for rejection of prints changes.

Symptomatic of the problem of unclassifiable prints are the fairly complicated processing methods that the states have developed to deal with it. A significant number of states have begun "unclassifiable" files. These consist of unclassifiable cards that have been name-searched and identification segments entered into the automated or manual system with temporary State Identification Numbers. These are then filed by the temporary number. The main purpose of this procedure is to provide a file so that if an offender re-offends and uses the same or similar name, the name-search will match in the temporary file. Another reason is that, if two separate sets of prints were made and one was sent independently to the FBI, the FBI will identify the offender and inform the state identification bureau of the identification.

The fact that several states have begun such files is indicative of several problems. First, if the cards are returned to the local agency so another set of prints can be taken, the offender is usually no longer in custody so that the card is never returned. Secondly, the percentage of returned prints in several states is significant enough that considerable gaps in the identification of first time offenders are occurring.

The other aspect of the quality of the fingerprint card is the personal and offense descriptive data. This facet of the data quality is less subject to the problems associated with fingerprint taking but nevertheless remains a concern for most of the states.

Most of the identification bureaus try to handle resolution of problems with the descriptive data on the fingerprint card via the telephone or the state communications network. This procedure is usually successful and few states indicate that this is a problem area.

There is a need to provide to the states the ability to continue the in-state training programs in the taking of fingerprints. Many of these programs have either been discontinued or reduced due to funding restrictions. These programs are essential to assure quality fingerprint submissions, particularly in agencies where there is a large turnover.

Many states have developed training packages including operation manuals and procedure manuals, but there is a need for the development of a standard training package with the ability to be "tailored" to the individual states. The standard FBI training manual is an example of how effective such a program can be.

2.4 Transmission Modes

The traditional and currently most widely used method of delivery of fingerprint cards to the state identification bureau is the mail.

Facsimile transmission of fingerprint records is employed, in addition to mail service, by Illinois and New York. This reduces from days to minutes the overhead imposed on turnaround time by the mail delivery mode. Several states are currently experimenting with facsimile technology where an identified need for speed is emerging, i.e. priority requests to the Identification Division of the FBI.

Record responses are also widely returned by mail. Again facsimile is also used for this purpose in Illinois and New York. Additionally, many states with automated criminal history files employ state telecommunications facilities for electronic delivery using terminals or line printers. New York is a notable example of this electronic mode of record response.

It was not disclosed within the site visits or survey activity that accelerated delivery of fingerprint cards was a priority problem. This was brought about in part by the fact that most bureaus indicated they did not have the capability to respond to fingerprint submissions in less than five to seven days. Staffing and technical problems were cited as their rationale. Several state bureaus did, however, indicate they currently possessed the technical ability to respond in one to two days after receipt of a fingerprint submission. For this group, the time required for mail delivery is significant.

An emerging factor that may significantly influence the need for more rapid delivery of fingerprint cards is a current movement toward more rapid arraignments. Depending on legislative mandates and criminal justice policies within a state, the requirement for record responses from the state identification bureau could be reduced to two or three days. In New York, where rapid arraignment has been in effect for several years in the New York City area, the state identification bureau must provide fingerprint verified responses in two to

three hours. The bureau routinely processes upward of 150,000 such requests annually.

Presently the only viable means of electronically forwarding fingerprint cards is via facsimile technology. This comes about because of the need for photographic quality hard copy of the fingerprint record, reflecting high detail (resolution) and a broad range of black to white gradation (grey scale). This is the same technology employed by the newspaper wire services to distribute news photos to their subscribers.

Facsimile technology is currently undergoing dramatic advancements in technical capability and reduced costs. There is a need to evaluate the present state-of-the-art relative to a foreseeable future need in identification processing.

2.5 Preprocessing and Work Flow

Although state identification bureaus are thought of as having a fairly simple and straightforward processing procedure, this is not necessarily the case. An analysis of the data collected by on-site visits and the survey questionnaire indicates a distinct need for agencies to evaluate their bureau operations from a top down view. That is, the work that comes into the bureau should be viewed not only with the end goal in mind (identification), but also with consideration of the various methods of achieving that goal using the data provided.

2.5.1 Logging and Statistics

Through the nationwide survey, it was determined that relatively few of the state identification bureaus maintain in-depth statistics on workload. Nearly all bureaus maintain some level of statistics, but only a few maintain the following minimum statistics:

- Criminal F/P receipts by agency
- Applicant F/P receipts by agency
- Special Requests received by agency, by type
- Percentage of incoming fingerprints identified as a result of name check
- Percentage of incoming fingerprints identified as a result of fingerprint technical search
- Rap Sheets disseminated, by agency

The basic reason for maintaining these statistics is for performance monitoring. A subsidiary reason is to provide the

agency with a "zero base." Without this base and documentation of the staff workload standards, the bureau cannot predict or accurately document the expected impact of legislative or procedural changes. This is particularly relevant, as many agencies responded in the questionnaire that increases in workload in handling state applicants, gun licenses, private requests, and other mandated work were creating an increasing burden on the bureau with no increase in the funding. It is nearly impossible to demonstrate to the parent agency, budget personnel or the legislature a need for funding or staff increases without reliable statistics.

Several states have combined the need for a document control system with the capability to automatically collect statistics as a by-product of the document control system.

Because of the differing approaches to the problems of identification, there is an inherent problem in attempting to compare statistics from one state to the next. Such factors as file size, file make-up, level of automation, and reporting requirements affect the throughput of the various bureaus. There is a need however, to attempt to establish workload criteria for certain functions that are common to all bureaus such as classifying prints, file searching, and filing. If these basic work measurements can be developed, then the states can build into them their unique requirements and reach an optimal throughput level. By the judicious gathering of statistics the bureaus can then compare the throughput capacity to actual volume or anticipated volume. Only by this comparison can the bureau establish whether its budget/staff level is consistent with its mission.

2.5.2 Sorting and Grouping

There are several major groups that could be used to group and sort the work of the identification bureau. These procedures are typically used in most bureaus but it was found that nearly all bureaus operate on "exception processing." That is, the work flow is designed for a particular operation and prints that don't meet the operation are handled as exceptions.

Nearly all bureaus stated that the primary grouping was by priority with the major determination being whether the card is a criminal or applicant (civil) print. Universally the criminal print is given priority in processing. Within these groups only a few states indicated any further breakdown. Those that did separated the criminal group along criterion/non-criterion offense or juvenile/adult offender lines. Another priority breakdown that some states use is to

differentiate between law enforcement (arrest) and prisons (corrections) prints. The reason is the feeling that responding to the initial identification need is more important than the acknowledgment of a movement of a supposedly known person. This differentiation is not universal in that some bureaus operate on a first come first served basis.

Although many local agencies are entering the State Identification Number of FBI Number on fingerprint cards submitted, it is typical practice for state identification bureaus to process these cards with the remainder of the input without regard to the existence of these unique numbers. It is suggested that, in those agencies maintaining SID or FBI indexes, it would be more efficient to process them separately using the SID or FBI Number to make the probable identification. In those relatively few cases where the probable identification proved to be false by the print comparisons, the card could be entered into the name search stream. Many larger cities have identification bureaus which essentially duplicate efforts at the state level and errors in identification can be made at the local level. Such errors should surface when print comparisons are made at the state level.

There is no standard processing flow among state identification bureaus which employ varying methods of sorting, grouping and processing fingerprint cards. It is recommended that a fuller exchange of processing methods and procedures be made available to the managers of identification bureaus.

2.5.3 Document Control

Due to the volume of fingerprint cards handled by state identification agencies a method of controlling and monitoring the flow of those documents is essential. This is particularly important considering the different priorities and processing methods discussed earlier. Few states, however, have embarked on any formal document control system. Among these, few states have full-fledged control systems, and some states have limited monitoring capabilities.

As a minimum, the control system should identify which documents are in which batches being processed by the bureau and identify where those batches are. The most extensive system noted by the project team was capable of identifying the exact location of each document at any point in the processing flow. Not only is this system necessary to effectively manage any backlog that might develop, it provides as a processing by-product the statistics needed to manage the work flow.

Because of increasing demands placed on the state identification bureaus, their need to manage the workload and to maintain statistics on that load, it is necessary to develop a document control system. There are many examples and models available in private industry and these should be developed to fit the needs of the bureaus.

2.5.4 Special Processing

During the process of documenting work flows in various state identification bureaus, several problems that require special processing were identified.

First, several states include the Henry Primary/Secondary classification on name searches to allow a more precise differentiation on common names. This is true of the larger name files where there may be twenty to fifty candidates to a common name.

This process requires that the Henry Primary/Secondary be determined prior to the name search thus placing a small additional workload on the fingerprint technicians. In one state, non-technicians have been taught to perform this function. Some states have begun a "screening" process whereby after a name search, the subject names are eliminated visually by fingerprint classification prior to attempting the identification verification.

For large files this seemingly simple operation has a great beneficial effect and should be implemented as time/funds allow in all bureaus.

Another example of special processing involves the use of a temporary identification record. Because most of the identification bureaus at the state level have response times that range from four to eight days there can be two fingerprint cards on the same individual in the work in process. This can come about as a result of several actions in the field. First, a local police agency may arrest and fingerprint an offender, turn the offender over to a correction facility where he is fingerprinted again. Both cards are sent to the state agency within a short period of time. Or the arresting agency may send in a fingerprint card on a particular offense and then charge the offender with another crime, requiring another or update card. The problem here is that the second card has begun processing before the first is recorded into the system. The name search for the second card shows no prior record although the first card may be in the process. Many states have solved this problem by creating a temporary identification entry whenever there is a negative response to a name

search. This temporary identification record will then match if a second identical record should be searched.

While this procedure seems unnecessarily complex to solve an outwardly simple problem, the extension of the procedure can be very useful. If after the technical search, there is still no positive identification, the temporary identification record can become the permanent record with little modification. Since this work must be accomplished in any case, the effort of creation of the temporary record is salvaged by this procedure.

This method of assuring that duplicate records will not occur because of missed records in process can be adopted by the state bureaus in the manner fitting their particular operations. Many, if not most, consolidations have their beginning in the creation of two simultaneous records, and this procedure would eliminate that possibility.

2.6 Name Search

Name searching is a dominant factor in the identification process. It produces from 90 percent to 95 percent of the identifications made by most identification bureaus at the local and state levels. In the case of arrest fingerprint processing, it is the Master Name Index that is searched first to effect the retrieval of an SID number which leads to a file copy of a fingerprint record for comparison and verification purposes.

Quite often in the case of non-criminal identification processing or special request identification checks, where a fingerprint backup is not available, name searching is the only means of accessing the agency's criminal history file.

Name searching is a continuously expanding functional activity since it is directly linked to the growth of the identification bureau's record keeping functions. It turns out, that name searching is the fastest and most economical means for the agency to locate "jackets" or case folders for file maintenance such as updates, deletions etc.

Historically, the automation of the Master Name Index of the identification bureaus was the first step taken in the movement to computerization of the fingerprint identification function. The result of the national survey indicated that seventeen states were computerized and twelve were a combination of computerized and manual. The combination could be taken to mean two situations. First, the bureau is in the process of automation, or secondly, they have completed the

automation but have opted for a "day one" conversion and will maintain the manual files in parallel with the automated files. It is significant that 30 states of the 46 that answered the survey are computerized. Two states which did not respond are known to be computerized, so that approximately two-thirds of the states are utilizing computers for their name search.

This means that one-third (17 states) are still operating with totally manual name indices. Of these seventeen, thirteen are in the lower twenty states in terms of population. For a significant number of states, the manual name index is still an alternative. The manual file may be mechanized but no differentiation is drawn between these and cards filed in cabinets. The organization and use of manual files are traditional and no attempt will be made here to describe their use.

The computerized files, however, were not based on any traditional approach and there are many differences among them. The variations have occurred as a result of differences in the perceived functions, file size, computer power, and experience and skill of the implementors. Most systems are designed around one of the following basic search strategies:

- Use of dictionaries to handle commonly occurring names along with techniques for sound-alike matching
- Use of Soundex or similar schemes
- Use of exact matching on name

The more sophisticated systems can use all of these strategies, depending on the type of query, data input, etc. There is a need by most systems currently in operation to add this flexibility.

Many of the present operational systems were designed to achieve a certain selectivity (return of a prescribed number of records) and reliability (return of a target record). File growth and operational needs have altered the design concepts for these systems, which suggests re-evaluation and modification where warranted.

Other characteristics that the survey and site visits revealed can be summarized as follows:

o There is a wide variation between systems in the number of responses produced by name based searches. In systems where scoring techniques are not employed or retrieval lists restricted to a certain number, the number of candidates

and response time depends on whether a common or uncommon name is being searched.

- Some systems produce suspect lists that are not in "best-first" order. This situation leads to many manual processing problems. The computer simply returns to the inquirer, in the order located, all records that "match" the subject record. This requires the user to peruse the output looking for the best fit.
- The survey disclosed that the data elements most common to all automated name search capabilities in addition to name are sex, date of birth and race. Name and date of birth are the most generally used data, while half of the bureaus also reported using name only. About one-third used one or more of the foregoing data elements supplemented by some form of fingerprint data (usually Henry Primary and Secondary).

In the studies it was brought out that most users of computer automated name search systems, while generally satisfied with their respective capabilities, were interested in technical assistance in evaluating the effectiveness of the search and making improvements where necessary.

The foregoing reflects a conclusion of the study that there exists a need to assist in the upgrade of many present computer name search capabilities. Attention should be directed toward improving reliability, efficiency (selectivity) and flexibility.

The current LEAA sponsored MICRONYM project addresses many of these needs.

2.7 Technical Search and Verification

These two functional activities are generally recognized as the most technically oriented and costly in the identification process. They are labor intensive, relatively slow and require highly trained personnel.

The technical search operation consists of conducting a file search structured upon features found in the fingerprint impression. To implement a file search, the fingerprint record must be first classified, that is, the filing formula must be derived. Classification permits the systematic filing of fingerprint records based on fingerprint features. When an original card is filed by the system's notation, any subsequent

card of that individual falls in the same section of the file and a search of the section yields the earlier record.

The most widely used classification system is the Henry System (devised by Sir Edward Richard Henry in 1900). This system (as with all classification systems) employs a combination of features in all ten fingerprint impressions. The features consist of: pattern types (loops, whorls and arches), ridge counts (loops) and tracings (whorls). Other classification systems, where used, are essentially equivalent.

Technical search is performed on non-identifications resulting from an initial name search. Quite often the quality of an ident made from a technical search is high since a non-ident in name search usually connotes a deliberate attempt to avoid detection.

Verification is the task of visually comparing the current fingerprint record to the retrieved earlier record and confirming that they are identical and belong to the same individual. Verification is also tedious in that fingerprint data beyond the classification notation is utilized. These are the minute characteristics of the ridge contours whose location and types (islands, bifurcations, endings etc.) reflect the full uniqueness of the individual's fingerprint. Verification is the "Bottom Line" for both the name search and technical search functions.

The process of verification of probable name identifications, and the classification and searching of non-identifications by name continues to be the major processing bottleneck in most bureaus. The reasons for this are many and varied. They relate to the type of files available, the structure of those files, automation, required processing standards and staffing levels and training. As each of these areas impact processing, they will be discussed as identification needs in this section.

2.7.1 File Types

Most state bureaus operate using a manual file for purposes of search and verification. There seem to be few problems or needs in this area as this is one of the bureau operations that tends to be the most controlled of identification functions.

Traditionally, manual fingerprint files are maintained with hard copy cards filed in Henry classification order in file cabinets designed for that purpose. No provisions are generally made for cards to be filed in rotary files or for

them to be sequenced in classification schemes other than Henry. Computerization of master name files and in some cases of the fingerprint classifications has impacted this traditional way of doing things.

One of the most radical departures from the manual filing system is the use of microfilm to store card images. Typically, under this approach fingerprint cards are microfilmed after processing. Non-idents are recorded as masters and idents are cataloged by either reel and frame number (if microfilm) or sheet and X-Y coordinates (if microfiche). This microfilm index data is stored in the computer along with the personal identification data. When the prints of that record are to be retrieved, the technician simply locates the microfilm image using the microfilm index and works from the microfilm screen as he would from a card.

Several problems have been identified in the use of microfilm in the states that use it. One problem is that of image quality. Despite advances in technology, there remains the question of whether or not the microfilm image is of sufficient quality to allow accurate identification. This is basically a question of technique. Many of the bureaus are using equipment that is now some years old and using personnel that have been trained on the job with some access to the microfilm manufacturers' representatives. Nearly all complaints about quality could be satisfied by the provision of technical training and evaluation of the current microfilming procedures.

Another problem is file accessibility. Due to the organization of the file, the option most bureaus have taken is to provide a complete copy of the file to each technician or at least a reasonable number to avoid file access problems. Some bureaus have segmented the file and distributed it to the technicians. The name "hits" are pre-sorted so that each technician receives possibles only in his segment of the file.

A corollary problem to that of accessibility is the difficulty of file update. As new idents are added to the file, they will usually be entered into the computer system immediately, but due to microfilm processing time, it may be days or even weeks before the new fingerprint card image is available to the technician on microfilm. This necessitates the use of a temporary card file for the new identifications.

In addition to new identifications, there is an associated area of concern involving file purges. Depending upon the bureau interpretation of purge orders, the print image may have to be physically removed from the microfilm and the film spliced. Due to the operation of the microfilm readers, such

splicing shortens the film's useful life. Because of this, several states have taken the approach that deletion of the record from the computer files is sufficient since all pointers to the microfilm record are removed.

In summation, none of these concerns are of major proportions, indeed all are solvable. However, prior to any state embarking on a project to convert to microfilm from the manual files, a thorough investigation of those and other possible ramifications of the conversion is advisable. The impact upon the bureau's operation of these and related matters can be of equal or greater consequence than the actual conversion to automated name search alone.

One additional file type should be recognized at this point which was reviewed during the on-site visit to Washington State. The system is known by its manufacturer name as "Trans-A-File" and was developed as a commercial product. The system uses a laser scanner to record data concerning each fingerprint card on high-density magnetic tape. The image can then be reconstructed on a visual display with extreme accuracy, thus eliminating the need for either microfilm or hard copy cards. The system is highly regarded by its users but suffers from the onset of age. The manufacturer is also no longer in business and the system is approaching maximum capacity.

The bureau is off-loading the name search, originally part of Trans-A-File, onto a large main frame in an attempt to prolong the life of the system. The operation of the system is impressive and boasts a very good history of name-based and fingerprint-based hits identified on the visual display.

Similar digital technology is currently emerging in connection with storing fingerprint images on microfiche transparencies. New York has sponsored R&D in this area of technology.

2.7.2 File Structures

Basically there are two methods of constructing fingerprint files, either classification card (predominantly Henry) or state identification number (SID) order.

Most agencies that follow up name searches with a technical search do so in a manual file sequenced by the Henry filing system. The search follows the classical standards and procedures which have developed over many years. There is much literature and assistance available to agencies in this area and this does not appear to be a major issue.

2.7.3 Automated Fingerprint Search Systems

As an additional means to speed up processing and to control costs further, some state bureaus have developed automated fingerprint search systems to complement their operations. These systems are essentially computer-assisted classification search capabilities. The fingerprint classification, manually developed by the classifier, along with other data elements such as date of birth and sex are entered into the computer by a terminal operator. This data obtained from the incoming fingerprint card is the basis for the computer search. Within the computer is stored the same data elements for each record retained in the master fingerprint file along with the SID number. The computer file is ordered by sex and then fingerprint data such as pattern type, ridge counts, tracings, and finally date of birth.

The computer search consists of comparing the input data to file data and deriving a list of suspects whose file data most closely matches the input data. Generally, statistical scoring techniques are employed, which limits the retrieval list to a certain number of leading candidates ranked by scores. Searches of this type can be conducted, even against files of one or two million records, in a matter of seconds. Additionally, a retrieval list of no more than ten candidates will generally result in an accuracy greater than 90 percent.

Most of the bureaus which employ this capability maintain their fingerprint file in SID order, although some still use the Henry classification scheme. Generally where SID ordering is used, the computer returns the SID number and in some cases a name. The filing of first time offenders is simplified in files ordered in this manner, since SID numbers are usually sequentially generated. One drawback to this file system is that searches by partial fingerprints, such as latents, are complicated by the lack of use of fingerprint pattern types for filing purposes. Most computerized fingerprint search systems have relieved this problem by allowing cross indices for fingerprint classifications and accommodating searches during off-peak hours.

There are several other fingerprint classification schemes currently in use in automated systems. Of particular interest are those used in the states of Georgia, New York, Utah and Washington.

New York's system was developed as part of the NYSIIS system and consists of five pattern types and ridge counts. Whorls are not broken down and a ridge count is used.

Washington's system was developed as part of the conversion to the Trans-A-File system and is called the Alpha-Numeric Coded Fingerprint System (ANCF). The system assigns numeric identifiers to pattern types and alphabetics to ridge counts. The system offers more detail than the NCIC Classification, yet can be translated to both the NCIC and Henry Classification systems.

Utah's system was developed by personnel in their identification bureau in conjunction with the development of the computerized system that supports the bureau operation. The classification scheme consists of an alphabetic identification of the pattern type, followed by a three-digit code. The three digits consists of a score indicator and a two-digit ridge count. The classification scheme is also convertible to NCIC and to Henry.

Georgia (and a few other states) use the NCIC Classification system as the fingerprint search index scheme. The development of the scheme was based on work done by an outside consultant to GCIC. The system has worked well, but due to the file size increase, which is currently over 440,000, it will soon be necessary to adjust the scoring criteria. The Georgia experience has shown that with the proper file access techniques, the NCIC Classification can be used by many states.

2.7.4 Benefit/Cost Automated Fingerprint Search Systems

Automated fingerprint search systems are very similar to automated name search systems in that they are software (computer programming) oriented. They require no special purpose hardware attachments. Once installed, the update and file maintenance is usually automatic.

There are many advantages to a computer automated fingerprint search system. Probably the main advantage is that it permits the reordering of the fingerprint file in SID number order. This significantly improves the efficiency of the verification of name search identifications, in addition to greatly facilitating the technical search. This is brought about, in part, by the elimination of congestion which is present in classification files in the densely populated sections. Accuracy and efficiency are also improved since the computer internally screens suspects (equivalent of rifling through a section of the manual file) and only displays the most promising suspects. An additional feature is the ability to consider references simultaneously and include them on the retrieval list if they are in contention.

There are disadvantages to be sure. Automated systems are vulnerable to classification errors. A mistake in a pattern type designation is fatal. Errors in ridge counting can be compensated for up to a certain point. Theoretically there is more than adequate discriminatory capability in the pattern type and ridge count descriptors for most state file sizes.

2.7.5 Standards Development

The subject of standards for quality and productivity as it relates to fingerprint search and verification is an involved as well as sensitive matter. The overall issue of standards development and usage has been discussed in Section 1 of this document. Here it is worthwhile to note its specific relationship to the fingerprint search and verification functions.

For example, of the 46 states responding to the survey questionnaire, only 11 indicated that they maintain any type of quota system for production. While nearly all states reported that the work of technicians is monitored, only fourteen indicate that any formal checking procedure is used. Most states rely on the quality of the personnel in the bureau to maintain the required accuracy.

In terms of quality control, it was also found that not all states are requiring the check of each ident by a second technician. This may be due to overwork by the staff or the perception that the technicians are expert and do not require verification of their work.

In either event, there is some difference of opinion about the utility of this practice, with managers sometimes agreeing or disagreeing strongly about its use. The prevailing opinion, however, favors the use of verification, particularly where other types of quality control are not employed.

It should be noted that, in the main, quality of work in bureaus is extremely high, despite generally low salaries, infrequent raises, and tedious work under extreme pressure. Largely because of this high quality the issue of work quotas is very sensitive. But the question remains whether managers can demonstrate that, under current workloads and performance monitoring systems, an increase in workload must be accompanied by an increase in staff or a decrease in service. This is the root of many problems in state bureaus.

Legislatures have continued to add to the already increasing criminal workloads by requiring fingerprint checks for licensing and applicants, without providing additional

funding or consideration of the additional burden that this will create. Indeed, many bureaus are faced with funding reductions in tandem with this increasing workload. This situation, if allowed to continue, will mean that many bureaus face reduced levels of service.

This situation also emphasizes the need for the provision of new technology to identification bureaus so that they may maintain their function at the highest possible standard and efficiency. New technology must be integrated into the bureau in an effective manner and not as a stop-gap measure. Technical assistance to bureaus in this area would be most useful to assure methodic use of such technology. Yet, it is an initial requirement of bureau managers to establish the work performance and productivity standards which are required to adequately justify the additional expenditures required for automation and other bureau improvements.

A number of state bureaus have formally established work quotas. The production requirements presented below are meant to be an example of one state's requirements along these lines and not as prescriptions for other states to follow or to necessarily emulate. It is felt, however, that these figures may characterize the range of requirements which may be suitable as reference by other state bureaus in the development of their own systems.

	Verification of Identifications	Classification of Fingerprints	Comparisons of Fingerprints
Excellent	25	16	23
Very Good	20	13	18
Good	15	11	13
Fair	12	9	10
Unsatisfactory	below 12	below 9	below 10

Example of Fingerprint Technician Hourly Work Quotas

As the chart indicates, this system properly utilizes gradations of acceptability ranging from "unsatisfactory" to "excellent" for three types of functions--verification of identifications, the classification of fingerprints and the comparison of "candidates" to master fingerprint cards.

2.7.6 Fully Automated Fingerprint Systems

Beyond the computer assisted fingerprint systems, there are currently under development several fully automated systems; most notable of these are the FBI's FINDER system and that of the Royal Canadian Mounted Police in Ottawa. Employing rather sophisticated image scanning and processing technologies, these systems are designed to abstract the fingerprint data directly from the card, enhance it and relay it directly to a dedicated computer for searching and/or file maintenance. The fully automated system employs ridge contour data (minutia) for final candidate selection in its search strategies. This level of detail provides the highest degree of selectivity presently obtainable from a fingerprint image.

There are several systems problems currently being addressed, which when resolved will allow the fully automated systems to more nearly approach their full potential for benefit/cost, etc. Typical of these problems is that of maintaining an acceptable minimum quality level for inked fingerprint records, in order to permit automatic scanning.

At the present time no state identification bureau has a fully automated capability under development. Several large local agencies have developed capabilities which are generally oriented toward crime scene (latent) fingerprint processing. These systems exploit the minutia processing techniques to attempt single finger identification which is usually required in this application area.

2.8 FBI Interface

The relationship of the state identification bureaus to the FBI identification division is a current topic of considerable concern to both the states and the FBI. The present situation which involves considerable redundant processing of fingerprint cards has become an increasing fiscal and managerial concern. With an increasing workload on one hand and pressure to decrease or hold costs on the other, bureaus are facing reduced services and must seek new methods to increase productivity.

2.8.1 Impact of FBI Identification Function

Traditionally, the FBI's identification division has received and processed criminal and civil fingerprint cards for the states which meet certain offense criteria. The FBI has also allowed cities and municipalities to contribute directly to the FBI and either bypass or include their state bureaus.

Most state bureaus do not have single source agreements with the FBI, so that the FBI continues to process locally submitted cards even if states are by law receiving all cards from in-state agencies. This leads to the following situations.

The local booking agency makes at least two (sometimes three or four) sets of fingerprints; the first being sent to the state and second to the FBI. Even if the state receives both sets of prints, it usually marks the State Identification Number (SID) or FBI number on one of the cards since that is all the FBI will allow, and forwards it to Washington. This procedure is followed for all cards submitted.

Both the state and the FBI respond to the local agency, and the FBI also provides a courtesy copy of the response to the state bureau. The state then adds to its own files any data from the FBI it deems important, such as arrests from within their own state which were not previously on file. If the person being processed is a single state offender (reliable estimates place the percentage at 60 to 70 percent), then the state reply and FBI reply should be the same, unless some direct local reporting has taken place to the FBI without state bureau notification.

Some states have instituted sole source reporting. That is, all fingerprint cards destined to go to the FBI are processed in some manner by the state bureau before being forwarded. This procedure is helpful in that the state can synchronize its files with those of the FBI. The presence of the FBI Number on incoming cards allows the FBI to bypass the name search and directly access the fingerprint file for verification purposes.

This procedure is effective, and only a small percentage of "mis-hits" occur. An additional advantage to this procedure is that more control can be employed over the quality of prints submitted. For example in dual reporting, either the card sent to the FBI or state may be rejected as unclassifiable or may fail to meet quality standards. Under such circumstances the card may be returned to the user and unless a new card is forwarded, the files become unsynchronized.

If we include the reporting of dispositions and file purging in the workflow, the system becomes much more complex.

A good deal of time is spent in identification bureaus processing the FBI Rap Sheet against the state files in order to verify the accuracy of both records.

Based on the foregoing review it would appear that state identification bureaus need to institute single source submission so that, as a first step, this duplication of effort can be corrected. However, for most states this first step will create a substantial and possibly unmanageable workload burden. The need for the provision of adequate staff, funding and technical aid is never more apparent than when discussing possible solutions to the tangled identification system as it exists today.

Although for the foreseeable future the FBI will require both idents and non-idents be submitted, in the ultimate system, the states would process all fingerprint cards and submit to the FBI only those cards that were not identified. For those that were identified, only that data required to update the national file need be submitted, with the FBI number. However, this ideal situation may be far from realistic. For example, in one state, an experiment to assess the additional workload involved in receiving all cards from local agencies showed that a workload increase of from 25 percent to 50 percent could be expected with attendant processing delays. This workload increase came about mostly in the clerical overhead required to process two cards, including annotating the FBI-bound card and forwarding the card. If this workload increase is correct, one can expect that most state bureaus simply could not handle the increase based on current funding and staffing levels.

In addition to the workload increase and the need for additional funding to handle it, there is a question of how the update procedure would occur. A pilot program currently proposed is investigating the concept of using the NCIC/CCH program for this purpose, but this procedure has not been resolved.

This area of the national identification system process is impacted by policy decisions, funding and available technology. It was not within the scope or purpose of this study to deal with these issues in a comprehensive fashion. However, any attempt to proceed with a system will require an upgrade of state level identification bureaus if the proposed system is to have a reasonable chance of success.

2.8.2 FBI Data

The FBI Identification Division has been in business longer than most of the state bureaus and therefore has accumulated more data than most states. Since the FBI normally sends a copy of the criminal history for each offender to the state bureau, there is an opportunity to update the state

record to include all data on the FBI criminal history. Most states have attempted this but generally are only picking up arrests and dispositions for their state and not other states. Some states, due to work overloads, are only verifying the FBI number and recording it for new idents, while other states due to excessive workloads are not doing either of these. If the intent of any new national system is to allow states to respond to users for "single" state offenders, there will have to be a process of file verification and synchronization. This is true for the manual state as well as those states currently participating in the NCIC/CCH program.

According to the survey, five states do not currently follow-up the name search with a technical search but rather rely on the FBI for this service. While most states do not favor this approach, the economics do appear attractive if one only considers that when a name search is 90 percent to 95 percent effective, a technical search must process all "no hits" including first-time offenders to find only 5 percent to 10 percent of the incoming workload.

However, experience has shown that name search is very vulnerable to "missed" identifications, where subjects deliberately give a false name and other fictitious data. Under these circumstances, it is virtually impossible to identify an individual through a name search. At the same time, these are the types of identifications that it is most desirable to effect, for by definition, the subject must have a compelling reason for avoiding detection. On the other hand, a technical search, by virtue of the information derived from the fingerprint impression, cannot readily be circumvented. The data is invariant and if the search is conducted accurately, an identification must follow, when there is an earlier record on file.

The use of computer assisted fingerprint search systems is not currently as widespread as computer automated name search technology. However, where employed, the cost effectiveness of technical search is invariably improved. Computer scoring techniques, SID ordered fingerprint files, and greater physical accessibility to files contribute significantly to reducing processing time for the computer oriented technical search. As pointed out earlier, a reliability in excess of 90 percent has been reported for such systems, which compares most favorably with the best manual based systems.

2.9 Local Agency Interface

The largest majority of the state identification bureaus workload comes from the local agencies as a result of arrest

processing. A copy or copies of the card is sent to the state bureau for processing.

In addition to sending cards as to the state, most larger city and county law enforcement agencies maintain their own fingerprint and master name index files. For each local offender, these agencies maintain a duplicate criminal arrest record to that of the state and FBI. As the fingerprint card is processed locally, the case number or local identification number is written on the card and typically sent to both the state bureau and FBI. Any return from the state and FBI is matched to the original record by the use of the case number or local ID number. This situation means that in at least three agencies (local, state and federal), duplicate processing is occurring.

In some states an effort is being made to supply the State ID number (SID) to the local agency on any return and have the local agency supply the SID on submissions to the state. According to the survey results, of the states where the local agency places the SID on cards submitted to the state bureau, 30 recheck the identification at their state bureau, while 9 reprocess the fingerprint card entirely. None of the respondents accept the identification on face value.

This local-state situation is similar to the state-FBI interface. It shows that at a minimum, states are rechecking the work done locally. The solution to this obvious duplication of effort is not easily answered. For example, if the state views itself as primarily a repository for data, shouldn't it accept local data with certain minor reservations? On the other hand, can state bureaus afford to accept local identifications without some sort of certification of the local bureau or reverification of their identifications? No state has been identified that currently accepts arrest data in an automated form for criminal histories although some do accept automated UCR data and automated disposition data.

This interface has the greatest potential for streamlining the functioning of the state level bureaus. Many local jurisdictions have developed sophisticated subject-in-process systems which are keyed to the local identification bureau. By linking such local systems to the state bureau, much redundant processing can be avoided.

Most of the states that utilize a computerized name index have the entire state Master Name Index (MNI) in the computer files. Less than half of the states indicated in the survey that local agencies have access to the MNI. It is not known how much of this access is limited to the short form criminal

history given a particular name. In any case, this local agency interface could be greatly enhanced if the local law enforcement agencies who keep fingerprint files had access to the state MNI for query purposes.

2.10 Purging

For many agencies file purging has created work distribution and security problems. In large files the onus of conducting a file purge can be so disruptive that purges don't occur regularly.

There are two types of "required" purges in the sense that they are required on a regular or pre-set time to maintain the integrity or legality of data in the files.

Age purging is the most common of purge criteria. For agencies with automated files, age purging is quite simple. In those systems the computer system distinguishes the records that are candidates for the purge according to present purge criteria, and, either physically removes them or marks them deleted. In manual files, records must be processed one by one and those meeting purge criteria removed. Most agencies retain the purged records on the theory that the record may be reactivated.

Many states now have first offender or limitation laws. These laws include the requirement to suppress or remove a criminal record if no further criminal activity occurs in a pre-set time frame. For an automated system this requirement poses little problem as the system can be programmed with the criteria and decision-making tables to automatically and periodically purge the files. The only manual requirement is then to access the file and physically remove the record if necessary.

For manual systems, the purge is often time and manpower consuming and is perhaps the second biggest draw on resources.

Some jurisdictions also require the purging of arrest records where the judgment is not guilty or the charges are dropped. In one state this has become a regular practice causing a workload increase of nearly 50 percent on the state bureau.

There is a particular problem if the law requires the surrender of the original fingerprint card and the bureau operators use microfilm. The obvious intent is to physically remove the record, but this is a complex procedure in a microfilm based system. However, most states have satisfied

themselves and the judiciary that if the computerized index is removed, then the access to the record is basically eliminated.

An additional concern of some bureaus in this area is the inability of the courts to adequately identify the record to be purged. Generally, the only data available is the individual's name, and, occasionally, the date of arrest, charge and arresting agency. If an OBTS or similar system is in operation, then the assigned case or tracking number is of assistance. Yet, in many cases, there is not enough information to positively identify an individual. An inability to comply with court orders in this regard may have serious results. This problem should be addressed at the state level by an effort to provide to the courts a method of expressly identifying the record(s) to be purged.

2.11 Security/Privacy

Security and privacy does not seem to be the issue that it was five to ten years ago, at least in terms of the dissemination of information. Security and privacy laws in the states and dissemination policies at the local, state and federal levels have effectively curbed those excesses which were at one time major fears.

Record access is usually dependent upon two criteria: the agency requesting the data, and the data that is being requested. Most states now have security and privacy regulations which are implemented manually or by a computer which centralizes this aspect of access to criminal history data. As such, this does not seem to be a major issue at the state level. However, the accessibility of criminal records by non-criminal justice agencies and by the individual have become issues with respect to the increasing impact on the workload of the state bureau.

Access by non-criminal justice agencies has, more than any other area, created an increase in workload for state bureaus. Legislatures, concerned with protection of the public have allowed/required licensing agencies to check the criminal records of applicants for security guard, gun permits, gambling licenses, life insurance salesmen, auto salesmen, and physicians among others. The scope of agencies sending applicant prints to the state bureau is becoming broader. This increase has caused several operational problems in many bureaus, such as response time requirements and relative priority assessment. Almost universally, the criminal workload is handled first leaving the applicant (civil) prints to accumulate before any others if a backlog develops.

There must be a determination in each bureau as well as to the extent that applicant cards are to be searched. The question is whether they should be completely processed through the name and technical searches. The answer most bureaus have arrived at depends on two considerations, the type of applicant and the bureau's relative workload. For criminal justice applicants, a full search is generally conducted, while for most others, a name search only is conducted.

The right of the individual to review his record has been widely recognized. Most states have implemented procedures whereby an individual by identifying himself through submission of fingerprints may examine his record, make notes and challenge any data. The method of challenge differs from state to state but usually involves contacting the originating agency and requesting the courts to expunge or change the record. This activity does not represent a significant workload for state bureaus but it is important from an operational file integrity standpoint.

The only way to protect the state bureau against claims of illegal or inappropriate dissemination of criminal records and to place responsibility on the agencies to whom the record is released is through the maintenance of a dissemination log. The log documents the record released, the purpose of the dissemination, the agency and the date. Even if it is not required by law, all agencies should keep such a log. If criminal histories are generated by computer, the log could be produced at the same time, otherwise, a manual log could be established and maintained in the mail room.

2.12 Criminal History Interchange

The subject of criminal history interchange and its effects on the state level identification bureau has become a topic of major interest. In the past, there have been several concepts developed and pilot programs run. The NCIC Computerized Criminal History (CCH) was a step toward the realization of a national criminal history interchange. Current indications are, however, that the concept was not supportable by many states for a variety of reasons.

It appears now that states are more in favor of a movement toward the concept of a national fingerprint index and a decentralized criminal history. A recent FBI survey indicated that, of 46 states responding, 28 felt that the maintenance and link of such an index to the states which houses the criminal record would be satisfactory, and 31 indicated in a different survey their support for this concept.

If the concept currently proposed proves to be feasible, then the impact upon the state bureaus could be dramatic. As a prerequisite, the participating states would have to become "single source" states. That is, all fingerprints would be sent to the state bureau for processing and then forwarded to the FBI. In a recent survey, 21 of 45 states responding indicated that they expect an increase in workload if single-source submission was implemented in their state. In addition, 34 indicated that additional funding would be necessary to implement this concept, although 28 also indicated that there were no state funds available for this purpose.

In addition to the expected increase of fingerprint submissions, most states would require a technical upgrade of either computer hardware or software or both. Many states that are automated do not now have the hardware capability to transmit state criminal history data on the state communications network since the Master Name Index and associated support hardware/software is logically if not physically separate from the state network. This technical upgrade will also require funding if the states are to be able to respond to a request from another state for criminal history information. The technical requirements of such an interchange have been proven feasible. At this point, it is the application of that expertise that requires funding support.

2.13 Training

In the survey questionnaire the state bureaus expressed training to be a priority in terms of overall needs. This need manifests itself in several ways. First, field training by competent bureau training staff insures that the fingerprint submittals and accompanying data will be of the highest quality. As this training ceases, the quality of the data is noticeably diminished. Many state agencies, because of funding restrictions, have been forced to reduce or even eliminate their training programs. States could benefit from a standardized training curriculum and access to trainers on an as-needed basis to avoid the overhead costs of a full-time training staff. The curriculum might be coordinated with the FBI training being conducted nationwide.

The second training need involves state bureaus' assistance to local identification bureaus in the internal training of their staff, not only in terms of the local environment but in regard to an understanding of the state operation. If progress is to be made in allowing local agencies to supplement and enhance the efforts of the state identification bureau, then some standardization of training is essential. This is particularly true when the state bureau has adopted specialized processes and functions.

Third, the state bureaus are in need of developing ongoing, in-house training programs for their staff. These programs must be tailored to fit the operational needs and requirements of the state bureau, yet some technical assistance could be used in the development of the overall components.

The development of formalized in-house training programs coupled with clearer personnel performance criteria establishes the basis for staff progression according to a predefined professional development program. This facilitates the solution of some of the perennial problems relative to promotion of the best qualified personnel.

APPENDIX A

Survey Questionnaire Responses

INTRODUCTION

Included in Appendix A is the survey instrument and a presentation of relevant survey findings. The totality of the survey responses is not given as some of the data (budget, salary, etc.) is necessarily voluminous and does not lend itself readily to tabulation. This data was used primarily during the analysis. Where appropriate however, the data has been presented in tabular form.

The questionnaire was mailed to each State Identification Bureau, the Washington, D. C. Metropolitan Police Identification Bureau and the FBI Identification Division. Forty-five state identification bureaus, the Washington, D. C. Metropolitan Bureau and the FBI Identification Division furnished positive responses. One state (Nevada) does not have a state-level identification bureau and four other states did not return questionnaires. The FBI return was utilized in volume, statistical and workload analysis but is not represented in the following discussion.

All agencies did not respond to all items in the questionnaire either through omission or because specific items were not applicable. In some instances, bureaus responded to more than one option or qualified their responses which is indicative of a diversity of procedures (or combination of procedures) extant among identification bureaus.

ORGANIZATION AND STAFFING

Organization Chart

Twenty-four of the states or 53% indicated that they had and could provide an organization chart which indicates the functions and services of their bureau, while twenty-one or 47% indicated they could not provide an organizational chart.

Organizational Relationship

The parent organization of state bureaus generally falls into one of three general designations. The first of these relates to law enforcement agencies such as a department of public safety, state police or state patrol. Sixty percent of all respondents indicated that they fall within this first group. The second most prevalent organizational relationship finds state bureaus under a department of justice or attorney general's office. Twenty-two percent of states responding fall into this category. The remaining 18 percent of state bureaus function as service bureaus within their state's governmental structure.

Staff Positions

Although difficult to compare like jobs with varying job titles among the states, the following table represents the project teams analysis of job titles and salaries:

• Bureau Chief	Range	= $10,416 - $38,186
	Average	= $19,350 - $25,812
• Fingerprint Technician/ Examiner	Range	= $ 7,716 - $19,800
	Average	= $ 9,655 - $14,840
• Clerk Typist	Range	= $ 6,300 - $16,464
	Average	= $ 7,919 - $11,818
• Terminal Operator	Range	= $ 8,160 - $17,117
	Average	= $ 9,410 - $13,136

Job Descriptions

Forty-three of the states (96%) have work classifications for the positions in the bureau but only thirty-four (76%) indicated that the descriptions relate to the specific jobs in the bureau as opposed to general clerical or technical position descriptions.

Personnel/Staffing Problems

The survey respondents were requested to indicate the type, level of problem and seriousness of personnel/staffing problems. The responses have been tabulated in table A-1.

Entry Level Testing

Twenty-five of the state bureaus (58%) utilize an entry level test to evaluate potential fingerprint examiners. The survey did not evaluate the type of test, but the site visits revealed that a broad range of aptitude and skill tests are used.

Training

The survey asked three questions concerning the bureaus' responsibility in training. Twenty-eight (62%) of the bureaus indicated that they conduct statewide training of local agencies in fingerprinting techniques. Of these, five indicated that the training took place on a request basis. Thirty-five of the states indicated that they provide entry level training for new staff and thirty-two said the bureau provides for advancement training.

Quality Control

The bureaus were asked whether they utilize any formal quality control procedures. Sixteen or 36% replied that they do. Quality control techniques range from the insertion of known hits into the daily work and monitoring the ability of staff to accurately identify them to the review of daily work for accuracy. The majority of bureaus with formal quality control procedures follow the technique of reviewing daily work for accuracy.

Quotas

Only thirteen states or 29% indicated that the bureau utilizes a quota system to monitor the daily workload. The quotas varied widely depending upon the type of system used in the bureau and therefore, are not tabulated.

Type of Problem	Level*	Frequency: Continuing	Temporary	Intermittent
Recruitment	I	7	2	1
	II	5	-	3
	III	3	1	6
	IV	2	-	5
	V	2	1	3
Caliber of Staff	I	-	-	-
	II	4	-	2
	III	3	-	3
	IV	5	6	7
	V	1	1	7
Retention of Staff	I	6	-	2
	II	5	1	3
	III	4	-	12
	IV	1	2	2
	V	1	-	3
Not Enough Staff	I	21	1	1
	II	4	1	-
	III	3	2	2
	IV	2	-	1
	V	1	-	1
** Salary offered too low	I	2	-	-
	II	4	-	-
	III	-	-	-
	IV	-	-	-
	V	-	-	-

TABLE A-1

STAFFING/PERSONNEL PROBLEMS

* Level I most serious, V least serious
** This problem written in by respondents

Bureau Functions

The bureaus were asked to identify the functions that they perform in addition to the primary fingerprint identification function. Table A-2 presents those responses.

Function	States: Number	Percent
Identification Services for total State*	43	96%
Identification for partial State	2	4%
Criminal History Maintenance	42	93%
Uniform Crime Report Preparation	20	44%
Latent Fingerprint Processing	21	47%
Applicant/License Processing	45	100%

Table A-2

FUNCTIONS PERFORMED BY STATE IDENTIFICATION BUREAUS

* Does not mean sole source submission to FBI

WORKFLOW AND FUNCTIONS

The questionnaire included several questions concerning the workflow and functions of the bureau. The questions were designed to elicit responses that would enable the project team to identify areas of special need in the state bureaus and to point out any problems.

Workflow Diagram

The state bureaus were asked whether or not they have a workflow diagram that illustrates the current processing in the state bureau on the premise that in order to effectively understand and monitor workflow this type of documentation is required. Only twenty-two (49%) indicated they had such a diagram.

Statistics

The accurate maintenance of statistics is an integral component of management in the operation of the state bureau. The state bureaus indicated the following statistics were regularly maintained.

Function	Yes	No
Number of:		
Fingerprints searched by name	53	2
Name searches with possible identifications	26	19
Name search possibles confirmed	31	14
Technical searches conducted	34	11
Technical search identifications	27	18
Missed identifications by name	13	32
Missed identifications by fingerprint search	5	40

Table A-3

THE NUMBER OF STATE BUREAUS WHICH COMPILE STATISTICS, BY FUNCTION

Purging

Thirty-four bureaus indicated that they maintain established procedures for purging the files. Eight replied they did not and three did not answer this question.

Input Documents

The survey asked bureaus to document the use of transmission methods other than mails for sending documents to the state bureaus. The preponderant method remains the U.S. Mail. Table A-4 documents the response of those agencies which use additional methods of transmission.

Facsimile	Photo Copy	Telex	Computer Transmission
Illinois Massachusetts Michigan New York No. Carolina Rhode Island W. Virginia California	Connecticut Indiana North Dakota Oklahoma Rhode Island South Dakota Vermont	Florida Michigan Rhode Is.	Connecticut Florida No. Carolina South Dakota Iowa

Table A-4

STATES USING TRANSMISSION METHODS OTHER THAN THE U.S. MAIL

Nearly all (38 or 84%) stated that they now provide special quick turn around or emergency service to name or fingerprint search requests, with an average response time of less than one hour.

Document Control System

Twenty of the state bureaus indicated that they used a document control system to assist in processing fingerprint cards.

Despite the small number of bureaus utilizing a document control system, forty-one bureaus answered that incoming fingerprint cards are organized into groups based on some criteria to assist processing. Most bureaus simply group fingerprint cards into male/female groups of some number (50 most prevalent), but others subdivide by fingerprint class, alphabetic by name and age groups.

Quality and Completeness Check

Nearly all, (43 or 96%), bureaus perform quality and completeness checks during the processing of fingerprint cards.

Table A-5 indicates the procedures used by bureaus in processing fingerprint cards.

Action	Type of Problem	
	Incomplete Data	Poor Prints
Card is processed as well as possible	8	22
Card is returned to agency	24	22
Card is kept by bureau after problem cleared up with contributor	30	9

Table A-5

PROCEDURES USED BY BUREAUS IN PROCESSING FINGERPRINT CARDS

These figures are greater than the total of respondees because some agencies react differently to various degrees of the problem. The figures indicated that no matter what the problem, only about one half of the agencies return cards to the local agency.

The agencies were also asked to estimate the percentage of prints that had to be processed specially or returned due to poor prints or missing data. The response varied from 3% to 25% with the average being 10% . When asked if this is a serious problem, twenty-one or 47% indicated that it was a serious problem. It is interesting to note that the state which reported the 3% return rate considered it a serious problem while the state reporting a 21% return rate did not.

Name Search

In order to document the current level of automation in the state bureaus, the survey asked if the Master Name Index was automated, mechanized or manual. The following is a profile of those responses. (Some states checked more than one response.)

Manual	13
Manual & Mechanized	4
Manual & Computerized*	15
Computerized	16
No Answer	1

*Indicates a split operation usually in the midst of conversion

Manual Name Search

State bureaus reported that the manual systems were indexed by the following data items:

Alias	29
FBI Number	3
State ID Number	18
Arrest Number	2
Social Security Number	2
Fingerprint Class	3
Tracking Number	1

In the manual systems, twenty-two agencies reported having non-criterion offences in the MNI and eleven reported having juveniles in the MNI.

Computerized Systems

The state bureaus reported the following name query combinations available in their automated Master Name Indicies.

Name only	20
Name & date of birth	25
Name, sex, race & date of birth	25
Name, sex, race, date of birth & fingerprint data	17
Name & fingerprint data	13
Name & sex	1

The following numeric indicies are available for query

State Identification No.	41
Local Arrest No.	10
Social Security No.	22
Drivers License No.	10
FBI Number	26

The survey requested information on the maximum number of names that would be output to a query. All of the thirty-one automated systems indicated there was no maximum to the number of names output to a name query.

Computer Facilities/Usage

Twenty-five bureaus replied that they utilize a computer dedicated to criminal justice use and ten indicated they share a general government computer with other state agencies.

Twenty-five bureaus expressed satisfaction with the computer support given while seven did not. There does not seem to be a correlation between satisfaction and whether the computer is managed by a criminal justice agency or not.

Only twelve of the bureaus responded that they have their own programming staff and twenty-three indicated they use the computer facility for programming support.

Only ten of the bureaus indicated that an EDP Coordinator was resident on staff.

Technical Assistance

The state bureaus indicated their priorities for technical assistance. These are presented in Table A-6. The rank is 1 as the greatest priority, and 5 the least.

Rank	Programming Assistance	Technology Identification	EDP Evaluation	Staff Training
1	6	11	3	2
2	6	6	3	6
3	3	4	4	4
4	1	2	7	7
5	2	1	1	3

Table A-6

STATE BUREAU PRIORITIES FOR TECHNICAL ASSISTANCE

Fingerprint Files

The survey asked several questions designed to document the current operational use of the state bureau fingerprint files. The questions relate to procedures, organization and usage.

File Access

When asked to document how the fingerprints are accessed for verification of name-based searches the bureaus indicated the following:

State ID Number	22
Reel & Frame Number	5
Henry Classification	35
Other	1

The number of responses exceeds the number of respondees due to some states operating a parallel file system which is under conversion.

The survey responses indicated that thirty-four of the bureaus can have more than one name to verify as a result of a name search, while eight indicated only one name is selected for verification. Three did not answer this question.

Only twenty-one (47%) of the states have a technicians identification verified by another technician. Twenty-one do not follow this procedure. Three bureaus did not respond to this question.

Fingerprint search

Only five states (11%) do not perform a technical fingerprint search after the name search, the remaining forty do perform a technical search.

File organization

The following file organizations are used by the state identification bureaus:

Henry	37
SID Order	3
Microfilm (Reel/Frame)	3
American	1
Automated	1

Table A-7 represents the response of bureaus to a request to document their current standard for fingerprint processing.

Time Frame	Criminal	Non-Criminal
1-2 days	13	8
3-7 days	15	12
7-14 days	4	7
14-21 days	1	2
Over 21 days	1	2

Table A-7
STATE BUREAU STANDARDS FOR FINGERPRINT PROCESSING

When asked whether the bureau currently was meeting the criteria for response, twelve of these bureaus answered no.

When asked if the bureau was currently operating with a backlog, twenty answered that they had a backlog. (The definition of backlog was left to the individual states). Of those that have a backlog, twelve indicated that the backlog was growing.

Thirty-one of the state bureaus currently provide contributors with a rap sheet, while twelve do not, and two replied that they do on request.

The majority (30) of bureaus that do provide a rap sheet do so through the mails but bureaus also provide response via the state communication network (6) and via facsimile (2).

LOCAL AGENCY INTERFACE

The survey asked several questions about the relationship of the state bureau to local agencies. The following documents the responses to those questions.

The bureaus were asked whether local agencies regularly place either the FBI or SID number on the cards that are submitted to the state bureau. Table A-8 documents the response.

	Yes	No	N/A
SID	28	17	
FBI	26	18	1

Table A-8
STATES IN WHICH LOCAL AGENCIES PLACE SID AND FBI NUMBERS ON FINGERPRINT SUBMISSIONS

Table A-9 illustrates responses as to whether the state bureau places FBI or SID number of cards submitted to the FBI.

	Yes	No	N/A
SID	30	13	2
FBI	32	11	2

Table A-9
STATE BUREAUS WHICH PLACE FBI AND SID NUMBERS ON FINGERPRINT CARD SUBMISSIONS TO THE FBI

When a local agency places an SID number on the card submitted to the state agency, none of the states accept the identification without further processing. Thirty-four states reported that the identification is accepted only after verification and nine states reported that they completely reprocess the card.

Nineteen states reported that the local agencies have access to the bureau's name files via the state telecommunications network, while, twenty-three indicated that local agencies do not have access to the name file. The questionnaire did not document the extent of access of the eighteen states, but it is believed that the local agencies generally cannot use the MNI in the same manner that the state identification bureau does, but only for retrieval of criminal histories.

NEEDS ASSESSMENT

The bureaus expressed their current needs as presented in Table A-10:

Area	Need	
	Yes	Urgent
Staff Training	21	5
Quality Control	23	7
Standards Development	20	4
Software Development	20	5
Systems Evaluation	21	6
Technology Transfer	20	5
More Staff	2	2
Salary Improvement	1	1

Table A-10

NUMBER OF STATE BUREAUS INDICATING A NEED FOR ASSISTANCE

The following bureaus expressed these priorities for software development:

Package	1
Assistance	11
Turn Key	4
Evaluation	3

Twenty-four of the states stated that outside technical assistance would be useful in satisfying their needs while thirteen felt that outside assistance is not necessary.

When asked to express which needs in particular could be satisfied by outside help the bureaus were asked to "fill in the blanks" and not to make a choice from several alternatives.

System Development/Work	12
System Evaluation	6
Training	5
Standards Development	4
Technology Transfer	4

APPENDIX B

Site Visits

SITE VISITS

As part of the information gathering process for this study, six state-level identification bureaus, one county and one city identification bureau were visited. Data gathered through interview, observation and collection of documentation included processing methods, volumes, peak loads, processing bottlenecks, operational environment, administrative and managerial procedures, budgeting and the agencies' perceptions as to the priorities of current problems and the need for technical assistance.

The county and city bureaus were visited as part of the review of local/state agency relationships.

Data collected during site visits was utilized not only for analysis of functional requirements of state identification bureaus but also as input for the design of the survey questionnaire.

Details of the site visits follows:

Florida

Agency: Division of Criminal Justice Information Systems; Florida Department of Criminal Law Enforcement

Date: December 17-20, 1979

Project Team:

Carrel E. Grantham
Philip L. Lynn
H. Michael Batsel

Personnel Interviewed:

Robert L. Edwards, Director
Ed Stafford - F/P Ident. Supervisor
Danny Quick - Criminal Information Input Supervisor
Al Spradley - F/P Ident. Supervisor
Kathy Kueston - Criminal Information Input Supervisor
Roy Youngblood - Criminal Justice Coordinator

CONTINUED

1 OF 2

Local Agency Visited:
Pinellas County Sheriff's Office
Date: December 20, 1979
Project Team Members:
Carrel E. Grantham
Philip L. Lynn
H. Michael Batsel
Personnel Interviewed:
Capt. Louis Kubler - Records & Identification
Sgt. Mike Cloud - Fingerprint Supervisor
Bonnie Cox - Crime Lab Technician
Bob Herbert - Criminal Justice Coordinator

Utah

Agency: State Bureau of Criminal Identification
Utah Department of Public Safety
Date: January 14-15, 1980
Project Team Members:
Carrel E. Grantham
Philip L. Lynn
Personnel Interviewed:
Del Mortenson - Law Enforcement Services Director
Byron Penrod - Fingerprint Bureau Chief
Judy Sorenson - Office Manager
Terry Dennis - Fingerprint Technician
Leroy Redford - Computer Systems Coordinator

Wyoming

Agency: Division of Criminal Identification
Office of the Attorney General
Date: January 16-18, 1980
Project Team Members:
Carrel E. Grantham
Philip L. Lynn
Personnel Interviewed:
Dave Hall - Criminal Ident/Communications Mgr
Steve Tarris - C.J. Systems Analyst
Robert Olsen - Communications System Supervisor
Irene Lamb - Criminal Ident Work Leader
Joseph Soper - C.J. Research Work Leader (SAC)

Texas

Agency: Identification and Criminal Records Division
Texas Department of Public Safety
Date: February 4-8, 1980
Project Team:
Carrel E. Grantham
Philip L. Lynn
George Bonebrake
Personnel Interviewed:
J. D. Chastain - Chief, Identification & Criminal Records Division
H. A. Albert - Fingerprint & Records Bureau Mgr
Gaston McDonald - Fingerprint Section Supervisor
Lowell Carter - Records Section Supervisor
Bob Ripper - Microfilm Supervisor

Agency: San Antonio Police Department
Date: February 8, 1980
Project Team:
Carrel E. Grantham
Philip L. Lynn
George Bonebrake
Personnel Interviewed:
Capt. Jacques Hardy

Georgia

Agency: Georgia Crime Information Center
Georgia Bureau of Investigation

Date: February 20-22, 1980

Project Team:

Carrel E. Grantham
Philip L. Lynn

Personnel Interviewed:

Capt. Paul Shultz - Director
Sgt. Bob Howe - Records Supervisor
David Grieve - Fingerprint Supervisor

APPENDIX C

IAI Questionnaire

March 17, 1980

Dear Sir:

The International Association for Identification (IAI) is presently involved in a project designed to develop a national picture of the needs of state identification bureaus. The enclosed survey questionnaire is one aspect of that project which will document current and available technology and methods to assist state identification bureaus in meeting their needs. The information gathered here and in selected on-site state visits will be developed into a functional requirements analysis of the identification bureaus that could potentially impact upon future Federal funding strategies. Your bureau will receive a copy of the study when it is completed in late summer 1980.

We are aware of the drain that a survey of this type places on already strained resources; however, your assistance in completing the questionnaire is requested as it is very important. To keep the questionnaire as short as possible, we have utilized the results of other surveys, thus eliminating the need to repeat these questions here.

The attached questionnaire should be completed to the best of your ability. If you do not understand a question or the questions do not apply, feel free to use the space provided to make appropriate comments. The purpose of the survey is not to create a statistical analysis of such things as the volumes and workloads of identification bureaus, but rather to create a picture of what is going on functionally in the identification bureaus and where and how assistance may be provided. To this end, please feel free to enter comments, annotations or attach explanations to the survey as you see fit. All questions such as budget, personnel, etc. relate to the identification bureau only.

Handwritten responses are encouraged to help reduce the time required to complete the questionnaire.

To insure that we receive your questionnaire in enough time to compile our findings, we ask that the survey and any attachments be returned by April 15, 1980. A self-addressed, postage paid envelope is enclosed for this purpose.

Your cooperation is greatly appreciated. If you need to discuss any part of the survey or wish to pass other comments along to the project team, please contact either: Carrel Grantham, Project Manager, (HMB Associates) at (703) 821-2310, 7700 Leesburg Pike, Falls Church, Virginia 22043; or Jim Paley, IAI Project Director, at (305) 723-1370, P. O. Box 3758, Indialantic, Florida 32903.

Sincerely,

H. A. Albert
Chairman
IAI Advisory Committee

HAA: abc

I.A.I.

QUESTIONNAIRE

AGENCY IDENTIFICATION

1. Please provide the following:

   A. Agency Name: _____

      Agency Address: _____

      _____

      Telephone No.: _____

   B. Director or Chief-of-Bureau:

      _____

   C. Persons completing this questionnaire·

      Name _____

      Title _____

      Name _____

      Title _____

General Instructions

1. Please answer "Yes/No" questions with an "X" in the appropriate blank.

2. Please answer fill-in-the-blank questions with as concise an answer as possible.

3. Where questions do not pertain to your agency, you will notice that the opportunity has been provided to skip these.

4. Please use the return envelope provided, or return to:

   International Association for
   Identification
   c/o HMB Associates, Inc.
   7700 Leesburg Pike, Suite 304
   Falls Church, Virginia 22043

PART I

ORGANIZATION AND STAFFING

I-1. Does your Bureau have a current organizational chart showing the relationship of the various functions and services provided?

Yes ____ No ____

a) If Yes, please attach a copy to the return.

I-2. What is the relationship of the Bureau to its parent agency? (For example; is the Bureau part of the Department of Public Safety, Highway Patrol or a separate state agency)?

_____

_____

I-3. Please provide a listing of staff positions by (a) official job title, (b) the function principally performed (such as records clerk, typist, fingerprint technician, terminal operator), (c) number of positions budgeted, (d) number of positions filled, and (e) the entry salary level for this job classification

If an individual is performing more than one job/function, select the most predominant only.

(a) Job Title	(b) Function	(c) Positions Budgeted	(d) Positions Filled	(e) Salary Range
				$ -
				-
				-
				-
				-
				-
				-
				-

(If you need more room, please attach a separate sheet.)

I-4. Are job descriptions/classifications available for the positions noted in question 3.?

Yes ____ No ____

(a) If Yes, are these descriptions designed specifically for the duties and responsibilities of the Identification Bureau?

Yes ____ No ____

(b) Are they standard state job classifications?

Yes ____ No ____

I-5. What are the major problems (if any) which you have with personnel?

Rate your responses in order of seriousness, that is, 1 being the most serious and 5 the least serious. In each case indicate whether the problem is continuing, temporary, or intermittent.

Type of Problem	Seriousness	Level of Problem: Continuing	Temporary	Intermittent
a) Recruitment	____	☐	☐	☐
b) Caliber of Staff	____	☐	☐	☐
c) Retention of Staff	____	☐	☐	☐
d) Not Enough Staff	____	☐	☐	☐
e) Other (Specify)				
_____	____	☐	☐	☐

I-6. If any of the above problems are considered to be critical, indicate which ones and why they are considered critical.

_____

_____

_____

_____

I-7. Does your Bureau utilize an entry level test for evaluating potential fingerprint technicians?

Yes ____ No ____

I-8. Does your bureau conduct its own training for following? (Check if Yes)

a) Statewide fingerprint taking by local agencies? _____

b) Basic entry level training for new staff in your bureau? _____

c) On-going advancement training in your own bureau? _____

I-9. Does your bureau use any formal quality control or audit measures to evaluate the performance of your fingerprint technicians? (e.g. Inserting known "Hits" in the daily input of fingerprint cards)

Yes ____ No ____

If Yes, please note these approaches below:

_____

_____

_____

I-10. Does your bureau have any work performance quotas? (e.g. Average number of namesearches performed, fingerprints classified, etc. per hour or day)

Yes ____ No ____

If Yes, please note these quotas below:

_____

_____

_____

I-11. What was your bureau's budget for the last fiscal year in the following categories?

a) Personnel $_____

b) Computer equipment/terminals $_____

c) Communication lines $_____

(CONTINUED ON FOLLOWING PAGE)

I-11. (CONTINUED)

d) Software $_____

e) Other $_____

f) Total (may include more than above categories) $_____

I-12. What functions does your bureau perform? (Check as appropriate)

a) Criminal fingerprint identification for

1) Total State? (or) _____

2) Partial State? _____

b) Maintain criminal histories? _____

c) Prepare Uniform Crime Reports? _____

d) Latent Processing? _____

e) Fingerprint identification for licensing? _____

PART II

WORKFLOW AND FUNCTIONS

In order to organize this survey questionnaire and provide a reference point for comparisions, a workflow diagram of a "typical" Identification Bureau is presented on the following page (Figure 1). It is not intended that this workflow represents your or any other Identification Bureau, but rather that it be of assistance in developing and responding to the questionnaire.

General Questions

II-1. Does your bureau have a workflow diagram prepared similar to that in Figure 1?

Yes ____ No ____

If Yes, please attach a copy to this return.

II-2. Do you compile statistics on the following fingerprint identification functions? (Check if Yes)

a) Number of incoming fingerprints searched by name _____

b) Number of fingerprint cards searched by name that have a possible ident _____

c) Number of possible idents by name confirmed by technical search _____

d) Number of technical searches conducted _____

e) Number of identifications made as a result of technical search _____

f) Number of missed identifications by name (i.e. technical search resulted in an ident where no possibles were determined by name) _____

g) Number of F.B.I. consolidations (i.e. missed identifications caught during fingerprint search by the F.B.I.) _____

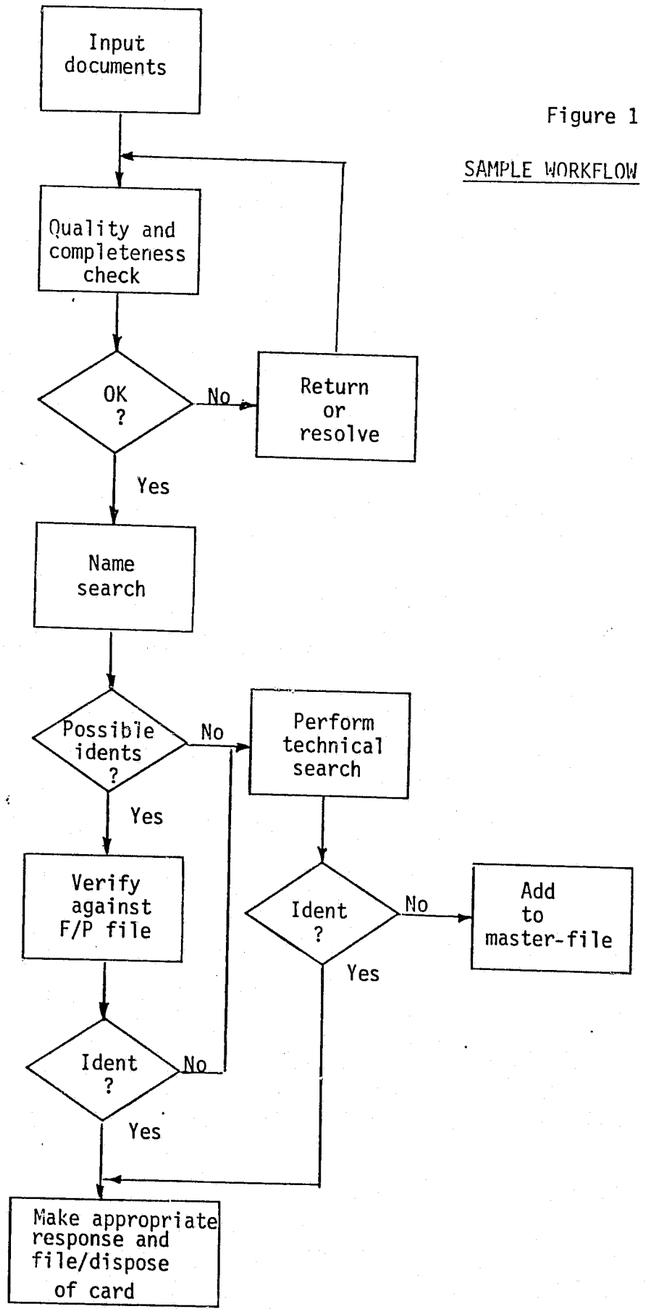


Figure 1

SAMPLE WORKFLOW

II-3. Information on the volume of criminal and non-criminal fingerprint submittals is available through other survey questionnaires. To complete the picture however, please provide the average monthly volume of transactions for the following:

a) Dispositions received? _____

b) Special requests received? _____

c) Expungement orders processed? _____

d) Seal orders processed? _____

II-4. Does your agency adhere to set procedures for purging its fingerprint file?

Yes ____ No ____

A. Input Documents

a) Other than mail, does your bureau use any of the following methods to receive arrest data? (Check as appropriate)

1) Facsimile ____

2) Photocopy ____

3) Telex ____

4) Computer transmission ____

b) Does your bureau provide special (i.e. quick turnaround or emergency response) service to priority requests for name search or fingerprint search?

Yes ____ No ____

1) If Yes, how are these requests generally received?

_____

_____; and

2) What is the typical turnaround time on these special requests? _____hours

c) Do you use a document control system? (i.e. record or attach a control number to incoming documents)

Yes ____ No ____

d) Are the incoming fingerprints subdivided in some manner, either functionally (i.e. criminal prints, applicant prints etc.) or organizationally (i.e. parts of the alphabet, groups of 50 etc.)
Yes ____ No ____

If Yes, please indicate the method(s) used.

_____

_____

B. Quality And Completeness Check

a) Are all incoming fingerprint cards screened for quality of prints and completeness of data?
Yes ____ No ____

If No, please skip to part C. Name Search of the Workflow section.

b) What procedures are taken if fingerprint cards 1), lack data elements or 2), do not provide prints of proper quality? (Check as appropriate below)

	(1) Incomplete Data	(2) Poor Prints
1) Card is processed as well as possible with what is available	____	____
2) The card is returned to the contributing agency.	____	____
3) The card is kept by the bureau and problems solved over the phone, telex, or other communications with the contributor	____	____

(CONTINUED ON FOLLOWING PAGE)

4) Other, please specify _____

_____

c) About what percent of incoming fingerprint cards cannot be completely processed at initial receipt because of problems of print quality or a lack of elements? _____ percent

d) Do you consider this to be a significant problem in your operations?
Yes ____ No ____

C. Name Search

a) Is your master name index:

- Manual? ____
- Mechanized (but not computerized)? ____
- Computerized? ____

Note: If manual, complete questions b-c.
If computerized, complete questions d-k.

b) If manual, is it cross indexed by: (Check as appropriate)

- Alias ____
- Arrest Number ____
- FBI Number ____
- Social Security Number ____
- State I.D. Number ____
- Other (Specify) _____ ____

c) Does the master name index contain: (Check is Yes)

- Adult non-criterion offenses ____
- Juvenile records ____

d) When comparing names in the computerized name search, does the system use: (Check if Yes)

- Soundex (or equivalent) ____
- Exact name match ____
- Soundex/exact match combination ____
- Other (Please specify)

_____ ____

e) What name search inquiry formats are allowable in your system? (Check as appropriate)

1) Name only ____
2) Name and date of birth ____
3) Name and sex and race and date of birth ____
4) Name and sex and race and DOB and fingerprint data ____
5) Name and fingerprint data ____
6) Other (Specify) _____

_____

f) Does your inquiry format allow for search by any of the following numeric identifiers? (Check if Yes)

1) State Bureau of Identification number (SBI)? ____
2) Local Arrest number? ____
3) Social Security number? ____
4) Drivers License number? ____
5) FBI number? ____

g) Is there a maximum number of possible name idents to a name search?

Yes ____ No ____

If Yes, what is the maximum? _____

_____

h) What computer facilities does your bureau use? (Check one)

1) A computer dedicated solely to criminal justice agencies to include your bureau operation? ____
2) A central computer serving several agencies? ____

i) Does the computer facility that you use provide your bureau with adequate operational support?

Yes ____ No ____

j) Does your bureau (Check as appropriate)

1) Have its own programming staff? ____
2) Rely on personnel of the computer facility for programming support? ____
3) Have an EDP Coordinator on staff? ____

k) If outside technical assistance were available to your bureau in the area of computer applications, what would be your priority of need? (Rank Order, 1 being the greatest priority)

Rank Order

1) Assistance in programming computer applications that your bureau has identified as requirements ____

(CONTINUED ON FOLLOWING PAGE)

Rank Order

2) The identification of available technology that could potentially be applied to your bureau, to include such things as "off-the-shelf" programs? ____

3) The evaluation of current EDP operations within your bureau? ____

4) Staff training in computer technology as applies to your identification requirements? ____

5) Other (Please note and Rank Order)

_____ ____

_____ ____

_____ ____

_____ ____

D. Verification Of Name Search Possible Idents With The Fingerprint File

a) Once a list of possible idents by name has been developed, are the fingerprints accessed by: (Check as appropriate)

1) State I.D. number (SID) ____

2) Reel and frame number ____

3) Henry classification ____

b) Are the candidates for verification organized in any manner? (e.g. Alphabetically, male/female, sequentially by SID or reel and frame number)
Yes ____ No ____

If Yes, in what way? _____

_____

c) Is only one candidate for name search selected for verification or can more than one candidate be selected?

One only ____

More than one ____

d) Are all positive identifications against the fingerprint file checked independently by another fingerprint technician?
Yes ____ No ____

e) If your fingerprint file is manual, how are the fingerprint cards filed?

N/A ____

File cabinets ____

Rotary files ____

Tub files ____

Other (Specify)

_____ ____

f) If your fingerprint file is microfilm/microfiche are hard copy fingerprint cards kept?

N/A ____

Yes ____

No ____

E. Technical Fingerprint Search

a) If no match is found with a name search, do you perform a fingerprint technical search?
Yes ____ No ____

If No, skip to section F.

c) If your technical search is manual, how is the fingerprint file organized? (Check if Yes)

1) Henry order ____

2) SID number ____

3) Other (Specify)

_____ ____

d) What is your bureau's standard for total processing of fingerprint cards, from intake to completion of technical search and mailing of response to contributor?

1) Criminal _____ days

2) Non-criminal _____ days

e) Is this standard ("d" above) presently being met for fingerprint cards?

Yes ____ No ____

1) If No, how many cards are presently in the backlog?

o Criminal _____

o Non-criminal _____

2) Is the backlog getting larger?

Yes ____ No ____

f) After a non-ident or ident is made, does your bureau respond to the contributor with a rap sheet?

Yes ____ No ____

If Yes, do you respond by: (Check as appropriate)

1) Mail ____

2) On-line ____

3) Facsimile ____

4) Other

_____ ____

PART III

LOCAL AGENCY INTERFACE

III-1. Do local law enforcement agencies put the following on their fingerprint card submissions to your bureau?

a) SID number Yes ____ No ____

b) FBI number Yes ____ No ____

III-2. Does your bureau add the following to submittals to the FBI?

a) SID number Yes ____ No ____

b) FBI number Yes ____ No ____

III-3. Does your bureau place any standards or require any quality assurances from local agencies which send identified fingerprints to your bureau?

Yes ____ No ____

III-4. If a local agency identifies an individual and provides your bureau with an SID formerly assigned, do you: (Check one)

a) Accept the ident? ____

b) Accept the ident after verification only ____

c) Completely reprocess the fingerprint card ____

III-5. Do any local law enforcement agencies in your state have on-line computer access to your bureau's name and/or fingerprint identification index files?

Yes ____ No ____

PART IV

NEEDS ASSESSMENT

IV-1. Which of the following (if any) do you consider to be needs in your bureau. (Check if Yes and indicate if you feel that the need is urgent)

	Yes	Urgent
a) Staff Training	___	___
b) Quality control	___	___
c) Standards development	___	___
d) Software development	___	___
e) Systems evaluation	___	___
f) Technology transfer (from other I.D. Bureaus)	___	___
g) Other Specify)		
_____	___	___

IV-2. If software is a priority do you prefer: (Check if Yes)

a) Package? ___

b) Assistance? ___

c) Turnkey? ___

d) Program maintenance evaluation ___

IV-3. Do you feel outside technical assistance would be particularly useful in accomplishing any of the foregoing needs?

Yes ___ No ___

a) If Yes, which in particular, _____

_____

IV-4. If technical assistance is not considered to be of particular value in meeting these needs, what other help would you prefer? (Please note briefly)

_____

_____

_____

IV-5. Do you wish to pass any information on to other state identification bureaus about anything you do in your bureau which you feel is particularly innovative and useful? Any provided here would be particularly appreciated.

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX D

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