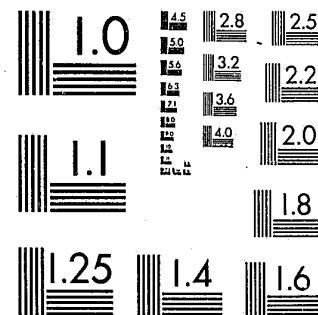National Criminal Justice Reference Service

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FUNCTIONAL REQUIREMENTS AND SYSTEMS
DEVELOPMENT PLAN FOR
STATE IDENTIFICATION BUREAUS

EXECUTIVE SUMMARY
OF
FINDINGS AND RECOMMENDATIONS

October 1980

International Association for Identification
POST OFFICE BOX 139
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PROJECT STAFF
HMB Associates, Inc.
Falls Church, Virginia

Carrel E. Grantham Jr.
Project Director

Philip L. Lynn
Principal Investigator

H. Michael Batsel
Staff

Norman F. Stultz
Staff

George J. Bonebrake
Staff Consultant

Jerome J. Daunt
Staff Consultant

PROJECT MONITOR
Donald Manson
Bureau of Justice Statistics
United States Department of Justice

PROJECT COMMITTEE
H. A. Albert, Texas
Committee Chairman

Conrad S. Banner, FBI
W. Gray Buckley, Colorado
Charles J. Jacobs, Florida
Gary D. McAlvey, Illinois
Paul Schultz, Washington

James J. Paley
IAI Project Director

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.*

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ORGANIZATION AND ADMINISTRATION

BUDGET

Individual state identification bureau budgets vary widely according to organizational size as well as bureaus respective duties and responsibilities. The survey questionnaire for example revealed individual state budgets ranging from between $51,000 and $14.6 million annually.

Based on extrapolations from budget data in the survey, the nation's state identification bureaus are slated to spend approximately $60 million in fiscal year 1980. If one adds to this the budget for the Identification Division of the FBI the result is an overall state-federal expenditure of about $120 million over the same period. This overall figure of course, does not include the cost of identification operations which are also conducted within many of the larger county and municipal law enforcement agencies.

The size of this overall expenditure is impressive. Yet, it is even more impressive when considering the excessive amount of monies being expended through duplication of identification functions at the federal, state and local levels.

From the budgeting perspective, it is also important that individual state bureaus become more conscious and accountable in terms of the cost effectiveness of their operations. Many at present are unable to delineate their budgets since those budgets are incorporated with parent agencies and/or prepared in a fashion which does not readily lend itself to the measurement of productivity and cost-

effectiveness. More responsive budgeting methods which will incorporate functional unit cost and production accountability are typical and pressing needs among state identification bureaus.

PERSONNEL AND STAFFING

Personnel management and staffing considerations are highly important to identification bureaus due principally to the labor intensive nature of bureau functions. This is, however, an area which has not received its requisite attention and which negatively impacts the productivity of many bureaus. The problems of personnel and staffing are closely inter-related even though several aspects of this matter are discussed separately here.

By far the most pressing personnel problem facing state identification bureaus is a basic lack of staff to meet work load demands. The tremendous increase in the volume of civil or applicant fingerprint cards in recent years is the single largest cause of state bureaus inability to maintain an adequate staff work load mix. As a result of this and other operational factors, at least one-third of all state bureaus are functioning with a backlog of fingerprint cards to be processed, and in at least half of these instances that backlog is growing on a daily basis. It seems apparent that if this situation is left unchanged, many state bureaus will be forced to markedly reduce their level of service.

While the principal bottleneck of work in state bureaus lies in the area of technical fingerprint classification, it should be emphasized that an equal if not larger part of the personnel shortages relates to the significant number of

support personnel, such as data entry and clerical staff, which are now required in state bureaus. Any attempt to remedy the current staffing deficiencies must assume this broader and more comprehensive view.

In effect, what is needed in a large percentage of states is a systematic and comprehensive review of overall personnel policy as it relates specifically to identification bureau functional requirements and needs. The basics of that review should concentrate on several interrelated problem areas.

For example, the recruitment of qualified staff is considered to be the second most significant personnel problem of state bureaus. Current attempts to attract and recruit staff are generally limited often by preference for individuals within parent or closely related state organizations.

As well, the screening of candidates for fingerprint identification, particularly through tests, is in the infancy of its development. Solutions to personnel shortages should expand recruiting practices as well as explore more useful testing instruments for potentially qualified candidates.

The salaries of fingerprint examiners and support staff need to be reviewed in many states with a view toward their competitiveness in the marketplace. Moreover, an even larger percentage of states need to define salary levels in the context of more accurate job classifications. Standard state job classes and titles which are frequently used do not adequately identify the level of training, skills and abilities required within identification bureaus or the proper salary levels which those job requirements command.

Personnel performance evaluation in the bulk of state

bureaus is both informal and unstructured. Productivity
requirements, in terms of both quantity and quality of work,
which are now noticeably absent in most bureaus, should
be established as formal policy in accordance with individual
state bureau service demands and operational capabilities.
Formal performance criteria are essential not only for proper
personnel management but in order to operate, monitor
and plan for bureau functions as well as operational and
fiscal requirements.

Finally, a review of bureau personnel policy should
formally establish training requirements necessary to become
a fingerprint examiner as well as for other bureau positions.
Commonly lacking among a large number of bureaus, with regard
to fingerprint examiners, is clearly defined policy which
specifies the basic skills and abilities which must be mastered
in order to become a fingerprint examiner, the degree of
accuracy and production required at various stages of training,
the sequencing of that training and the bureau's accepted
responses to adequate or inadequate performance both during
and after training. Such procedures and requirements are
required if the science and the practitioners of fingerprint
identification are to become increasingly professionalized.

SYSTEM EVALUATION

Evaluation of the efficiency and effectiveness of
identification bureau operations is an inextricable part
of professionally accepted management practices and procedures.
While this requirement may be apparent, there is a noticeable
lack among many state bureaus to formally and systematically
address needs in this regard. The lack of appropriate manage-
ment education among many bureau administrative staffs,
substantial daily work load demands, budget constraints and

and a lack of adequate technology transfer between state
bureaus add to this problem.

Overall questions of bureau efficiency and effectiveness
and its implications for bureaus improvement and planning
can only be answered through the compilation of performance
and workflow data.

Analysis indicates however, that at least half of state
bureaus do not address this need in any substantive fashion.
The other half generally compile statistical data on the process
and flow of work in the identification process but many fall
short of complete analysis of the data for planning and evalua-
tion purposes.

For example, bureau managers and line supervisors need
to stay abreast of the volume as well as changes in the volume
and composition of fingerprint submittals, the "hit" rate and
accuracy of the name search and technical search, the volume
and nature of missed identifications, changes in the flow of
documentation through the various work stations of the bureau
and other data related to production and efficiency.

In some states this and other data is generated as a by-
product of other operating systems. For example, bureaus which
utilize document control systems can rather closely monitor
work in process as well as compile statistical data on the
volume and composition of that work. This is a relatively
simple process in computerized systems which can be programmed
to generate this data.

Even in fully manual systems however, adequate data can
be generated if the process of data compilation is properly
integrated with the work regimen. Much useful information
can for example, be developed during the initial stage of
sorting incoming work to the bureau.

While these data are necessary to the bureau for performance monitoring, they are also essential for establishing work load and production criteria for such functions as fingerprint classification, file searching and others. It is important to note that such criteria or standards can only be developed by gathering the data necessary to understand the current operational capacity of the bureau.

SECTION II

FUNCTIONAL REQUIREMENTS

The foregoing section of this summary discussed concerns related to the general administration and management of state identification bureaus. The following will highlight the most significant factors which are of an operational or functional nature as they impact state bureaus generally.

QUALITY CONTROL

The quality control of fingerprint image submissions to state bureaus is a matter that causes substantial concern. This was the most often mentioned technical problem listed by bureaus in the nationwide survey and was described as an "urgent" problem more than any other. State bureaus were identified during the study for example, which on average, reject about one-fourth of all fingerprint submissions.

The problem of quality control is rather closely related to the adequacy of field training which is frequently provided by bureaus to agency personnel who take fingerprints. As budgets have become strained, these training positions have been cut back or eliminated completely, which has further aggravated the problem.

In some states, poor quality prints are not returned to the contributing agencies but are placed in "unclassifiable" files. While this practice is not new or highly unusual the size of the files has increased substantially in the recent past, adding to requirements for space and creating a new problem for file management.

Methods are strongly needed to assist in the improvement
of the quality of fingerprint impressions submitted to state
bureaus. The acceptability of those impressions is at the
heart of the quality of service offered by state bureaus
and should be regarded as a starting point for improvement
of their technical operations. Part of that solution lies
in provision of field training to submitting local agencies.
The development of training aids or packages that could be
tailored by individual states may also be of value.

As well, methods that would improve state bureaus'
ability to process unclassifiable cards should be explored.
These may range from improved procedures for handling or
filing, the development of partial fingerprint computer
assisted search systems, to improved inks and papers for
obtaining clearer impressions.

FINGERPRINT TRANSMISSION

The U.S. Mail system is the principal transmission mode
used by state and local agencies to transmit fingerprint cards
to state bureaus, as well as by state bureaus in the return
of criminal records to these same agencies. This method is
however, quite slow and lends itself to unusual delays or
even loss of documents. Not uncommonly, individuals arrested
and detained are released long before the results of the
bureaus fingerprint search can be returned to the submitting
agency.

For these and other reasons, several states have begun
limited use of facsimile transmission, and two states -- New
York and Illinois -- make relatively extensive use of this
technology. Where quick arraignment becomes more widespread
the need for facsimile transmission will become increasingly

required in order to respond in a timely fashion to fingerprint
based queries.

The need to identify or develop the technology of high
speed, low cost facsimile transmission for use by state and
local agencies is important. The facsimile sending and
receiving terminals and the transmission media (e.g., micro-
wave, telephone lines, etc.) should be studied with renewed
interest. This development is of course, applicable only to
those states where sufficient demand for rapid turnaround
exists and where the bureau can demonstrate efficient and
effective internal document processing in order to support
the cost and speed associated with this system.

COMPUTERIZATION

It is significant to recognize that about two-thirds
of all state bureaus are utilizing computers for their
identification name and/or fingerprint search. Some state
bureaus may be maintaining manual files in parallel during their
conversion process. And too, the level of useage and degree
of sophistication of the computer applications varies widely.
Nonetheless, it is important to recognize the generally wide-
spread use of computer technology in today's identification
bureaus, as well as its potential for solving many of the prob-
lems facing identification bureaus today. At the same time
several problems exist in the improvement and expansion of
current technology.

First, many EDP systems currently in use require a
greater degree of coordination with state bureau functions.
That is, few bureaus utilize computers dedicated solely to
the fingerprint function. Most are shared with other criminal
justice and/or other state agencies. While about one-third

of all computerized bureaus have their own programming staff,
it is more prevalent to rely on personnel of the the computer
facility for this support. While this basic service relation-
ship is cost justifiable in most cases, it frequently causes
some difficulty in the development, upgrade and maintenance
of computer applications for bureau functions.

State bureaus which do not currently have their own
systems support should seek staff with these capabilities.
Their specialized knowledge of bureau functions would be
extremely useful in the development of computer applications
for their bureau which do not now exist in the upgrade of
current applications and on-going technical interface with
personnel of the computer center. A permanent staff capability
of this type could be invaluable in attempts to upgrade current
EDP functions and services.

Secondly, a capability should exist whereby state bureaus
could readily acquire <u>technical</u> <u>assistance</u> to develop or
improve their EDP capability. When queried in this regard
through the survey questionnaire for example, about one-third
of all bureaus responding indicated their highest preference
for technical assistance to identify available technology that
could potentially be applied to their bureau, to include such
things as "off-the-shelf" programs. A second specific preference
indicated the need for assistance in programming computer appli-
cations that their bureau has identified as requirements.

For example, during on-site reviews of computer applications
among state bureaus, many instances were found where substantial
improvements in computer applications could be yielded through
short term technical assistance. In particular, improvements
in computerized name search and computer assisted technical
search routines in many states could be made which would

substantially improve the reliability and/or selectivity of
those functions.

Typical improvements to name search routines include:

- Use of the Henry primary/secondary classifi-
  cation in the search.

- Increased useage of numeric identification
  numbers such as Social Security, drivers
  license or local arrest number.

- Placement of limits on the number of names
  returned on a search and their arrangement
  in "best fit" order.

- Inclusion of more "soft" data on searches
  such as height, weight, and eye/hair color.

Improvement to computer assisted technical searches are
also greatly needed if the typical bottlenecks in technical
classification and verification are to be overcome. Improved
systems for such searches particularly in regard to improved
classification systems for computerized systems and the
development of low cost software packages are highly desirable
in this regard.

LOCAL-STATE AND FEDERAL INTERFACE

As noted earlier in this summary, responsibility for
fingerprint identification functions in this country is
duplicated on the local, state and federal levels. Many
millions of dollars could undoubtedly be saved and an immense
improvement in efficiency could result through the coordination
of these efforts. In addition, with state bureaus facing greatly

expanded work loads on the one hand and pressures to decrease or hold costs on the other, bureaus are facing the prospect of reducing services unless alternatives can be implemented.

Traditionally, the FBI has allowed city, county and state law enforcement agencies to send fingerprint cards directly to the Bureau for processing and either bypass, or include their state bureaus. In a few instances, state bureaus have sole source agreements with the FBI in which all local fingerprints are sent through the state bureau first.

In the majority of cases however, both the FBI and the state bureau respond to the submitting agency. Not only does this result in a substantial overlap of service but it also creates a problem in synchronizing federal and state files. This is particularly the case where the state may not receive a fingerprint card that is sent to the FBI, or vice-versa, or, where either the state bureau or the FBI returns an unclassifiable card to the submitting agency and does not receive another copy. When one includes the reporting of dispositions, which are based on name search, and file purging to this workflow, the system becomes even more complex and wasteful.

Solutions to this problem must take on several dimensions. First, to the degree possible, state bureaus should institute single source submission to the FBI so that the duplication of effort and its related problems will be corrected.

It should be recognized however, that with current manpower and operational capabilities this would create a substantial and even unmanageable work load burden for many state bureaus. Therefore, the implementation of this procedure must be made in tandem with state bureau upgrade highlighting additional staff, and technical assistance for operational improvement.

Ultimately, under sole source reporting, the state bureau would process all fingerprint cards submitted from their state agencies and submit to the FBI only duplicates of those cards that were not identified. For the present, however, all idents and non-idents would continue to be submitted.

Second, the duplication of effort and lack of coordination between local identification functions and state bureaus needs to be reduced as much as possible. That is, most larger city and county law enforcement agencies maintain their own fingerprint identification operations. And as such, many state bureaus are redoing or at least rechecking identification performed locally.

To avoid duplicate processing, local agencies should uniformly submit, when available, the discrete state identification number (SID) to their state bureau. And, when submitted with the fingerprint card, state bureaus should make necessary workflow changes so as not to reclassify local identifications but at most only verify them against the fingerprint file.

As well, state bureaus should begin to supply SID numbers to submitting agencies where this is not now being done. In reciprocal fashion, state bureaus as well as local agencies should always provide the FBI number on fingerprint card submissions to the FBI. Possibly more than any other action, systematic adherence to the use of SID and FBI numbers on state and federal submissions would yield substantial savings in time and manpower.

Finally, in state bureaus which maintain the entire state Master Name Index (MNI) in computer files, the state-local interface could be additionally enhanced by increasing local agency access to those files. Current access to the MNI by

local agencies is generally limited to short form criminal
history checks where a specific name is available.

If local agencies with fingerprint files could access the
MNI on a name search query basis much as the state bureau does,
a substantial amount of the name search routine could be
eliminated at the state level with proper verification against
the fingerprint file. In addition to assisting the state bureau,
local agencies would also reap substantial benefits of both
efficiency and effectiveness, but the local user must assume
follow-up record update responsibility.

SECTION III

SYSTEMS DEVELOPMENT

The foregoing parts of this summary have highlighted many
of the issues and problems considered to be of most importance
in terms of their impact on state level identification functions.
While all of the topics discussed are felt to be of major
significance to state bureaus the questions of priorities
for and approaches to systems development or improvement must
be considered.

The question of priorities and the placement of importance
on one area above another can be a difficult problem in itself.
This is particularly the case when considering the great diver-
gence of state bureaus and operational environments in which
they function. As a result, priorities between state bureaus
will vary as well as approaches to improvement.

With these limitation in mind, one may attempt to prioritize
needs from an overall national perspective based on actions
which will reap the greatest benefits of efficiency and effective-
ness for the greatest number of state bureaus.

First, it should be emphasized that the greatest general
problem facing state bureaus is their capability to process
the volume of work they receive within the limitations of
resources available. Short of the obvious need to acquire
more funds for staffing and the like, attempts to improve the
efficiency and effectiveness of available capabilities should
be emphasized. As a consequence of this recognition, the
following hierarchy of prioritized recommendations is presented.

PRIORITY 1. Improvement of Management Systems

The improvement of operations must begin with an improved system for their management control and utilization. Efforts to be emphasized in this regard are improved budgeting procedures; a comprehensive review and upgrade of personnel policy to include recruitment, training, job classification and pay rates, personnel evaluation procedures and productivity standards; as well as enhancement of procedures for the monitoring and evaluation of bureau operations.

Knowledge of these techniques must not be regarded as inherent to positions of management and supervision but learned abilities. In this regard, bureau administrators and supervisors should be encouraged if not rewarded for furtherance of their knowledge and skills in these areas. National and regional seminars and training laboratories conducted by identification practitioners and management specialists would help meet these needs. The publication and distribution of monograms of a topical nature may serve specific needs as well as the development of "packages" which could be adaptable to state needs in such regards as staffing norms, production and quality standards, and evaluation and monitoring systems.

PRIORITY 2. Improvement of Computer Capabilities

As noted earlier in the Summary, about two-thirds of all state bureaus utilize computers in their identification name and/or technical search. Both site visits and results of the survey questionnaire reveal that noticeable improvements could be made in current systems and that assistance is also needed among states which are planning for computerization.

Technical assistance to state bureaus would be most useful

in meeting these needs and was a principal choice of most administrators. A clearinghouse capability designed to fill short-term technical needs in such areas as design validation, requirements analysis, software development and related areas would be highly useful.

Additionally, there is a need for improving the transfer of technical solutions to common problems among state bureaus. Means to increase the communications between bureaus in these regards should be encouraged such as through newsletters, national seminars and informative conferences, and interstate visits or personnel "sharing" programs.

PRIORITY 3. IMPROVEMENT OF STATE AND LOCAL INTERFACE

The reduction of duplication and increase of efficiency between state and local identification operations is potentially the greatest area for improvement of overall identification services.

As outlined, the essential elements of an improved interface would include the transition of state bureaus to "sole source" contributors to the FBI, systematic use of SID numbers in submissions from local to state bureaus, and increased name search access of local fingerprint agencies to Master Name Index Files of the state bureau.

PRIORITY 4. Improvement of Fingerprint Image Quality

Improvement of fingerprint image quality is an old problem that has been difficult to overcome. The return of unclassifiable fingerprint cards in some states has reached unacceptable proportions. In such cases, the credibility of the state bureau files as operational tools becomes questionable.

The major cause of this problem involves frequent turn-
over of local agency personnel responsible for taking finger-
print impressions. As a result,an increase of training to
local agencies in this regard is highly necessary. Training
packages to include films, handouts and other training aids
would be helpful if suitable for individual state needs.
Beyond that, the addition of training staff to state bureaus
is required on an ongoing basis.

PRIORITY 5. Improvement in Technical Search and Verification

These functional areas have been identified as universally
labor intensive, most costly in the identification process
and the prime impact area for improving "backlog" situations.

Efforts to improve their efficiency and effectiveness should
be initiated in several program areas.

For example, existing computer assisted fingerprint search
systems should be evaluated and operational experience documented
and disseminated more widely.

Software packages reflecting improved reliability and
selectivity should be developed and the means provided to
enable interested potential users to derive technical assistance
and consultant services in design and implementation. Flexibilities
should be included in the software design to permit utilization
by a broad range of mini and micro computer hardware configura-
tions.

In the area of classification, longer term developments
should include the evaluation of low cost graphic data entry
devices which permit remote direct entry of classification
data into the computer automated search system.

In the context of low cost data entry devices, the use
of extended descriptors should be examined for use in the
denser sections of the fingerprint file in order to improve
selectivity of search routines.

END