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EXECUTIVE SUMMARY

Development of a Microcomputer Software
System Prototype for Jail Information
in Washington State

NIJ Grant 86-IJ-CX-0010

Submitted by

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ABSTRACT

Development of a Microcomputer Software System Prototype for Jail Information in Washington State

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LOCKUP is a public domain, microcomputer-based jail management software program developed by SEARCH Group, Inc. under a 15-month, $93,306 grant from the National Institute of Justice. LOCKUP automates data collection and maintenance of all jail recordkeeping activities from inmate booking to release.

Jail administrators have been hard-pressed to meet higher demands for accurate recordkeeping management caused by increases in jail populations and state and national reporting requirements. Small- to medium-sized jails need a central source of timely, reliable information but are stymied by limited personnel and financial resources.

LOCKUP was designed to improve the ability of these jails to collect, maintain and disseminate accurate, timely information for internal operations and external reporting demands. SEARCH also sought to make LOCKUP affordable to jails lacking the resources of lager facilities.

LOCKUP was successfully beta tested at two sites, with populations ranging from 35 to 342 inmates. The test demonstrated that LOCKUP met the basic recordkeeping needs of both sites. System administrators at the beta test sites reported LOCKUP was easy to maintain and customize to their needs.

LOCKUP is an excellent low-cost solution to the information management needs of small- to medium-sized jails. Regional training seminars would be the best way to familiarize jail administrators with LOCKUP.

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Introduction

Jail administrators have been hard-pressed to meet higher demands for accurate recordkeeping management caused by increases in jail populations and state and national reporting requirements. In the past, only agencies in large jurisdictions could afford to automate and, thus, maintain and disseminate accurate, timely information for internal operations and external reporting demands. Small- to medium-sized jails needed a low-cost computerized system designed specifically for jail information management. In response to this need, SEARCH, with a grant from the National Institute of Justice, developed LOCKUP. As part of this effort, the National Institute of Corrections Jail Center and the Washington State Corrections Standards Board acted in a planning and advisory capacity.

LOCKUP is a microcomputer-based jail management system in the public domain. Its primary function is to provide small- to medium-sized jails with a tool to improve the quality of information maintained on inmate populations and facility status and to generate reports that satisfy local, state and federal reporting requirements. It provides an efficient means to record and maintain accurate and up-to-date inmate data. All inmate recordkeeping activities, from inmate booking to release, are automated, and the data stored in a central database where all operators can easily review and update the information. Automatic and strict data edit-checking capabilities have been built into the system, ensuring high standards of data accuracy. An audit trail keeps a log of all transactions on the database. The system operates as a single- or multi-user system and is menu driven.

The system contains the following functions: Booking, Release, Search/Inquiry, Modify, Outdate Calculation, Logging of Medical and Classification information, Agency Billing, Shift Log, Visitor/Phone Log, Cash Transaction Log and Cell Movement Log. System-generated reports include booking and release sheets, inmate lists, court sheets, log reports and lists detailing all bookings and releases on a particular day. Additional reports can be generated through an ad hoc reporting capability.

LOCKUP runs on IBM and compatible microcomputers on single workstations and on a variety of microcomputer-based networks. It was developed under the dBase III Plus database management system and was designed to be used by jail staff as an integral part of day-to-day recordkeeping.

LOCKUP was beta tested at two sites: the Southwest Multi-County Correction Center in Dickinson, North Dakota, and the Kings County Sheriff's Office in Hanford, California. The site in Dickinson is a small jail facility with an average daily population of 35, while the jail in Hanford has an average daily population of 342, thus providing a small- and a medium-sized jail to test the system in an operational environment. The beta

test demonstrated that the system met the basic recordkeeping needs of both test sites. The sites reported that LOCKUP was very easy to use, maintain and customize to their specific data element and reporting needs. They also reported significant time savings in using the automated system rather than a manual system. Both sites plan to adopt LOCKUP as their automated jail records management system.

LOCKUP has been demonstrated to be a low-cost, generic jail management system that meets the basic recordkeeping needs of small- to medium-sized jails. A great deal of time, money and effort have been expended to develop it. The next step is to make jails across the United States aware of its availability. SEARCH recommends a one-day seminar given in various locations to disseminate information about LOCKUP.

Problem Statement

Our nation's jails are responsible for collecting, maintaining and disseminating vital information on a tremendous number of inmates whose status changes daily, often hourly. Because of the constantly changing jail population, jail administrators are hard-pressed to ensure that an accurate census is maintained, court schedules are met, releases are executed on time and all holds and warrants are cleared prior to release.

In addition to collecting data for the effective functioning of a jail on a day-to-day basis, administrators must respond to municipal, state and federal requests for statistical information. Local officials need this information for budget analysis and planning. New state and federal laws and policies, such as bail reform, determinant sentencing and population reporting, continually call upon jails to compile statistical information or call for new kinds of information to be collected. Thus, great demands are made on the recordkeeping function of a jail to satisfy the ever increasing reporting requirements.

There is a vast amount of information to be managed. Most jails, regardless of size, need a central source of information that can be readily accessed for accurate, timely and reliable information. Unfortunately, personnel and financial resources have been limited; jails have not been a priority funding area for state and local governments. In general, only agencies in large jurisdictions could afford to automate and, thus, achieve the benefits of more efficient functioning and higher quality data. The small- and medium-sized jails have traditionally not automated because of the significant costs associated with the acquisition and maintenance of computer hardware and software.

Project Goals and Objectives

SEARCH believed that a microcomputer system designed specifically for jail information management could make a significant contribution to the administration of the nation's jails. The automation of jail recordkeeping was not seen as a panacea, but it certainly could improve the ability of a jail to collect, maintain, and disseminate information for internal administration as well as for external reporting requirements. A computer system could store data in a central location that could be accessed by all users. Updating the data would be quick and easy, because the data would be stored in one location instead of in separate offices within the jail.

Microcomputers could provide a powerful computing resource and would be affordable for even the smallest jail. While the hardware would be within the economic reach of virtually any jail, there would be difficulty in finding software designed specifically for jails. Although many useful and low-cost microcomputer software applications are available for business and general interest use, they are not readily applicable for criminal justice purposes. Surveys of agencies listed in SEARCH's Automated Index of Criminal Justice Information Systems, of SEARCH's nationwide Criminal Justice Information Network, and of private software vendors have discovered very few practical microcomputer software applications for jails. Most existing automated jail management systems are designed for large institutions and are not within the economic grasp of small- to medium-sized jails. Based upon its research and experience, SEARCH believed that there was a great need for low-cost jail management software in small- and medium-sized jails.

For nearly 20 years, SEARCH Group, Inc. has been in the forefront of criminal justice information management. Designated by the federal Bureau of Justice Statistics as the national demonstrator and distributor of public domain software packages for law enforcement, SEARCH was one of the first to promote and facilitate technology dissemination. The corporation's extensive involvement in all phases of information management includes the design, development, implementation and documentation for both manual and computerized criminal justice information systems. Since 1969, SEARCH has been active in public domain software development and dissemination.

SEARCH proposed a research and development effort in conjunction with the National Institute of Justice, the National Institute of Corrections Jail Center, and the Washington State Corrections Standards Board. The collective purpose of this effort was to develop and test a generic microcomputer software package designed specifically to meet the standard information management needs of small- to medium-sized jails.

This microcomputer jail management system was to operate as a single- or multi-user system and to be developed using state-of-the-art hardware and software technologies. The chosen hardware and software was to have a superior record in maintenance, service, and vendor support. The jail system was to be developed with a set of generic data elements to produce a system that could be adopted by jails across the country. The system was also to incorporate any additional data elements necessary to support the statistical reporting requirements of Washington's Corrections Department. It was expected that the resulting jail management system would be easy to adapt and customize to the specific data element and reporting needs of a jail. The operational system would enable jails to produce state required reports on a regular basis. It was also expected that jail administrators would experience a significant time savings in their records management functions due to the automated centralized information resource provided through this microcomputer package.

With funding from the National Institute of Justice, SEARCH responded to these specifications by developing LOCKUP, a generic microcomputer-based jail management system designed to meet the recordkeeping needs of small- to medium-sized jails. The system's primary function is to provide jails with a tool to improve the quality of information maintained on inmate populations and facility status. LOCKUP operates as a single- or multi-user system and is menu driven. It provides an efficient means to record and maintain accurate and up-to-date inmate data. This is accomplished by computerizing data collection and maintenance of all jail recordkeeping activities from inmate booking to release. This data is then stored in a central place where all operators can update and review it. Data accuracy is achieved by incorporating automatic and strict edit-checking capabilities into the system, thereby checking information for correctness before it is ever stored. System security is provided through passwords and file and module authorizations. An audit trail keeps a log of each transaction on the database.

The LOCKUP system contains the following functions: Booking, Release, Search/Inquiry, Modify, Outdate Calculation, Recording of Medical and Classification Information, Agency Billing, Shift Log, Visitor/Phone Log, Cash Transaction Log and Cell Movement Log. Local, state, and federal reporting requirements can be satisfied in two ways through the LOCKUP system: with preprogrammed reports and ad hoc reports produced with a report generator. A full range of jail management reports have been preprogrammed and are available on demand. These reports include booking and release sheets, lists of those inmates currently in the facility, lists detailing all bookings and releases on a particular day, a report showing those inmates scheduled to be released, a list of inmates who have been sentenced, court reports listing inmates scheduled to go to court on a particular date and time, and shift, cash, visitor/phone and cell log reports. An ad hoc

reporting capability is also provided that allows the operator to create an unlimited number of additional reports thus enabling the jail to respond to new reporting requests as they arise.

LOCKUP runs on IBM and compatible microcomputers on single workstations and on a variety of microcomputer-based networks. It was developed under the dBase III Plus database management system and was designed to be used by jail staff as an integral part of day-to-day recordkeeping.

Findings

LOCKUP was beta tested at two sites: the Kings County Sheriff's Office in Hanford, California, and the Southwest Multi-County Corrections Center in Dickinson, North Dakota. Hanford has an average daily population of 342 inmates who are housed in two facilities. Dickinson's average daily population of 35 inmates are housed in one facility. The jail population in Dickinson consists of mostly juvenile offenders while the jail population in Hanford is adult. Dickinson used a combination of six AT and XT level machines on a Novell G-Net local area network to test LOCKUP. Hanford had a combination of three AT and XT level machines on a Novell Arcnet local area network. Each site had an AT level file server.

Based upon the beta test of LOCKUP at Dickinson and Hanford, the following findings and conclusions can be drawn:

- A microcomputer-based local area network is a reasonable hardware alternative for small- to medium-sized jails. Operators said that performance was good, and administrators agreed that a microcomputer-based system is a good low-cost hardware configuration.

- The availability of public domain software allows a jail to eliminate software development or acquisition costs. The cost savings realized by the use of public domain software enables a jail to redirect funds to other areas, such as hardware acquisition and software customization.

- A jail will experience significant time savings by using LOCKUP instead of performing jail management functions manually. Hanford reported that LOCKUP's Booking Recap Report and Release Recap Report alone saved officers 14 to 35 hours per week. It was noted that the rebooking process

also saves time. Officers have the ability to edit existing personal and medical information instead of re-entering information during a rebooking.

- LOCKUP is easy to learn and use. Jail administrators commented that acceptance of the system by the staff was high because of a good user interface and meaningful screens and reports. Jail staff found the system easy to use with minimal training.

- The LOCKUP system satisfies a jail's basic reporting requirements. The sites reported that preprogrammed reports are very useful. The system collects the necessary data to produce reports satisfying local, state, and federal reporting requirements. Reporting needs that LOCKUP does not specifically address or "ad hoc" report generation can be accomplished through the reporting capability of the database manager, dBase III Plus.

- The audit trail is very helpful in monitoring system usage and pinpointing the source of problems. The audit trail is a log of all transactions on the database from the time an operator enters the system until he signs off.

- The dBase III Plus database management system was the best choice with which to develop LOCKUP, because it is widely used and well-supported. It also enabled programming staff to produce a working system in approximately one-half to two-thirds the time required if a database management language had not been used. Both sites agreed that it would be easy to find a dBase programmer if customizations were desired. In fact, Hanford already has people on staff knowledgeable in dBase. With respect to support of the dBase product, Ashton-Tate, the manufacturer of dBase, maintains a hotline five days a week for dBase users who have questions or problems.

- The decision to use IBM and compatible hardware was well received due to the capability of the hardware to perform tasks other than LOCKUP, such as word processors, spread sheets, database management systems, etc. A jail that purchases IBM and compatible hardware has various avenues available for support and repair: the manufacturer, the dealer, or third-party maintenance organizations.

Both sites concluded that LOCKUP contained the basic data elements and reports needed for a generic jail management system. In fact, they reported that the system includes most key features required by their recordkeeping procedures. However, they also indicated that the following two modifications should be made to improve the performance and flexibility of the system.

- It was recommended that SEARCH make the necessary software modifications to eliminate the waiting experienced by an operator who was attempting to access a file that another operator was using. In a multi-user database system, multiple operators should be able to perform transactions on the same file or files, but only one operator should be allowed to modify a particular record at any one time. During the beta test, operators experienced long periods of waiting while another operators had control of a particular file. The record and file locking routines as provided by dBase hindered the operation of LOCKUP as a true multi-user system. It was recommended that SEARCH programming staff bypass the dBase routines by writing their own record and file locking software. This modification has been made, and both sites reported a dramatic improvement in the system's ability to retrieve data when requested. A delay is experienced only when an operator attempts to modify a record that is currently being modified by another operator. The record being modified only may be reviewed by other operators until the modifications are complete. However, the "locking" of a record in no way affects the ability of operators to modify, review or delete other records or files in the system.

- It was also suggested that a capability be added to override the system-generated booking numbers and person ID numbers. LOCKUP automatically generates a person ID number for an inmate the first time he is booked. Only one person ID number is assigned to an inmate regardless of the number of times booked. However, a new booking number is assigned by the system each time an inmate is booked to identify that arrest. Both sites pointed out that a jail needs the ability to override these two numbers when the system is installed to allow the input of data on the current jail population. The existing inmates and their associated bookings already have been assigned specific identifying numbers. This override capability also would be useful in building LOCKUP's historical database by entering

data on inmates who have been released. The programming has been completed to implement this capability, and this feature will be added to the next release of the system, which is anticipated in October 1987.

SEARCH also plans to include other enhancements to the LOCKUP system based upon the results of the beta test, and they are as follows:

- The user defined medical and classification modules will be replaced by standard medical and classification screens and reports. LOCKUP was designed to allow a jail to define its own medical and classification modules. The beta test demonstrated that this was much more difficult for the site to accomplish than originally was thought. SEARCH will work with the National Institute of Corrections in designing generic medical and classification modules.

- The property descriptions will be changed from a series of codes to free-form text. The test sites commented that 18 codes were not enough to describe an inmate's property in adequate detail. Both Hanford and Dickinson recommended changing the system to allow the operator to enter multiple lines of text as the property description.

- Several data element changes will be made. The data elements "Age" and "D.L. State of Issue" will be added to the person screen, and the "Identifying Marks" field will be lengthened. The "Age" field will be calculated automatically by the system based upon the inmate's date of birth. Added to the arrest screen will be "Arrest Date", "Arrest Time", "Arrest Location", and "Bondsman". The fields "Phone Call Completed" and "Comments" will be added to the visitor/phone screen. The "Inmate Name" and "Booking Number" will appear on all booking screens.

- The detailed information collected about an inmate's vehicle on the property screen will be removed because this data is not useful to a jail. Vehicle location is the only data element concerning an inmate's vehicle that will remain.

- SEARCH also would like to include a commissary module in LOCKUP at a future date. It would require modest effort to include and integrate this module with the existing cash accounting.

- Many jails have also expressed a desire for a scheduling function to keep track of inmate appointments.

Recommendations

Funding has been provided by the National Institute of Justice, and SEARCH has invested much time and effort to create a low-cost jail management system for jails lacking the resources to purchase expensive hardware and software. Although LOCKUP may be enhanced, the system has been demonstrated to be a generic jail management system that meets the basic recordkeeping needs of small- to medium-sized jails.

Now that the need for a low-cost jail management system has been met by the development of LOCKUP, the next step is to make jails aware of its functions, features, and availability. SEARCH recommends one-day regional seminars on the LOCKUP system to inform jail administrators about the product and how it can meet their jail management and administrative needs. This seminar should be held in various locations throughout the United States to distribute information about LOCKUP in more than one geographical area.

APPENDIX A

METHODOLOGICAL DESCRIPTION

Methodological Description

On May 7, 1986, a meeting was held in Seattle, Washington to coordinate the efforts of the parties involved in the development of LOCKUP. In attendance were representatives from SEARCH Group, Inc., the Washington State Corrections Standards Board, and the National Institute of Corrections. The group discussed the tasks required to produce a public domain jail management system:

- develop functional specifications;
- develop technical specifications;
- select operating system, database management system, and hardware;
- develop applications software;
- install at test sites and train users;
- test system;
- write documentation.

The following were agreed upon as criteria for selection of an operating system, database management system and hardware:

- widely used;
- well-supported;
- reflects current technology;
- produces a package that is highly portable;
- allows more than one user to access the same data.

Using these criteria, SEARCH chose the dBase III Plus database management system, IBM and compatible hardware, and the Novell Netware operating system. The Novell operating system has become an industry standard for network operating systems, and dBase III Plus is one of the most widely used and well-supported database managers available. An application developed with this hardware and software would be portable across a wide range of hardware. Novell Netware also supports MS-DOS, which would allow agencies to take advantage of a wide variety of microcomputer software.

Before designing LOCKUP, SEARCH staff surveyed existing jail management packages and talked with the administrative personnel of various county jails locally and across the nation, such as: Jackson and Josephine counties in Oregon; Clark and Lewis counties in Washington; Winnebago County in Illinois; and Sacramento County in

California. Winnebago County is an installation of JAMS-II, a minicomputer jail management package developed by SEARCH a few years ago. The jail administrator was asked about the features of JAMS-II he found useful, those he didn't use at all, and the features he would like to have but were lacking. The research of commercial products and of jail management needs, as expressed by jail administrators, provided valuable information and ideas in the design of LOCKUP. For example, JAMS-II has a cell assignment module that recommends an appropriate cell for an inmate based upon classification and other criteria. Administrators indicated that this feature was never used because officers work from a large tank sheet on which all inmate cell assignments are shown. The officer can see at a glance which cells are available and appropriate. SEARCH staff also learned that facility and inmate cash logs are very important and were lacking in JAMS-II. In LOCKUP, a cell assignment module was not included but cash accounting was.

To incorporate the data elements necessary to support the statistical reporting requirements of Washington's Corrections Department, a study done for the Washington Corrections Standards Board was consulted. The study, entitled "Upgrading Information Systems in New Generation Jails," was completed in November 1985 with funding from the National Institute of Corrections. A product of the study was the development of model admission and release forms that included the 26 data elements required for state reporting and other data elements required by local jails.

Based upon the described investigations, the functional and technical specifications were written. It was decided that to meet the basic requirements of a generic jail management package, LOCKUP would include the following functions: Booking, Release, Search/Inquiry, Modify, Outdate Calculation, recording of Medical and Classification information, Agency Billing, Shift Log, Visitor/Phone Log, Cash Transaction Log, and Cell Movement Log. The following preprogrammed reports would be included: Inmate List by Name, Inmate List by Booking Number, Inmate List by Cell Location, Sentenced Inmate List, Releases Scheduled, Booking Recap, Release Recap, Court Roster, Court Sheet, and a report designed for Washington state providing booking and release information. An unlimited number of additional reports could be generated through the ad hoc reporting capability of dBase III Plus. Also to be included were utilities for the system administrator to edit, purge, display and print system and data files.

After completing the design, work proceeded on the programming and documentation of LOCKUP. Modules were programmed one by one and thoroughly tested as a single unit before being tested as a part of the integrated system. Staff verified that a module was functioning correctly in a single-user setting and then tested the module

in a multi-user setting. The documentation requirements of the grant were modified to provide a more complete system description. The grant required an Executive Summary, Functional Specifications, Implementation Guide, and User's Manual. The Implementation Guide documenting system installation was expanded to include system maintenance procedures and is called the Administrator's Manual. Technical Specifications and a Test Plan were added to system documentation.

Beta test site candidates were screened while the programming and documentation were being completed. Washington had offered to be the "test state" for LOCKUP, and the Washington Corrections Standards Board provided SEARCH with a list of potential test sites in Washington. To ensure a meaningful and successful beta test, the minimum criteria used to qualify a test site were: the site would test LOCKUP as a stand-alone system (not integrated with another criminal justice system); the agency would have the funds to purchase the required equipment; the jail was currently keeping its records manually; and there would be a staff member on-site with the knowledge and interest to be the administrator of the system. Because no candidate beta test sites in Washington met all of the criteria, suitable test sites were not identified in Washington.

Since the search in Washington was a difficult one, possible test sites in other states were also investigated. Two beta test sites were identified: the facility at the Kings County Sheriff's Office in Hanford, California, and the jail at the Southwest Multi-County Corrections Center in Dickinson, North Dakota. Hanford has an average daily population of 342 housed in two facilities and is classified as a medium-sized jail. The average daily jail population in Dickinson's one facility is 35. LOCKUP would be tested in a small- and a medium-sized operational jail for a period of one month.

Before installing the completed system at the beta test sites, both SEARCH and the test sites agreed to a memorandum of understanding that outlined the responsibilities of each party in the beta test. SEARCH agreed to install the system and provide training for the system administrators and other operators. It would correct errors in the system as they were reported by the test sites and would send the corrections to the sites on disk. SEARCH also would furnish appropriate documentation and would return to the sites at the end of the beta test period. The purpose of the second visit would be to evaluate the system by talking to the operators and observing system performance first-hand. The test sites agreed to procure and install the required computer equipment in preparation for the LOCKUP installation. They agreed to test the system for a one-month period and not to implement any modifications or customizations during that time. LOCKUP was to run in parallel with the current recordkeeping system and was not to be used as the primary jail

management system. The sites agreed to provide the services of a system administrator and to complete the Test Plan.

LOCKUP was installed, and jail staff was trained at both test sites. The system was tested in those operational environments for one month. Operators were furnished with problem logs on which they described any problems or questions. The system administrator reviewed the logs and determined which items were jail operations and policy questions, and which were problems with the LOCKUP system. The system administrator reported the problems to SEARCH staff who corrected the problems as soon as possible and sent a new version of the program to the site. It was also the responsibility of the system administrator to make sure that all the functions listed in the Test Plan were adequately tested. When the administrator was confident that the functions in a particular module had been tested and were working properly, the administrator initialled the module on the System Administrator Checklist.

At the end of the beta test period, SEARCH staff returned to each test site to observe the operation of the system first hand and to talk with the administrator and operators of the system. Based upon feedback from the beta test sits and observation of the system in operational environments, SEARCH compiled a set of findings and recommendations detailed in the body of this Executive Summary.