U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
NATIONAL CRIMINAL JUSTICE REFERENCE SERVICE
WASHINGTON, D.C. 20531

THE AMERICAN UNIVERSITY
Criminal Courts Technical Assistance Project
Institute for Studies in Justice and Social Behavior
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Washington, D.C.

PRELIMINARY EVALUATION OF
STATE OF COLORADO JUDICIAL DEPARTMENT'S
CRIMINAL JUSTICE DATA EXCHANGE SYSTEM

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March, 1974

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Law Enforcement Assistance Administration Contract Number: J-LEAA-043-72

This report was prepared in conjunction with The American University Law School Criminal Courts Technical Assistance Project, under a contract with the Law Enforcement Assistance Administration of the U.S. Department of Justice.

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I. EXAMINATION OF THE EVALUATION PLAN

A. INTRODUCTION

In the fall of 1972, the Judicial Department of Colorado submitted a grant proposal to the Colorado Division of Criminal Justice under the LEAA Impact Cities Program requesting financial assistance for developing a computerized on-line information and management system for the Denver District and Juvenile Courts and the probation departments. The computerized system would allow for exchange of data among Denver criminal justice agencies as well as the development of the data base for future planning, evaluation, and analysis of the Denver criminal justice system. In addition, it is anticipated that the system will be a means of reducing case processing time which may act as a crime deterrent and thus result in a reduced crime rate.

As a condition of the grant award, the Judicial Department was required to obtain an outside evaluation of: (1) the preliminary system design and hardware components of the proposed system, and (2) the research design and statistical methods devised for an in-house evaluation of the degree to which the new project meets its stated goals. Technical assistance for these purposes was requested through SPA and LEAA channels from Criminal Courts Technical Assistance Project at The American University.

Mr. David R. Pearce, manager of EDP systems for San Diego County, California, was commissioned to undertake an evaluation of the preliminary system design and hardware components of the Colorado project; and Ms. Jean G. Taylor, on behalf of System Planning Corporation in

Arlington, Virginia, was commissioned to undertake an assessment of the research and statistical design. Site visits to Denver were made by both consultants in November 1973, and Mr. Pearce returned to Denver in January, 1974.

This report is presented in two parts. Part I documents the analysis of the project's statistical and research design and the methods by which evaluation will be made; part II focuses on the system aspects of the design and the hardware components.

This section of the report is concerned with the first of the two aspects of system evaluation, namely, the evaluation of the effectiveness of the system in reducing case processing time. The purpose of this independent evaluation is to determine whether the research design and statistical methods to be employed by the Judicial Department evaluation team will be adequate to assess the effect of the information on case processing time. To accomplish this, an on-site visit was made to Denver during the period November 15-17, 1973. Discussions were held with Mr. Harry Lawson, Colorado Court Administrator, Mrs. Beatrice Hoffman, Director of Research and Statistics and her staff, Mr. Tom Morrill, Director of ADP and his staff, Mr. James Thomas, Administrator of the Denver District Court, and Mr. Donald Fuller, Administrator for the Juvenile Court. The design of the evaluation plan, baseline studies and other documentation were reviewed.

B. ANALYSIS OF EXISTING SITUATION

To determine the adequacy of the research design and statistical methods proposed and being used to evaluate the effectiveness of the system in reducing case processing time, a review of the stated goals and objectives of the computerized on-line information and management system is necessary.

1. Original Goals and Objectives Related to Case Processing

Eight goals for the on-line information system were stated in

the grant document. These are as follows:

(a) Reduction of case processing time in adult felony cases.

(b) Reduction of case processing time in juvenile delinquency cases.

(c) Development of baseline data on probation officer use of time and the shifting of 20 percent of the time spent in investigative and administrative work to client contact work.

(d) Development of a Denver data base for program evaluation and development of statistical analysis to evaluate the effectiveness of various probation programs in Denver.

(e) Development of a Denver data base for defendant profiles and bond violation probability to aid judges in bond decisions.

(f) Development of a data base and statistical analysis to determine transition patterns between types of crimes and juvenile and adult offenders.

(g) Development of a data base and statistical analysis to determine the relationship between drug usage and criminal behavior.

(h) Exchange of data among criminal justice agencies in order that better planning can be performed.

In addition, five objectives, some of which related to the goals, were stated as follows:

(a) Reduction of case processing time in adult felony cases by 66 days median.

(b) Reduction of case processing time in juvenile delinquency cases by 58 days mean and 54 days median.

(c) Reduction of administrative and investigative time by probation officers by 20 percent from present levels.

(d) Increase in the effectiveness of probation programs and reduction of recidivism.

(e) Reduction of bail bond violations by 10 percent.

2. Current Goals

Because of some confusion between goals and objectives as stated in the grant, a decision was made by The Judicial Department to select the goals as the basis for the evaluation of the system. The first two goals, reduction of case processing in adult felony cases and in juvenile delinquency cases were chosen. Goal 3 has been omitted because another Action Grant 72-IC-0008-(1)-64 has been awarded to the Department of Institutions by the Colorado Division of Criminal Justice under the Impact Cities program. Because that project supports a program of intensive probation and parole, the measurement of the use of a probation officer's time in 1973 and 1974 would be distorted if related to the information system alone. Goals 4-8 have been deleted as a part of the immediate evaluation of the system. These call for collection of data for analyses of the criminal justice system operation. The information system will be an invaluable source of basic data that will be needed to perform the system analysis studies and to recommend changes in the criminal justice system.

Combining goals 1 and 2 with objectives 1 and 2, the evaluation of the information system as it relates to case processing time is concerned with a reduction of the median time by 66 days for felony cases and by 54 days for juvenile delinquency cases. In terms of total processing time, the goal is to reduce the median for felony cases from 6 to 4 months, contested juvenile cases from 4 to 2.3 months, and uncontested juvenile cases from 3 to 1.3 months.

3. Evaluation Plan

Recognizing that the evaluation criterion should not be a goal-

attainment model that measures the success or failure of a program in terms of its attaining pre-established objectives, the Colorado Judicial Department has adopted an evaluation plan that measures the degree to which the goals are attained under given sets of conditions. This is a systems approach using subjective as well as quantitative measures and examining sub-units, resources and how well the system adapts. This approach is much more suitable than a goal-attainment model for evaluation of a computerized information and management system, which in and of itself cannot achieve the time savings in case processing that have been projected for the Denver system.

While strongly recommending the implementation of information systems in law enforcement and criminal justice agencies, the Science and Technology Task Force of the President's Commission on Law Enforcement and Administration of Justice (1967) acknowledged the difficulty of evaluating such systems. It was stated:

> Despite the difficulty of estimating their value or specifying their optimum information content, information systems should be developed... (p. 69)
>
> Justification for including functions in an information system are usually based either on the costs saved by replacing clerical labor, by the time saved in receiving the desired information, or by the increased quantity or quality of information provided. In the latter cases, it is very difficult to estimate the dollar "value" of more complete or faster information. For example, it is rarely possible to determine how much better a decision based on the improved information is than one made without it.
>
> The problem is no easier when trying to estimate the value in terms such as reduced crime rate, increased clearance rate, or increases stolen property recovery rate. For example, many actions may influence the rate of auto theft and recovery: "lock your car" publicity programs, theft-proof features of new automobiles, and

the ratio of joyriding to organized car theft. Over a 2-4 year period, one jurisdiction may experience variations of 40-50 precent in the unrecovered fraction of stolen autos. Over the 15 jurisdictions presently tied into NCIC, there is probably an overall variation in the order of at least 10 percent. This statistical fluctuation may well swamp any reduction in the unrecovered fraction which would be brought about by use of an information system. The problem is still more complicated when trying to access the effects of correctional programs on offenders.

Despite these difficulties, it is important to assess as well as possible the contributions of new information functions. This will aid in their evaluation and will provide guidance to other agencies considering similar programs. Such an assessment requires baseline data on performance before the implementation of the new function, models accounting for other factors affecting performance, and estimates of the performance after implementation. (p. 79)

As pointed out in the above excerpt, it is important to account for factors in the system other than the information functions which may have an affect on the result in this instance, the case processing time. Thus, the recommended evaluation plan for the computerized information and management system for the Denver District and Juvenile Courts should have three basic parts:

(a) Baseline data on the case processing procedures and steps with associated time measures prior to the installation of the information system.

(b) An identification of personnel and other resources used to process cases; court rules and formal or informal procedures of the subject court. In addition any procedural aspects of those organizations that provide inputs to the court (e.g., police, county court) that may have a potential impact on the prime system of concern should be identified. The system should be monitored during the duration of the project to update changes in personnel, procedures and rules with an estimate of the potential impact on the case processing time these changes may have.

(c) Measurement of case processing times after the information system has been implemented.

The evaluation plan for Project Court M.I.S. has been examined within the framework of the above evaluation method. The following measurements and reports are planned by the Research and Statistics division of the State Judicial Office:

(a) Baseline data for case processing times in juvenile delinquency cases will be brought up to date.(October 1, 1973)

(b) Baseline data for case processing times in adult felony cases will be brought up to date. (November 1, 1973)

(c) A historical and analytical report on the planning phase of the project. (December 1, 1973)

(d) Technical Assistance Consultants' Report.

(e) Measurement of processing times in adult and juvenile cases. (February 1, 1974)

(f) Measurement of processing times in adult and juvenile cases. (May 1, 1974)

(g) Measurement of processing times in adult and juvenile cases. (August 1, 1974)

(h) Description and analysis of data elements included in the M.I.S. system for future data base development. (September 1, 1974)

(i) A historical and analytical report on the implementation phase of the project. (November 1, 1974)

(j) [Report of final on-site visits by the consultant. (December 1, 1974)]

(k) Final Summary report on the total M.I.S. project. (January 1, 1975)

Reports 1 and 3 have been prepared by the Research and Statistics Division and were reviewed during the on-site visit in November 1973. Before commenting on these, some observations and recommendations relative to the planned measurements and reports (2 and 5-11) are offered.

The information system is being implemented in the civil [1] and criminal division of the District Court and the Juvenile Court. The terminals for inputting case data began operating in mid-October 1973 in the Criminal Division. After this system has been completed, the terminals will be installed and data inputted in the Juvenile Court. Originally the plan called for installation of terminals and an operational on-line court management system throughout the Denver District and Juvenile courts by June 30, 1973. [2] A six month delay in implementing the system due to a delay in receipt of funds, a delay in equipment delivery and computer down-time resulted in a schedule slippage. Therefore the system did not become truly operational in the Criminal Division of the District Court until after January 1974 and ever later for the Juvenile Court. The evaluation schedule was drawn up with the original June 30, 1973 implementation date for the information system. It is recommended therefore that Report No. 5 scheduled for February 1, 1974, be deleted since there will have been insufficient time to see an impact of the information in either adult felony or juvenile delinquency cases. The remainder of the schedule should be adjusted accordingly. Some consideration should be given to two rather than four (quarterly) measurements of processing times. With less frequent measurements more detailed analyses can be made of the case processing.

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[1] This evaluation does not cover the civil division information system.

[2] Memo to Joint Budget Committee Staff from State Court Administrator, on the subject: Update on Costs and Financing Related to ADP for the Colorado Judicial System, dated September 17, 1973.

Rather than confining the time measurements for the processing of adult felony cases in District Court to the two segments that are planned, namely

1) arraignment in District Court to trial or pleading, and

2) pleading or trial to disposition,

additional time measures would be helpful in evaluating the potential impact of the information system. For example, if these time measures are taken by type of disposition (dismissal, trial, pleading) and by type of crime, some impact may be seen for certain types of dispositions and/or crimes and not for others. There may be inherent reasons for this which the data alone and in aggregate form will not reveal. These reasons have to be explored by observation of the system and discussions with the persons involved. For example, if the defense automatically files a motion for illegal search and seizure in drug or narcotics cases, the processing times may not be reduced significantly whereas they may be in another crime category where motions and trials are not frequent. Thus some measure of time should be taken that reflects the activity in the case -- motions, continuances, bench warrants, etc. Since there are so many variables that have a potential impact on case processing time (e.g., judge, type of defense counsel, policy of the prosecutor), one has to choose a sub-set of the more important ones and test the sensitivity of the results to others where possible.

In summary, the baseline time data and subsequent data for evaluating the system should be expanded, for the District Court at least, beyond that planned. To do this, the frequency of measurements may be reduced.

Of equal importance to the final evaluation and an interpretation of the data is the documentation of the system -- personnel, procedures, rules, etc. -- prior to and during the implementation phase. For example, in July

1972, the District Court one-year rule between filing and trial was changed to a six-month rule. The median time between filing and disposition prior to the six-month rule was 4.5 months for cases filed in calendar year 1970[3] and, according to the grant proposal, it was 4.33 months in July 1972, at the time the rule became effective. At the time the on-site visit was made, the baseline data for County Court processing of felony cases had been completed, but similar data had not been compiled for District Court. These baseline data are important because the effect of the 6-month rule in all likelihood will have been a reduction in median time for processing in District Court over those times shown in the grant proposal. If this, in fact, has happened, then the goal of the project to reduce median time for processing of felony cases by 66 days may need modification. The goal is to achieve a 15-day savings in County Court between arrest and preliminary hearing and a 51-day savings between filing and disposition in District Court. If the median times have been shortened in District Court because of the 6-month rule (which will have reduced the number of cases taking longer than the previous median of approximately 4.5 months), the system may have partially achieved the goal as stated in 1972 without the information system.

Another aspect of the evaluation concerns the potential uses of the information system. As currently planned and implemented the system provides a readily retrievable index to each case. In District Court where

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[3]"A Comparison of Counsel for Felony Defendents" Vol. I. Institute for Defense Analyses Study S-396, April 1972.

the individual calendaring procedure is used, the information system may not be utilized by the judges for scheduling. In fact, until and unless the minute clerk record can be added to the stored case record, scheduling for the Juvenile Court central calendar system may not be accomplished. However, there will be side benefits to the system, e.g., the Clerk's office can be more responsive to inquiries. For example, rather than having to send a person to the individual District Court judge to find out when a case is set, the Clerk's office can query the information system. Similarly, in the Juvenile Court the level of service should be increased, especially in answer to counsels' questions and for rapid revamping of the docket. Thus, in place of one of the time measurement reports or as an added section in the last time measure report, a detailed account of the improved service, decreased paperwork, and usage frequency of the system should be provided. This latter information could be included in Report No. 9, a historical and analytical report on the implementation phase of the Project. It is recommended that this report also include a documentation of the lessons learned in the Clerks' offices during the implementation phase, both machine and personnel problems and solutions.

In summary, it is recommended that the planned evaluations and reports on Project M.I.S. be revised to delete quarterly time measurements and to provide for less frequent but more detailed measurements of time segments and case characteristics. Additional efforts should be devoted to documenting court and related systems resources, procedures and rules as part of the baseline data, and changes should be noted at the time measures of processing time are taken after the implementation of the information system.

As stated earlier, two of the reports were available for review at the time of the on-site visit. These are Report No. 1 on baseline data for juvenile case processing times and Report No. 3, a historical and analytical report on the planning phase of the project. The juvenile case processing time report is in two parts.[4] Part I, An Analysis of Processing Times for Filed Petitions in Denver Juvenile Court, deals with the case processing time from receipt of police complaint to disposition for those cases where the intake counselor has made the decision, after investigation, to file a delinquency petition or Children-in-Need-of-Supervision (CHINS) petition as opposed to lecture and release or informal adjustment. Thus Part I measures for both contested and uncontested filed petitions, the total case processing time. Part II, An Analysis of Case Processing Times in Denver Juvenile Court analyses for all cases the time between receipt of the "police complaint" at the Intake Division of the probation department connected with the Juvenile Court, and the date the Intake counselor to whom it is assigned makes a decision to either file a juvenile delinquency petition or CHINS petition with the court or dispose of the case by "lecture and release" or "informal adjustment." In the latter two modes, the complaint is essentially disposed of. If a delinquency petition or Children-in-Need-of-Supervision petition is filed, the time re-measurements for these modes of disposition are covered in Part I. Because

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[4]Whereas the published reports carry Report No. 1 and No. 2 on the cover page, for the convenience of this review they are treated as Report 1, Parts I and II because the original evaluation plan calls for Report No. 2 to be a baseline study on adult felony processing times.

of the confusion these titles can cause, they should be modified to at least indicate that Part II covers only the Intake Division processing times for all cases. Furthermore, there should be a statement regarding the data base of the two studies: namely that although the six-month period used for the analyses was the same (Sept. 1, 1972 through February, 1973) for both parts of the juvenile processing baseline time study, those cases included in Part I (processing of cases where petitions are filed) are not necessarily contained in the Part II report on Intake Processing times. A Preface should be added to both Parts I and II clarifying the types of cases, parts of the system, and data covered and recommending how the results should be used for comparative purposes.

Both reports are excellent in the treatment of the data and the statistical analyses performed.[5] A detailed flow diagram and general description of the process is provided. Here again, there needs to be an addendum that provides information on resources, rules and procedures that were in effect at the time the baseline data were obtained. Also with these baseline time measures available, albeit they will be about one year old when the information system is operational in juvenile court, the goals for reducing processing times for juvenile delinquency cases might be reexamined. Set out below are the June 1972 processing times and the goal as stated in the grant proposal and used for the evaluation

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[5]A preface should be added to Appendix E describing how, in the technique employed for calculating Chi Square, the many zero entries in the two-way classifications were handled. This is not readily apparent since the degrees of freedom given are the usual product of (row minus one) times (columns minus one).

plan (See Appendix A of Part I). Also tabulated are the measured times from baseline report No. 1, Parts I and II. Only medians are shown from Part I since means are not presented in that report; the month of February 1973 was chosen for comparison purposes because this reflects the effect of the omnibus hearing on "contested" cases, namely those in which an admittance to the allegation was not entered at the first hearing and the case is set for an omnibus hearing; the data show an admittance to the allegation is generally entered at the omnibus hearing.

CASE PROCESSING TIME IN JUVENILE DELINQUENCY CASES, DAYS

Step	Measure	June 1972	Feb 73 Part I: Filed Petitions	Sept 72 Feb 73 Part II: Total Complaints	Goal
Receipt of Case to Intake Decision	$\bar{X}$	61		69	30
	Med	49	34	57	21
Intake Decision to Disposition (Uncontested)	$\bar{X}$	46			30
	Med	40	40		21
Intake Decision to Disposition (Contested)	$\bar{X}$	87			60
	Med	76	45		50
Receipt to Disposition (Uncontested)	$\bar{X}$	107			60
	Med	89	71		42
Receipt to Disposition (Contested)	$\bar{X}$	148			
	Med	125	76		71

This procedure, at least for February 1973, brought the median time for contested cases 5 days below the stated goal (45 vs. 50) and for the total time just 5 days longer than the goal (76 vs. 71). The fact that uncontested cases have not changed much probably reflects court rules for setting first hearings and determining what treatment to impose.

In summary the baseline data on the juvenile delinquency case processing is good; some clarifications should be added, and a description of resources, rules and procedures provided as described above. As suggested by the data presented, the system may have come a long way toward meeting the reduced processing time goals without the information system.

Report No. 3, Man and Machine: A Natural History Account, With Comments, of Phase I of Project Court M.I.S. is an excellent documentation of the planning, problem identification and solutions for obtaining high level decisions for implementation of the information system. A similar documentation, as stated earlier, should be planned and executed for the implementation phase. This appears to be the subject of Report No. 9 and it is strongly recommended that data be collected by interview and observation during the implementation phase and not after the fact. Such a detailed report can be of great assistance to other court systems that install information systems.

C. SUMMARY AND RECOMMENDATIONS

The on-site visit to the Judicial Department of Colorado focussed on examining and discussing the current and planned evaluation of the effectiveness of the M.I.S. for reducing case processing time. On the whole the evaluation plan is a good one to determine changes in case processing time. One must be careful, however, in attributing the savings in time to the information system unless there is little other change to the system. In the Colorado system there have been changes in rules and procedures since the original June 1972 baseline data were taken and against which the goals for time savings were set. In some instances the goals may have been met prior to the time the information system becomes truly operational in the spring of 1974. With this proviso in mind, the following recommendations are made:

1. The evaluation schedule should be revised to reflect the 6-month delay in implementing the information system. If changes in the system have occurred since the baseline data for Juvenile Court were taken for the period September 1972 - February 1973, their validity should be checked against more recent data.

2. The frequency for time measurements should be reduced, namely from four to two measures. These could occur after the system has been operational 6 months and 12 months.

3. The time measures for the processing of adult felony defendants in District Court should be increased from the two that are planned. Other activities in the case that are time related should be included, e.g., motions,

continuances, pre-trial hearings. Other case related characteristics such as type of disposition and type of crime should probably be included to allow for measurement of differential changes as a function of basic case characteristics.

4. The procedures, rules and numbers of personnel in the various parts of the court system that are primarily concerned with juvenile and adult felony case processing should be documented on a before and after basis with the time measures. The effect on processing time of changes of the rules, procedures and personnel should be estimated or measured if possible.

5. The documentation of the implementation phase should be given added emphasis. Interviews should be conducted with persons being trained to use the system and will become the ultimate users. The system should be observed and measures (qualitative and quantitative) of problems, solutions and their impact on the system should be taken.

II. EXAMINATION OF THE SYSTEM DESIGN AND HARDWARE COMPONENTS

A. BACKGROUND TO DATE

1. System requirements were incepted by Mr. Nelson Howell, Mr. Thomas Morrills' predecessor, as Director of ADP Services for the Colorado Administrative Office of the Courts.

2. Service Bureau processing for State District Courts was quite expensive. The statistical system alone was costing approximately $3,000/ month.

3. Need for a uniform, state-wide court system was identified.

4. Colorado Judicial Department officials heard of the IBM software package "Basic Court System" (BCS) and decided to learn more about various vendor offered software packages.

5. A "Request for Proposal" (RFP) was written outlining the need for a Court System hardware/software configuration by ADP Services Bureau of the State Court Administrators Office.

Specifically, the RFP was let 11-29-72 with a required response by 12-18-72. The objectives of the RFP called for:

a. Improved operational control.

b. Statistical information.

c. Communication with other criminal justice organizations.

d. Court participation in transaction based offered tracking.

e. Improved accounting procedure.

System requirements were identified as:

a. On-line computer based data entry and retrieval.

b. Centralized records.

c. A statistical system to serve the courts, detention and probation for the State of Colorado.

6. After evaluating the proposals received, IBM was selected as the successful bidder.

7. Mr. Morrill was promoted to Director of APD Services and staff was hired.

8. Grants were approved.

9. Jobs were brought in-house from the Service Bureau only to find written documentation and application programs were of very poor quality. Through the efforts of Mr. Morrill and his staff and many long days and nights, the existing systems were straightened out and run on the new IBM 360 computer.

10. Study and design of integrated court system began.

11. Staff was trained on the IBM Faster/Multi-Tread teleprocessing monitor and the BCS software package.

12. Software and IBM 370 hardware were installed. IBM Cathode Ray Tube (CRT) terminals were ordered and installed.

13. The new system began implementation.

14. Users were trained in the use of the new system and data conversion began.

15. Current status of the system.

    a. The Denver Criminal Division System is complete except for:

        1) A review of data entry code to obtain statistical data from BCS instead of the current batch system.

        2) Judgment/Adjudication and Notice of Appeals which need to be finalized.

    b. Denver Civil Division System:

        1) Pending cases, for calendaring purposes, were converted in January, 1974.

        2) New filings have been recorded on-line since October, 1973.

        3) To be completed are:

a) Review of data entry code to obtain statistical data from BCS instead of the current batch system.

b) Judgment/adjudication and Notice of Appeals which need to be finalized.

c. Domestic Relations System:

1) New filings have been entered since January 1, 1974.

2) To be completed are:

a) Review of data entry code to obtain statistical data from BCS instead of the current batch system.

b) Judgment/adjudication and Notice of Appeals which need to be finalized.

d. Juvenile System:

1) Delinquency and CHINS have been operational since January, 1974.

2) To be completed are the Neglect and Paternity/Dependency modules.

e. Court of Appeals System:

1) System design currently under way.

f. Statistical System:

1) System design using BCS data entry and data base design to be completed 4-1-74.

g. Probation System:

1) CRT's have been installed.

2) Data to be captured on-line beginning mid-February, 1974.

3) Batch system for reporting is being developed from the data captured on-line.

h. Alimony and Support System (A&S):

1) Installed in December, 1973.

i. Registry Accounting:

1) Installed January 1, 1974.

2) Month-end reporting still to be completed.

16. Future developments planned.

a. System proposal for Jefferson District Court to be completed March 1, 1974.

b. System to be implemented in either Adams or Arrapahoe County in July, 1974.

c. The system installed in other District Courts, such as the above, will be very similar to that which is installed in Denver. However, it should be noted there will be some differences due to unique policy and data requirements of each individual court.

B. SPECIFIC AREAS EVALUATED

1. Preliminary System Study/Design

a. Staff training on the software packages was accomplished.

b. Personnel were assigned to evaluate the services bureau systems for system improvement and BCS compatibility.

c. Personnel were assigned to work with user in Denver District Court to gain working knowledge and understanding of existing systems; e.g., Nancy Dillon worked at various desks in the Criminal, Juvenile, Civil, Court of Appeals, Domestic Relations, Court Accounting, et al.

d. The BCS package was evaluated in relation to Court's needs with the following observations:

1) BCS was viable tool.

2) Criminal Division should be accomplished first.

3) Immediate response was necessary to inquiry.

4) A master data base was necessary to answer statistical requirements.

5) A defendant/case life system was needed to track a case from court filing through probation and Court of Appeals.

COMMENTS:

The Preliminary System Study/Design appears to have contained not only the pertinent ingredients to produce a successful product, but also a positive attitude, with the user in mind, on the part of the ADP staff. The user was involved from the beginning of the study.

Data Collection needs were far-sighted, in terms of future requirements.

A coordinator, for liaison between the Courts and ADP, was established in the Court area.

2. Implementation Planning:

   a. Statements of "Management by Objectives" (MBO) were prepared by the Director of ADP Services and the Systems Manager.

   b. A pert chart showing the system interfaces as well as hardware, phone line, modem ordering and installation was prepared.

   c. Work assignments were prepared identifying basic system modules, scheduled completion dates, project leader and staff.

COMMENTS:

Adequately documented implementation planning was prepared. While evaluating timeliness is beyond the scope of this section of the report as long as the planning is realistic, it should be noted that scheduled dates that cannot be met, for whatever reason, should be reported to the user and court administration as soon as that possibility exists rather than waiting until the scheduled date is passed.

3. Conversion from Existing System:

   a. Data conversion of the various modules consists of two primary elements:

      1) Pending cases, for calendaring purposes, are converted through a batch proviso.

      2) New case data is entered on-line through use of the CRT.

      3) Because case numbering is sequential, control of missing and/or duplicate case numbers is obvious via standard programming conventions.

COMMENTS:

Usually, conversion of data from a manual to an automated data base is expensive and time consuming. Because this was designed as a real-time system, the concept of training court personnel while capturing the current data is both innovative and productive.

4. System Control Concepts:

   a. The BCS software package has some control built into it so that data is not lost.

   b. Record counts after any "Indexed Sequential Access Method" (ISAM) process are produced. By taking the count of records from the last process, and knowing the counts by transaction type from the current activity, it is quite simple to calculate the anticipated counts provided by ISAM at the completion of this process.

   c. If the system (hardware) should go down or malfunction during an on-line update process the terminal operator would re-key the transaction last worked on. If the file update had already taken place, a duplicate record would not be created because ISAM will not allow two records with the same key on the same file.

COMMENTS:

The main concern for controls in a system such as this is that records are not inadvertently lost from a file and that the normal fiscal type of control; i.e., cash totals, dollar amounts, etc. This system contain sufficient control, once totally converted. However, during conversion it would be wise to tighten control while there is both a manual and automated system in use.

5. Backup/Recovery:

   a. Once data is entrusted to an automated system the ability to reconstruct it is of paramount concern to both the user and the data processing staffs. Since the data processing department is being paid to be a custodian of a user department's data, the ADP staff should be concerned not only with the ability to reconstruct files, but also with the privacy and confidentiality of the various data elements.

   b. The files in this system are being "reorganized" (copied and loaded back) twice a day. This is done to:

      1) Maintain a reasonable "response time" (time between which an inquiry is made on a CRT until response appears).

      2) Create a backup file as of a given time. This means that it should be possible to reload the last backup file and reprocess all transactions since that time either manually or mechanically to bring the file back to the status at time of failure.

COMMENTS:

Transactions from the on-line updating process are "logged" (mechanically saved as they are entered). If the files need to be recreated, the logged transactions are merged with the data from the last backup creating a file of the same status as the original one before it became non-processable.

In addition, the logged transactions from today are merged with the cumulative week-to-date transactions from yesterday. Because of this, the farthest back one would be from recreating the file to a current status manually would be yesterday.

6. Equipment Selection:

   a. Selection of hardware was based primarily on the software selected as well as budget and physical area of installation.

      1) The 370-135 CPU is a small to medium scale computer capable of operating in a variety of environments.

      2) Input/Output (I/O) devices are compatible with many software packages vendor and user produced.

      3) "Direct Access Storage Devices" (DASD) are high quality from the standpoint of reliability, speed, cost and compatibility.

COMMENTS:

The CPU has growth potential compatibility within the IBM hardware family. It will not become obsolete within the next few years and will probably retain its marketability. Although the I/O devices may be somewhat 'slow' in comparison to the technology today, they are compatible with more expensive systems.

7. Software Selection:

   a. Software falls into two basic groups:

      1) Operating systems.

      2) Application package.

   b. The Colorado State Judicial Data Processing Division uses Disk Operating System (DOS) in a Virtual (VS) environment on their system 370-135 CPU.

c. The application package, Basic Court System (BCS) is made up of a series of programs to accomplish specific functions in an application area. A user may take advantage of any or all of the modules this system contains. Basic advantages of this system are the teleprocessing programs (TPD's) and the file updating interrelationships.

d. A teleprocessing monitor is required to make BCS run in an on-line environment. The monitor is called "Faster-MT". Faster is the monitor; MT means that it is Multithread (vs. single thread).

COMMENTS:

DOS/VS is a well supported and documented operating system within the IBM software family. However, IBM will probably not continue to advocate the use of either DOS or OS in the future but rather CICS for DOS users and IMS for OS users.

BSC is a viable tool, well tested by the industry, for accomplishing the general goals of a court system. Because it is generalized, there is quite a bit of "overhead" code written that would not be used by all court systems.

For the same reason, additional programs (TD's) would have to be written to satisfy a particular user's unique requirements.

Faster-MT is a proven teleprocessing monitor and solves the problem of getting into a teleprocessing environment quickly. If one were to write their own monitor, it would be to the tune of many man months and dollars.

8. Compatibility (Transferability):

a. BCS is used by many courts nationally, on a variety of IBM hardware under several different operating systems with different teleprocessing monitors. Therefore, talking about BCS and its transferability is a somewhat moot point.

b. Transferring ideas concerning enhancements made to the system between various users, the problems in "bringing the system up" are important. Modifications, if any, to the teleprocessing monitor to speed up response times is also a major consideration in the sharing of information between users.

COMMENTS:

Various governmental users of IBM hardware and software have been concerned recently about the court area and the use of IBM proprietary packages. Those who are currently using BCS and those who contemplate its use do not contact each other to obtain information. Although most users don't believe that BCS is a panacea, most agree that until something better comes along it most certainly is better than writing an entire system themselves.

C. USER OBSERVATIONS

1. Initial negative observations:[6]

   a. Concern about lack of Denver Court involvement during system design, although this court handles 75% - 80% of state's litigation.

   b. Poor rapport between ADP and the Clerk's Office.

   c. Hardware, (CRTS) scheduled for delivery the middle of August did not arrive until the middle of September, and was not working until October.

   d. Trainers and ADP personnel did not know clerical functions of court or system well enough to train court personnel.

   e. ADP management not on scene often enough for consultation or identification of concern.

   f. CRT keyboards were wrong configuration.

   g. CRT tables were only big enough to hold the CRT. No working space allocated.

   h. Judges were unaware of system implementation.

   i. Denver Court Clerk was told he would lose up to eleven people by June 30, 1975.

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[6]Based on interview with Messrs. Jim Thomas, Denver District Court Clerk, and Ron Owens, Coordinator, November 15, 1973.

j. Use of CRT's by public and attorneys without concern for instruction in use or concern for potential of updating case information erroneously.

k. No system design as to how to handle 'Registry of Actions'.

2. Initial Positive Observations:

a. Faster paper processing.

b. Effective jury planning through calendaring.

c. Ability to perform time studies on court functions.

d. Elimination of statistical data coding.

e. Automated notification.

3. Observations in Follow Up Interview With Messrs. Thomas and Owens, January 22, 1974.

a. Indexing functions had been completely automated and manual indexing done away with totally.

b. Calendaring function completed with the exception of minor clean up.

c. Changes to system required prior to ADP staff leave.

d. Morale of clerical staff, much better than earlier, although not 100% improved.

e. Response time improvement needed (Current 20-25 seconds).

f. "Registry of Actions" system still a concern.

g. Trainers not only training personnel, but also filling in for them while training.

h. Summary of observations:

1) The system is, and will, prove itself to be a welcome change.

2) ADP Service required:

a) Calendar clean-up.

b) Registry of Actions.

c) Response Time.

d) Civil needs.

e) Civil files.

f) Alimony and Support controls.

COMMENTS:

Mr. Thomas took the position of Clerk of Denver Judicial Courts in June, 1973. Much of the work in the area of system discussion with Court personnel took place during a void in that position being filled.

It would seem appropriate that IBM provide administrative training, regarding the computer and its software to the various court's key personnel prior to the implementation of hardware and systems: Hopefully this training will be provided free or at a very nominal cost.

D. RECOMMENDATIONS

1. It appears that some confusion and misunderstanding between the comes about through lack of formal communication.

   Recommendation 1:

   A periodic report (possibly on the first of each month) should be written by ADP Services to the user, with copy to the court administration identifying:

   a. What transpired during the prior month.

   b. Accomplishments anticipated for this coming (current) month.

   c. Problems or potential problems that may interfere with timely system implementation.

   d. Situations that require resolution.

2. Court personnel require basic training concerning the computer and its use.

   Recommendation 2:

   Presiding Judges from the various divisions, the Court Administrator and Court Clerks attend Management Seminar sponsored by IBM.

An on-going training program for clerical staffs should be set up by ADP Services and the Court Clerk(s) and the training effort be maintained by the Clerk's Office and tailored to his needs.

3. There have been instances recently, where data processing installations have been sabotaged. There is also the potential of a natural disaster. Steps should be taken to guard against the disaster that either of these situations could cause.

Recommendation 3:

At least minimum security of all the computer room perimeter is needed so people cannot just 'walk right in'.

Provision should be made so that 'father, grandfather' tape copies of files could be stored in vaults and/or in off-site locations for backup. Copies of documentation, programs, and JCL should receive the same consideration.

4. The IBM 370-135 was designed as a small to medium size computer with capability for upgrading within the IBM line. This machine can probably handle the current and medium range future batch processing work as well as some teleprocessing activity but not the load this system calls for.

The Court System is being designed as a 'real-time system' handling court data for all District Courts in the State. It would seem that, if this is true, a machine down time of any length in time would be disasterous.

Recommendation 4:

A large area be identified for the computer center. (It is needed now.)

Consideration should be given to a larger CPU because the 135 will probably not handle more than 40 CRT's on-line. An alternative would be to bring in another smaller CPU and use it as a 'front-end' device. This has additional merit because the front-end CPU could also handle a degraded teleprocessing network if the host CPU were down. Faster 'baud' lines should be installed on those controllers where the number of CRT's are the greatest. This should help response time. Polling sequence should be changed so that lesser used and less important CRT's receive lower priority.

5. BCS fulfills the obligation it is purported to do. However, the teleprocessing program (TPD's) contain overhead code because of its generalized nature. Additional programs have been written as well as some software modified to tailor the BCS package to the Colorado Judicial System. New software packages are available since the decision was made some two years ago to select BCS.

   Recommendation 5:

   Consideration should be given to newer software packages such as System 370 Justice System (SJS). BCS files can be converted to this system and it is compatible in concept with the requirements and future of the Colorado Judicial ADP System. Although up to 6 months may be diverted to implementation of a system such as this, much time could be saved in programming time using BCS. Consideration should also be given to newer operating systems such as BCS. Consideration should also be given to newer operating systems such as CICS. This software is the evolutionary next step in upgrading fur current DOS users. Both SJS and CICI are in the current IBM main stream from a marketing support view.

6. System and program changes usually take a lot of time and for the most part are required by users as 'enhancements' to an implemented system. These enhancements, although desirable, drain a usually minimal ADP staff and divert their attention from 'large picture' and needed changes.

   Recommendation 6:

   There should be a moratorium placed on requested changes by the user in the area of enhancements. Required changes by the user should be put in writing and approved by the ADP Services Director. Changes that are not approved should be explained to the user and the Court Administrator with the Administrator's decision being final. Requests should be handled informally by the ADP staff through their normal daily relationship with the user.

7. Constructive criticism is always valuable to an ADP organization. Sometimes those involved with ADP cannot see the forest for the trees, so to speak. An infrequent user evaluation of progress is desirable.

   Recommendation 7:

   An informal constructive criticism list should be prepared by the user and forwarded to ADP Services. This will make ADP aware that someone 'cares' about the implementation as well as identify areas of required improvements.

8. There is an increased need for the use of Microfilm/Microfiche as archival, historical and current record-keeping media. The use of these media vs. the maintenance of data on-line or in voluminous printed reports is highly desirable economically and storage-wise.

   Recommendation 8:

   The use of COM as a storage media for a high-volume data storage technique should be considered. ADP should have a large voice in the use of microfilm and microfiche.

9. An implemented system is never complete. Unless a periodic review is made of the implemented system, one cannot tell if it is:

   a. Being used as intended.

   b. Need for re-doing has occurred.

   c. Personnel are not using old methods for accomplishing tasks.

   d. The system is not accomplishing stated or desired goals.

   e. It is time for the system to be re-done.

   Recommendation 9:

   Recognize the need for system follow-up and review and allocate time (staff) to perform desired review.