

Automated court systems*

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INTRODUCTION

Why does our Judiciary continue to use antiquated methods in the courts instead of taking advantage of business automation techniques which have been so successfully utilized by private industry?

This paper answers this question and discusses some of the reasons why the courts, especially those in the larger cities, need such automation techniques.

The paper also describes what has been done in Houston, Texas, to solve this problem. The authors have worked closely with Harris County criminal justice officials for several years and have designed a completely automated criminal records system.

This system, called the Harris County Subject-in-Process Records System,¹ maintains pertinent information about criminal cases. This information is made available to the courts, law enforcement agencies, the District Attorney, and other agencies and departments involved with the judicial process.

JUDICIARY REQUIREMENTS

The court officials, especially in the larger cities, including judges, clerks of the courts and prosecuting attorneys, know what computers can do for them. Their conferences and professional publications constantly emphasize the importance of automation. They know also that somehow the processing of cases must be

speeded up or the wheels of justice will soon come to a grinding halt.

Chief Justice Warren E. Burger in his first state of the judiciary message in 1970 said: "In the supermarket age, we are like a merchant trying to operate a cracker barrel corner grocery store with the methods and equipment of 1900."

Litigants in criminal cases are experiencing delays of up to two years and more before their cases can even come to trial. This is particularly true in our larger metropolitan centers. After such a long period of time it is not unusual to find that witnesses involved in a case have moved away or even died. The standard solution to the delay problems is simply to add more courts. More courts mean more judges, more clerical support and more docketing problems.

Our courts are bogged down with manual book-keeping procedures. In many of the metropolitan areas it is not unusual to read about how someone was denied his freedom due to a simple clerical error or a breakdown in communications between the various departments that comprise the criminal justice system. Citizens often win judgments against law enforcement agencies in resulting litigation.

The problem of crimes committed by persons out on bond is a major one. Many states are implementing procedures to speed up the processing of cases involving dangerous persons who are free on bond. Such preferential treatment can result in more delays for innocent people who cannot post bond and must remain in jail.

It is suspected that a prime cause for much of the backlog and delay is due to a lack of coordination in docketing cases. Attorneys are often involved in a large

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number of cases and therefore are frequently unavailable. It is also suspected that attorneys often ask for a postponement of one case in order to get a better setting for another case they are representing. These things are suspected, but without automation it is a formidable task to sift through the mountain of paperwork to determine bottlenecks in the judicial process and to formulate action to remove them.

Former Chief Justice Earl Warren, in a speech delivered at the annual meeting of the American Law Institute in 1966, said: "It seems to me there is a definite need for thorough analysis and study of the mechanics—in its physical aspects—of carrying on the business of the courts. I am led to this belief by the accomplishments of new data processing methods employed in other fields—medicine, for example."

Governmental agencies, especially on a local level, are quite inflexible in comparison to commercial businesses. Seemingly simple changes such as using an available computer facility to print an index of criminal defendants instead of manually entering each name in a "well-bound" journal often require amendments to state constitutions; or, at a minimum, require an interpretation by the State's Attorney General.

Of course, we are all too familiar with the problems posed by budgetary considerations and of officials who are not close enough to the problem and who find it difficult to approve expenditures for data processing.

Government often fails to use modern data processing procedures simply due to organizational restrictions. There is usually no one person or department to tie the various criminal justice departments and agencies together to organize and support the implementation of such a system.

What, then is being done to relieve our congested courts. The use of computers to streamline court procedures can presently be found in several large cities. Many of these systems, however, were implemented quickly to solve some immediate problems. What is desperately needed is a thorough analysis of the entire court system and the development of long range plans to solve the problems.

SYSTEM OBJECTIVES

The criminal justice officials in Harris County have long been aware of the administrative problems and have recently taken positive steps toward a solution by working together to develop what is now called the Harris County Subject-in-Process Records System. This computer system maintains all pertinent information about criminal cases and the defendants involved. The system information is available, via

printed reports and remote terminals, to the District Clerk, District Attorney, Sheriff, Probation Department, and the Courts.

The primary objectives in the design of the Harris County Subject-in-Process Records System were to produce a system which would provide an efficient means of monitoring the progress of criminal cases and to define methods of using such information to reduce the total time and effort required to process a case.

The system is designed in a manner to be mutually beneficial to the various County agencies and departments concerned with the criminal process. It is, whenever feasible and allowable under the statutes, designed to eliminate unnecessary duplication of records and effort amongst these agencies and departments.

Harris County records show that in 1966 the average time from indictment to trial was 18 months. Today the average is down to six months due to the diligent efforts of the County officials. U. S. Chief Justice Warren E. Burger, however, has urged that all criminal cases be brought to trial within 60 days of arrest.

ORGANIZATION AND DESIGN

The Harris County Subject-in-Process Records System was designed to eliminate the necessity of looking for information manually. Naturally, there are many manually processed legal documents. The computer system may, however, maintain copies of per-

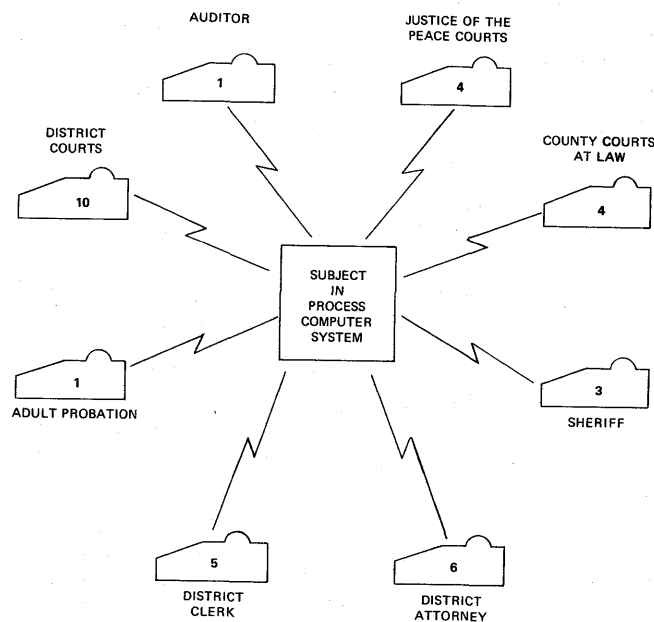


Figure 1—System interface

tinient facts from each document and thereby provide instant response to many questions concerning criminal cases.

As a subject progresses from one step in the judicial process to the next, information regarding this progress is recorded in the computer system.

Figure 1 is a graphical representation showing which County departments interface with the System. The number depicted in each box indicates the number of terminals assigned to each department.

The Subject-in-Process Records System consists of teleprocessing and batch processing functions built around a nucleus of files serving as the System's data base. The System Organization flowchart shown in Figure 2 illustrates the system.² The various files and queues are shown in the center with the teleprocessing functions to the left and the batch processing functions to the right.

The three basic data files are the Case History File, Name and Identification Number File, and the Calendar File. These files are similar to those of the Basic Courts System³ (BCS) files, but several additions and modifications have been incorporated. The basic files are separated into active and inactive files to augment the on-line and batch oriented functions.

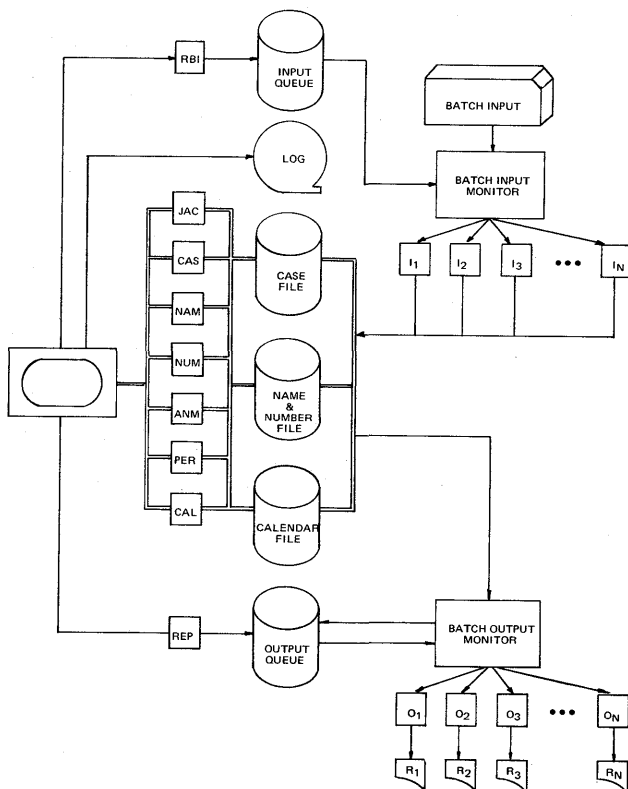


Figure 2—System organization

The remote terminal user has available to him nine basic teleprocessing functions. These consist of Remote Batch Input (RBI), Batch Output Reporting (REP) and seven on-line functions (CAS, NAM, NUM, ANM, PER, JAC and CAL) which aid the user in the interrogating, retrieving and updating of the basic data files via the remote terminals.

RBI allows for the input of batch data via the remote terminals by placing the input in a queue to be processed by the Batch Input Subsystem. REP allows the user to request batch output from the remote terminals by placing the requests on a queue to be processed by the Batch Output Subsystem. The seven on-line functions yield terminal displays to the terminal inquiries and are briefly described below:

- CAS: allows the user to search, retrieve and update the Case History File, and to display all associated transaction records at the terminal
- NAM: allows the user to search, retrieve and update the Name File and to display the desired records at the terminal
- NUM: allows the user to search, retrieve and update the Identification Number File and to display the desired records at the terminal
- ANM: allows the user to display all available identification numbers associated with a defendant to a case
- PER: allows the user to display all available personal descriptor information associated with a defendant
- JAC: allows the user to display the arrest/conviction history of a defendant
- CAL: allows the user to search, retrieve and update the Calendar File and to display the docket of a court

These teleprocessing functions are written in FASTER-LC⁴ and are incorporated into the system to augment the facility available to the user.

All terminal inquiries are logged on the Log File to provide system backup. In the event of a system failure, all transactions can be reconstructed and the integrity of the basic data files insured. The Log File also provides a data base for the analysis of user requests and overall terminal usage.

Batch Processing

The batch processing functions are divided into the Batch Input and Batch Output Subsystems. These subsystems are designed to interact with the queues built in the on-line mode and the basic data files. These

HARRIS COUNTY COMPLAINT INDEX - MONTH TO DATE JANUARY 22, 1970				PAGE 33
RUN DATE 01-23-70	NUMBER	DEFENDANT'S NAME	OFFENSE CODE	OFFENSE DESCRIPTION
	2100-02	WASHINGTON SADIE	2501	FORGERY OF CHECKS
	2352-01	WATTS CHARLES R	3562	MARIJUANA - POSSESSING
	2260-01	WEST JAMES M	2270	BURG & THEFT
	2362-01	WHITE ROBERT	2300	THEFT BY BAILEE

Figure 3—Complaint index

subsystems provide for the input of data to the files and the output of pre-defined system reports.

The Batch Input Monitor is a subsystem consisting of ANS COBOL programs which take the batch and remote batch input data and update the basic data files. This subsystem performs the necessary editing and formatting of the various data records and supplies diagnostic messages when appropriate.

The Batch Output Monitor is a subsystem consisting of ANS COBOL programs which queue the system requests for generating reports on pre-established frequencies. This subsystem also analyzes all system generated and user generated requests for batch output, eliminates duplication, establishes priorities and invokes the various batch output programs which produce the system reports.

The capabilities of the System include the ability to produce numerous printed reports at predetermined intervals or upon request. These reports include indexes, case histories, and summary reports.

The Complaint Index shown in Figure 3 is a list of all felony complaints which have been submitted to the Grand Jury. The index contains the defendant's name, a unique sequence number, the co-defendant suffix (a two-digit number used to identify defendants when there are more than one to a case), the offense code and the offense description. The Complaint Index is sorted

HARRIS COUNTY FELONY INDEX - MONTH TO DATE OCTOBER 25, 1970				PAGE 92
RUN DATE 10-26-70	CASE NUMBER	DEFENDANT'S NAME	JUDGEMENT-RECORDS VOLUME PAGE	CASE DISPOSITION
	310154-02	ALLEN JOHN B	312 / 006	GUILTY
	308916-01	BOND JAMESON L		
	309985-01	SMITH JOHN	310 / 125	NOT-GUILTY
	310225-03	WILLIAM WILLIAM W	311 / 205	NO BILLED

Figure 4—Felony index

HARRIS COUNTY CASES PENDING THE GRAND JURY INDEX WEEK ENDING 12-18-70						PAGE 16
RUN DATE 12-18-70	COMPLAINT NUMBER	DATE FILED	DEFENDANT'S NAME	J P COURT PREC POS	OFFENSE CODE	OFFENSE DESCRIPTION
	14296-01		WASHINGTON SADIE	2	2501	FORGERY OF CHECKS
	15113-02	08-10-70	WATTS CHARLES R	1 0	3562	MARIJUANA - POSSESSING
	14184-01		WEST JAMES M	1 1	2270	BURG & THEFT
	24780-01		WHITE ROBERT	2	2300	THEFT BY BAILEE
	*** TOTAL CASES PENDING THE GRAND JURY				4 ***	
	*** TOTAL CASES PENDING OVER 90 DAYS				1 ***	

Figure 5—Grand jury index

and printed by defendant name and by the sequence number.

The Felony Index and the Misdemeanor Index are similar and contain the case number, co-defendant suffix, defendant's name, the volume and page of the judgment records and the case disposition. The indexes are printed in defendant name order. A sample is shown in Figure 4.

The Cases Pending the Grand Jury Index, see Figure 5, is an alphabetical list of all defendants of felony cases which have been bound over to the Grand Jury but have not been indicted or no-billed. The index contains the defendant's name, the complaint number with co-defendant suffix, the Justice of the Peace Court, and the offense. In addition, cases which have been pending the Grand Jury for 90 days or more are flagged by listing the date the case was filed in the Justice of the Peace Court.

The Cases Pending the District Courts Index and the Cases Pending the County Courts at Law Index consist of a list of cases which have been assigned to a County Court at Law or District Court, but are pending final disposition. The indexes are sorted in two major ways: by case number, and by ready status. A sample is shown in Figure 6.

The Case History Registers consist of chronological listings of all transactions concerning each case from the time the case number is issued until the case has been disposed of. A sample is shown in Figure 7.

HARRIS COUNTY FELONY CASES PENDING STATUS INDEX WEEK ENDING 12-04-70										PAGE 84
RUN DATE 12-04-70	CASE NUMBER	C T	DEFENDANT'S NAME	OFFENSE CODE	DEFENDANT STATUS	DEFENSE STATUS	PROSECUTION STATUS	IN PROCESS STATUS	CASE PENDING STATUS	
	260571-01	161	ALLEN AL	3501	IN JAIL	READY	READY		READY FOR TRIAL	
	261031-01	178	DOE JOHN A	2501	OUT ON BOND	READY	READY		READY FOR ARRAIGNMENT	
	261825-01	178	PUBLIC JOHN Q	2301	WANTED	NOT READY	NOT READY		NOT READY TO CALENDAR	
	262160-01	161	RAYMOND RAY C	2801	IN JAIL	READY	READY	TRIAL	CALENDARED	
	*** TOTAL FELONY CASES PENDING				4 ***					

Figure 6—District courts index

Teleprocessing

The System has the ability to display system information on remote terminal CRTs. As indicated earlier in Figure 2, which describes the organization of the data files, the system provides for the following terminal displays:

- NAME INDEX INQUIRY—NAM
- PERSONAL DESCRIPTOR INQUIRY—PER
- JAIL ARREST CONVICTION INQUIRY—JAC
- COURT CALENDAR INDEX INQUIRY—CAL
- IDENTIFYING NUMBER INDEX INQUIRY—NUM
- ASSOCIATED NUMBER INDEX INQUIRY—ANM
- CASE HISTORY REGISTER INQUIRY—CAS

The Name Index Inquiry, shown in detail in Figure 8, is a display which allows the user to identify information pertaining to persons involved in the judicial process. By supplying the System with the name of a person, the System responds by displaying all cases involving the person.

This inquiry capability is used to find the case number when only the name is known. The Name Index contains the names of all persons associated with complaints, misdemeanors, and felonies. That is, it contains the names of defendants, defense attorneys, prosecuting attorneys, witnesses, bondsmen, etc.

The Personal Descriptor Inquiry is used to answer requests for more identifying information about a defendant. Upon entering the defendant's name, the

HARRIS COUNTY FELONY CASE HISTORY REGISTER									
WEEK ENDING 02-19-70									
PAGE 167									
CASE NUMBER	DEFENDANT'S NAME	TRANSACTION TYPE	DATE	MINUTES	C	SET	BOND MADE	COMMENTS	
14685-01	DOE JOHN L	INDICTMENT	12-27-69	001/213	183	500		THEFT	
		CAPAS ISS	12-28-69						
		CAPAS RET	12-29-69					NON EXECUTABLE	
		DISPOSITION	02-06-69	005/131				DEATH OF DEFENDANT	
14686-01	SMITH HARRY R	INDICTMENT	12-24-69	001/213	179	1000		MURDER	
	AAA ROBERTS HARRY	CAPAS ISS	12-24-69						
		CAPAS RET	12-27-69					PLACED IN JAIL	
		BOND MADE	12-30-69			1000		APPEARANCE BOND - ALLSTATE BOND CO	
		HEARING	01-05-70					FOUND GUILTY AT TIME OF TRIAL	
		PLEADING	01-29-70					PLEA OF NOT GUILTY	
		JURY REQ	01-29-70						
		DISPOSITION	02-18-70	065/815				DECISION - GUILTY BY JURY	
								PRISON - LIFE	
								JAIL - 2 MONTHS	
14687-01	BROWN MOLLY A	INDICTMENT	12-17-70	001/824	183	500		THEFT	
		CAPAS ISS	12-17-70						

Figure 7—Case history register

Input:
▶ NAM, Smith, John, B.
Response:

NAME INDEX									
J000 LAST NAME	FIRST	M TI	CON C	CASE	MS CT	ENTITLEMENT	S	FIL-DATE	
J010 SMITH	JOHN	B SR	DEF 2	003945601	010	S V SMITH		06-29-70	
J010 SMITH	JOHN	B SR	DEF 3	003816801	176	S V SMITH		05-18-70	
J010 SMITH	JOHN	B SR	WIT 2	004137403	040	IMP THOMPkins		09-23-70	

Figure 8—Name index inquiry

following information is provided:

- Place of Birth
- Date of Birth
- Height
- Weight
- Hair Color
- Ethnic Features
- Sex

The Jail Arrest Conviction Inquiry provides a display

Input:
▶ CAL, 08-24-70,176
Response:

CALENDAR									
R000 CAL-DATE CNC TIME LOC									
R010 08-24-70 176 10:00 CR31									
S000 P C	CASE	MS	REAS	PARTIES-DESCRIPTIN	EST	ACT	DISP	FUT-DATE	FCC
S010 3	003456901	SENT	MICHAEL	SMITH		1.0			
S020 3	003513201	TRY	JOHN A. DOE			8.0			
S030 3	003483601	SENT	JOHN Q. PUBLIC			.5			

Figure 9—Court calendar index inquiry

Input:

► CAS, 3,176-0028346-01

Response:

CASE HISTORY									
CHN									
A000 C	CASE	MS	CT	ENTITLEMENT	DCPS	NEXT-APPEAR	FIL-DATE	CODE	LAST-CHG PF
A010 3	002834601	176	S V	DOE	B NN	11-15-70	08-26-70	2501	10-26-70
B000 TRANSACTION	-DATE-	VOL/PAG	IDENTIFIER	VALUE	INFORMATION				
B010 OFFENSE	082670		2501		FORGERY OF CHECKS				
B030 COMPLAINT	082670	123/303	09-13-70	\$ 10000	004-0163104-01				
B070 BOND MADE	082870			\$ 10000					
B130 INDICTMENT	102370		130	\$ 10000	176-0028346-01				
D000 PRINCIPAL JUDGMENT TRIAL					DIS-ATT	SHERIFF	CLERK	JURY	LAW-LIB
D010	100.00				15.00		5.00		

Figure 10—Case history register inquiry

of all known arrest and conviction information concerning a particular defendant. This information may be used by the District Attorney's Office to prepare the prosecution and by the Sheriff's Office for criminal investigation purposes.

The Court Calendar Index Inquiry shown in Figure 9, allows the user to display the cases scheduled for a particular day in a particular court.

The Identifying Number Index Inquiry allows the user to identify a person and the cases that person is associated with by entering any one of several identifying numbers. The following identification numbers may be used:

- Complaint Number
- Sheriff's Number
- Texas Department of Public Safety Number
- FBI Number
- Social Security Number
- Operator License Number
- Arresting Agency Number
- Law Enforcement Number
- Grand Jury Records Section Number

This index allows the various agencies of the criminal justice process to communicate with the system by using their own identification numbers.

The Associated Number Index Inquiry allows the user to display all identification numbers associated with a person involved in the judicial process by supplying the system with a case number.

The Case History Register Inquiry shown in Figure

10 allows the user to display all transactions regarding a particular case.

SECURITY AND PRIVACY

In every computer system incorporating a large data base, security and privacy of information are important considerations. This is especially true in the case of a criminal records system. Two basic problems exist, errors and unauthorized access.

Errors are a result of mistakes occurring during the manual preparation of the input data. Errors on source documents, typographical or keypunching errors, and inadvertent omission of pertinent data are examples of the types of errors which can occur. The input routines detect invalid input data (numeric value out of range, alphabetic character in a numeric field, unknown code, etc.) and all data input via cards is verified by being displayed and matched with the source document. As data are input, routines also check for inconsistencies in data (e.g., a warrant for arrest is shown to be executed prior to being issued).

The second problem of unauthorized access to the data files is particularly critical. The criminal records system deals with highly sensitive information. Destruction or modification of this information would severely cripple the effective performance of criminal justice. Therefore, a considerable amount of effort has been made to ensure the integrity of the information contained in the criminal records system.

The criminal records system allows for the updating of records from remote terminals. This provides up-to-the-minute information in the files but can be a source of problems if unauthorized personnel have access to the terminals. Several steps have to be taken to alleviate this problem.

- Each person authorized to update the files is assigned an access code which is changed periodically. Without the code, modification of or additions to the files cannot occur. Furthermore, the access codes are valid only for a particular terminal.
- Certain terminals are designated as display terminals only and allow no modifications or additions to occur. In addition, those terminals which are allowed to make modifications or additions may be restricted to use only during those periods of the day when authorized persons are on duty.
- The system also provides file protection by terminals. Thus a particular terminal may be able to modify or add a record in the Name File but not in the Case or Calendar File.

- The system also has the ability to restrict the transactions allowed on a given terminal. Thus a particular terminal may be able to make an inquiry that is not allowed by some other terminal. This allows controls, via software, to be placed on the use of any terminal.

Periodically the information is transferred from disk storage to magnetic tape. Two copies of the files are made. One is stored locally and is used to recreate the files in the event of inadvertent (hardware malfunction) or deliberate destruction of the files currently recorded on disk storage. The other copy is kept at a remote location as protection against the destruction of both the files on disk storage and the magnetic tape copy.

While the above mentioned capabilities provide a means of protection, the ultimate success depends on the people involved and the extent to which the operating procedures are followed.

CONCLUSION

It should be noted that while this System was tailored specifically for Harris County, Texas, the concepts and design, if not some of the programs themselves, could be successfully applied to many other counties in Texas and throughout the country.

The System was designed with several important growth features in mind. Some of the possible additional capabilities being considered are simulation models which take advantage of the statistical information now available, a complete bookkeeping system for the Adult Probation Department to keep track of fines, supervisory fees and restitution payments, a complete jail record system from keeping track of personal effects and making cell assignments to computerized search capability of fingerprints and mugshots, and automated recording procedures for the Juvenile Probation Office.

The benefits of the Harris County Subject-in-Process

Records System are numerous. One of the primary benefits however, is the ability to obtain instantaneous response to a variety of questions concerning a case or a defendant. In the past, an inquirer was often transferred from one office to another as each office searched but failed to find the requested information.

Another benefit of primary importance is the System's ability to monitor the progress of each case and periodically report required actions. These action reports include lists of persons being held for no apparent reasons, cases that are ready for trial but have not been calendared and persons whose probation periods have elapsed but have not been officially terminated.

In addition to providing answers to questions and monitoring case progress, the System also provides numerous, written reports which assist the criminal justice officials in preparing a case for trial, scheduling each event of the trial, and preparing local and state statistical reports.

Another result of the computerized system is the ability to use the information to produce various statistical reports to aid in evaluating administrative procedures and to test hypothetical changes in these procedures. Additionally, quick access to accurate case load information is extremely useful for budget planning and evaluating future manpower and facility requirements.

All of these benefits aid significantly in reducing the time it takes to process a case.

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