Case Management Evaluation of Los Angeles County Criminal Courts

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1 INTRODUCTION

This report documents the work completed for the Case Management Evaluation study, funded by the State Justice Institute under the technical assistance grant SJI-98-T-007. The purpose of the study was to evaluate the impact of case management technology on the work of the criminal justice system in Los Angeles County Superior Court. Two interagency databases were evaluated: the Trial Court Information System (TCIS) and the Prosecutor's Information Management System (PIMS). See (Elliott, 1998a; Elliott, 1998b; Elliott and King, 1999, King and Elliott, 1998a; King and Elliott, 1998b; King and Elliott, 1999) for detailed reports on the first, second and third quarters of this project. In this report, we present the study background, a project overview, research objectives, research questions, research methods, a task summary of the entire project, findings for the entire project, conclusions, and recommendations. Appendix A describes the task summaries for the final quarter and close-out period.

1.1 Study Background

Computer-based systems in the courts provide a critical pathway for interagency data sharing from the time of a defendant's arrest until case disposition. Case management systems are software packages which collect, organize, process, store, and distribute essential case information within the court and between government agencies. They offer a means of tracking case milestones, identifying bottlenecks, gathering statistics regarding caseloads, and potentially eliminating excess paper storage via electronic filing. These systems are so embedded in the work of the Los Angeles County Criminal Courts that, without them, the efficient processing of cases through the system would be severely impaired. With Los Angeles County Criminal Courts being the largest state court system in the United States, processing about 500,000 cases a year, it is imperative that cases be processed as quickly as possible without undue delays.

Since 1987, the Los Angeles County Municipal courts have been successfully using TCIS to monitor caseloads in the criminal courts. At the time of the writing of our proposal (King and Elliott, 1997), TCIS had just been moved into the Superior Court as well creating some logistical problems. Various clerks in the Superior Court were experiencing difficulties with integrating TCIS into their work, especially those who had worked with paper Minute Order (MO)s for 20 years. In addition, mapping Municipal Court functions to Superior Court functions proved challenging with the need for continual TCIS updates to meet the needs of both courts. Judges were concerned with the change in the format of MOs from a check-off paper-based version to a computerized printout with capitalized text. This project was proposed to address the concerns related to the implementation of TCIS in the Superior Court.

TCIS provides case tracking for the criminal courts and shares case management information with other judicial agencies such as the District Attorney's Office. The District Attorney's Office uses the Prosecutor's Information Management System (PIMS) for calendar tracking, document preparation and data exchange with TCIS. It exchanges data daily with TCIS regarding upcoming hearing dates and filing of Complaints and Informations. PIMS provides TCIS with case filings while TCIS sends PIMS dates of upcoming court proceedings. These integrated

interagency systems are essential to the efficient processing of cases and to the furtherance of just adjudication.

Our study endeavored to evaluate PIMS and TCIS to identify both technical and organizational issues which are impeding effective use in case processing and to determine the feasibility of having a paperless case file in the Los Angeles County Criminal Courts. Both objectives have been met as documented in the remainder of this report.

1.2 Project Overview

The study consisted of a qualitative and quantitative approach using interviews with judges, court clerks, district attorney(DA)s and DA staff combined with questionnaires to assess the use of PIMS and TCIS. We benefitted from the 1999 study of TCIS in the Los Angeles Criminal Courts by Sierra Systems Consultants, Inc. Their study was conducted in response to a Request for Proposal administered by the Los Angeles County court in 1997 with the purpose of analyzing possible approaches to replacing TCIS. Their final report described the Los Angeles County Trial Courts' organizational structure, business functions, and automated systems support identifying problems and requirements for an improved case management information system (Sierra Systems Consultants, Inc., 1999).

Our project is complementary to the Sierra Systems study. It contributes to the courts' further understanding of how these systems work on a daily basis, and makes recommendations based on technical and organizational bottlenecks to efficient case processing. Our contributions enhance the Sierra work and include some insights not found by their study:

- Detailed accounts from judges on their use of computers.
- Survey results identifying computer usage patterns of judges, court clerks, DAs and the staff of the District Attorney's Office.
- Further understanding of how PIMS and TCIS share data and how delays in data exchange influence work.

2 RESEARCH OBJECTIVES AND QUESTIONS

The goal of the research was to evaluate the Los Angeles County case management systems using case study research methods. Another goal was to ascertain the feasibility of a paperless case file in the criminal courts. These goals have been met.

The original research questions relating to TCIS were:

1. What problems are the outlying district courts having with the integration of TCIS as a routine part of work?
2. What technical aspects of the design of TCIS are possible bottlenecks toward effective use?
3. How does TCIS improve the quality of work and productivity for judges and court

clerks?

The original questions relating to PIMS included:

1. What problems are the outlying DAs and their clerks having with the use of PIMS?
2. What technical aspects of the design of PIMS are possible bottlenecks toward effective use?
3. How does PIMS improve the quality of work and productivity for DAs and clerks?

As interviews with court personnel ensued, our research pointed to other pertinent questions:

1. What are the motivating factors for people who use technology routinely?
2. How does computerization in general improve the quality of work and productivity for judges, court clerks, DAs and DA staff (includes legal research, email and word processing as important facilitators of case management)?

As we began to see a connection between high end-users at work and the use of a home computer, we added this question:

1. How does the use of computers in the home contribute to the use of computers in the courts by judges and district attorneys?

The questions for IS specialists remained the same as the original:

1. What is the procedure used by IS court specialists in changing TCIS and PIMS in response to user suggestions?
2. What languages and database systems are now being used and what future plans are in place for TCIS and PIMS?

3 RESEARCH METHODS

The research plan called for a qualitative study to assess the usability of PIMS and TCIS and to generate data for recommendations for improvements. Qualitative data collection included: interviews conducted with judges, court clerks, DAs, and DA staff, courtroom observations, study of documents, and preparation of workflow diagrams illustrating data and paperwork exchange between agencies. The project was expanded to include a quantitative component: questionnaires administered to a select group of DAs, DA staff, judges, and court clerks. The number of interviewees increased from 44 to 68, and the scope of the project broadened to include interviews with civil judges and civil court clerks.

Survey data was transcribed into a spreadsheet for statistical analysis. Interview data was analyzed using inductive reasoning techniques (Miles and Huberman, 1994) where interview text is analyzed by categorizing it into matrix form using a coding strategy. From this classification of

interview data, patterns were discerned. The results of the surveys were used to categorize informants into three levels of usage: low, medium and high; and to explain patterns in the data. Triangulation was used to combine both qualitative and quantitative methods for purposes of cross-validation where two or more methods analyze data yielding comparable results (Jick, 1979). The idea behind triangulation is that any bias inherent in particular data sources, investigators, and methods will be neutralized when used in conjunction with other data sources, investigators and methods (Jick, 1979).

Research questions measured with the surveys included:

1. Does the level of computer usage increase for those DAs and judges who use a home computer?
2. Does computer usage increase with higher levels of training - i.e. classes and colleagues versus self-taught only?
3: For judges: Do judges who routinely use word processing also regularly use computer-aided legal research (CALR) systems and email more frequently than those who do not use word processing?
   For DAs: Do DAs who routinely use word processing also regularly use CALR systems and PIMS more than those who do not use word processing?

4 ACTIVITY SUMMARIES

4.1 Reporting and Close-Out Period

Appendix A includes the activity summaries for the reporting and close-out period.

4.2 Entire Project

The project's activities included the following:

- The administration of surveys to 287 Los Angeles County Superior Court judges and court clerks; and to 40 DAs and 30 staff members in a branch office of the Los Angeles County District Attorney.
- Interviews with the following people:

Interviewees	Outlying Districts Actual/ Planned	Central District Actual/ Planned	Total Actual/ Planned
DAs	11/6	7/6	18/12
DA court staff	7/2	6/2	13/4
Judges	11/6	6/6	17/12
Court Clerks	8/6	7/6	15/12
TCIS IS Specialists		3/2	3/2
PIMS IS Specialists		2/2	2/2
Total Actual/Planned	37/20	31/24	68/44

- Observation in courtrooms - mostly criminal, some civil.
- Attendance at a PIMS training class.
- Observation of TCIS and PIMS usage during interviews.
- Study of documentation relating to PIMS, TCIS and the work of the courts.
- Creation of workflow diagrams to analyze data exchange between PIMS and TCIS.
- Data analysis of interview and survey data.
- Presentation of interim findings and results to an evaluation committee consisting of court administrators and the supervising judge.

5 THE PIMS STORY

5.1 PIMS Background

PIMS. PIMS is a computer-based system developed in DB2 and COBOL using a local area network (LAN) to connect personal computers and a mainframe computer in support of case management functions. Using the LAN, PIMS enables connectivity within each DA branch office and among all DA offices. PIMS is divided into several subsystems: Adult Case Management, Adult Subpoena Management, Associated Case Management, Court Case Number Management, Juvenile Case Management. The Adult Case Management and Adult Subpoena Management are the primary subsystems used by the DAs and support staff for case and defendant tracking and management of both felonies and misdemeanors in adult court. The PIMS case management functions are supported by an email environment outside of PIMS called Lotus Notes, a form of groupware enabling people to share information across a computer network. In addition to providing DAs and DA staff email access, Lotus Notes enables calendar information from the Case Management module of PIMS to be automatically sent to DAs. It also allows DAs to create their own calendar entries locally. Case filings and court dates are exchanged between the District Attorney's Office and the court using PIMS and the Proactive Information Exchange (PIX), a

system which exchanges data between PIMS and other criminal justice agencies. Those agencies include the Juvenile Automated Interface (JAI), TCIS, and the Automated Jail Interface (AJIS). PIMS provides TCIS with case filings while TCIS sends PIMS dates of upcoming court proceedings. Attorneys and clerks in the DA's office are able to monitor court proceedings from PIMS or, when more detailed court information is needed, from TCIS itself.

Throughout a case's processing, the District Attorney's Office monitors the case proceedings from PIMS and/or TCIS, and produces subpoenas, Complaints, and Informations from PIMS. PIMS was recently installed in all branches of the District Attorney's Office and replaces the 10-year old Prosecutors Management Information Systems (PROMIS) system which created subpoenas and managed documents but lacked the interagency links made possible with PIMS. Now after an arrest, case information is recorded in AJIS, the Sheriff's Department's computer system, and is electronically made available to PIMS. As the case proceeds from filing to disposition, case information is exchanged between PIMS and TCIS as necessary. See Section 7.2, Exchange of Data Between TCIS and PIMS for a more detailed account of case processing. Both case management systems are essential for continuous processing of the Los Angeles County's large caseload.

PIMS Updates. Software modifications to PIMS are prioritized and scheduled by a change committee in the District Attorney's Information Systems Department**.** They meet once a month to discuss potential PIMS changes by studying the HelpDesk logs.

5.2 PIMS Survey and Interview Results: District Attorneys

The Long Beach branch of the Los Angeles County District Attorney's Office was selected as the venue for Phase I of this study. We chose Long Beach because 25 desktop computers had recently been allocated there for attorneys and support staff, and this branch was actively using PIMS for their work. In addition, Margaret Elliott had completed recent research in the Long Beach branch of the Los Angeles Public Defender's Office on the use of computerization and was familiar with the Long Beach courthouse (Elliott, 1997; Elliott and King, 1996; Elliott and Kling, 1996; Elliott and Kling, 1997; Elliott et al., 1996). Note that since the inception of this project in the Fall of 1997, all Long Beach DAs now have access to their own desktop computer.

Surveys were distributed to 40 Long Beach deputy DAs in late September 1997 with an 80% return rate (32 surveys returned). The questionnaires included sections on General Computer Usage, Training, PIMS Usage, CALR Usage (for DAs only), Home Computing, and Demographics. The results of the PIMS survey, rather than pertaining to all of Los Angeles County, are germane to Long Beach. However, the results can be considered as typical of other branch offices of similar size and computer access. The survey results were used as a basis for selection of interviewees. This section presents the highlights from the survey results. Details on the descriptive statistics from the survey are in (Elliott, 1998a).

To identify any differing usage patterns, interviews with eight Long Beach DAs were compared to seven Central DAs. The Central division encompasses much of the city of Los Angeles and

hence, has a higher volume of cases. The administrative deputies interviewed included: in Long Beach, the Assistant Head Deputy; and in Central, the Special Assistant to Director of Central Operations and an Assistant Head Deputy. In Long Beach, deputies were chosen for participation based on survey results selecting from low, medium, and high computer usage categories and from consultation with the Assistant Head Deputy. In Central, deputies are assigned to an assistant head deputy responsible for cases on one of several floors of the Criminal Courts Building assigned to Criminal Trials. An Assistant Head Deputy selected people for us to interview within one of these subgroups (a floor of the courthouse). The deputy DAs participating in the study consisted of 15 DAs from varying types of work as shown below:

Location	Early Disposition Program	Filing Deputy	Trial Deputy	Calendar Deputy
Long Beach	2	1	3	4
Central		1	2	2

In both locations, word processing is the most widely used computer system followed by PIMS. This is the same conclusion reached from analyzing the survey data of the Long Beach office. The differences between Long Beach and Central computer usage were minimal. The biggest difference was that, in general, the deputies in Central completed their own documents in WordPerfect with little interaction with secretaries; while in Long Beach, most deputies completed documents with some secretarial support. Most Long Beach deputies who use computers type up a rough draft and have secretaries polish the final version with formatting. Another difference is that several deputies in Long Beach relied on secretarial support for PIMS usage. Instead of using their own computer, either they referenced PIMS from a secretary's computer because their own computers were much slower, or they requested PIMS information from a secretary.

One explanation for this discrepancy in computer use between the two groups is that the secretarial support differs for both. In Central, where DAs are more actively completing their own documents, the ratio of secretaries to deputies is one per 6 to 9 deputies.. In Long Beach, where more DAs routinely engage secretarial support for document preparation, the ratio is closer to one secretary per 4 deputies. While there may be other factors involved here such as personal preference, it is possible that the DAs in Central use computers more frequently in part because of reduced secretarial support. Future research would be needed to determine the exact reasons for the difference in usage patterns.

5.2.1 Survey Results: District Attorneys

Highlights from the surveys include:

- 75% (n = 24) of Long Beach DAs use a computer at work.

- Word processing is the most widely used system.
- 15 DAs use PIMS, 9 use CALRs, and 3 use email.
- 10 out of 22 respondents strongly agreed that computers had increased their productivity.
- Common problems with computers include: "Software system is too difficult to learn", and "Legal research tool stops working."
- Lack of training or inadequate training were common themes in survey comments.
- Problems with systems requiring too many logins and passwords were implied (this was a common theme in interviews also).
- 23 out of 32 respondents own a home computer. The majority of these DAs were in the medium to high range of computer use at work.

Survey Comments: District Attorneys. Selected comments from the DAs' surveys include:

"Computerization is in the dark ages countywide. Word processing programs Lotus Notes & WordPerfect are extremely difficult on OS/2 system. It would be helpful to go to Word 6 or better. Also voice typing program would be helpful."

"I think the computer systems available to DDA's have a lot of potential to help us in our work. The problem is there is not formal training offered to DDAs so I don't know how to use PIMS. I always have to get clerical staff to help. Many times they are too busy & you have to wait."

" Insufficient training on use of computers. I access TCIS often but don't know anything about PIMS."

"We need more networked computers available to attorneys, as well as PIMS training."

"Wonderful tool for producing motions and sentencing memorandums in much less time. As a non-computer person, it is frustrating trying to learn basic computer tasks. Also, I am extremely confident in my researching skills "the old fashion way" and work more swiftly and accurately by hand."

"Absolutely necessary for all employees; Better training needs to be made available to the lawyers! It has been too difficult for most DA's to get access and training!"

"If the LawDesk and Shepard's FUNCTIONED properly they would be a valuable tool, however, they do not consistently work."

"Make the system friendlier and faster. Have training be practical applications."

5.2.2 Interview Results: District Attorneys

Word Processing. For those DAs who frequently use a computer, the word processor is a necessity and they use it to type their own motions and memos. Some give a rough draft to a clerk for formatting. Many save a library of motions on their hard drive and floppy disks. A few

have replaced manual procedures with forms created on the computer - e.g. an assistant head deputy used it to create a form for attorneys to report daily calendars. One attorney believed that since placing a computer on his desk, he had been producing more written motions, as opposed to oral presentation.

Use of a word processor can be job dependent. Two filing deputies did not use a word processor when filing complaints. One used dictation and the other used a voice recognition program which produced 90% accuracy so that he could give the rough draft to a secretary on a floppy for formatting. Other deputies use a word processor mainly when engaged in a trial (e.g. motions).

PIMS. DAs use PIMS for the following functions:

- Location of a physical file.
- Status of a case and dates of next events.
- Criminal history of defendants - priors, probation information.

Most calendar deputies use PIMS extensively for their work, trial deputies less so. Calendar deputies are constantly using PIMS to check on the status of cases and to answer phone inquiries from the general public. Use of PIMS for filing deputies varies depending on personal preference and level of staff support. In Long Beach, where a priors unit prepares a priors package for the DA *before* filing a case, the filing deputy we interviewed had no need to use PIMS. He dictates case summaries using a Dictaphone for secretarial input into PIMS. In Central where the priors unit researches priors *after* the filing, the filing deputy needs to use PIMS to research criminal history before filing the Complaint. He uses voice recognition software to record Complaints resulting in a computer file a secretary transcribes into PIMS.

Legal Research. Use of CALR systems by DAs is limited. Most rely on a combination of books and LawDesk or Westlaw with some simply preferring books. Two people expressed concern with difficulties logging onto the CD-ROM technology - i.e. LawDesk.

Email. Few DAs in Central or Long Beach were using email on a regular basis. Some DAs in the Long Beach office were not even aware that they had email access. The two who were the most interested in email were in administrative positions.

Improvement to productivity and quality of work. There is a definite consensus among computer users that it increases productivity. In some cases, the quality of work improves as when attorneys prepare written motions instead of oral, and when prior crimes are located early enabling faster case settlement. When asked to name three things that would change in their work if they didn't have a computer, DAs responded with comments about the work slowing down due to manual processing of case files and writing of documents, and that legal research would not be as accurate. Attitudes like "We'd be in deep trouble without PIMS" and “I do everything myself on the computer” were typical of high end-users.

Training. Some DAs have taken PIMS and other computer classes; others are not aware that computer classes are available. Many have learned word processing and PIMS with on-the-job training, perhaps assisted by a secretary or fellow deputy.

Home computing. The majority of DAs who use a computer at work also use a computer at home - some for work at home during a trial. Those who use computers at home, even if not for work, tend to be high users of technology at work.

General Computer Issues.
The deputies made the following observations and suggestions regarding computer usage:

- PIMS sometimes shows the name of a filing deputy for all court events, not the actual DA who attended the preliminary or pretrial conference.
- In court, TCIS has shown no record of a case filing, but it is filed in PIMS.
- Problems with CDROM access and frequent shutdowns.
- Two attorneys felt that PIMS could be more user friendly, including the addition of forms.
- Some use a staff member's computer for PIMS access because the staff's computers are faster.
- Too many different login and password requirements.

Non-computer users. Two of the DA interviewees were non-computer users - a filing deputy and a trial deputy. Both expressed interest in learning to use a computer if they took training classes. One believed that one-on-one training is the best approach.

5.2.3 Recommendations: District Attorney

- **Training.** In addition to the training classes being offered by the county, deputies would benefit from follow-up visits with PIMS experts. At the time of the Long Beach surveys and interviews, many DAs were not aware that training classes for computer systems were available. This was true in part because notification of upcoming training classes was being posted on email. Since email is minimally used by DAs, deputies never receive notice of training. Recently, the District Attorney's Office remedied that situation by publishing a technology newsletter, "Did You Know?", sent to all DAs with a list of available classes and times. This will certainly help increase DAs' awareness of training classes.

- **Rapid Password Changes.** Many DAs complained of constantly needing to update their password to obtain CD-ROM access. Upon receiving a message telling them that their passwords are invalid, many merely turn the computer off and do not use it again for quite some time. Requiring less frequent password changes or making it easier to change a password would be helpful.

- **Voice Recognition Software.** Offer a voice recognition system to deputies who do not type or who prefer dictation to typing. The voice recognition system being used by the

Central filing deputy to dictate Complaints might be a productive way to encourage more deputies to use computerization for document preparation. The staff would save time in completing documents since the transcription file would be 90% accurate as near-English.

- **Computer Non-users.** One way to provide a venue fostering computer usage might be to place a computer user in the same office with computer non-users. This would provide the non-user with a computer expert within close proximity to answer computer questions.

5.3 PIMS Survey and Interview Results: DA Staff

Surveys were administered to 26 support staff including the clerical support, investigators, witness coordinators, victim/witness advocates, and paralegals with an 88.5% return rate (23 surveys returned). The surveys included sections on General Computer Usage and Training, PIMS Usage, Home Computing, and Demographics. Details regarding the survey results can be found in (Elliott, 1998a). In Long Beach, seven people were interviewed and in Central, six were interviewed as shown below:

Location	Administrators	Priors Unit	Witness-Coordinators	Clerical Staff	Investigators
Central	2	1	1	2	
Long Beach	1	2	1	2	1

5.3.1 Survey Results: DA Staff

Highlights of the Long Beach surveys include:

- 100% of the Long Beach support staff currently use a computer.
- PIMS is the most widely used system with 22 people using it from 1-20+ hours per week.
- The average number of hours per week used by the staff for computer usage is 3 hours per week for paralegals, 2.5 hrs per week for investigators, 8.7 hours for clerks, witness counseling 9 hours per week, and victim/witness advocates 14.5 hrs.
- More support staff learned PIMS and word processing by training classes than DAs.

Survey Comments: DA Staff. Selected survey comments include:

"Lotus Notes is too slow"

"Incomplete information in TCIS and in TCIS inactive cases...TCIS not updating on timely basis."

"TCIS - Courts need to update info quicker. Sometimes cases do not show disposition when in fact the case was over days ago!"

" ...available to the DA Fraud Units downtown are CDROMs that would assist the Long Beach

office in locating witnesses, etc. These CDROM disks should be on a network for the whole office to use.**"**

"All investigators who have been trained by the office in computer forensics have been ordered not to use the training. This training was quite extensive and expensive. At this time, the largest prosecuting office in the United States has no investigators who are able to process seized computers. Further, at this time there are no resources to process seized computers, although the office continues to seize computers during search warrants..."

"If we are to work with the Courts with these systems, it should be stressed to the court clerks how important it is to update their records daily. It does not help us any when the court clerks are 2 to 3 days behind. Also, it would be helpful if the charge allegations corroborate between the court's system and PIMS. Thanx"

5.3.2 Interview Results: DA Staff :

PIMS and Word Processing. The Long Beach support staff uses PIMS and word processing on a daily basis. In support of the DAs' work, the clerical staff keeps track of case files, enters data into PIMS, monitors the integrity of data in PIMS, researches differences between TCIS and PIMS case entries, and assists DAs in preparation of court documents (motions, complaints, etc.). The paralegals review the rap sheet and work on how to present cases as alleged priors, and research prior felony convictions. Sometimes they testify in court that the priors are legitimate. Witness counselors and victim/witness advocates work with witnesses and victims of crime to provide assistance in preparation for testimony or in recovery from crimes. Investigators assist DAs in preparing cases for trial and in locating witnesses. All members of the support staff rely heavily on computerization and in the case of clerical staff, data entry into PIMS is a job requirement.

Training. Since most DA staff members have been trained in the use of PIMS via classes provided by the County, and by help from associates, lack of training was not an issue with this group.

Email. All members of the support staff use email on a daily basis to communicate with other branch offices for case file requests and general case information. With the advent of email access to the Internet, paralegals who are researching prior criminal history can now make requests to the Department of Corrections as needed. Sometimes documents are transferred electronically for the clerical staff to avoid retyping lengthy papers.

PIMS Problems. When the PIX connection is out of service, PIMS does not receive information from TCIS (i.e. next scheduled court date). This is a problem for the clerical staff because they are not notified when this happens so they have no way of knowing if their PIMS entries made it to TCIS or if next court dates have been entered. There are various problems which occur with inaccurate data entries and missing data between PIMS and TCIS. These are discussed in detail in Section 7.2, "Problems with exchange of data between TCIS and PIMS".

5.3.3 Recommendations: DA Staff

- **Codes Discrepancies.** Update the codes tables in PIMS and TCIS to be sure that the codes being exchanged are valid. Sometimes codes that are not in TCIS get written up in the notes section of the Minute Order. This prevents TCIS from sending PIMS the valid code.
- **PIX Interface.** Notify staff when the PIX interface is down. Otherwise, they do not know if their entries have been sent to the court or if there are data which PIMS should have received from TCIS.
- **Renumbering Charges.** Establish a method for handling the renumbering of charges. Recently, the District Attorney's Information Systems Department instructed the DA staff not to renumber the charges. Since then, this problem has happened less frequently. We are mentioning it here as a problem which could still occur and create anomalies between TCIS and PIMS data.

6 THE TCIS STORY

6.1 TICS Background

TCIS. TCIS is a large mainframe-based computer system developed using COBOL and the Information Management System (IMS), an early computer database management system. TCIS was adapted from a computer system designed initially for the Municipal Court and is now being used by both Municipal and Superior Courts in Los Angeles County. It was developed over 20 years ago and lacks many of the newer user-friendly features like a graphical user interface (GUI) standard on today's database systems. TCIS covers many functions of the Municipal and Superior courts including initial case filings, completing MOs, recalling warrants, dismissing cases, amending Complaints, recording verdicts, adding bails/bonds, adding sentences, retrieving case information, retrieving calendars for courtrooms, retrieving associated cases, adding and looking up attorney information, retrieving booking information in AJIS, retrieving charges, consolidating cases, and accessing the charge table.

Recently, a different front-end interface was developed and offered to the court as an option. Labeled Mozart, it emulates a GUI enabling easier access to the mainframe database with drop-down menus and help lists. However, it is too slow to be of value in a high action courtroom so use is limited. TCIS provides the District Attorney's Office with valuable calendar and defendant information regarding previous and current court cases. Future plans are for TCIS to directly send court information to the sheriff's Automated Justice Information System (AJIS). All data transfer from TCIS to other databases is handled by PIX.

Court clerks are responsible for recording the events happening in the courtroom and for general management of the courtroom calendar and proceedings. In the Municipal Court, this record of court action is known as the Detailed Docket and in Superior Court as the MO. Prior to computerization, MOs were completed in longhand, dictated using a tape recorder, given to clerical staff to type, and then recorded in a large book known as the Register of Actions. All of these paper oriented tasks have been replaced by TCIS. Now the clerk enters information

pertaining to MOs into TCIS's large database. Some text is automatically generated by TCIS depending on the type of MO, and some is entered by the clerk.

The TCIS screens layouts are cluttered and, for Superior Court entry of MOs, require many cursor movements over unrelated fields (used in Municipal Court). Due to its age, TCIS does not have some of the more advanced windowing features of the latest technology such as a GUI and the use of a modernized text editor. Text entry requires tab entries at the end of each line of entry (no word wrap) and impairs the ease of entry required for fast processing of pages of a MO. Use of the system entails the memorization and referencing of hundreds of three-letter codes which are constantly evolving as the law changes or new statistics are requested by some government agency. Since there is no organized method of updating an online dictionary of codes, clerks are notified by memos of changes and additions to the codes. Sometimes the proper way to use specific codes for esoteric court proceedings are just not well understood and can be interpreted differently by two different clerks. These discrepancies are generally resolved by supervision. Despite these problems, TCIS is clearly embedded in the work of many agencies. Access to TCIS is provided to the District Attorney's Office, the Public Defender's Office and to the Sheriff's Department.

TCIS Updates. Modifications to TCIS are recommended by a Steering Committee who review HelpDesk problems addressing recurring issues. Changes may also be recommended by the Steering Committee when new codes are needed in the event of a change in the law or when a government agency who regularly receives court statistics requests new data. The Steering Committee meets with software developers once a month to make requests for TCIS changes and to inquire from the software developers what resources would be needed to make such changes. Once all have agreed on new updates, the changes are passed on to the Service Request Committee for scheduling. Sometimes the HelpDesk calls software developers with critical change requests. For example, TCIS bugs related to the delayed detention of prisoners or to the issuance of bail are prioritized. When a new version of TCIS is implemented, court clerks receive memos highlighting the changes.

6.2 Survey and Interview Results: Superior Court Judges

Surveys were distributed in October 1997 to 287 Superior Court judges with a 39% return rate (113 returned). Results of the survey combined with suggestions from the Evaluation Committee were used to select candidates for interviews. The questionnaire for judges included sections on General Computer Usage, Training, TCIS Usage, CALR Usage, Home Computing, and Demographics. Details regarding the results can be found in (Elliott, 1998b). Eleven judges from outlying districts and six from Central were interviewed as shown below:

Location	Calendar	Criminal	Civil	Appellate	Family Law
Central	2		1	1	
Outlying	1		5		1

Most of the interviews consisted of face-to-face meetings with a structured list of questions, although judges were free to raise any issues which they saw as pertinent. A few were brief impromptu interviews with judges encountered while interviewing a clerk, and a few were by phone. While the focus of the study was on computerization in the criminal courts, comparing this to civil and family law provided a richer picture of case management systems. As mentioned earlier in this report, judges in the "low use" category were not emphasized in this study. The few we interviewed were not motivated to spend the time needed to integrate technology with their work. A strong dichotomy emerged from the picture of computerization in the judges' work - either they had totally integrated computer-based systems with their work - taking notes during court proceedings, researching legal issues, creating special forms, and using daily email - or they only used email occasionally. Typically, once a judge became "hooked" on what technology had to offer, they became zealots for the cause.

11 of the 17 judges interviewed had integrated computer-based systems into their work to such an extent that work without them would be cumbersome. Interestingly, all 11 had been using computers since the mid-1980's to early-1990's when personal computer (PC)s were becoming more prevalent in businesses. Some were on the bench by then but most were in law firms who were in the forefront of integrating technology with legal work. As the courts began offering judicial officers PCs and court reporters began offering them realtime transcriptions, these judges became even more engaged with technology in the courtroom.

6.2.1 Survey Results: Superior Court Judges

Highlights from the surveys include:

- 91% of the Superior Court judge respondents use a computer at work.
- Of the 113 judges surveyed, 90 use word processing, 85 use email and 93 use CALRs.
- Only one judge indicated that he uses TCIS himself for looking up court calendars, associated cases, and attorney files.
- Most judges had training of some sort for computer systems, by classes or a person.
- The majority agreed that computerization has increased productivity.
- Main problems selected included "Software system is too difficult to learn", "Unable to print document when need it", and "TCIS stops working".
- Of the 93 who have used CALR systems, 57 agreed that it takes less time to do a search using CALR systems versus books. 40 agreed that their frequency and amount of legal research had increased when using CALRs.

- 83% own a home computer and 87% of those use a home computer for work. The majority use home computers for word processing.

Survey Comments: Superior Court Judges. Selected comments from the judges' surveys include:

"We have a WAN but we are not using it effectively. This survey, for example, should have been distributed by e-mail. It's one thing to have the technology and resources available and quite another to get the judges to use it. If we began to use electronic delivery for most purposes, it would force judges to use available resources."

"The head of the technical services department needs to be an administrative person - not a computer genius. It takes weeks to get problems solved and at least 3 phone calls. Very frustrating."

"Lexis, Westlaw, etc. are continuing sources of frustration. My research tends to be at least in its inception, intuitive rather than deductive. My brain is highly resistant to computer logic and prefers to muddle through its own path to the truth or at least the information I seek. Insufficient but effective, however obsolete."

"TCIS has made life difficult. MOs are now very difficult to read - It's not logical, user friendly. Everything takes more time rather than less. The program won't allow you to make necessary changes without spending hours on the help line for special instructions."

"I would like to see better and ongoing training. The Lexus booklet is awkward to use, confusing and sometimes even worthless. I'm sure it's my lack of sophistication but surely some one should be able to devise a training method for us idiots."

"We could use more onsite training and technical support. It would be very helpful to have JAI, CLETS and Family Law and Criminal Calendar accessible to all judicial officers. There are many custody and other decisions with overlapping information needed. Most common: family law/dependency; criminal/dependency; family law/criminal."

6.2.2 Interview Results: Superior Court Judges

Word Processing. Judges who use a word processor incorporate it into all aspects of their job: writing briefs, taking notes during trials and other proceedings, saving hard copies in case files, creating forms for special case procedures, and building macros to facilitate note taking in court. One judge cleverly drew a map of his courtroom so that if disputes arose during a trial about the distance being emulated using courtroom artifacts, he could verify it using his map. For document preparation, most complete a rough draft which is given to secretaries for formatting, while some complete all documents themselves.

Legal Research. Most judges use CALRs for their work. However, some simply prefer books

or do not trust the legal search engines to be as reliable as book indices. A common method of using CALRs is to start with online search engines to locate a case or two and then move to the books for actual reading. Four of the judges preferred LawDesk or Westlaw to Lexis/Nexis.

Email. All judges have access to email and most use it daily to review messages from other colleagues. All 17 judges interviewed for this study were using email - the majority on a daily basis, others only once every few weeks. One court clerk reported that he turns on his judge's computer, screens the judge's email, and completes electronic legal research for him. So even nonusers can have access to ubiquitous email. Email messages include topics such as social event notifications, general information about courts (e.g. elevator down), memos to other judges for meetings, requests for legal advice, and receiving legal news updates from an email service.

Improvement to productivity and quality of work. Although the courts have survived for a long time without technology, most judges using technology believe that it increases productivity. In the Family Law court, due to complex laws, work could not be completed without a computer program - Discomaster is the program being used in Superior Court for child support and alimony. The laws related to child support are so intricate that it would be too time consuming to process cases manually. In civil law, legal research is more prevalent than in criminal. In criminal, the facts of the case are the focal point; whereas, in civil unique and esoteric research issues are essential to each case. Civil judges use Lexis/Nexis more than criminal judges as a way of improving productivity on a routine basis.

Home Computing. For those 11 judges who had integrated technology into daily court proceedings, home computing was an adjunct to their work. A common use of home computing for civil judges was the dial-up or Internet access to Lexis/Nexis. Even if a judge did not work at home, being competent with a home computer facilitated advanced use at work. Home computers are used for personal finances, general document preparation, Internet access, entertainment, genealogy searches, and photo refinishing.

Problems in Judges' Work Associated with TCIS:

- **Renumbering counts.** Sometimes a DA dismisses a count during case proceedings - say 15 to 14 counts. If this occurs, the counts need to be renumbered for the jury (from 1 to 14) but retained in original order for the verdict entry into TCIS.
- **Replacement of counts**. Count 1 may be dismissed and Count 2 might be added instead. In TCIS, the clerk needs to put in the body of notes that the counts aren't in the proper order. Hence, the statistics of a crime may not be accurate.
- **Rejection of counts not related**. If a DA files an Information with unrelated counts, TCIS can reject it.
- **Refiling of cases.** A defendant's case can be dismissed in Superior Court and refiled later that day in Municipal court but not immediately refiled in the computer. When the defendant gets to jail, he might be released. To prevent this, if a DA plans to refile the case later that day, the bailiff is notified so that the defendant is not released inadvertently.
- **Difficulty in reading MOs.** MOs coming from TCIS are more complex than the old

check-off type. Readability is impaired by the text having all capital letters and by its order being out of sequence with what one would expect if handwritten.

6.2.3 Recommendations: Superior Court Judges

In just the two years since we began this research project (mid-1997), the Superior Court has expanded its computing infrastructure and has begun offering outstanding opportunities for increased computer power to judges. During an early interview, a judge who had been using a laptop on the bench for several years, talked about the utility in having a computer system with networked computers between the bench and chambers. Now, such an arrangement is available. Today, judges are being offered two configurations: a laptop with a docking station in chambers and on the bench, or a computer in chambers linked to a monitor and keyboard on the bench. These are significant steps toward encouraging computer usage by judicial officers. Judges now also have Internet access if needed.

Recommendations include:

- **Training.** Continue providing training classes. The more recent offer for single-user Lexis/Nexis tutoring is an excellent way for computer neophytes to become acclimated to technology. Many judges talked about worthless training classes where knowledge was not retained upon return to court. For these judges, follow-up visits to their chambers by computer experts would be beneficial.
- **Voice Recognition Technology.** Consider voice recognition software as a facilitator for increased usage. For those judges who do not type, a voice recognition package could be a convenient way to complete word processing tasks.
- **TCIS Problems.** Those problems stated above in Section 6.2.2 in "**Problems in Judges' Work Associated with TCIS"** need to be addressed either in the existing system or in a replacement system.

6.3 Survey and Interview Results: Court Clerks

Surveys were distributed in October 1997 to 287 Superior Court clerks with a 22% return rate (63 returned). The questionnaire for court clerks includes sections on General Computer Usage, Training, TCIS Usage, Home Computing, and Demographics. Details regarding the survey results can be found in (Elliott and King, 1999). In order to obtain a comparative view of the work of the court clerks, eight clerks were interviewed from the larger Central District (35 Superior Court judges) and seven from the smaller outlying districts (17 Superior Court Long Beach judges and 24 Superior Court Van Nuys judges) as shown below:

Location	Calendar	Criminal	Civil	Supervision	Family Law
Central	3	4		1	
Outlying	1	2	4		1

6.3.1 Survey Results: Court Clerks

Highlights from the surveys include:

- 100% of the 63 court clerks respondents use a computer at work.
- TCIS is the most frequently-used computer system with 40 using it from 16-20+ hours per week. The least used is electronic mail with 61 using it from 0 to 5 hours per week.
- Almost all respondents (57) attended a TCIS class. .
- 28 respondents agreed or strongly agreed that computers had increased their productivity, while 23 disagreed or strongly disagreed and 10 were unsure.
- Problems with printing documents and incomplete information from TCIS were experienced by most respondents.
- 41 court clerks own a home computer.

Survey Comments: Court Clerks. Clerks described problems they are having with TCIS in the form of comments on the surveys. The general consensus on TCIS usage is that it is tedious, error-prone and frustrating to use. Clerks are concerned about the requirement now for them to "float" because they find it difficult to familiarize themselves with all types of computer programs. Some of their comments are:

"My overall biggest complaint would be that the superior court's computer problems largely stem from poor technical resources."

"The civil programs are very helpful. The TCIS system could not be worse! The codes make no common sense in most cases. MOs that used to take 2-3 minutes to complete can take hours for various reasons. It is not user friendly. There are occasions when the "language" is totally incorrect and there's no way to change it, so you have to explain in the "comments" section..."

"Usually when you enter something in the wrong field, you don't find out until you have put all of your other work into it and it doesn't 'save' (as computers have been doing for years), so you have to keep doing the same work over and over again until it is accepted."

"In using the computer I feel the clerk is no longer memorizing a body of knowledge but instead is just translating knowledge into what "buttons" to press so it reduces the professionalism of the

job down to being a data entry clerk. I cannot be as thorough in my minute orders as I am limited to what TCIS lets me do. The positive thing about TCIS is making it so much easier to check status of cases and find information. RE: defendant. It has made many aspects of job easier but in emphasizing computer aspect of job makes clerk less competent as when we had to have all this knowledge in our computer, that is, our brain."

"TCIS is not user friendly & tedious to accomplish some tasks, such as sentencing. The heavy used codes is too much work on the clerk. The position of clerk has changed with use of computers. It is more time consuming to accomplish tasks on the computer, especially in calendar courts."

"There are many programs being used for different areas of litigation. Previous to computerization in the court room, a floating clerk needed only to "grab" a minute order and record the order of the court. Now, the various areas of litigation, each with their own system, makes the work difficult for a floating clerk. How are we supposed to be familiar with all of these different systems??? Also, a task as simple as logging on to the system is difficult once a clerk leaves their courtroom and floats. It sometimes takes an "act of god" for a floating clerk to log on to the system."

"The TCIS system is not user friendly. All systems for Superior Court should be the same - not a different system for each area of law. (i.e. criminal, civil, family law, juvenile dependency and juvenile delinquency - now each area has a different computer program/system)."

6.3.2 Interview Results: Court Clerks

Word Processing. WordPerfect is used by clerks for special forms (instead of typing), letters to attorneys and others, specialized MOs not available in TCIS such as an occasional civil matter, and bail motions. Several clerks also use it to type text for a MO which is then "cut and pasted" back into the TCIS document. In order to do this, the WordPerfect file is formatted to accommodate 13 lines of text at a time, the amount of one TCIS screen.

TCIS. Court clerks participating in this study expressed both acceptance and displeasure with TCIS. Even the clerks who clearly disliked TCIS admitted that it offered a streamlined method of inquiring about case status for attorneys, judges, defendants, and the general public. The difference between the work of the clerks in the Central versus the Outlying Districts was not significant except that the volume of cases to process in the calendar court was higher in Central. This increase in volume of cases may put extra burden on the Central district clerks. There was a significant difference between the ease of data entry in the civil court case management systems - Sustain and CasePlus - and TCIS. Differences between civil and criminal case management systems are discussed in more detail in Section 7.1.

TCIS is used throughout the day by court clerks to enter daily MOs which must be completed by 9:00 am the next morning, to inquire about case status, and to print out daily calendars or reports on cases with specific criteria (e.g. all cases in a court over 60 days). Some clerks enter the MOs

as the court events unfold, while others wait for a lull in the day or enter them after the court has closed. Clerks are experiencing varying problems with TCIS with some resulting in delays in case processing. The key problems expressed by court clerks include:

- **Lack of word wrap and use of TAB key instead of carriage return.** When entering text for a MO, clerks must use a TAB key, not a carriage return to move from one line of text to the next. If one accidently hits "enter", then the text entry must be repeated all over again.
- **Losing data during data entry**. This happens when the network goes down and since there is no way of saving data as you enter it, the clerks need to reenter the entire MO or several screens of text. It also occurs during a MO entry for no apparent reason causing reentry of entire MO.
- **Mozart.** The screen scraper developed as a user-friendly front-end user interface is too slow and prevents clerks from completing a task if fields are invalid or empty. Only seven clerks are using it for their work. For fast-action courts, it is not acceptable.
- **Codes are difficult to memorize and are constantly changing.** Notification of these code changes is through memos instead of updates to a central location like an online user's guide. Interpretation of how to use these codes is not always accurate by clerks.
- **TCIS HelpDesk Problems.** Many clerks complained of the TCIS HelpDesk people not being reliable - sometimes they never call back to help with a problem. Since clerks are dependent on the HelpDesk personnel to make authorized changes (for predetermined types of entries), they sometimes need immediate feedback on a problem. Sometimes the Help Desk takes 4 hours to several days to call back.

Email. All clerks who were interviewed read their email on a daily basis and are facile with the use of Groupwise, their county-wide email system. Messages can be sent to and received from any clerk or judge in Los Angeles County. Email is used for memos from their supervisors, memos regarding changes to TCIS, requests from other courts for copies of verdicts or case files, downloading time sheets, questions of a procedural nature to other clerks, and notification of social events (e.g. luncheon engagements, etc.). An advantage to using email suggested by clerks is that it is a quiet way during court proceedings to gain information without disturbing the court (as opposed to phone calls).

Improvements to Productivity and Quality of Work. Even though most clerks expressed disdain for aspects of TCIS, they all agreed that the use of a case management database has improved productivity with regard to looking up the status of cases and to completing handwritten MOs. Without TCIS, everything would take longer and the amount of work would increase. With DAs and PDs having access to TCIS from their offices, a clerk's work is lessened. Multiple copies of MOs are no longer sent to DAs and PDs, and inquiries regarding case status can be satisfied in their offices instead of asking a clerk to research some issue. Completing an electronic version of the MO also eliminates the Register of Actions book. This saves the clerks time by eliminating the need to leave the courtroom and go to the location where the Register of Actions book is stored to record the day's MOs.

Training. People with some computing background such as taking computer programming classes in college were most adept at "tricking the system" to find workarounds. Training with these people is not an issue since they seem to be able to self-teach themselves fine nuances which enhance their use of TCIS. Two court clerks who were hired within the last three years were quite acclimated to the system and both had taken computer programming classes in college. One said it would be better not to replace TCIS since she had memorized the codes and the other said "I love it, maybe because I don't know anything else." Other clerks felt that the training was sufficient but that they really had learned how to use TCIS from on-the-job training and phone help from the person who trained them.

Home Computing. Most clerks have home computers used for email, letter writing, home finance, entertainment, and Internet access. None of the clerks use it for work at home since their job is not the type that requires outside work.

Recommendations from clerks. The clerks had some specific suggestions for improvements to TCIS:

- Allow for word wrap when typing MOs.
- Increase help desk manpower or add a person to each courthouse who is available by pager to solve TCIS problems when needed.
- Allow clerks to edit MOs without having to redo an entire MO when mistakes are made or the system goes down.

6.3.3 Recommendations: Superior Court Clerks

The TCIS reengineering project which is ongoing in the courts will result in either a replacement for or modification to TCIS (Sierra Systems Consultants, 1999). We concur with their recommendations and suggestions for improvement. We also recommend that careful attention be given to difficulties experienced by TCIS users to make sure all are covered in a new system. Our recommendations are based on the assumption that TCIS will at some point be modified or replaced, but this could take several years to develop and implement. Thus, our suggestions are for TCIS modifications that might help court clerks in the interim. Some of our recommendations are of the organizational nature related to computing infrastructures and would be applicable to TCIS or its replacement.

Recommendations include:

- **Network Reliability.** If possible, improve network capacity so it doesn't crash as often. Make it more reliable. Clerks on the surveys and interviews expressed concern for the immense amount of time lost when the network is down. This was especially true for the Central staff where network problems are more frequent than Long Beach. Also find a way to decrease the occurrences of lost data during data entry of MOs.

- **Data Entry.** The lack of word wrap is a problem which results in time delays in MO entries. Obviously, this needs to be corrected in the “new” TCIS. In the interim, provide

standard forms and instructions for copying text from WordPerfect to TCIS.

- **Mozart.** If possible, make Mozart fast enough to be useful. Our study did not include a detailed analysis of Mozart's specifications so whether this is technically possible is unknown. However, something of its nature would be beneficial to users.

- **HelpDesk.** Increase manpower or provide a "floater" clerk with a pager for each courthouse. Consider having clerks use email to notify the HelpDesk that there is a problem. That way one HelpDesk person could screen the notices, quickly answer minor problems, and schedule the more difficult ones with someone else. One clerk uses Timbuktu, a computer conferencing system enabling essentially "realtime" email between two people. Response time to questions is faster for him using Timbuktu because either the HelpDesk people respond immediately on the screen, or they notify him that they will phone later.

- **Codes.** Prepare an online guide to TCIS codes. One clerk demonstrated an online TCIS Help system developed in-house by a fellow clerk. This system or something similar should be made available to all clerks needing assistance.

- **Organizational memory.** Start an organizational memory for clerks. Use a bulletin board type of system where email can be directed to all clerks who read it. Old messages could be saved for perusal by clerks looking for answers to commonly asked questions.

- **Workarounds.** Put clerks' workarounds in a booklet for reference. Many clerks have learned how to "trick" TCIS into doing what was expected.

7 CONCLUSIONS

Despite its problems, TCIS is a massive chronicle of court history evolving on a daily basis. Stripped of its annoying user interface and complex data entry methods, TCIS is a powerful repository of case data essential to daily court activities. From a defendant's arrest to his or her release or incarceration, judicial agencies depend on TCIS data to effectively process the case. During the tenure of this research, the Sheriff's Department was added to the growing list of offices which have access to TCIS. In this way, if a defendant's case disposition is in question, an agent from the Sheriff's Department can quickly verify court events that happened that day. Therefore, it is fundamental that TCIS be appropriately modified or replaced to maximize its benefits while diminishing its negative impact on the integrity of case information and on the work of court clerks.

Both PIMS and TCIS are essential links to the processing of cases through the judicial system. For fast access to case status and defendant history, DAs are highly dependent on the retrieval of case information from PIMS and TCIS. Since the inception of the "Three Strikes" law in 1994, jury trials have increased (Molina and Bascue, 1995) and it is imperative that DAs carefully

research prior criminal history so that defendants are charged with 2nd and 3rd strikes when appropriate. This heightens the inherent value of data from PIMS. These systems are so embedded in the work of the courts that case processing would be severely hampered without them. Given their importance to the courts, a carefully executed plan for TCIS replacement - whether an entirely new or modified system - must be utilized to minimize the impact to the work of the courts.

In this section, we discuss the difference between civil and criminal case management systems, data exchange between TCIS and PIMS, a statistical analysis of survey data, and the project problems. This section is followed by a summary of the recommendations.

7.1 Difference Between Civil And Criminal

"A clerk is a clerk is a clerk" is an expression mentioned by several clerks as the way it used to be. Now, with training required on diverse computer systems for criminal, civil and juvenile courts, clerks can not easily switch from one type of court to another. Criminal clerks can more easily substitute in civil courts using one of the civil court case management systems because they have user-friendly interfaces and help functions without the need for detailed memorization or embedded knowledge. But to substitute from a civil court to a criminal court becomes quite difficult since retention of TCIS commands and codes is nearly impossible. Ideally, there would be one case management system for all courts, but practically, there should be user interfaces that are easy enough to learn and remember such that clerks can readily substitute in any court.

Thus, it is recommended that as TCIS is reengineered, developers should study and observe the use of the two civil systems: Sustain (in most civil courts) and CasePlus (in Van Nuys courts). Both systems have straightforward user interfaces with simple key strokes and function keys to use as input commands. Given that clerks using these systems are content and satisfied with their reliability and functionality, it would be beneficial if the courts gleaned from their design those features which operate smoothly.

CasePlus was developed using the Paradox database system in the early 1980's for 386 PCs networked together over a LAN in the Van Nuys courthouse. Since funding for this system ended in the ‘80s, it has not been upgraded to take advantage of the high speed computers available today. However, it does serve its purpose well and clerks in Van Nuys extol its value. Unlike Sustain, MOs are instantaneously created as a function of the case data entry. Unlike TCIS, clerks can edit the MOs at a later time (before being sent into the system as the official MO). Future plans call for CasePlus to be replaced by Sustain which will eventually connect all districts. Prior to its demise, an understanding of its utility for clerks would be beneficial when designing a new TCIS.

7.2 Exchange of Data Between TCIS and PIMS

The workflow diagram in Figure 1 shows the work associated with processing a case from arrest to certified plea or case disposition. Originally, our plans (King and Elliott, 1997) called for the use of action workflow loops which emphasize business process structures identifying individuals

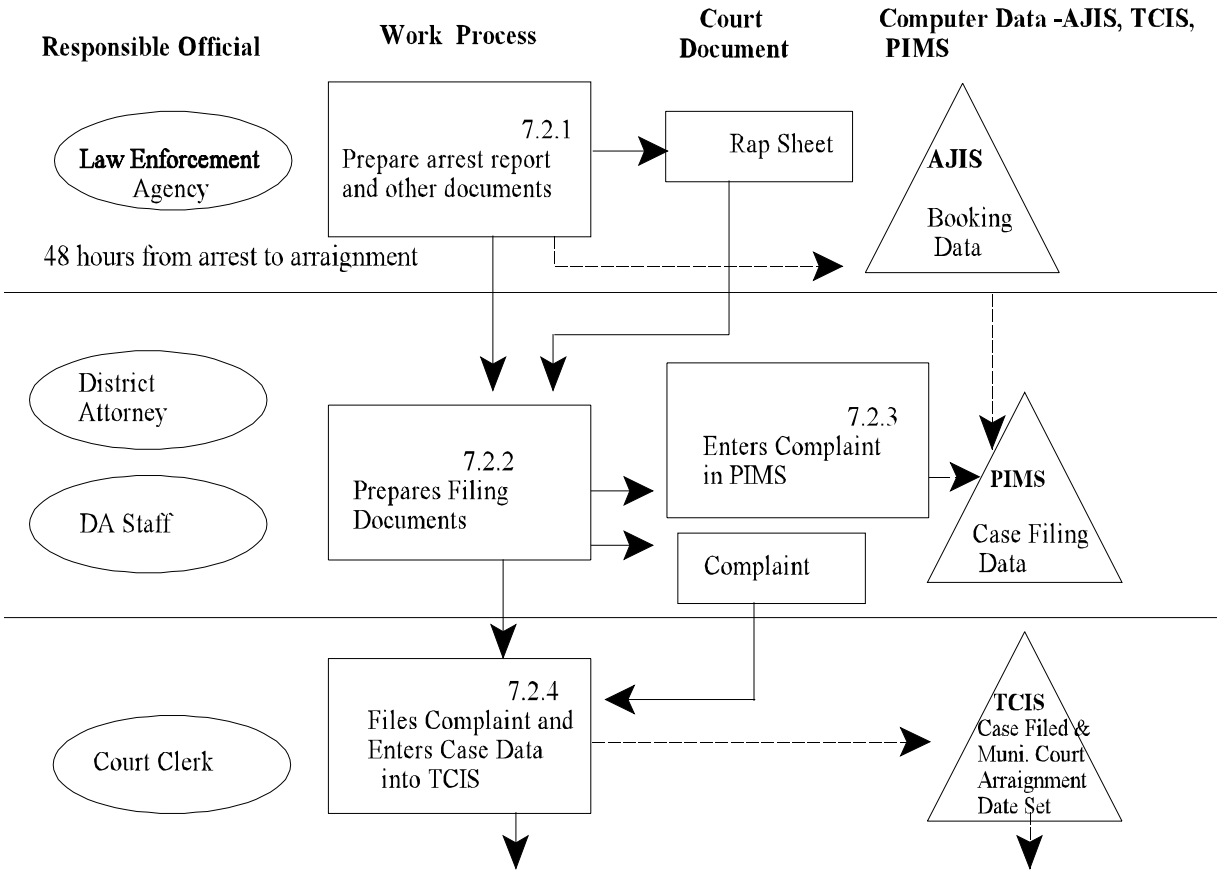
dealing with the consequences of their work for completion and satisfaction (Medina-Mora et al., 1992). In the first quarter's report (King and Elliott, 1997) we presented an action workflow loop for the initial case filing. For the final report, we altered that format to more clearly identify data exchange between judicial computer systems, and time limits on that exchange imposed by law. In Figure 1, we combine several business processes into one workflow diagram showing the responsible officials for the work process resulting in data exchanges.

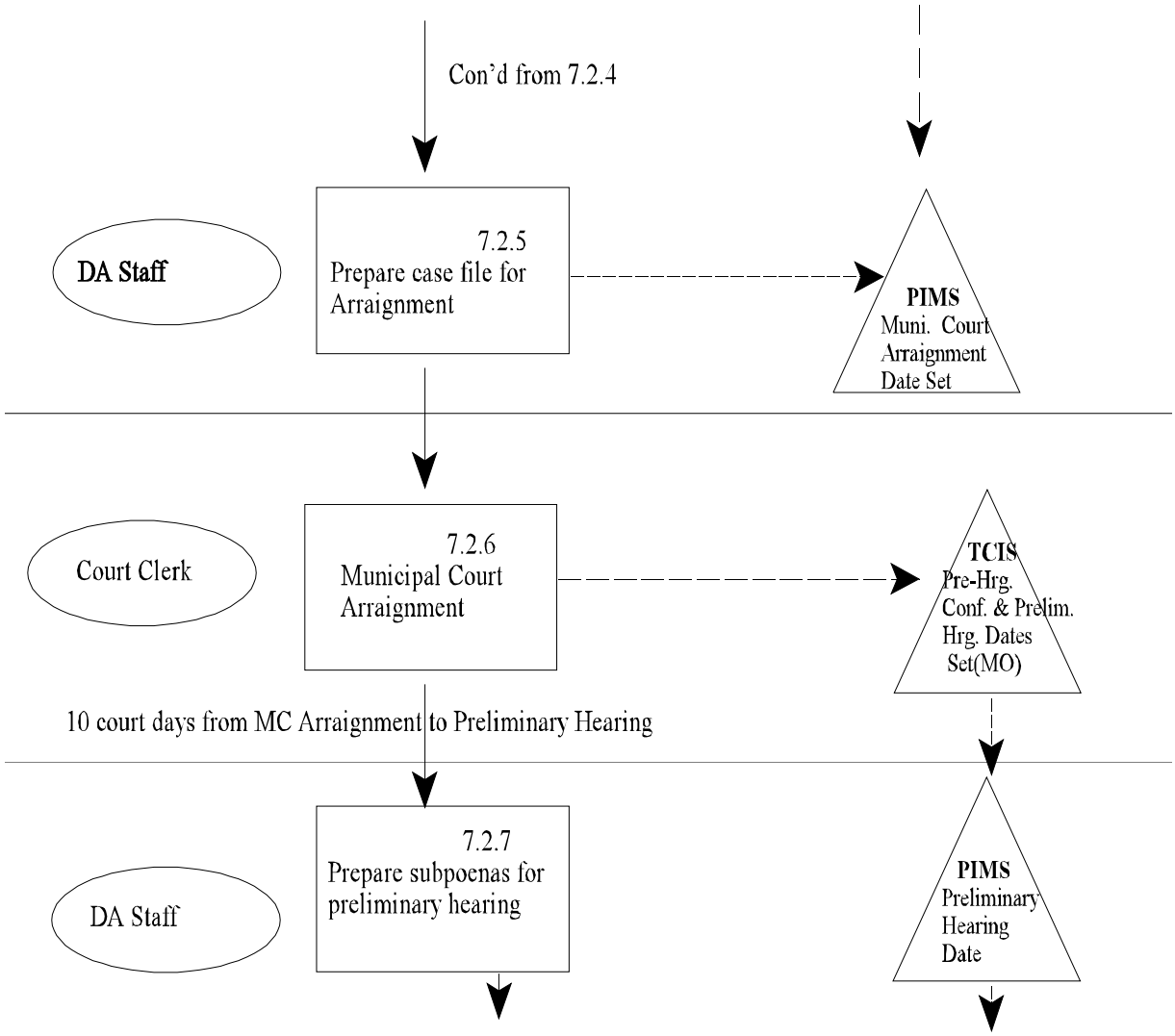
In (Sierra Systems Consultants, 1999) workflow diagrams of the court's business processes are presented. They identify problems and obstacles related to TCIS data entry and retrieval. However, they do not discuss the critical time-based sharing of data between PIMS and TCIS. Our workflow diagram serves that purpose by showing the required time frames for upcoming court events and by indicating the data that is shared between PIMS and TCIS. We also discuss the potential bottlenecks that cause delays in case processing.

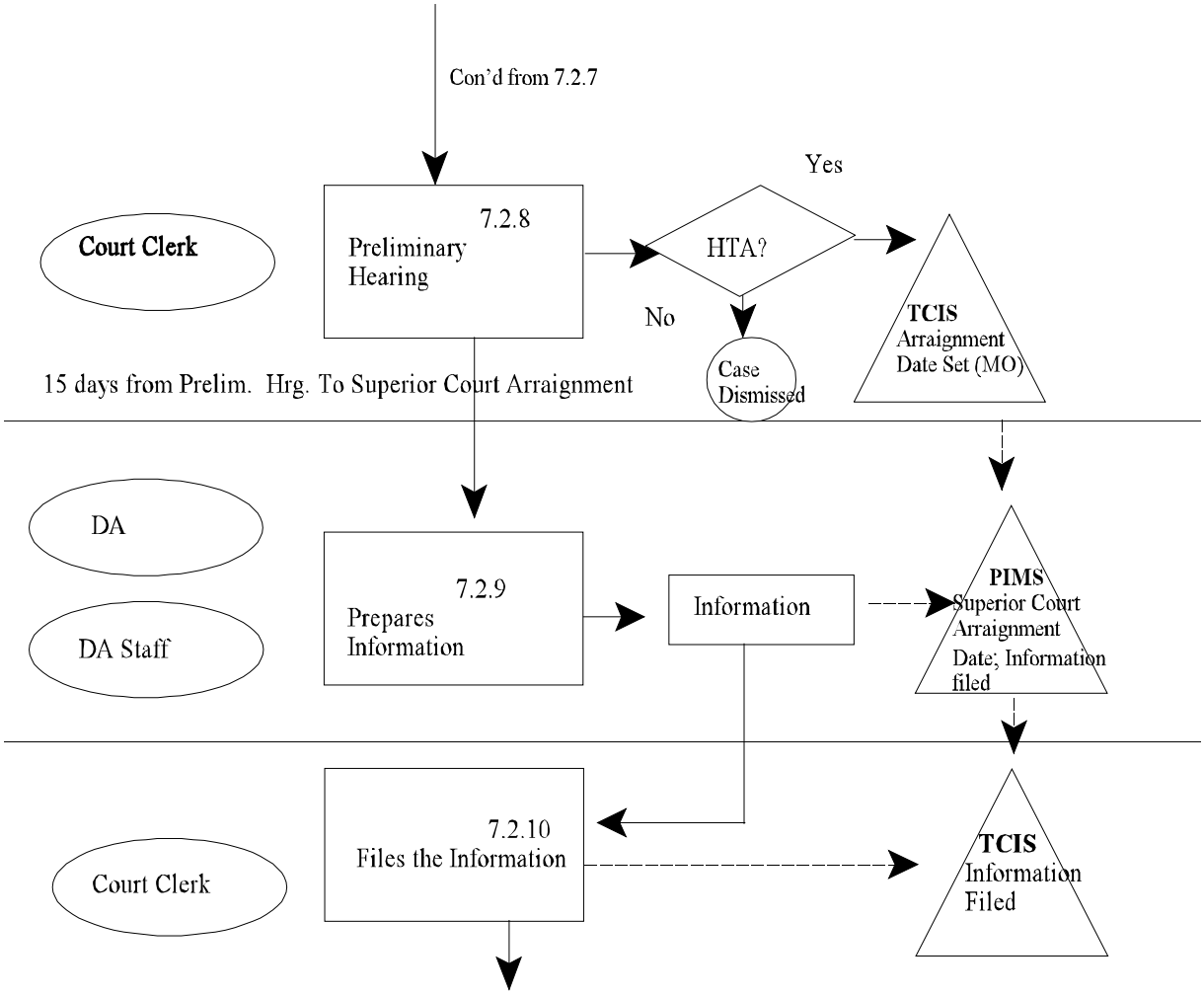
Throughout case processing, PIMS and TCIS exchange data regarding the filing of documents and upcoming court events. All of these processes are constrained by time limits imposed by law. For example, a defendant must be arraigned in Municipal Court within 48 hours of his arrest. For some scheduled court events, dates can be continued if a judge agrees to its necessity. For example, if attorneys need more trial preparation, then the judge might grant them an extension. Bottlenecks in data processing can cause problems when trying to adhere to these legal time limits.

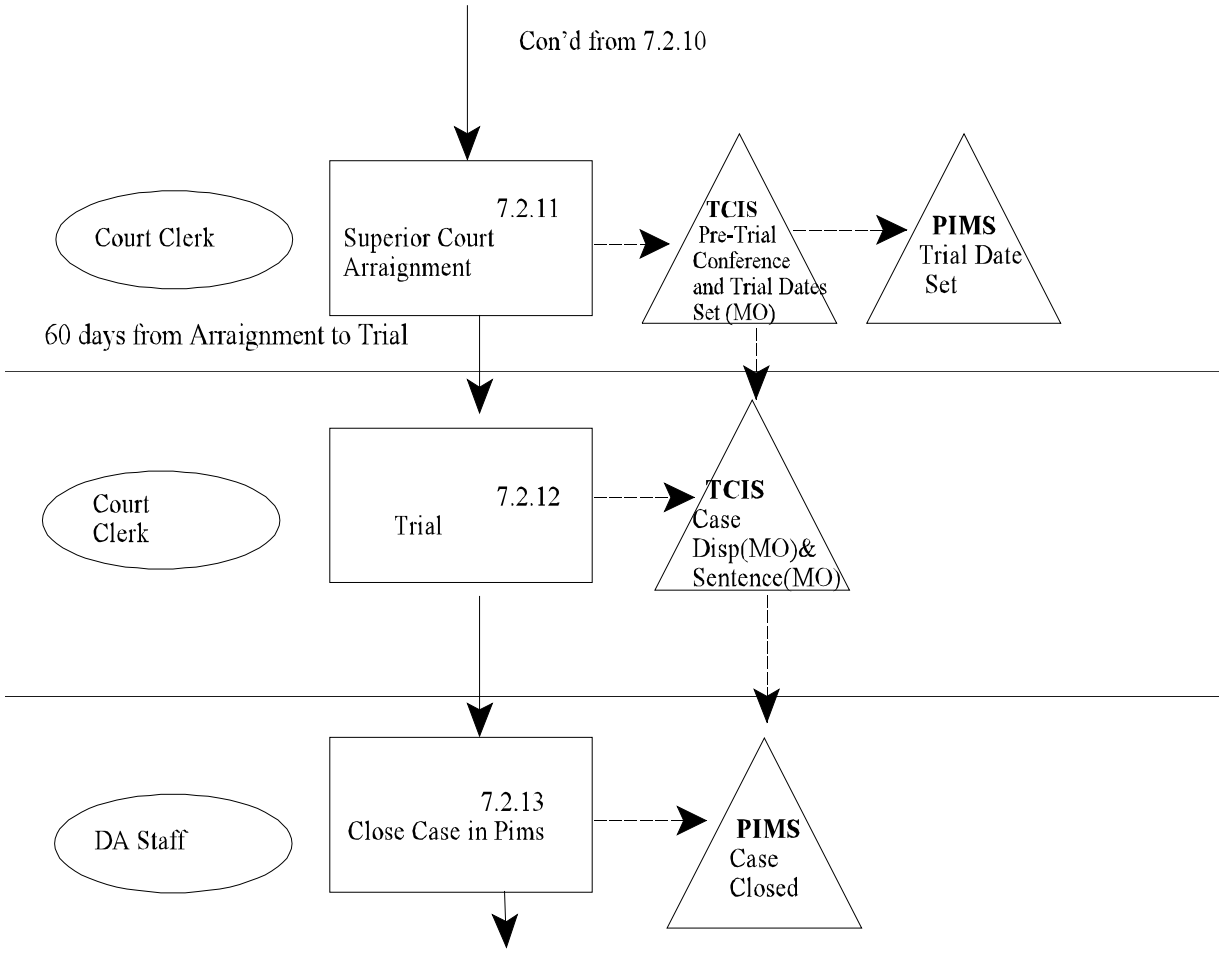
In this section, we describe each process and then iterate the problems which occur when court clerks or DA clerks enter misinformation, or when the data exchange between PIMS and TCIS is invalid. The straight lines represent the workflow of a process to an output and the dotted lines represent the exchange of data between AJIS, PIMS and TCIS. The specified times between events represent court times, not weekends or holidays.

Figure 1 Data Exchange Between TCIS and PIMS




Con'd from 7.2.4
DA Staff
7.2.5
Prepare case file for Arraignment
PIMS
Muni. Court Arraignment Date Set
Court Clerk
7.2.6
Municipal Court Arraignment
TCIS
Pre-Hrg. Conf. & Prelim. Hrg. Dates Set(MO)
10 court days from MC Arraignment to Preliminary Hearing
DA Staff
7.2.7
Prepare subpoenas for preliminary hearing
PIMS
Preliminary Hearing Date


Con'd from 7.2.7
Court Clerk
7.2.8
Preliminary Hearing
HTA?
Yes
No
Case Dismissed
TCIS
Arraignment Date Set (MO)
15 days from Prelim. Hrg. To Superior Court Arraignment
DA
DA Staff
7.2.9
Prepares Information
Information
PIMS
Superior Court Arraignment Date; Information filed
Court Clerk
7.2.10
Files the Information
TCIS
Information Filed



7.2.1 Law Enforcement Agency Prepares Arrest Report and Other Documents

Upon the defendant's arrest, the arresting agency prepares an arrest report and a rap sheet listing prior crimes associated with the defendant. The booking data is entered into AJIS which is then accessible to PIMS and TCIS users. There are 48 hours allowance between the time of arrest to the Municipal Court Arraignment.

7.2.2 Deputy DA Prepares Filing Documents

The deputy DA reviews the arrest report and rap sheet to determine if there is enough evidence to warrant filing the case. If the case is filed, then the deputy prepares the Complaint.

7.2.3 Deputy DA Enters Case In PIMS

Either the filing deputy or a clerk enters the case information into PIMS. The PIMS case data is forwarded to TCIS via the PIX interface, and the Complaint (paper-based) is delivered to the Office of the Court Clerk.

7.2.4 Court Clerk Enters Case Data into TCIS

Using PIMS case data available to TCIS, the clerk fills in any missing details and officially files the Complaint in Municipal Court and enters the case information into TCIS. A Municipal Court Arraignment date is set and entered into TCIS.

7.2.5 DA Staff Prepare Case File for Arraignment

After PIMS receives the Municipal Court Arraignment date from TCIS, the DA staff prepares the case file for arraignment. Documents related to the case are included: rap sheet, arrest report, complaint and anything related to prior criminal history.

7.2.6 Municipal Court Arraignment

The defendant is arraigned in Municipal Court. Dates are then set for the Pre-Hearing Conference and the Preliminary Hearing, entered into TCIS, and sent to PIMS. There are 10 court days allowance between the Municipal Court Arraignment and the Preliminary Hearing. The Pre-Hearing Conference is scheduled from 3 to 5 days before the Preliminary Hearing.

7.2.7 Prepare Subpoenas and Prior Crime Packages

DA staff members prepare the subpoenas and prior crimes packages in preparation for the Preliminary Hearing. Subpoena generation from PIMS requires the date of the next event for which the subpoena is issued.

7.2.8 Preliminary Hearing

The Preliminary Hearing is held in Municipal Court. If the case does not settle at the Pre-Hearing Conference, then a Preliminary Hearing is held. If the judge deems the case worthy of being held to answer in Superior Court, a date is set for a Superior Court Arraignment and entered into TCIS. There are 15 court days from the Preliminary Hearing to the Superior Court Arraignment.

7.2.9 Deputy DAs and DA Staff Prepare the Information

The deputy DA prepares the charging document called the Information. It is completed as a paper document and then filed electronically in PIMS.

7.2.10 Court Clerk Files the Information

The court clerk files the Information in TCIS using the electronic data retrieved from PIMS prior

to the Superior Court Arraignment.

7.2.11 Superior Court Arraignment

A Pre-Trial Conference date and a trial date are set during the arraignment and entered into TCIS as a MO. These dates are electronically transmitted to PIMS.

7.2.12 Trial

A trial is held in Superior Court. When the trial ends, the case disposition is determined and entered into TCIS. This data is electronically transmitted to PIMS. If the case results in a conviction, about two weeks later a sentence is decreed. This data is electronically transmitted to PIMS.

7.2.13 DA Staff Closes The Case in PIMS

Upon receipt of the disposition and/or sentence from TCIS via PIMS, the DA staff closes the DA case by marking the case closed in PIMS and archiving the physical case file.

Throughout this procedure there are several places where TCIS and PIMS exchange data and where problems arise. During any procedure where the DA clerks are relying on TCIS entry of court dates or copies of MOs, delays cause problems. The various places where problems can occur between PIMS and TCIS are described below:

Step 7.2.7. The first loophole which can occur is in step **7.2.7.** After the Municipal Court Arraignment, if the case is held to answer in the Superior Court, a Preliminary Hearing date is set. During the 10 court days between the Municipal Court Arraignment and the Preliminary Hearing, subpoenas for witnesses must be prepared and served. If a court clerk is delayed in completing a MO, this process is delayed. Sometimes the DA staff enter the required dates using the PIX simulator so that subpoenas can be generated and mailed on time.

Step 7.2.8. If a defendant is held to answer in the Superior Court, then the next date of TCIS entry is the Superior Court Arraignment. There are 15 days between the Preliminary Hearing and the Superior Court Arraignment. During those 15 days, the deputy DA and DA staff must put together the Information. Sometimes the court clerks are late in entering the arraignment dates (sometimes 3 or 4 days) and this delays the completion of the Information which is needed before the arraignment. After the Superior Court Arraignment date is set, DA clerks need the MO from the Preliminary Hearing to serve subpoenas as soon as possible. Again if that MO is delayed, the subpoenas of important witnesses for a trial is delayed.

Other Problems. Other problems with the PIMS and TCIS connection include:

- **PIX connection going down.** When this occurs, people don't know whether PIMS entries ever reached TCIS or whether court clerks entered case information that never reached PIMS.
- **Counts being out of order or not consistent with TCIS.** It should be noted that the

problem of renumbering counts has been remedied in the Superior Court since the completion of this project's interviews. In early 1999 the Superior Court Supervising Judge issued a memo informing judges that they should not renumber counts in TCIS. The District Attorney's Office's Information Systems group issued the same type of memo to the DA staff. We are reporting this as a potential problem if recommended renumbering procedures are not followed. There are several ways in which the counts can differ in TCIS and PIMS:

1. For example, there are three charges in the original complaint and two are dismissed. This is changed in TCIS but it does not carry over into PIMS via electronic exchange. Then PIMS can not close the case because the charges are open.
2. Count 1 is dismissed but the count added is now Count 2. A DA staff member might change Count 2 to Count 1 and then the charges in TCIS and PIMS do not match.
3. Counts are changed in TCIS and notes explaining why are in the notes section of the MO - not something sent to PIMS.

Recommendations: PIMS and TCIS Data Exchange. To help resolve anomalies between PIMS and TCIS, we recommend documenting workarounds and standard procedures as described in Section 6.3.3.

7.3 Feasibility of Paperless Court File

With the advent of imaging technology, courts are incorporating electronic filing and scanning of documents into case management systems. Case information as well as documents can be viewed on computer screens from several locations simultaneously (courtroom, DA's office, PD's office) without the need to track down one "physical" case file. This type of system has proven successful for probate court in Orange County (Slater et al., 1994) and for various courts across the country (Fielding, 1995). In Los Angeles Municipal Court, the traffic records system has been using imaging for several years (Doktor, 1994). There is an experiment underway right now in the Los Angeles Superior Civil Courts with electronic filing of documents. 25 law firms have agreed to participate and a vendor is donating time and equipment to the project. However, previous attempts with electronic filing have proven fatal due to resistence in the legal community to the reliability of technology. Many issues need to be addressed before Los Angeles Criminal Courts could benefit from the costly investment in switching to electronic case files. There are many advantages and disadvantages to converting to document imaging (Cowles, 1995).

Advantages of electronic filing and storage include:

- Improved access to document retrieval for people who need case information and records.
- Better ability to track documents and the work associated with them.
- Eliminates dependence on tracking a single document - access for many people at one time to an electronic image.
- Cost reductions and increased efficiencies.

Disadvantages include:

- Costly investment that results in complex technology difficult to maintain and to use.
- Poor images of some documents making it difficult to read and use.
- Increased costs of staff to scan documents and/or monitor electronic filing.
- System failures which preclude case processing.
- Resistance to technology from judges and attorneys who prefer paper.

Once an imaging system supports paperless case files, the next step is to consider archiving this data for future reference. After scanning and indexing court documents, some courts still require a paper filing of the original paper copy, microfiche, or some other medium. The best alternative would be to electronically archive the paperless case file. The justice community is working on a standard called Judicial Electronic Document and Data Interchange (JEDDI) which would enable standarization of electronic filing and archiving providing electronic signaturing (McMillan, 1994). In the meantime, problems such as how long cases archived on optical storage would last and how legal professionals who are not computer literate would work with such systems are open questions.

Many obstacles and issues need to be addressed before a paperless court file becomes routinized in the Los Angeles County Criminal Courts. In addition to those disadvantages listed above, our study revealed resistence to and mistrust of the reliability of technology by judges and attorneys. Many judges still prefer conducting their court business "the old way" and see no use for a computer in their chambers or on the bench. In Los Angeles Superior Court, two attempts have been made to incorporate a paperless filing system for civil cases (e.g. probate) and both have failed due to limited participation.

Our study showed that despite the recent increased availability of computers to judges and DAs, there are still those who resist technology and prefer paper documents. Overcoming this hurdle to computer usage in the move from paper-based to computer-based court files is perhaps the court's biggest challenge. We recommend that issues pertaining to a paperless court file be considered in the TCIS reengineering project so that a future implementation of electronic filing or imaging can be easily integrated with the court's case management system.

7.4 Statistical Analysis of Survey Data

Research questions measured with the surveys include:

Q1. Does the level of computer usage increase for those DAs and judges who use a home computer?

Q2. Does computer usage increase with higher levels of training - i.e. classes and colleagues versus self-taught only?

Q3: For judges: Do judges who routinely use word processing also regularly use computer-aided legal research (CALR) systems and email more frequently than those who do not use word processing?

For DAs: Do DAs who routinely use word processing also regularly use CALR systems and PIMS more than those who do not use word processing?

These questions were answered using the survey data:

Q1: Question 1 explores the relationship between work and home computing for judges and DAs. Throughout the early phase of this research and in previous research (Elliott, 1997; Elliott and Kling, 1997), we found that legal professionals who were heavy users of computer technology would in most cases also own a home computer. Either the familiarization of computerization from home computing facilitated the use of learning computer systems at work, or the use of computers at work enlightened people to their usefulness and they became home computer hobbyists. The home computer was usually used for work at home, household responsibilities, and entertainment. We postulated this question in the survey to validate the previous findings on whether a positive relationship exists between owning a home computer and using one at work.

Tables 1 and 2 show the survey results relating to the use of a home computer and use at work for judges and DAs. Row 1 of Table 1 shows that 91 judges of the 113 survey respondents own a home computer and of those 91, 86 use a computer at work. Row 1 of Table 2 shows that 23 DAs of the 32 survey respondents own a home computer and of those 23, 20 use a computer at work. These results strongly indicate that there is a positive relationship between home computing and computing at work. However, this does not imply that use of home computing in some way causes the use of computing at work, only that some synergism between the two is at work here. As we can see in Row 2 of both tables, there are judges and DAs who do not own a home computer and still are using a computer at work.

These results coincide with the interview data in which almost all judges and DAs who were high end-users of technology at work also owned a home computer. We conclude that for both judges and DAs there exists a work/home ecology of computing. Home becomes a natural extension of using a computer at work and home computing promotes the use of computers at work. In fact, 48 (53%) of the 91 judges and 16 (80%) of the 20 DAs who own a home computer use it for work at home.

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Table 1 - Judges' Home Computer Versus Work Usage

Home Use	Computer Use Work (Yes) (n=103)	Computer Use Work (No) (n=9)
YES - 91	86	5
NO - 21	17	4

Table 2 - DAs' Home Computer Versus Work Usage

Home Use	Computer Use Work (Yes) (n=24)	Computer Use Work (No) (n=8)
YES - 23	20	3
NO - 9	4	5

Q2: Question 2 was posed because appropriate computer training can make a difference between a successful implementation and one with minimal use. We postulated that with increased training (i.e. classes plus help from colleagues) people would be using computer systems more than those without training. Tables 3, 4, 5, and 6 show the survey results for the use of word processing, CALRs, email and PIMS charted against training with classes versus self-taught. These answers reflect a multiple choice question where more than one answer could be selected. Only classes and self-teaching are compared here for the scope of this report. In a future research project, we will use inferential statistics, which use numerical tests to measure significance of trends in the data, to analyze the overall training picture. Here, we give an overview of what the descriptive statistics imply. Interestingly, Tables 3 and 5 show a similar pattern.

More judges and DAs were self-taught in word processing and email than were taught by a class. We know from the survey and interview data that word processing was the most popular computer system with judges and DAs. Judges and DAs told us that practicing with WordPerfect was the best teacher. The majority of judges were self-taught in email usage. During interviews, we were told repeatedly that the training classes were too cryptic and that retention of lessons was nearly impossible. Most judges and DAs learned to use word processors and email by practicing its use. We conclude that for word processing and email, personal motivation to learn a system (including self-teaching) has more of an impact on system usage than formalized training.

There was a wide discrepancy between the use of email for judges and DAs. Judges actively used email at 82% compared with 8% of DAs. This finding correlates with interview data with DAs not feeling the need to use email as an enhancement to work. DAs work closely together and can walk down the hall to consult with a colleague about legal or non-legal issues. Judges are more isolated spending a good part of the day in the courtroom or in chambers so email provides a convenient way of contacting other judges.

Table 3 - Word Processing Use and Training

	Word Processing DAs (n=24)	Word Processing Judges (n=103)
Usage	23 (96%)	90 (87%)
Classes	4	22
Self-Taught	17	43
Classes and Self-taught	2	20

Table 4 - CALR Use and Training

	CALRs DAs (n=24)	CALRs Judges (n=103)
Usage	7 (29%)	72 (69%)
Classes	3	54
Self-Taught	2	35
Classes and Self-taught	1	20

Table 5 - Email Use and Training

	Email DAs (n=24)	Email Judges (n=103)
Usage	2 (8%)	85 (82%)
Classes	0	24
Self-Taught	2	45
Classes and Self-taught	0	7

Table 6 - PIMS Use and Training

	PIMS DAs (n=24)
Usage	14 (58%)
Classes	4
Self-Taught	5
Classes and Self-taught	1

Table 4 shows that CALRs are used more by judges than DAs: 69% of judges use them compared to 29% of DAs. Yet both had about the same amount of training with classes: 77% of judges had CALR classes compared to 75% of DAs. In this case, training did not necessarily increase usage levels. Interview data showed a mix of CALR usage for DAs, mainly used by trial attorneys when needed. Even those who used them sometimes preferred books, or a combination of the two. We conclude that increased use of CALRs for DAs is more dependent on type of work than on training. Judges discussed classes as not being particularly helpful and that the one-on-one training now available from Lexis/Nexis would be the most valuable type of training.

Table 6 shows PIMS usage levels compared to training. Only 5 of the 14 PIMS users took a class while the rest were either self-taught or used a colleague or friend for help. Both survey comments and interview data implied that DAs are interested in formal PIMS training but are not aware of available classes. It is possible that usage levels might increase (58%) if more were trained on its use. However, as with word processing and email, personal motivation to use a

system can be a possible predictor on how widely a system will be used.

Q3: Question 3 was included because during early interviews, attorneys and judges who used word processing for document preparation, tended to also use other systems. We wanted to measure if using word processing increased the use of other systems. Tables 7 and 8 show the survey results of using word processing as well as CALRs, email, and PIMS. As with question 2, in a future project, inferential statistics will be used to do a more detailed analysis of this question.

Table 7 shows that out of the 90 judges who use word processing, 66 (73%) use CALRs and 72 (84%) use email. For judges, this data indicates a positive relationship between word processing and the use of CALRs and email. However, for DAs, a different picture arises from the data. Table 8 shows that out of 23 DAs who use a word processor, only 7 (30%) use CALRs and 2 (9%) use email. As discussed earlier, most DA interviewees did not see the utility in using email and some preferred books to using CALRs. For PIMS usage, 14 (61%) of the 23 DAs using word processing, also use PIMS. In fact, these are the same 14 people who were the only DAs using PIMS. Although this appears to imply a positive relationship between word processing the use of PIMS, we must consider the 9 DAs who use word processing but do not use PIMS. Interview data reflects the fact that motivation to use PIMS and a DA's type of work play a role in whether PIMS is used. We can conclude that people who use word processing may find it easier to use PIMS but we can not rule out other factors which might influence the use of PIMS.

Table 7 - Judges' Use of Word Processing with CALRs and Email

Word Processing	CALRs	Email
YES (n=90)	66	76
NO (n=14)	6	9

Table 8 - DAs' Use of Word Processing with CALRs, Email, and PIMS

Word Processing	CALRs	Email	PIMS
YES (n=23)	7	2	14
NO (n=1)	0	0	1

8 RECOMMENDATIONS

Detailed recommendations were included in each section on computer usage above. Here we summarize our recommendations into several categories: technical modifications regarding PIMS, procedural problems regarding PIMS, technical modifications regarding TCIS, procedural

changes regarding TCIS, and general computer usage issues.

Technical Modifications Regarding PIMS:

- Periodic updates to code tables to verify their validity.
- Notification to PIMS users when PIX is inoperable.
- Lengthening time period for password alterations.

Procedural Issues Regarding PIMS Use:

- Establish method for renumbering charges which are received from TCIS as replaced or dropped**.**
- Offering site visits for training, and placing non-computer users in the same office with competent computer users.
- Offer voice recognition software, like that being used in the Central branch with appropriate training for DAs.

Technical Modifications Regarding TCIS:

- Renumbering the counts should be addressed. This causes many problems because the explanation is in the comments section and the correct counts are not enumerated as court statistics.
- Fix the problem TCIS has with rejection of counts coming from PIMS when not related.
- Make MOs more readable.
- Update the charge tables in both TCIS and PIMS at the same time if at all possible.
- Improve Mozart to be fast enough to be worthwhile.

Procedural Issues Regarding TCIS Use:

- Provide standard practices for all clerks in the form of workarounds.
- Increase HelpDesk manpower or provide a "floater" clerk with a pager. Use email to notify HelpDesk of a problem.
- Create a bulletin board for court clerks using TCIS so they can broadcast requests for help. Create an organizational memory from the bulletin board so clerks can access the computer for standard ways of dealing with problems.
- Prepare an online guide to TCIS codes.
- Put clerks' workarounds in a booklet for reference.

General Computer Usage Issues:

- Continue providing training classes for Lexis/Nexis which allow for one-on-one training for judges.
- Consider voice recognition software for word processing use for judges and DAs.

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