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Using Technology to Improve the Administration of Justice in the Federal Courts

*Charles W. Nihan**
*Russell R. Wheeler***

I. INTRODUCTION

A common complaint has run through much of the massive judicial administration literature of the last decade. It has been popular to bewail the use of antiquated equipment and methods—reminiscent of green eye shades and quill pens—as symptomatic of the sorry administrative condition of the courts. "Modern improvements in management techniques, record-keeping, and communications," wrote journalist Leonard Downie in 1971, "are all but unheard of inside courthouse walls. Instead, United States courts continue to follow slavishly many of the same procedures as did courts in early rural America and the shires of England before that."[1]

To be certain, many courts labor today, as they always have, under the burden of out-dated or non-existent equipment. Nevertheless, too much has happened in the 1970's to sustain the popular view of a technologically barren judicial system. Indeed, it may well be that the courts, so technologically starved at the beginning of the decade, are now reeling from an onslaught of technological innovations and sophisticated equipment[2] and

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The views and opinions expressed in this Article should not be taken as official policy of the Federal Judicial Center. On matters of policy, the Center speaks only through its Board.

1. L. DOWNIE, JUSTICE DENIED: THE CASE FOR REFORM OF THE COURTS 139 (1971).

2. The literature on this subject is extensive. *See, e.g.*, J. GREENWOOD, DATA PROCESSING AND THE COURTS—GUIDE FOR COURT MANAGEMENT (1977); J. GREENWOOD, DATA PROCESSING AND THE COURTS—REFERENCE MANUAL—COURTS EQUIPMENT ANALYSIS PROJECT (1977); L. POLANSKY, COMPUTER USE IN THE COURTS: PLANNING, PROCUREMENT, AND IMPLEMENTATION CONSIDERATIONS (1978); Gregoras & Keilitz, *The Computer's Use in Jury Selection and Management: Do We Need to Wait for Statutory Change?*, 6

from the organizational disruption that can be caused by the rapid introduction of technology.[3]

How technology might facilitate the federal judiciary's performance of its role is hardly a trivial matter; whether it serves the day-to-day law-enunciating function of the federal appellate courts or enables a trial judge to handle the many cases consolidated in his court in the wake of President Carter's order freezing Iranian assets in response to the hostage seizure,[4] technological innovation will affect the judicial process. This Article describes the computer-based case and court management information systems developed for the federal courts and comments on the technical and organizational variables affecting that major innovation.[5]

A. What is Technology and How Can it Support Courts?

"Technology" connotes the practical application of scientific knowledge to the performance of tasks. Within the courts, technology has often been considered synoymous with large computer systems that store caseload data and produce management reports and court records (such as docket sheets). In fact, technology need not be viewed in such limited terms. Technological innovations in the courts during the last two decades have encompassed the use of video technology to facilitate the preservation and presentation of expert witness testimony and the creation of a complete record for appeal.[6] Word processing and

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RUTGERS J. COMPUTERS, TECH. & L. 155 (1978).

3. For an analysis of the organizational effects, see Albrecht, *The Effects of Computerized Information Systems on Juvenile Courts*, 2 JUST. SYS. J. 107 (1976); Albrecht, *Defusing Technological Change in Juvenile Courts*, 6 SOC. WORK & OCCUPATIONS 259 (1979).

4. *See* [1980] FEDERAL JUDICIAL CENTER ANN. REP. 2.

5. Our greater familiarity with the federal courts and the fact that they are in a somewhat stronger budgetary posture than are state courts explain our focus on the federal court system. We acknowledge that there are compelling reasons to focus instead on state courts. In addition to their greater diversity, state courts face interesting funding questions, particularly those concerning the Justice Department's Law Enforcement Assistance Administration (LEAA) funding for technological improvements in court administration. LEAA funding has, despite providing considerable benefits, raised problems of short grant cycles, interbranch funding delivery systems, and the enduring tensions associated with federalism. *See, e.g., State Justice Institute Act of 1979: Hearings on S. 2387 Before the Subcomm. on Jurisprudence and Governmental Relations of the Senate Comm. on the Judiciary*, 96th Cong., 1st & 2d Sess. 21-22 (1979-1980) (statement of Minnesota Chief Justice Robert J. Sheran).

6. *See* Note, *The Role of Videotape in the Criminal Court*, 10 SUFFOLK L. REV. 1107 (1976). *See also* G. COLEMAN, THE IMPACT OF VIDEO USE ON COURT FUNCTION: A SUMMARY

electronic mail systems support and expedite the preparation of opinions.[7] Microfilm copies of court records ease storage problems and improve public access. Court reporters have been offered access to computer-based systems to facilitate the transcription process.[8] Even courthouse architecture has emerged as a major area involving significant technological innovation.[9]

Technology has three general uses in the courts. First, it can provide management and operational support, enabling courts to deal better with the increased size and complexity of their caseloads. Second, it can speed the execution of routine tasks and increase the amount of useful information available to a court. Finally, it can help courts accomplish the research and planning tasks necessary for the proper administration of justice.

1. *Providing Management and Operational Support*

Technology provides the ability to arrange and to array information rapidly and accurately. Management of an organization of any complexity demands the availability of complete and specific information about the people or things upon which the organization acts, be they patients in a hospital, students in a law school, inventories of goods for sale, or cases brought to court for disposition. When the number of such objects—cases for instance—reaches a certain order of magnitude, computer technology can improve the organization's—in this case, the court's—ability to collect and analyze data, thus enhancing efficiency. For example, a computer can quickly produce an easily referenced, current docket status report, presenting a judge with accurate information about the cases on his or her calendar, including filing dates, pending events, and current deadlines. To produce this information by hand, a supporting staff would have to labor much longer and the accuracy of the information col-

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OF CURRENT RESEARCH AND PRACTICE (Federal Judicial Center 1977); *Symposium: The Use of Videotape in the Courtroom,* 1975 B.Y.U. L. REV. 327-541; Bermant, *Innovations in Communication and the Delivery of Public Services,* 55 U. DET. J. URB. L. 755 (1978); McCrystal, *Videotaped Trials: A Primer* 61 JUDICATURE 250 (1978); Hartman, *Second Thoughts on Videotaped Trials,* 61 JUDICATURE 256 (1978); Murray, *Videotaped depositions: the Ohio experience,* 61 JUDICATURE 258 (1978).

7. *See* note 39 and accompanying text *infra.*

8. *See* J. GREENWOOD & J. TOLLAR, USER'S GUIDE TO COMPUTER-AIDED TRANSCRIPTION (National Center of State Courts Pub. No. R0031, 1977).

9. *See* AMERICAN BAR ASSOCIATION, THE AMERICAN COURTHOUSE (1973); L. SIEGEL, THE IMAGE OF JUSTICE (1978).

lected might well be jeopardized by the number of manual computations, transcriptions, and procedures involved.

Technology can also significantly improve the ability of judges and their staffs to research the law, to identify related research in progress in other chambers, to prepare calendars for appellate hearings, and to select prospective jurors from voter registration lists. Similarly, technology can facilitate the production of budgetary, personnel, or property-inventory data for courts as it can for other complex organizations.

2. *Speeding the Execution of Routine Tasks*

Technology can do more than help ensure the availability and accuracy of information: it also serves the related but distinct function of providing the courts with information more expeditiously than would be provided otherwise. For example, word processing and electronic mail technologies expedite the opinion production process and speed the delivery of case-related documents to geographically remote judges for review. Use of videotape allows participants in a trial to hear the testimony of remote or busy witnesses—seamen or physicians, for example—with less disruption, more predictability, and more punctuality than would be the case if the witness had to testify in person. Transcription technologies expedite the preparation of transcripts and assist an appellate court by speeding the decision-making process in cases where the court would otherwise have to postpone argument until the transcripts were ready.

The speed with which computers can produce stored information in usable form increases the amount of useful information available to a court. For instance, a computer can identify, according to defined attributes, cases likely to benefit from differentiated treatment. Also, a computer can alert court personnel to the occurrence or nonoccurrence of specific events in the life of a case, knowledge of which might call for judicial intervention. These kinds of information could not feasibly be produced by hand under the short deadlines imposed in the administration of justice.

3. *Aiding Research and Planning*

Computer technology can also greatly aid judicial research and planning. The storage and manipulation of research and planning data, however, present a task different from the storage

and presentation of management data. While effective management may require knowledge of each item in the court's inventory, such as a complete list of probationers and the various levels of supervision each requires, a sample of such data is often adequate for a planner, whose task might be to estimate the number of individuals a probation office will supervise in a given time period. A researcher may also use samples of computerized data to analyze such things as the effect of various case management approaches on disposition times.[10] In any case, both research and planning are tasks in which technology can play an important role.

Pointing out the advantages researchers receive from having access to a computerized data base is not to minimize the complexity of the research and planning functions, either in drawing samples or in analyzing data. In fact, a National Academy of Sciences panel recently concluded that the methodological tools are not yet available to provide an efficient and accurate means of predicting the impact that pending legislation will have on the courts.[11]

B. Special Conditions Affecting Technological Innovations in the Courts

Before describing the specific efforts to introduce technological innovations into the federal courts, a word is in order about the variables associated with courts that may affect these efforts.[12] Courts act, as do most professional organizations, on a case-by-case basis. This creates a natural state of resistance to the use of technology such as computers, since systematic computer analysis is based on the assumption that objects of analysis can be placed into categories and then described or analyzed

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10. The Federal Judicial Center's District Court Studies Project, for example, developed major recommendations concerning various federal case management techniques using a sample of 3,114 terminated civil cases drawn from a universe of 16,141 cases. This 17% sample is rather large in comparison to those found in much social science research. Data on the project's sampling techniques and sample size can be found in S. FLANDERS, CASE MANAGEMENT AND COURT MANAGEMENT IN UNITED STATES DISTRICT COURTS 109 (Federal Judicial Center 1977) and [1975] DIRECTOR ADMINISTRATIVE OFFICE U.S. COURTS ANN. REP. 372-74, Table C-4A.

11. *See* FORECASTING THE IMPACT OF LEGISLATION ON COURTS (K. Boyum & S. Krislov eds. 1980).

12. Our colleague, William B. Eldridge, has written most thoughtfully on this subject in Eldridge, *Barriers and Incentives to Technology Transfer into the United States District Courts,* in JUDICIAL ADMINISTRATION: TEXT AND READINGS 264-69 (R. Wheeler & H. Whitcomb eds. 1977).

in those categories rather than individually. To insist, for example, that appellate cases cannot be put into categories because each case differs slightly in the specific issues it presents is to effectively thwart the potential for computer-aided assistance.

Technology is also suspect in the judiciary because courts (including federal courts) are local institutions. As such, they are closely linked to the political and social cultures of their specific localities. When these courts are offered technology that has been developed and advocated by a centrally based agency, particularly one based in Washington, D.C., they will surely greet it with special wariness.[13]

Although other professional organizations exhibit a similar wariness, the judiciary may well constitute a more formidable bastion against technology transfer. Courts, by their very nature, are passive organizations. They are likely to resist new developments almost as a cultural trait, according to an unspoken organizational extension of the legal doctrine of *stare decisis.* Judges, and by acculturation their administrative staffs, tend to give great weight to time-blessed administrative methods in the same way they give great weight to historical statements of legal doctrine.

There is another, somewhat broader, explanation for professional resistance to, or at least skepticism about, technology that probably explains the courts' resistance more than it does that of other professional organizations. That is the classic cost-benefit equation. To ask how technology might benefit the basic mission of the courts is to ask what that basic mission is. Ultimately, it is not the mission of the judiciary to dispose of cases according to measurable standards of speed or economy, although those values are rightly prized. The ultimate goal of the judicial system is to do justice.[14] Justice, as we are often reminded, is very difficult to measure. Justice to individual litigants would appear more difficult to measure than the health of patients who might benefit from technologically refined medical treatment. Consequently, technological innovations, jarring as they are to the courts' culture, face the additional barrier of skepticism about their ability to produce measurable results in

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13. *See generally* P. FISH, THE POLITICS OF FEDERAL JUDICIAL ADMINISTRATION (1973).

14. The Federal Rules of Civil Procedure are to be construed, in the oft-referenced phrase, "to secure the just, speedy, and inexpensive determination of every action." FED. R. CIV. P. 1.

terms of the most important objective of the system.

In fact, given the potential for hostility, the receptivity to technological innovation on the part of considerable numbers of judges and supporting personnel is all the more remarkable.[15]

II. The Federal Judicial Center and Technology

The remainder of this Article will describe the Federal Judicial Center's efforts to introduce computer technology[16] into the federal courts and will discuss the Courtran system's developmental approach.

Congress established the Federal Judicial Center in 1967 to serve as the federal courts' agency for research, development, and continuing education. Thus, the Center took its place alongside the Administrative Office of the United States Courts,[17] which was created in 1939 to serve as the operations arm of the federal judiciary and carry out the policies of the Judicial Conference of the United States,[18] the administrative "board of directors" of the federal courts. When Congress created the Center, it acted at the request of the Judicial Conference and in response to the general tenor of the times.

The mid-1960's focus on equipping the criminal justice system to fight the "war on crime" led a large number of state court systems to develop various types of automated case management systems.[19] Congressional concern led to the initiation of similar federal programs. During floor debate on the bill creating the Judicial Center, Representative Robert McClory secured passage of an amendment directing the Center's Board (its governing body) to "study and determine ways in which automatic data processing and systems procedures may be applied to the administration of the courts of the United States."[20] Thus, said

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15. One frequently cited judge in this regard is A. Leon Higginbotham, Jr., now of the United States Court of Appeals for the Third Circuit. *See, e.g.*, Higginbotham, *Effective Use of Modern Technology*, in Justice in the United States 140 (W. Swindler ed. 1971); Higginbotham, *The Trial Backlog and Computer Analysis*, 44 F.R.D. 104 (1968).

16. Space considerations as much as anything dictate that we not attempt in this Article a review of all the technologies, large and small, developed for or currently being operated in the federal courts. This focus on one technology inevitably produces a more narrow treatment than we would like.

17. 28 U.S.C. §§ 601-611 (1976).

18. 28 U.S.C. § 331 (1976).

19. *See, e.g.*, Blake & Polansky, *Computer Streamlines Caseload at Philadelphia Common Pleas Court*, 53 Judicature 205 (1969).

20. 28 U.S.C. § 623(a)(5) (1976). The Board of the Center consists of the Chief Justice, who by statute is *ex officio* chairman, and the Director of the Administrative Office

Representative McClory, the federal courts could "utilize such modern devices and techniques" as a "great many state courts [had developed] . . . to fully utilize their judicial talent and to expedite the administration of justice."[21]

The congressional interest in these matters was matched by a judicial interest. The Judicial Conference committee that recommended establishment of the Center had noted the need for "scientific study and research, . . . a system [*sic*] analysis of court processes in the light of modern methods of data recordation and retrieval."[22] These exhortations for the importation of "modern management devices" into the federal courts were part of a generalized effort to utilize technology to help the federal courts cope with rising caseloads.

A. Courtran Development

The Judicial Center began operations in 1968 and immediately created four divisions, including the Division of Innovations and Systems Development.[23] The actual design, development, and test operations of what the statute referred to as "automatic data processing and systems procedures" began soon afterwards.

The many computer applications developed by the Center have been subsumed under the umbrella term "Courtran,"[24]

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of the U.S. Courts, who also serves *ex officio*, as well as two active judges of the U.S. Court of Appeals, three district judges, and one bankruptcy judge. The latter judges are elected for four-year terms by the Judicial Conference of the United States. *See* 28 U.S.C. § 621(a) (1976).

21. 113 CONG. REC. 16,202 (1967). There were other substantive purposes for a federal court computer capability. Mr. McClory called attention, for example, to Mr. McCulloch's observation that "the Federal courts could use such machines" to comply with the jury selection requirements of the then-pending Civil Rights Act of 1966. H.R. REP. No. 351, 90th Cong., 1st Sess. 23-24, (1967) (additional views of Rep. McClory) (quoting letter from Representative McCulloch to Emmanual Celler (Aug. 5, 1966)).

22. REPORT OF THE SPECIAL COMMITTEE ON CONTINUING EDUCATION, RESEARCH, TRAINING AND ADMINISTRATION TO THE CHIEF JUSTICE OF THE UNITED STATES, CHAIRMAN, AND THE MEMBERS OF THE JUDICIAL CONFERENCE OF THE UNITED STATES, *reprinted in Crisis in the Federal Courts: Hearings on S. 915 and H.R. 6111 Before the Subcomm. on Improvements in Judicial Machinery of the Senate Comm. on the Judiciary*, 90th Cong., 1st Sess. 35 (1967).

23. The Center has three other divisions—Research, Continuing Education and Training, and Interjudicial Affairs and Information Services. For a description of their work, see [1980] FEDERAL JUDICIAL CENTER ANN. REP. 41-45.

24. For reasons explained below, the terms "Courtran I," "Courtran II," and "Courtran" will be found in Center literature describing the computer applications it has developed. By 1980, these distinctions were no longer observed. Now the term "Courtran" is used solely.

which today consists of some twelve major and thirty-six minor applications that support criminal, civil, bankruptcy, and appellate case management, as well as numerous facets of daily local court management and national research and administration. This system is designed to assist federal court personnel, including judges, administrators, support personnel such as secretaries and law clerks, court reporters, and probation officers. A significant feature of the Courtran system is its use of large computers located in Washington, D.C., rather than smaller computers located in individual courthouses around the country. Federal courts nationwide are linked to these large computers by high-speed transmission lines so that the data for federal courts in Los Angeles and Atlanta, for example, are stored and manipulated[25] in Washington in accordance with instructions provided by local court personnel. The results of these data manipulations are electronically displayed or printed on terminals in the local courts.

Courtran applications have not been installed in all ninety-five federal district courts and twelve courts of appeals.[26] This is due in part to the fact that the system is still being developed. Some federal courts, however, may never elect to make use of the various nationwide applications described below. They may decide that their caseloads or administrative work are not of sufficient quantity to make computer support cost effective, or they may decide not to accept Courtran for any number of other reasons. The Center neither has nor wants the authority to compel courts to accept the system.

1. Initial Design and Development

The Courtran system was conceived and constructed with a great deal of exploration and experimentation. The approach

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25. "Manipulated," in this context, does not have a pejorative meaning, but refers instead to the computational routines that the computer performs on the data.

26. For a discussion of the utilization of Courtran by federal district courts and courts of appeal, *see* text accompanying note 34 *infra*. The Courtran system is completely distinct from the computer technology being developed in the Supreme Court of the United States. Unlike many state supreme courts, the United States Supreme Court has historically maintained its own administrative and research capabilities rather than rely on the more generally available administrative support office. Over the past several years, the Supreme Court has automated the case docketing function in the Office of the Clerk. The Court has also developed a computerized word processing and publication capability that assists the Justices in the drafting and editing of opinions and facilitates the publication of both slip opinions and the bound volumes of the U.S Reports.

taken by the Federal Judicial Center[27] was to experiment with the application of computer technology to federal court management problems until the Center was convinced that the benefits of computer technology were worth the expense of making that technology available to the federal courts on a broad scale. Additionally, the Center—conscious of the judiciary's suspicion of technology—wanted to be certain it could develop computer systems that would be the servants of court personnel. To do so, it was essential to make the internal complexity of the computer transparent to the court personnel who would use it.

The first step in this development effort was the construction of a prototype court support system, called Courtran I,[28] using computer time purchased from private computer companies. The Center subsequently developed a second version of this early, experimental court support system, using minicomputers purchased by the judiciary. These two versions of the system were installed in two large, urban federal courts and tested for several years. As the term "prototype" suggests, the purpose of these early systems was to allow the participating courts and the Center to experiment with various system development approaches and to examine the impact of these computer-based support systems upon the day-to-day operations of the courts. Thus, during this period of pilot operations, a number of work-measurement and management-improvement studies documented results and evaluated whether the expected time savings and improved management support were in fact being achieved.[29]

Whether Courtran I caused time savings was only one question that had to be answered affirmatively if any major extension of the systems could be justified. The systems designed in Washington needed extreme flexibility so they could be used in courts differing greatly in their underlying organizational or administrative support structures. It would have been pointless for the Center to tell the various courts to conform their operations to suit the Center-developed Courtran applications. Therefore, it was essential for the Courtran applications to be independent of

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27. The specific approach taken has been detailed elsewhere. *See* Ebersole & Hall, *Courtran: A Modular Management and Information and Research System for the Judicial Process*, 3 RUTGERS J. COMPUTERS & L. 83 (1973).

28. *See* note 24 *supra*.

29. *See, e.g.*, E. Kulp, Courtran Evaluated by Clerical Work Measurement (1973) (on file at Federal Judicial Center).

and capable of being applied to the many different paperwork or record-keeping systems utilized by federal courts throughout the United States. To achieve this independence and capability, the Center keyed the design and logic of its systems to judicial events rather than any court's specific administrative methods.[30] This allowed courts to elect to use these systems without having to change their operating environments.[31]

The Courtran I system proved sufficiently successful to lead the Board of the Judicial Center to approve the full-scale design and development of an improved version, called Courtran II,[32] to support the federal courts nationwide in a large number of administrative areas.

2. *Centralization*

The Center decided to centralize all major computer hardware (other than terminals and related equipment) required to operate each of the major applications it would develop. Consequently, two computer centers were established in Washington, D.C., one in a downtown office building and another in the United States Courthouse. The local courts, as noted above, would use terminals in their own courthouses, connected to the computers by high-speed telecommunications lines. This decision was dictated by several factors. Centralizing the computers provided what is called "redundancy," *i.e.*, an assurance that computer resources would be available even in the event of limited computer failure. Centralization also facilitated computer expansion as the number of court users and available applications increased, and eased the task of computer maintenance, both corrective and preventative. In essence, the basic computational resources needed to serve the federal courts are located in one city, rather than scattered over the country.

In addition to centralizing the computers, the Center chose

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30. J. Buchanan, Management Information Systems for the Federal Courts, (Nov. 1975) (speech to Conference on Interactive Information and Decision Support Systems, Wharton School of Management, Univ. of Pa., sponsored by Office of Naval Research).

31. The Center wanted to ensure that additional technical personnel would not have to be assigned to the courts to allow them to operate the computer systems successfully once they were installed. Existing support personnel in the federal courts are highly skilled in completing their judicial administration duties. The Center's objective was to provide the courts with a computer-based support tool that would allow supporting personnel to focus their demonstrated talent upon the resolution of case-processing problems.

32. *See* note 24 *supra*.

to use large timesharing computers capable of exercising many different computational functions simultaneously. This capacity was important since the applications would, for the most part, be interactive and tutorial in operation; that is to say, personnel in the clerk's office in a local court would "converse" with the computer, receiving instructions and guidance as they entered caseload data through a terminal in their court. Use of large timesharing computers allowed substantial intelligence to be built into the applications themselves, and this in turn facilitated the identification and correction, at the earliest possible moment, of errors that local personnel might make while entering data into the system. At the same time, this tutorial characteristic reduced the need for extended formal training of court personnel.

3. Ensuring Compatability with Federal Court Procedures

The key to the installation of computer support in the federal courts was ensuring that the technology complemented rather than frustrated court procedures already in place. In essence, what is called "artificial intelligence" had to be built into the applications to ensure both their compatability with general federal court procedures and their adaptability to the specific and parochial procedures found in each court.

To describe the intelligence built into Courtran applications, it might be useful to focus on a single computer support application, Criminal Caseflow Management. Buchanan and Fennell have noted that the Courtran Criminal Caseflow Management System "differs from conventional information systems in that it contains computer models of court procedure embodying the Federal Rules of Criminal Procedure, . . . pertinent regulatory statutes, and local court procedural rules."[33] In effect, the Courtran computers analyze each piece of information reported by court personnel not only for format correctness, as do many conventional computer systems, but also to ensure that the information being reported is entirely consistent with information previously recorded for the case in question and is consistent with local and national procedural rules. Thus, for example, the Courtran system would not allow the entry of

33. Buchanan and Fennell, An Intelligent Information System for Criminal Case Management in the Federal Courts (1977) (Proceedings of the Fifth International Joint Conference on Artificial Intelligence, M.I.T.).

information indicating that the plaintiff's motion for summary judgment had been granted if the court's official electronic records did not show such a motion to be pending. Nor would the system allow a multiple-defendant criminal case to be set for trial if the court's records indicated that one of the defendants was a fugitive. In the latter situation the computer would offer the deputy clerk a number of alternative courses of action that would allow the case to be scheduled. The clerk might alert the court to this fact and suggest that the fugitive defendant be severed from the proceedings or that the trial date be made tentative, contingent upon the apprehension of the fugitive defendant. The intelligence of the Courtran system allows input errors involving procedural problems to be identified and corrected at the earliest possible moment, thereby avoiding disruption to the participants in the process and the creation of inaccurate official court records.

B. The Scope of Courtran Development

The Federal Judicial Center decided early in the development of Courtran that the system should meet the courts' requirements for management and operational support and speed the execution of routine court tasks, as well as provide a support capability for the Center's policy research mission and the research and planning needs of local courts.[34] Below we describe the Courtran applications in each of these categories, highlighting how Courtran has contributed to the expedition of court functions.

1. Providing Management and Operational Support

Case Management: The most important Courtran applications are those designed to serve judges and administrators in the day-to-day management of criminal, civil, appellate, and bankruptcy caseloads. Probably the most extensively developed case management application is the Courtran Criminal Caseflow Management System. Its development was given highest priority in order to help the courts comply with the reporting requirements of the Speedy Trial Act of 1974.[35] The Criminal Caseload Management System—or a variation, the Speedy Trial Act Ac-

34. *See* note 10 and accompanying text *infra.*
35. 18 U.S.C. §§ 3161-3174 (1976).

counting and Reporting System (STARS)—is now in the final stages of development and refinement and is already in extensive use in the federal courts. In fact, these two systems processed information on approximately sixty percent of all federal criminal felony defendants in the twelve-month period ending June 30, 1980.

It is not possible to detail here the various functions these systems provide the courts. In essence, they record the criminal docketing information entered by local court personnel, store that information, and use it to produce, on demand, a variety of management reports indicating the status of the court's or an individual judge's criminal cases in terms of the deadlines set by the Speedy Trial Act.

Since 1980, the Judicial Center has been able to develop and test a further procedure for efficient court management. With Judicial Conference approval, several of the courts that are testing the Criminal System have relieved clerical personnel from having to record docket sheet information on traditional paper records stored in the courthouse. Instead, the court's docket sheet information is electronically recorded in the main Courtran computers, thus creating the official docket, albeit an electronic docket, of their cases. The Courtran system can produce on demand instant paper copies of the docket on terminals installed in the local courts. In addition, the docket information maintained in the computer is regularly provided to the courts on microfiche, from which paper dockets can be generated at any time.

An integral part of Courtran's case management capability is the INDEX system. INDEX is an automated system that provides a limited amount of information about all of the cases—civil, criminal, and bankruptcy—on a judge's or a court's docket. Case lists can be produced as required, categorized according to such things as judge, case age, litigant name, or case type. INDEX is now being used in thirty federal courts which together account for over half the total federal criminal and civil caseload.

Case Scheduling: A variant of the several case management systems is an appellate case scheduling system—CALEN9—developed for the Ninth Circuit Court of Appeals.[36] This system was developed in 1977, at the court's re-

36. A somewhat dated description of this system is in M. LEAVITT, CALEN9: A CAL-

quest, by the Center's Research Division. This program automatically assigns cases to the three-judge panels in which the judges of the United States Courts of Appeals typically sit. The program employs case classification criteria developed by the court, which groups cases primarily according to the cases' estimated degree of difficulty, the length of time the appeal has been pending, and the case type; and secondarily, according to the district court from which the appeal was taken. The program can also summarize and tabulate appeals according to the assignment criteria and produce overview management reports. One judge stated that the application had not only increased the number of cases decided by the court but had also improved the quality of the court's decisions by facilitating the court's grouping of common issues on appeal, in separate and unrelated cases, for argument before the same panel.

In fiscal year 1980, the Center's continued refinement of this system included instituting a more complete reporting system at the request of the circuit. This calendaring capability will eventually undergo further development within the broader framework of the Courtran Appellate Information Management System. The scheduling program is not currently being used to assign judges to the various panels, although it has that capability. The Fifth Circuit has asked the Center to help design a variation of this scheduling program that will randomly assign judges to panels and schedule those assignments for a full year in advance. In response to that request, the Center has already provided the Fifth Circuit with a first draft of a hearing schedule for use in fiscal year 1981.

Other computer-based management applications may focus upon narrower, yet equally important, aspects of federal court operations, such as selecting jurors or improving coordination with other court-related agencies, including the Marshal's Service and the U.S. Attorney's Office.

Computer Assisted Legal Research (CALR): This application was acquired for the federal courts' use following a thorough evaluation by the Judicial Center of three commercially available systems. The evaluation showed that the use of computerized legal research systems did in fact save considerable research time compared to manual research methods and that the

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ENDARING AND ASSIGNMENT SYSTEM FOR COURTS OF APPEALS (Federal Judicial Center 1978).

use of computerized systems improved the quality of legal research, oftentimes complementing or supplementing the results of conventional research methods.[37] As a result of this study, the Administrative Office was able to secure a sufficient appropriation to provide federal courts with nationwide access to this technology.

The Opinion Indexing application supplements Computer Assisted Legal Research by providing a computer-supported electronic capability to search an index of the court's significant legal research still in progress or significant pieces of legal research which have been completed but not published. Judges often discover that an issue on which they have just spent a great deal of research effort has, unknown to them, recently been exhaustively researched by one of their colleagues as part of another, unrelated judicial proceeding. The Opinion Indexing application will make research in progress, or unpublished research, more readily available to all federal judges.

2. *Speeding the Execution of Routine Tasks*

Computer Assisted Transcription (CAT): The Center has evaluated CAT systems (which, like CALR, are also commercially developed and marketed) and has offered one of these systems to federal court reporters on a limited-time basis in an attempt to encourage wider use of this technology. CAT offers court reporters the capability of reducing significantly the time required to prepare a final transcript following the completion of judicial proceeding. Frequently, CAT equipment utilizes a magnetic tape cassette which is inserted in a court reporter's stenotype machine so that his or her key strokes are reproduced in an electronic form on the cassette, as well as in printed form on the paper tape normally produced by the stenotype machine. Following a reporting session, the court reporter, utilizing a cassette reader, electronically enters the magnetically-recorded information into a computer which, in turn, translates the electronic stenotype symbols into natural English and prints out the final English language copy of the transcript. At the present time, about fifty-eight of the approximately 550 federal court reporters are making use of this technology.[38]

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37. A. SAGER, AN EVALUATION OF COMPUTER ASSISTED LEGAL RESEARCH SYSTEMS FOR FEDERAL COURT APPLICATIONS (Federal Judicial Center 1977).

38. A more recent Center study, however, suggests that users in the federal courts

Word Processing and Electronic Mail: Word processing equipment is an increasingly common element of office support systems. The ability of such equipment to expedite greatly the production of manuscripts makes it extremely useful in supporting the work of appellate courts, whose major work product is the written word. Recognizing the fact that many of the judges who sit on the United States Courts of Appeals are dispersed geographically, the Center designed a word processing configuration that allows judges to use existing telephone lines to transmit draft opinions and other case related documents electronically among the word processors in their respective chambers.

Two comprehensive studies on the use of this technology in the Third Circuit Court of Appeals[39] have documented that its use has increased secretarial productivity by up to 300%, reduced the time required by the court to prepare written opinions by 52% for *per curiam* opinions and by 25% for signed opinions, and that the use of electronic mail reduced the delivery time of court documents by almost 85% compared to postal service delivery.

Court Administration: Federal Judicial Center efforts have focused upon the development of a comprehensive financial management and accounting package to support the management of the budget of the federal courts, which in fiscal year 1981 totalled approximately $663,000,000. The Administrative Office of the United States Courts is using this financial management application to administer all federal court appropriations. In the area of administration, the Center has also developed personnel management systems, property management systems, and a planning impact system, all of which have the common goal of improving the capability of local, as well as national, court managers to administer the business of the federal courts.

National Statistics Generation: One of the results of these several case management computer-support systems—by which

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give the technology at best mixed evaluations in terms of its speed and accuracy and are not enthusiastic about its further use in the courts at this time. *See* J. GREENWOOD, COMPUTER-AIDED TRANSCRIPTION: A SURVEY OF FEDERAL COURT REPORTERS' PERCEPTIONS (Federal Judicial Center 1981). Court reporting administration and technology are likely to be pressing and controversial issues in the federal courts for at least the next several years.

39. J. GREENWOOD & L. FARMER, THE IMPACT OF WORD PROCESSING AND ELECTRONIC MAIL ON UNITED STATES COURTS OF APPEALS (Federal Judicial Center 1979); J. GREENWOOD, FOLLOW-UP STUDY OF WORD PROCESSING AND ELECTRONIC MAIL IN THE THIRD CIRCUIT COURT OF APPEALS (Federal Judicial Center 1980).

the federal courts' caseload data are stored in the central Courtran computers in Washington—is the availability of a rich data base containing not only detailed information on current caseloads, but also historical information on past filings, terminations, and modes of disposition. In fact, five of the courts testing the Criminal System are having the computer automatically prepare their official criminal case statistical reports to the Administrative Office—a development that promises significant economies both in the courts and in the Administrative Office, and greater accuracy than the hand-transcribed data.

3. Aiding Research and Planning

The last of the three major court uses of technology is to support research and planning, both by making research information more easily available and by providing the computational resources to analyze it quickly. This aspect of computer technology is vital to the policy research mission of the Judicial Center. The Center, at the request of courts and of the Judicial Conference and its committees, is called upon to assess current conditions and to analyze and evaluate numerous procedures and innovations thought to serve the interests of effective federal judicial administration.[40] To support policy research, the center has built into the Courtran system a number of powerful software research tools, including sophisticated statistical analysis capabilities.

Courtran also will provide, as noted above, a rich data base on federal case filings. Judicial Center research on federal caseload and case management usually requires substantial effort to collect such information—either from Administrative Office records or from files in the individual courts—and convert it into a form in which it can be computer analyzed.[41] Once the Courtran system has federal caseload information available as part of its data base, it will be able to provide researchers both the analytical tools and the data necessary for effective research.

To date, computer technology in support of research efforts has been used most extensively in analyzing the impact on the federal courts of the Speedy Trial Act of 1974, in completing a

40. For information and an analysis of the Center's policy research, see Levin, *Research on Judicial Administration: The Federal Experience*, 26 N.Y.L. SCH. L. REV. 237 (1981).

41. *See, e.g.*, S. FLANDERS, note 10 *supra*.

comprehensive report on the quality of advocacy in the federal courts,[42] in analyzing the initial period of operation of Pretrial Services Agencies,[43] and in assisting the operation and analyzing the results of local rules in three federal courts that provide for court-annexed, mandatory, but non-binding arbitration in certain civil cases.[44]

C. *Transfer of Courtran to the Administrative Office*

The major task facing the Center in the years ahead is to continue to develop systems—not necessarily large computer systems, but certainly technologically responsible systems—to assist the federal judiciary in case and court management. To do otherwise would not be faithful to the Center's research and development mission. Once systems are fully developed, however, they no longer need to be, nor should be, maintained in a research and development agency. Consequently, the Center for the last several years has been working closely with the Administrative Office of the United States Courts to design the most suitable plan for the transfer of responsibility for operation of those Courtran systems deemed to be operational from the Center to the Administrative Office. The first phases of that transfer were effected on October 1, 1981.

III. EVALUATION

A. *Evidences of Accomplishment*

Employees of the Center might not be ideal candidates to assess Courtran's value. A variety of additional evidence, however, shows that much more than our own experiences justifies a positive view. In a short time period, two major timesharing computer centers have been built and put into operation, a highly qualified professional staff assembled, and a nationwide telecommunications network installed. Over four hundred computer terminals have been acquired and placed into operation in federal courts, in the Federal Judicial Center, and in the Adminis-

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42. A. PARTRIDGE & G. BERMANT, THE QUALITY OF ADVOCACY IN THE FEDERAL COURTS (Federal Judicial Center 1978).

43. *See* Federal Judicial Center, *Appendix B, Final Report: PSA Data Analysis Project*, in ADMINISTRATIVE OFFICE OF THE U.S. COURTS, FOURTH REPORT ON THE IMPLEMENTATION OF TITLE II OF THE SPEEDY TRIAL ACT OF 1974 (1979).

44. A. LIND & J. SHAPARD, EVALUATION OF COURT-ANNEXED ARBITRATION IN THREE FEDERAL JUDICIAL DISTRICTS (Federal Judicial Center 1981).

trative Office of the United States Courts to support the twelve major and thirty-six minor Courtran applications now being utilized. Development work on a large number of new applications is progressing on a broad front, and a number of innovative software techniques are being developed to allow the Judicial Center to increase the quality of support provided to the courts. Operational systems are being transferred from the Center to the Administrative Office for operation as part of the regular administration of the federal courts.

The Center classifies five computer support applications as completely successful: Computer Assisted Legal Research (CALR), Appellate Calendar Control (CALEN9), Financial Management, Word Processing and Electronic Mail, and the research support capability. Five other applications would appear to be well on their way to complete success: Criminal Caseflow Management, National Statistics Generation, the Central Violations Bureau Support System, INDEX, and the Speedy Trial Act Accounting and Reporting System. A large number of additional applications in day-to-day use by the federal courts are still being evaluated, while others have been completely designed and are under active development. Still others are in the design stage, such as a nationwide Probation Information Management System, requested by the Judicial Conference of the United States to improve planning and management of the probation services and to provide judges with a data base on national sentencing practices as one means of reducing unfair sentencing disparity.[45]

Studies conducted for and by the Center give evidence that the federal courts are realizing significant benefits from their use of computer technology. A recent report documents that computers have increased the federal courts' ability to provide service to litigants, the bar, the press, and other interested parties.[46] The report further documents significantly improved internal court operations, more accurate and readable court records, improved coordination between agencies in the judicial community, reduced clerical time required to prepare court records, and increased security and availability of these records.

The cost of providing these benefits has been documented

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45. *See* [1977] REPORTS OF THE PROCEEDINGS OF THE JUDICIAL CONFERENCE OF THE UNITED STATES 74-75.

46. P. MURRAY, THE COURTRAN PROJECT: A BENEFIT ANALYSIS (Federal Judicial Center 1980).

in a companion study[47] that shows, for example, that if the Center were providing Speedy Trial Act time accounting support to all federal courts, it would cost between $2,200 and $2,600 annually per court. The computer application providing Central Violations Bureau support to all federal courts would cost between $3,400 and $4,500 annually per court. This is only a fraction of the cost of adding a single new court employee to perform these functions, and in many cases adding one employee would be totally insufficient to complete the work that can be done by the computer.

Of course, these benefit measures are not sufficient to measure the impact of a complex computer-based case and court management system on the federal courts. The attitudes of the users must also be considered. Again, any evidence on this score must necessarily be impressionistic, for we have not seen the need nor the justification for any elaborate user survey to gauge those attitudes. We are aware of the negative attitudes of those judges and court personnel who see little benefit from the various systems, or who would structure the systems somehow differently, or who doubt that the benefits derived have been worth the cost.

We would be less than candid, however, not to acknowledge a body of correspondence,[48] accumulated over the years, that evidences significant appreciation for the system on the part of both judicial and support personnel. The chief judge of one of the United States courts of appeals, for example, reported that "manual processing led to the 'loss' of some appeals and unreasonable delays in the processing of others. The computer has enabled us to gain effective control of the management of our caseload. . . . We are deciding more appeals more quickly because these tools are available."[49] Similarly, the chief judge of one of the largest district courts reported that Courtran

> as a whole enables our Court to provide the members of the bar as well as our general public and other governmental agencies with improved service and with more accurate and timely information. . . . [Our clerk can] more effectively . . . report on the status of the Judges' calendars, and provide calendar reports, motion reports, scheduling reports and other useful

47. DIVISION OF INNOVATIONS AND SYSTEMS DEVELOPMENT, THE COURTRAN PROJECT: A COST ANALYSIS (Federal Judicial Center 1981).

48. Letters on file in the Office of the Director of the Federal Judicial Center.

49. *Id.*

information.[50]

This evaluation may be all the more meaningful because of the judges' frequent assertion of special conditions in the judiciary: "[t]he concepts involved in court and case management are defiant and make computerization of the courts much more difficult than it is of business."[51] The chief judge of another large metropolitan court commented on "the flexibility of the system." "[W]hen the Speedy Trial Act was amended," he said, "[t]he Center was able to change Criminal Courtran immediately to incorporate these changes without any significant delay. . . . There is no comparison between the reports that are currently being generated by the system and the ones previously produced manually."[52] Moreover, another chief district judge wrote, "Our Clerk reports that the system has reduced by at least fifty percent the amount of staff time required to prepare the Speedy Trial Act data which must be submitted to the Administrative Office with a significant increase in accuracy."[53]

The clerk of the federal court in a moderate-sized city wrote that Courtran "allows us to do things we could never have done without it. I am not referring," he continued, "to luxuries and frills either. It assists us with daily tasks at real personnel savings, and . . . it provides many more services than most people know."[54] He also reported on the benefits the system provides to other than the largest courts:

> [A] one-judge court may not require the frequent analysis of data and experience that a ten judge court may, but . . . a five judge court desiring to reduce an ever increasing pending caseload and stay out of administrative bankruptcy certainly needs help. The larger staffs of the bigger courts allow for managers and analysts that mid-size courts can't have.[55]

A clerk in a larger court, careful to point out that he does "not blindly endorse automation," noted that "Courtran has enabled us to eliminate a number of duplicative, boring, error prone manual tasks associated with the compilation of statistical information" and "has greatly improved the accuracy and complete-

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50. *Id.*
51. *Id.*
52. *Id.*
53. *Id.*
54. *Id.*
55. *Id.*

ness of information relating to the types of cases being filed in our Court. We are, consequently, much more responsive to inquiries from the bar and the public about our caseload."[56]

We hasten to aver what we implied above: it would not be difficult to assemble a set of testimonials—from other federal judges and support personnel—that cast doubt on the utility of automation. This skepticism, in fact, is one of the more powerful motivations for the Center to continue to seek ways to improve the automated support it provides the courts. Nevertheless, the acid test of a major innovation such as Courtan is not its ability to achieve universal acceptance. Instead, the results of the best evaluation possible, based on as much evidence as is available, should prove the innovation's ability to meet the needs it is designed to meet. Such an evaluation of the Courtran program clearly shows there is a constituency for automation among federal court personnel that was not present when development of these systems began.

B. Accounting for Courtran's Success

There are at least three fundamental reasons for whatever success the Center has achieved in its ability to develop and install complex computer-based support systems in the federal courts.

Reliable Funding: Through fiscal year 1981, Congress had provided the Center with appropriations of approximately $24 million to produce the computer system described above. Although this represents only two-thirds of one percent of the total federal judicial system budget for the time period in question,[57] the funds are nevertheless considerable. Congress has provided these appropriations on an annual basis, once it was satisfied with the justification offered by the Center.[58] With Congress's investing the substantial sums necessary to construct the Courtran system—and thus fulfill an objective that Congress

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56. *Id.*

57. For the ten years in which these $24 million were appropriated, the United States court budgets (exclusive of the Supreme Court) totalled $3,655,705,000. These figures on total judicial appropriations are derived from the summary tables in the annual publication, EXECUTIVE OFFICE OF THE PRESIDENT, BUDGET OF THE UNITED STATES GOVERNMENT, for each of the last ten years.

58. To say that the Congress supports the Courtran program is not to say that the Congress has not closely monitored Courtran development nor expressed concern about its pace. *See, e.g.*, H.R. REP. No. 96-247, 96th Cong., 1st Sess. 43-44 (1979).

itself largely helped set[59]—federal court automation has enjoyed a steady source of funding, in contrast to the short grant cycles that characterized, perhaps necessarily, LEAA support of state court technological improvement. Two- or three-year grants for technological innovation are unlikely to provide the time necessary for developing plans, evaluating prototypes, reconsidering objectives, and developing and implementing revised plans.

Board Support: The Board of the Federal Judicial Center[60] has supported the development of the Courtran program from the outset. The endorsement of this group of six (now seven) judges—including the Chief Justice—and the Director of the Administrative Office has surely served to legitimize it in the eyes of more skeptical judges who are not so familiar with it. Furthermore, the Board has provided policy direction to Courtran's basic developmental course.

User Involvement: Since the Courtran program was initiated, the Center has consistently involved the potential users of the system in the design and development of the applications. The decision to involve the users did not represent an effort to sell the system as much as it did a recognition that the system would be of little value to users whose needs and preferences were not reflected in the design of the system.

59. *See* notes 20 & 21 and accompanying text *supra*.
60. *See* note 20 *supra*.