

project. WIRE became the name for an online search service that was started with federal funding as a demonstration project by the Wisconsin Department of Public Instruction to provide Wisconsin educators with individualized access to current educational research and resource information. It followed a batch-mode system for the ERIC database called WISE (Wisconsin Information System for Education) that had been written for the University of Wisconsin's CDC 3600 computer by Thomas Olson, a computer science student (Spuck et al. 1974).

WISE-ONE was the name given to the online search software that ran on the UNIVAC 1110 at the UW-Madison computer center. WIRE, the online service, started operation in November 1972, with access to the ERIC file of over 100,000 bibliographic records and abstracts. The project operated on a cost-recovery basis, with a charge of \$10–\$25 per search. Search requests were submitted to a central facility for searching. With funding from the UW School of Education and Wisconsin state agencies, Olson, Donald McIsaac, and Dennis Spuck of the School of Education and Tally of the Wisconsin Department of Public Instruction developed the WISE-ONE software (McIsaac and Olson 1973; "Information retrieval" 1974). The WISE-ONE program was also a class project in computer science at the university (Olson et al. 1975). The objective of the four partners was to create a statewide system for education using the resources of the university, WISE-ONE, and the Wisconsin Department of Public Instruction and make it available to educators at all levels. They also wanted to save the cost of their expensive connection to the Boulder computer center. WIRE was available directly to school district administrators, teachers, and specialists.

With federal support, the campus Center for Studies in Vocational and Technical Education ran a WISE-ONE demonstration project on the UNIVAC 1108 at UW-Madison from December 1973 through June 1974. Nine terminals were located in volunteer districts in the state, and access provided to ERIC via dial-up phone lines at rates of

10 to 30 cps. The four separate files could not be searched simultaneously.

The search system used Boolean operators, but provided access only by author's last name or assigned subject headings. For ERIC reports, the online output was limited to ERIC accession number, author, and title. For journal articles, output was limited to these data plus journal name, volume number, and pagination. Abstracts could be printed offline for next-day mailing by a command that formulated the search statement for a batch run on the ERIC tapes.

A SAVE command was available to preserve search strategies or portions of search strategies temporarily. The volume of searching during the demonstration project grew to a peak of 222 searches per month at the end. In late 1974, in order to make better use of project resources, terminals that had been in eight districts were consolidated in the four districts where the user population had expressed the most interest, or where the district operating personnel seemed most anxious to disseminate ERIC information (Lambert and Grady 1975).

Through 1974–1975, the group gradually converted the WIRE service over to use the WISE-ONE system. Because the computer center supported interactive dial-up computing, searching was interactive from the start. In 1974, online access to ERIC was available to any interested party, at a rate of \$1–\$3 per connect hour. Over a thousand searches were performed during the years 1972–1976. WISE was still in operation online at the end of 1976 (WISE search 1977).

JURIS

In early 1970, lawyers and librarians at the Justice Department in Washington, DC, began planning an information system that would improve the quality and uniformity of the department's legal briefs and opinions and speed up judicial proceedings (Morrissey 1970). Their goal was to give lawyers in every legal office throughout the country rapid access to a central source of all significant prior

research material generated within DOJ. This included legal handbooks, form books, appellate briefs and legal memoranda, along with legal policy and procedures documents, summaries of significant reported decisions, case file intelligence, and evidentiary material for protracted cases (Kondos 1971). At that time, over 2,500 DOJ attorneys were handling over 60,000 civil and criminal cases annually, involving varying degrees of legal research.

These goals spawned JURIS (Justice Retrieval and Inquiry System), conceived as an online, interactive system with access from remote terminals. A pilot was started in late 1970 or early 1971, in which a single terminal in the main DOJ building in Washington was connected to NASA/RECON about ten miles away in College Park, Maryland. The database used in the pilot contained the full text of 600 appellate briefs and 130 selected legal memoranda in the area of search and seizure, the DOJ *Manual on the Law of Search and Seizure*; the 26,000 sections of the *U.S. Code* (extracted from the Air Force LITE file) and proposed revisions of the criminal code, and extracts from 500 general evidentiary documents for a protracted case (Losee 1971; Kondos 1971). The goal was a preliminary testing of the concept. Soon after, the NASA/RECON program (a DIALOG copy), obtained through COSMIC, was installed in the Justice Department where it was modified and transformed into what came to be known as JURIS. George Kondos, a DOJ staff member, assumed the major responsibility for JURIS from then until well into the 1980s. Kondos was introduced in chapter 5 when he wrote an article on the potential of DIALOG for legal information.

In 1971, there was consideration of transferring LITE to the DOJ. DOJ staff had already converted the *U.S. Code* file to JURIS from LITE (Stevens 1973). In 1972, JURIS consisted of a mix of programs from several sources: (1) NASA/RECON software developed by Lockheed (the main bulk of JURIS); (2) NASA/STIMS file maintenance programs; (3) USAF LITE (chapter 7) text parsing programs for processing full-text information; and (4)

program modifications made by the JURIS project staff (e.g., special utility routines for tape format conversions such as LITE to RECON). Plans announced in 1972 called for installation of four remote terminals in the main DOJ building and one station outside at a U.S. Attorney office in one of the ninety-three judicial districts, with the remaining ninety-two districts to receive their terminals within a year (Basheer 1973). JURIS was designed to operate on an IBM 360/40. Response time on the pilot system was in the range of 1–10 seconds.

Starting in 1972, DOJ used JURIS also for in-house private file work for litigation support, including several major racketeering and organized crime cases. During 1972 and 1973, however, JURIS remained in the experimental stage. By mid-1974, even though seven terminals were operating (in 5 U.S. Attorney offices, 1 at LC, and 1 at the Department of Agriculture), the database was still too limited to be of much research value. Therefore JURIS was used mainly for training, occasional search requests, and demonstrations to attorneys, key department officials, legal and technical representatives from other government agencies and various states and foreign countries. Even so, a small test of the system suggested a five-to-one savings in attorney time over traditional research methods. Attorneys who did not have access to a JURIS terminal were encouraged to request searches by phone or mail (Kondos 1974).

To supplement the small JURIS file, DOJ contracted in 1974 with Mead for access to LEXIS. LEXIS provided the federal case law material, so that part of the original JURIS goal was accomplished. From then on, DOJ concentrated its JURIS use on special in-house files and applications, particularly to support investigations and litigation. Over the next several years, JURIS was used extensively in-house to support the building and searching of hundreds of private files associated with DOJ investigations and court activity; for example, it was used in the antitrust litigation against West Publishing (Rubin 1998).

In early 1974, based on functional specifications written at Justice in 1972 for the design of a system that built on the experience gained to date, DOJ staff completely redesigned and rewrote the NASA/RECON software being used for JURIS to add a full-text search capability, and to make it compatible with LEXIS so that attorneys could access LEXIS case law or JURIS memos and briefs from the same CRT terminals. Mead Data Central supplied the terminals to Justice. The new system, operational in mid-1974, also permitted expansion to over one hundred terminals without degrading response time (Kondos 1974).

With more terminals, the department expanded its training program in 1974–1975 by bringing hundreds of U.S. attorneys and assistants from their field offices to Washington and New York for intensive two-day training sessions. In July 1975, a “circuit riding” program sent trainers to the field offices for on-site instruction. By August, almost a third of the 3,000 DOJ attorneys had been trained in LEXIS and JURIS. Many made helpful suggestions for materials to add to the JURIS databases.

Using Boolean logic, a JURIS user could search combinations of key words, either in the document as a whole, or specified within a single sentence or within a range of a certain number of sentences. The search terms could be nouns, verbs, judges’ names, or numerical citations. A searcher could display the documents retrieved or just a KWIC display in which the terms and a specific number of words on either side of them were shown, in order to judge relevance. The entire document could be displayed or just those pages containing the search terms—a helpful feature in long documents. Creating another set of displayed documents with different terms was accomplished by merely typing in the new terms. Another set of documents was compiled, separate from the first. Searching JURIS thus involved building sets of data into a search “tree,” so users could branch off in different directions.

A special feature of JURIS in 1974 was a display of the entire search history on the terminal, with the sets of documents listed by set numbers to which

the searcher could refer. Hambleton (1976, 202) described this feature: “At any time the user can go back to an earlier set without erasing those sets compiled later. Other systems allow a searcher to modify his tactics from level to level, but at any point, if he retraces his steps, all information collected beyond the point to which he returns is lost. The JURIS searcher may at any time return to an earlier set and then return to that last of items compiled without losing any data.”

From July 1974 through May 1975, DOJ assessed the operational and economic advantages of automated retrieval systems for legal information. Searchers could access either JURIS or LEXIS from the same terminal. In mid-1975, at the end of the evaluation, the results indicated overwhelming user acceptance, with great time savings and more satisfactory research when using a computer. DOJ management then approved further JURIS development and authorized a new terminal designed specifically for JURIS and its users. The newest version of JURIS was expected to be operational by spring 1976 (Hambleton 1976).

In August 1975, MDC and Justice were unable to agree on terms for a new contract, so the LEXIS subscription was canceled. Federal case law had not been added to JURIS since 1974, so the file had little case law. A remedy for the problem was to borrow the case law database on magnetic tape from FLITE (Federal Legal Information Through Electronics), an old Air Force project. Version 2 of JURIS was implemented in early 1976 and continued operating without further significant modification into the 1980s.

DDC DROLS

As mentioned in chapter 4, the DDC online system became operational on March 31, 1972. During the period 1972–1974, when about thirty users were accessing the system, DDC assembled a team of in-house systems personnel to redesign the existing system as a real-time multi-activity online system that used one program to accommodate up to 128 concurrent users. The primary designers were