DESIDOC Bulletin of Information Technology, Vol. 16, No. 1, January 1996, pp. 17-23

Georgia's GALILEO—A Step into the Future

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ABSTRACT

The article describes a telecommunications network conceptualised in the University System of Georgia for educational, economic, technological and cultural development of all sections of users. The various aspects of GALILEO and technological resources used are presented.

1. INTRODUCTION

The library administrators of University System of Georgia (USG) have had a long, sustained history of cooperation, networking, and resource sharing. Since their formal organisation in 1968 into an advisory committee to the USG Chancellor and his Staff, the Regents Academic Committee on Libraries, they have discussed and debated issues of resource sharing. The group quickly recognised that library resources can be effectively shared only through library automation and the application of telecommunications technology.

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In 1989, PeachNet, a telecommunications pathway to connect all thirty-four institutions in the USG, began. A newly appointed Vice Chancellor for Information Technology invited the librarians to proactively work with him and his staff to plan our future. The planning group conceptualised and discussed the plan that was to eventually be named GALILEO (Georgia Library Learning Online). It could not, however, emerge as a viable program until 1994.

A new Chancellor for the USG, Dr Stephen R Portch, arrived in the summer of 1994 and immediately called for proposals for projects which would be technology-intensive, benefit all levels of institutions in the USG, and would have obvious benefit to undergraduates. The four-year old library proposal was exactly that. After some consultation and discussion, Chancellor Portch incorporated the proposal into an array of initiatives for which he was seeking support from the Governor and his staff, and then funding from the Georgia Legislature. The Legislature approved and funded *A Vision for One Statewide Library*, the name used by the Chancellor and his staff for GALILEO, for 10 million dollars to be spent in Fiscal Year (FY) 95 and FY96. We were off and running—and faced with immediate deadlines and more questions than could be articulated—not to mention answered!

GALILEO is a USG initiative with an open design and architecture and an invitation to other collaborating partners to join. The collaborating partners include the publicly funded technical schools, the private colleges and universities, the public library systems, and the K-12 (Kindergarten to Grade 12) public school media centres [See Fig 1]. In essence, with all collaborators participating, a statewide information infrastructure supporting educational, economic, technological, and cultural development will be in place. GALILEO, with an array of electronic information sources and enhanced user services, places Georgia in the forefront of information technology applications. Other states have statewide networks, but few have the breadth and depth of GALILEO. Governance, communications, and oversight of the project will continue to change as more partners join. A major challenge will be to maintain the sense of 'bottom-up' development and collegial participation based on shared values rather than top down dictation as is the case in some networks.

2. COMPONENTS OF GALILEO

GALILEO has the following eleven components:

1. Electronic information resources,
2. Core academic journals, indexes, and full text,
3. Research journals,
4. State census data,
5. Distribution of state publications,
6. First Search,
7. *Encyclopaedia Britannica*,
8. PeachNet,
9. Automating libraries,
10. Retrospective conversion, and
11. Universal borrowing.

2.1 Electronic Information Resources

A number of electronic information resources are part of this project. It was decided that the needs could best be served by establishing two database servers in the state for locally mounted resources and also using these servers as gateways to other resources available elsewhere on the

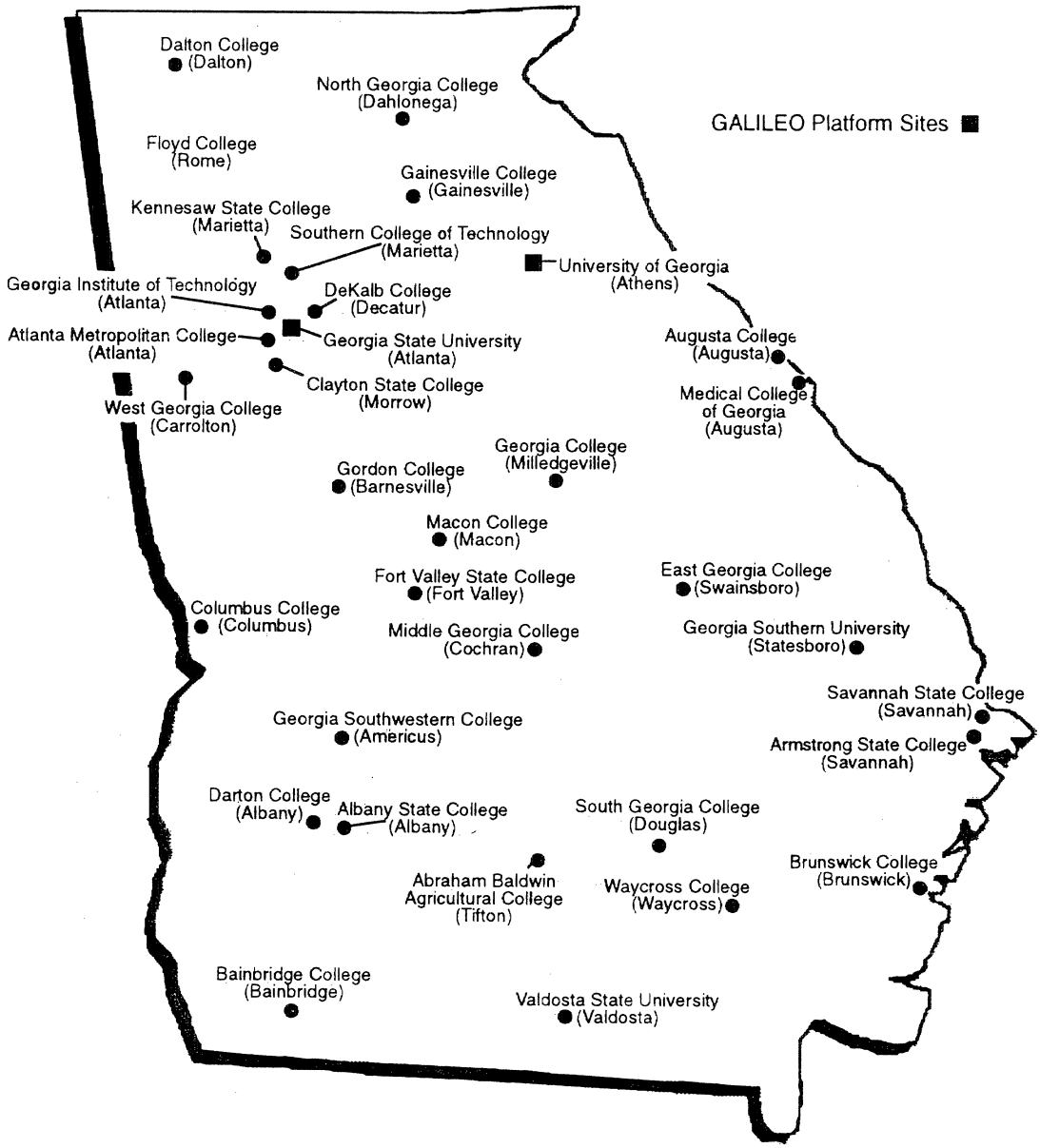

Fig. 1. University System of Georgia Institutions

Internet. Database servers are located at the University of Georgia in Athens and Georgia State University in Atlanta.

OCLC's Site Search was selected as a search engine because it is a local version of the search engine used for OCLC's First Search. Access to First Search was highly desired by librarians in the USG and Site Search, as a local search engine, provides seamless linking to First Search.

An added, critical advantage of Site Search is that it is fully compatible with the Z39.50 standard for open information systems. Further, OCLC offered a package called WebZ which is a set of development tools and supports the creation of pages and forms that are compatible with the various browsers that have been created for the World Wide Web. Mosaic and Netscape are the two most commonly used browsers and they provide a graphical interface that makes use of the Internet and the World Wide Web much easier and more exciting. The combination of Site Search and WebZ permits an arrangement where the client workstations simply requires a web browser like Mosaic or Netscape. Development time is greatly reduced, and there is no special software to distribute to the client workstations.

Of course, support for a graphical user interface requires a sophisticated workstation. IBM compatible workstations with Pentium processors and 16 megabytes of memory running Microsoft Windows for Workgroups were selected. These were connected to local area networks in each library which were in turn connected to PeachNet. For those users who did not had access to workstations that could support a graphical web browser, support was provided by Lynx, a software package that can take a graphical page from the World Wide Web and display it on a non-graphical or character-based workstation. Thus, wide access to GALILEO was made available.

2.2 Core Academic Journals, Indexes and Full Text

There are about 2,500 core academic journals that are required to support any program of undergraduate instruction. One of the main goals of this project is to provide all students and faculty with indexes and abstracts to these core journals. In addition, (and this is a key component) the full text of many of these journals is now available through third party vendors. GALILEO provides indexes and abstracts to these core academic journals as well as the full text of as many of these journals as are available.

After considerable investigation and comparison, the databases of University Microfilms Inc. (UMI) were selected. Two of the UMI databases were of major interest: *Periodical Abstracts*, a database that covers about 1,600 journals in all fields and provides the full text of about 650, and *ABI Inform*, a database that covers about 1,000 journals in business and economics and provides the full text for about 500 journals. Together, these two databases provide indexing and abstracts for over 2,600 titles and the full text for over 1,100 of these titles. Full text coverage for additional journals is being added on an ongoing basis.

In addition to *Periodical Abstracts* and *ABI Inform*, the following UMI databases have also been acquired:

- *Business Dateline*—a full text database drawn from regional business magazines and the business sections of a variety of newspapers;
- *Newspaper Abstracts*—provides indexing and abstracts for 29 US newspapers; and

- *Dissertation Abstracts*—compiles abstracts for all doctoral dissertations written in the U.S.

Also, *ERIC*, a file that provides indexing and abstracts for articles and reports in education is available.

2.3 Research Journals

Beyond the core academic journals, there are many journals that record and report research. These research journals are essential to university level institutions as well as to faculty and students throughout the System. *Current Contents* was selected to support access to research journals. Mounted on the GALILEO database servers, this database indexes over 7,500 research journals in all disciplines and provides abstracts for journals in the sciences and social sciences. Coverage back to 1992 has been made available and the database is updated weekly.

At this time, full text is not available electronically so articles that are not held by the home library must be requested through interlibrary loan. To expedite this process, holdings information for the USG libraries will be loaded and connected to the citations. Thus, students and faculty will search *Current Contents* and locate articles of interest. They can then quickly determine if their local library owns the article. If not, they will be presented with a interlibrary loan request screen that they can complete online. This request will go to their local interlibrary loan office and forwarded to the holding library. High speed telefacsimile (fax) machines and staff have been funded for the larger libraries for this purpose.

2.4 State Census Data

The data contained in the US Census pertaining to Georgia are of great interest for research and instruction as well as for economic development, but the process of obtaining needed data is cumbersome and obsolete. As part of GALILEO, the most used portions of the US Census will be digitised and mounted online and made available throughout the state and to others on the Internet. It is expected to be available in early 1996.

2.5 Distribution of State Publications

Under state law, the University of Georgia Library is responsible for acquiring and making available all publications of state agencies. To meet this obligation, funding has been provided to scan and store these publications electronically and distribute them across PeachNet. Universal access to these publications will support instruction, research, and service activities at all University System institutions as well as provide a valuable public service by permitting anyone with access to the Internet to view these documents. Funding has been provided for the hardware and software needed to scan, store, and distribute these publications and for staff to do the work. This portion of the project will be operational in early 1996.

2.6 First Search

The strategy adopted for GALILEO is to mount the most heavily used databases locally on the two database servers in the state and then to rely upon First Search for those databases whose volume of use does not justify the expense of local mounting.

Analysis indicates that the more frequently a database is used, the more economical it is to load it locally. When fully implemented, users will not know if a database is mounted locally on Site Search or is available remotely on OCLC First Search.

2.7 *Encyclopaedia Britannica*

In addition to the above services, an arrangement was also negotiated to provide access to the World Wide Web version of the *Encyclopaedia Britannica* to all students and faculty of the University System of Georgia. This prestigious online encyclopaedia is updated continuously and also provides links to other resources on the Internet. For example, if a patron retrieves the article on 'nematodes,' he or she can read the article and then connect to an information service on the subject maintained by the University of Nebraska.

2.8 PeachNet

An important part of the GALILEO project consisted of connecting all System libraries to our state telecommunications network, PeachNet. Fortunately, only two libraries were not connected at the time the project was funded, but they had campus projects already underway. Thus, no initiative funds were needed to make network connections to libraries. Another concern for network services was off-campus instruction sites. Seven approved centres were designated for inclusion within the project. Moreover, since all centres except two were already connected to the network, funds only had to be provided for PeachNet connections at those sites.

2.9 Automating Libraries

GALILEO includes a component to automate unautomated USG libraries. Although most libraries in the University System had automated their catalogues and most services, there were still seven two-year colleges who had not begun the process. Automating these remaining libraries is important because it was recognised that significant portions of each library's collection, regardless of its size, are unique within the University System. An important goal was that all students and faculty be able to search the bibliographic files of all libraries through on-line catalogues and union lists.

An automation plan was developed to share the PALS automated library system at Georgia State University and the DRA (Data Research Associates, Inc.) automated system through DeKalb College. As it turned out, four colleges selected PALS and three selected DRA. The project provided computer upgrades at both Georgia State and DeKalb, as well as a minimum of four workstations at each institution dedicated to the automated system.

2.10 Retrospective Conversion

To enhance resource sharing, GALILEO provides funds to convert all remaining USG catalogue records to machine-readable form. This effort is closely related to the automation plan. While most libraries had automated and converted most of their records, significant portions of many collections remained only in card form. A survey showed a total of 1,592,759 records to be converted, representing monographs, serials, audio-visual (A/V) materials, rare books, and a large number of government documents. Since funds were restricted, priority was given to libraries that were not automated and to general circulating collections. Accordingly, about 650,000 catalogue records will be converted to machine-readable form as part of the GALILEO project by OCLC. The South-eastern Library Network (SOLINET) provides training and support for institutional profiling, as well as project management. All records were added to the OCLC database, significantly enriching information available to all library users.

2.11 Universal Borrowing

A portion of GALILEO which supports universal borrowing will require some time to implement. Not every document can or will be available in electronic form. Documents will still need to be moved around the University of Georgia System. GALILEO uses both fax and document delivery for document transfer. To make more effective use of fax, standardised fax machines were purchased for each library so that articles and shorter documents could be faxed among system institutions. Moreover, large, high-speed fax machines were placed in each university with a high volume of interlibrary lending. These are state-of-the-art fax machines, using a planetary scanner and digital copier. With this design, books and bound journals can be faxed face-up, with the operator only having to turn pages and transmit the image. The need to photocopy prior to faxing or to place a document face-down on a platen for each fax transmission is eliminated, thus, considerably speeding up the process of sending copies between libraries.

Delivery of larger documents is by a conventional delivery service. A system-wide contract with United Parcel Service (UPS) is providing second-day delivery between colleges and universities of the USG. UPS is providing special shipping materials, drop boxes, collections and deliveries at each library. Standardisation of materials and preprinting of shipping labels will reduce overhead and simplify clerical routines to send interlibrary loans. Also, as part of the premium service, UPS fully tracks each shipment and guarantees delivery within the contract time. The service, however, is only to be used among units of the University System since billing is centralised and supported by the GALILEO Project.

Another aspect of the Universal Borrowing component of GALILEO concerns a central database of eligible borrowers. The USG has had, for a long time, a system-wide card that can be issued to faculty and students wishing to use another library in the University of Georgia System. The card, however, must be individually processed and is not always carried by students or faculty wishing to borrow materials from another institution. To improve access, a database is being constructed at Georgia State University with the patron records of faculty, staff, and students at all thirty-four USG institutions. Each college and university will be responsible for maintaining its records and will be able to query the database to verify if a borrower from another campus is valid. The existing campus identification card will still be used for identification, but verification will be on-line over the network.

3. THE FUTURE

GALILEO, then, includes an array of electronic information sources ranging from full texts of journals to an encyclopaedia to census data on the state of Georgia. Its graphical user interface makes it easy to use and its foundation on commonly used Web browsers like Mosaic and Netscape make it readily accessible. While still in its early stages of operation, GALILEO shows every sign of being successful and plans are underway to bring in other collaborating partners: other academic libraries, public libraries, technical school libraries, and K-12 media centres in the state.

Through Regents Academic Committee on Libraries, joint acquisition decisions are being made to select databases for mounting locally. Decisions are made on the basis of what resources have the broadest appeal across the USG: basic periodicals indexes, broad coverage

business index, a general encyclopaedia. Broad-based appeal will continue to be a criterion as librarians consider resources such as basic directories, basic literary reference sources, primary newspapers, and databases to support the many nursing and allied health programs offered in USG institutions. Acquisitions and collection management decisions, including such issues as journal cancellations, collection analysis, remote storage of paper materials, collection use, and preservation will be considered in the context of supporting the State, rather than a single institution. Initially those decisions will be made among the 34 USG institutions, but in future, collection management decisions could be made among other types of libraries based on collecting interest and geographical location.

Electronic reserves is another area for consideration. Many of the documents which faculty currently reserve for students in their classes could be scanned in and made available electronically. This would support distant learners, reduce staff time used for checking in and out reserve documents, and improve accessibility.

It is anticipated that funding for GALILEO will continue in FY97 from State lottery funds. The funding beyond that is less certain. With a decline in State revenues predicted after the 1996 Summer Olympics, there may be less interest in funding GALILEO. It is certain that the librarians must be prepared to document the benefits received from GALILEO funding; those benefits must be statewide and be clearly evident to the taxpayers.

Despite a number of challenges, GALILEO's future is bright. A statewide information infrastructure which can support educational, economic, technological, and social development throughout the state and brings the Internet to citizens and students regardless of economic or geographic status represents access to excellence and supports Georgia's efforts to become a global leader.