

FLORIDA CENTER FOR LIBRARY AUTOMATION
Information and Communication
Technology Resources
Strategic Plan
July 1996-June 2001
November 1995

EXECUTIVE SUMMARY

Florida Center for Library Automation

Mission: Through the use of information technology, assist the SUS libraries in their role in instruction, research, and public service and increase the productivity of library staff.

FCLA maintains the software system that provides online access to the collections of all the SUS libraries. This system, which is known publicly as LUIS (for Library User Information Service), provides separate access to each university's library collection and, for author and title queries, provides access to all the SUS collections simultaneously. Additional information resources such as journal article indexing and abstracting databases; gateways to other library catalogs including the Library of Congress; gateways to commercial information providers; and links to campus information systems have contributed to making LUIS an indispensable tool for students and faculty whenever they use the SUS libraries as part of their classwork or research. Enhancing LUIS to provide students and faculty with more information vital to their work is the essence of this new five year plan.

During 1996/97-2000/01, FCLA's role will be to provide services to libraries and library users as stated in the following goal statements:

Maintain and enhance the existing library management system to support SUS library operations in the most cost effective manner.

Improve access to the SUS library collections through enhancements to the LUIS system.

Provide PCs to upgrade the current base of LUIS terminals.

Support the electronic storage and retrieval of complete documents and provide for their electronic delivery to the end user.

Improve access to the journal and technical report literature by providing software and hardware that will support locally mounted index and abstract databases in the most cost effective manner.

Improve the gateway from LUIS to the commercial firms that offer rapid journal article delivery.

INFORMATION RESOURCES MANAGEMENT IN FCLA

IRM Organization, Policies and Practices within FCLA

FCLA, since its inception in 1984, has followed the IRM policies and practices of the SUS, the University of Florida (FCLA's host institution), and NERDC. FCLA does not have any separate policies or practices. This has proven to be efficient and has avoided duplication. The Director of FCLA is an Information Resource Manager within the SUS in much the same manner as the Regional Data Center Directors are IRMs.

FCLA Governance

FCLA is a Type 1 Center hosted by the University of Florida. As with other Type 1 Centers, FCLA has an advisory board composed of one representative from each of the ten universities plus one representative from the BOR. Also on the FCLA board are a representative from the Division of Community Colleges and the Division of Library and Information Services (frequently called the Florida State Library; the State Librarian is the representative). The SUS representatives were appointed by their respective Academic Vice Presidents and are the directors of the General Libraries. The FCLA board conforms to Chancellor's Memorandum: CM-79-06.2 (revised 4/18/89) which provides for a representative from each university, the BOR and others per invitation of the Chancellor.

The Director of FCLA reports to the UF Vice President for Academic Affairs. All of FCLA's purchasing, payroll, and personnel functions are managed through UF and all of FCLA's policies and practices conform to UF's. Like all Type 1 Centers, FCLA's budget must be approved by the Council of Academic Vice Presidents (CAVP) and once approved by the CAVP, FCLA's budget is incorporated into the UF budget.

FCLA has no formal membership structure. Access to the SUS online library catalogs is available to all residents of Florida. Use of other library functions, such as circulation and acquisitions, has been restricted to libraries of the SUS plus two community colleges which had joint programs with SUS libraries in place before FCLA was created. Any change in this policy is the prerogative of the BOR.

Ethics and Computer Use

FCLA follows the laws, policies and practices of the state, the SUS, NERDC and the University of Florida. FCLA does not see a need to go beyond what is provided by the parent institutions.

TECHNOLOGY FOR ACHIEVEMENT OF MISSION

Mission: Through the use of information technology, assist the SUS libraries in their role in instruction, research, and public service and increase the productivity of library staff.

Academic Services

Instruction

FCLA maintains the software system that provides online access to the collections of all the SUS libraries. This system, which is known publicly as LUIS (for Library User Information Service), provides separate access to each university's library collection and, for author and title queries, provides access to all the SUS collections simultaneously. Additional information resources such as journal article indexing and abstracting databases; gateways to other library catalogs including the Library of Congress; gateways to commercial information providers; and links to campus information systems have contributed to making LUIS an indispensable tool for students whenever they use the SUS libraries as part of their classwork assignments. Terminals dedicated to LUIS access are available in every SUS library and in the major off-campus locations where SUS instruction takes place. LUIS is thus available to the entire SUS student body. Enhancing LUIS to provide students with more information vital to their course work is described below under "Libraries".

The SUS libraries already play an important role in the instruction of SUS students through their programs for training in use of information resources which had been traditionally print-based, in-library materials but are becoming increasingly more electronic and network accessed. As these resources and services such as online tutorials, messaging systems, interactive video, and on-demand research assistance become increasingly network-based, FCLA will be expected to assist the libraries in meeting user expectations in these areas.

Research

The narrative above under "Instruction" applies even more forcefully to research. As students develop in their understanding of a subject and pursue it in greater depth, they need access to more and more library materials including materials that are not owned by their own university library. Faculty, of course, are constantly in need of access to the world's scholarly literature for their research. LUIS addresses these research needs first by providing easy access to each university's library collection, second by providing access to the collections of all the SUS libraries, and third by providing access, via gateways, to research materials all over the world. FCLA will make LUIS an even more valuable research tool as described below under "Libraries".

Libraries

During 1996/97-2000/01, FCLA's role will be to provide services to libraries and library users as stated in the following goal statements approved by the BOR in FCLA's five-year plan:

GOAL 1: Maintain and enhance the existing library management system to support SUS library operations in the most cost effective manner.

GOAL 2: Improve access to the SUS library collections through enhancements to the LUIS system.

GOAL 3: Provide PCs to upgrade the current base of LUIS terminals.

GOAL 4: Support the electronic storage and retrieval of complete documents and provide for their electronic delivery to the end user.

GOAL 5: Improve access to the journal and technical report literature by providing software and hardware that will support locally mounted index and abstract databases in the most cost effective manner.

GOAL 6: Improve the gateway from LUIS to the commercial firms that offer rapid journal article delivery.

Goals 1 through 6 represent a continuation of services that FCLA is already providing. One new major component of Goals 1 and 2 is to extend services to the FGCU in 1997 in preparation for its opening day that Fall. A major component for Goal 2 is to enhance the LUIS search software to make LUIS searching as powerful as the better CD-ROM products and online commercial systems. Another objective in Goal 2 is the development of a LUIS module that will enable library users to initiate requests for materials from other SUS libraries, track the status of such requests and enable staff to manage that request through the stages of delivery and return of the material. The libraries have a goal of 24 hour turnaround on the delivery of physical items to patrons within the SUS.

Providing PC's to supplement the current base of LUIS terminals most of which are now well over ten years old is the intent of Goal 3. These terminals and their supporting controllers are no longer manufactured and soon the vendors will no longer provide maintenance. It makes sense to purchase new equipment that will meet the libraries' needs for downloading results to diskettes; to migrate to a client/server architecture; and to receive, decompress and display images.

The intent of Goal 4 is to move beyond bibliographic data and use the relatively new power of the computer to store and retrieve full text, static images, sound and moving images. With this new computer power, the LUIS system can be extended to store and deliver, not just citations for scholarly documents, but the documents themselves. At the beginning of the period covered by this strategic plan, FCLA should be completing a pilot project involving full text in a database of recent journal articles for a small number of the most commonly used journals in the SUS. These articles will be electronically stored and delivered to library and faculty workstations for browsing and print on demand. This project will have provided FCLA, the SUS libraries and SUS students and faculty with some experience with the support requirements as well as the benefits of this new technology. We will then be in a position to take further advantage of this technology in the first two years of this plan.

Another objective of Goal 4 is to provide an Electronic Reference Collection which would include an encyclopedia, a dictionary and possibly a gazetteer, almanac and statistical abstract. These items would support the entry-level student as well as the advanced scholar in all nine institutions and their remote learning centers.

With respect to Goal 5, the LUIS system already has been extended to provide access to additional bibliographic databases. The first new database was ERIC, which contains citations for the significant journal articles as well as technical reports and special studies published in the

field of education. FCLA has made the ERIC database available to all sectors of education in Florida. After ERIC, FCLA loaded databases of general and business periodical citations. Other databases that would be very useful across the SUS are ones for the physical sciences, the social sciences, and engineering in that order of priority. Health and agriculture are also important but less wide spread across the SUS. To the extent funds are available, FCLA will mount databases of journal citations and abstracts and will follow the priority order determined by SUS libraries in consultation with the faculty. With the loading of additional bibliographic data, LUIS will take SUS students and faculty beyond the collections of their libraries and will make the world's academic literature more readily available to them for their instruction and research needs.

Goal 6 is designed to accommodate the increasing need for libraries to rely on outside sources for those publications that no longer can be affordably acquired and housed locally and are not yet or will never be available for electronic storage.

Academic Service Directional Statements

- A personal computer with network connection on the desk of every full-time library employee--both professional and non-professional.
- One SUS library dedicated LUIS PC for every 75 FTE students.
- Improve access for users with physical disabilities by researching the nature of those disabilities among the SUS population and installing the optimal workstations to support the needs identified.
- Connect FGCU to the LUIS system by providing terminals, PC's, printers, and telecommunications equipment for the new library.
- Provide batch and online software that will allow LUIS to support additional journal citation databases on the NERDC mainframe.
- License or develop software that will allow client access to CD-ROM server databases by working with NERDC to define the most practical combination of network software for interconnecting CD-ROM LAN's and NERDC's mainframe and by negotiating with CD-ROM vendors to have them provide products that work with national standards or, if these standards have not matured, with our adopted "standards" for interconnecting.
- Connect the LUIS system to remote bibliographic databases that support the ANSI Z39.50 standard for search and retrieval.
- Develop the software to permit the transfer of catalog, journal abstract database records and perhaps images between remote systems and our LUIS system using the Z39.50 standards.
- Provide a system that will support image data by working with NERDC to acquire necessary mainframe-based software such as IBM's Digital Library and developing a seamless interface between the image software and the NOTIS LUIS software.
- Provide a system that will support full-text character data, including documents in SGML format.
- Provide a system that will support object oriented electronic documents consisting of image and text that are composed according to national standards.
- Develop an electronic delivery system for Group 4 facsimiles of printed material that integrates with existing state and national telecommunications networks and FCLA's image system.

- Develop an electronic delivery system for image and full-text that is compatible with state and national telecommunications networks and FCLA's image system.
- Implement the ISO Inter-Library Loan protocols.

Administrative Services

This function is not applicable to FCLA, except in-so-far as there is a common need for new and developing technology such as image systems and electronic data interchange (EDI). In implementing the FCLA strategic plan, we will consult closely with Information Systems managers in an attempt to share the cost of new hardware and software.

Infrastructure

During this planning period, the Internet will expand significantly as it evolves into the Information Superhighway. We expect the state of Florida, FIRN and the SUS to make additional network capacity available for SUS needs. We further expect the state universities to finish the creation of campus-wide networks by connecting all of the LANs that exist in each building into a coherent network. FCLA plans are thus based on the assumption that every main and branch library will be connected to its campus network. We further assume that the campus LANs will use the standard TCP/IP protocol that FCLA will also use when delivering data from servers at NERDC to the campus LANs. FCLA's primary need will be for expanded bandwidth on the existing network. A second need will be for new circuits. New circuits will be needed to connect the new library building at FGCU in Ft. Myers. If any of our current libraries extend services to additional locations, we will also need circuits for those locations.

Support of increased use of the current LUIS and staff functions provided by FCLA plus the addition of large citation databases, full-text documents and image data online; links to CD-ROM devices and other remote databases; and the ability to download and print search results will demand greater bandwidth to the SUS libraries and to on-campus users outside the libraries. This need has been identified in the SUS-wide plan, but is reiterated here because of the potential volume of data that can be expected. For example, one page of a digitized journal article requires 125,000 bytes of storage in compressed form. The existing network supporting the libraries needs to have its bandwidth doubled by 1995/96.

If the above assumptions are met, FCLA needs will be reduced to the provision of higher bandwidth between all campuses, including remote campuses, of the SUS. By 1996, FCLA will need T1 to all locations and multiple T1 lines to some locations. All circuits should be digital. By 1997/98, shared T3 lines to each campus will be needed to support distribution of image data.

FCLA does not need expanded voice capacity or video capacity by 1997. However, we do anticipate that multimedia technology with full motion video will require video bandwidth from NERDC to the SUS libraries shortly thereafter.

Infrastructure Directional Statements

Staffing directions

- Two additional staff to support FGCU library which will have a strong electronic service program from its opening day.
- Training, documentation, information sharing, and consulting resources for FCLA.

Software directions

- Acquisition and implementation of image/full text server software at each university.

FCLA supports a large mainframe software application called NOTIS. The public search module of NOTIS is called LUIS. FCLA is also in the process of developing new applications to support the use of image technology for electronic information delivery in the SUS. The anticipated amount of development will require the purchase of image software to support many of these new services. We will also need software to support full text databases. Depending on national developments in electronic scholarly publishing, the full text software will probably need to accommodate SGML tagged documents. LAN software to support the transmission, display and printing of bit-mapped image data will need to be evaluated and purchased for all of the SUS libraries. Initially one installation per university may be sufficient, but in time, additional copies will be needed for branch campuses and branch libraries.

Hardware Directions

In addition to a steady and continuous increase in magnetic disk, the major new hardware needs anticipated for the next four years are related to the support of full-text and image data. Optical storage will be needed to store electronic scholarly data for delivery to students and faculty.

- Have a full range of equipment, from personal computers to supercomputers, with appropriate storage and software accessible from SUS locations to meet required functions.
- Work with NERDC to expand the amount of magnetic disk available to FCLA.
- Work with NERDC to install and later expand optical disk in the range of 50 to 200 GB.
- Work with NERDC to install and later expand the CPU resources available to FCLA for supporting the data and transactions anticipated from the new projects defined above.

STATE-WIDE POLICY ISSUES

Information Management

FCLA's mission, by definition, is to utilize new technologies to meet the information management needs of the SUS libraries by helping them manage their collections, the use of those collections and access to an increasing amount of information in physical and electronic form.

Productivity Improvement and Measurement

FCLA's role in providing services to all of the SUS libraries via a single, shared integrated library system running at an SUS regional data center is illustrative of its commitment to productivity improvement through the reduction of duplicative effort and resources. Two areas of productivity improvement that will be addressed during the course of this plan are staff workstations designed to support specific productivity tools and work-related functions and the ability to generate ad hoc management data for assessing levels of productivity.

Leadership Commitment to Information Resources Management

FCLA leadership is committed to providing appropriate computing infrastructure to support the management of library resources and the delivery of library information to support the instructional and research missions of the SUS. This commitment is especially critical as the resources and information evolve from traditional print to networked electronic and multi-media formats and the users become more dispersed through the expansion of the SUS physical plants and the increased service to distance learners and remote research facilities.

Hiring, Developing and Retaining Qualified Personnel

As FCLA's services evolve into functions for support of electronic information, the training requirement will increase to correspond with the new features of the system. FCLA staff will need to be trained in image technology and in multimedia technology. Our programmers will need detailed technical training, and our librarians will need training in concepts and use of the new systems. Documentation is required to supplement training. As FCLA develops its ability to support full-text documents online, that ability will be utilized to provide SUS-wide access to current documentation about the FCLA system to all SUS library staff and, as appropriate, to SUS faculty and students.

Integrating Information Access Agency Functions

The following issues will require cooperation of policies and data across multiple SUS and state agencies:

- An expansion of toll-free telecommunications for access to electronic services and collections of the SUS libraries for distance learners.
- Individual e-mail accounts for all faculty, staff and students to facilitate universal electronic service to all.
- A universal SUS card/identification number to facilitate access to electronic services and collections.
- Systems through which the libraries and the Universities of Florida Presses can cooperate to distribute and preserve scholarly communication will be needed.

Disaster Recovery

FCLA relies on NERDC's policies and practices for supporting disaster recovery. FCLA does have a schedule for backing up the essential data from the SUS library databases and storing multiple copies off-site.

FCLA conforms to state guidelines for security. We rely primarily on NERDC to impose security, but the NOTIS application also adds its own security checks for all attempts to update data. Our objective is to provide access to more electronic information while maintaining the same high level of security. Many of the databases provided to the public by FCLA require no security and, in fact, have been provided in such a way as to minimize access complexity, in keeping with the mandate to maximize ease of access. However, a large population of databases has been licensed for use by only the faculty, staff and students of the SUS with access to the general public limited to workstations housed in SUS libraries. This has required development of software to validate 'remote' users accessing these databases from home, office, or lab workstations. The current mechanism utilizes the patron records from the LUIS circulation module and is adequate for the near-term, but, in time, it is foreseeable that LUIS may need to interface with other university systems that manage user identification for computer usage. A client/server environment, while offering many advantages for delivery of services, can exacerbate security management.

Procurement

FCLA follows the guidelines, rules and procedures set by the University of Florida and the SUS. Within these guidelines and rules, FCLA has licensed commercially-supplied electronic information to be shared by all the SUS libraries. Through its combined purchasing power and economies of scale, FCLA has been able to negotiate favorable license fees for this data at a considerable reduction over what the aggregate costs to all of the libraries would have been.

Funding Process

Given FCLA's SUS-wide mission, the development of policies and funding strategies for the continual upgrade of peripheral computer and telecommunications hardware and software is of extreme importance. FCLA has purchased and installed over \$3.0 million worth of equipment in the SUS libraries. This equipment inventory includes three communications concentrators, 75 control units, 1350 terminals, and over 700 other devices (printers, barcode readers, multiplexors, modems, DSU/CSUs). The majority of this equipment is over five years old and no longer under warranty. Thus far there has not been a major problem with hardware failure, but this will change over time. Also, the telecommunications hardware upon which the terminal equipment is dependent is becoming obsolete and is being phased out over time. In addition, user expectations and the need to support more advanced functionality (printing, downloading, windowed sessions, gateways) is pushing FCLA and the libraries towards more intelligent workstations which will cost more to purchase and maintain. Considerable funds will be needed to maintain and eventually replace all of this aging equipment.

New Technology Prototyping & Evaluation

The current initiative with the joint NERDC/FCLA/IBM Digital Library project is illustrative of FCLA's commitment to prototyping new technology for delivering information resources to SUS faculty and students.

COMMUNICATIONS

In this plan, FCLA assumes that each campus will include all library locations in its campus LAN and that doing so will be included in each university's strategic plan. We further assume that the LAN's will use standard protocols that FCLA can bridge to when delivering data out of the NERDC mainframe to the campus LAN.

If the above assumptions are met, FCLA needs will be reduced to providing higher bandwidth between all campuses, including remote campuses, of the SUS. By the end of 1996, FCLA will need 56KB to all locations and multiple 56KB lines to some locations. All circuits should be digital. T1 circuits that FCLA could share with other SUS traffic would be very useful. By 1997/98, multiple T1 lines to each campus will be needed to support distribution of imaged data.

FCLA does not need expanded voice capacity or video capacity by any specific date. However, we do anticipate that multimedia with full motion video will require video bandwidth from NERDC to the SUS libraries sometime around the middle or later years of this five year period.

FUNDING OVERVIEW

FCLA is funded from a general legislative appropriation which is administered by the University of Florida.

Total Estimated State Expenditures:	
1996/97	1997/98
\$7,700,000	\$7,800,000

Estimated Contracts and Grants:	
1996/97	1997/98
\$100,000	\$100,000