The Design of the Integrated Information Center Project
Shaughnessy, Thomas;Adams, Carl
Journal of the American Society for Information Science (1986-1998); May 1997; 48, 5; ProQuest
pg. 434

The Design of the Integrated Information Center Project

Thomas Shaughnessy
University Libraries, University of Minnesota's Twin Cities Campus, Minneapolis, MN 55455.
E-mail: t-shau@tc.umn.edu

Carl Adams
Information and Decision Sciences Department, Carlson School of Management, University of Minnesota,
Minneapolis, MN 55455. E-mail: cadams@csom.umn.edu

This article describes the information environment at the University of Minnesota at the beginning of the Integrated Information Center (IIC) project, the proposed design of the IIC, and the proposed organization structure of the IIC.

The Information Environment at the University of Minnesota

The University of Minnesota, Twin Cities Campus, comprises an academic community of more than 60,000 faculty, staff, and students located on two campuses in the Twin Cities of Minneapolis and Saint Paul. The University's information accessing and processing requirements were served by three separate systems: University Libraries which provides scholarly information; Computer and Information Services which provides academic computing and information services; and Administrative Information Services which provides administrative computing and information services.

University Libraries is a system of more than 15 libraries containing more than 5 million volumes. In the Fall of 1987, an online catalog, LUMINA (Libraries of the University of Minnesota Integrated Network Access), was implemented and made available to faculty, staff, and students from terminals on campus. LUMINA provides access to the bibliographic file and is supported by document delivery to faculty offices throughout the Twin Cities campus. In 1988, LUMINA became available on the campus-wide network. University Libraries and Administrative Information Services, which provides access to LUMINA via its computers, also provide additional information services to end-users, such as access to machine-readable databases including those that are pro-

duced and managed on campus and those, both public and proprietary, that are available through vendors off campus. University Libraries reports to the Vice President for Academic Affairs.

Computer and Information Services (CIS) manages all mainframe and general personal computing resources at the University dedicated to support of research and teaching. Traditional responsibilities of CIS were in the areas of mainframe computing, but the demands of its users have changed its composition from largely a supporter of mainframe computing to database and telecommunications support. CIS is primarily responsible for development and management of the fiber optic Ethernet-based "backbone" network that links most of the computer networks at the University and which also provides TCP/IP Internet access to networks external to the University. CIS reports to the Vice President for Academic Affairs.

Academic Information Services (AIS) manages the administrative information systems for the University including admissions, registration, student records, alumni records and fundraising, personnel, payroll, accounting, physical plant and inventory, among others. AIS manages its own mainframes to support these systems. These systems currently are neither linked nor necessarily compatible. AIS reports to the Vice President for Finance and Operations.

The Academic Units Served by the IIC

The Integrated Information Center (IIC) was designed to serve the Carlson School of Management and the Humphrey Institute of Public Affairs at the University of Minnesota. The Carlson School of Management (SOM) has approximately 105 full-time, tenure-track faculty orga-

nized into seven departments: Accounting, finance and insurance, industrial relations, information and decision sciences, marketing and business law, operations and management sciences, and strategic management and organization. Approximately 850 undergraduate students, 1,800 master's degree students, and 120 Ph.D. students are enrolled. The Humphrey Institute of Public Affairs (IPA) has approximately 16 full-time, tenure-track faculty and 10 resident senior fellows—experienced public administrators with full-time, nontenure-track term appointments at the University. Approximately 130 graduate students are enrolled in programs offering master's degrees in public affairs and planning.

Proposed Design of the IIC

As envisioned in the proposal, the mission of the IIC was to provide technological and professional support for the full range of information processing activities performed by the faculty and staff of the SOM and IPA. These information processing activities of faculty and staff, identified by D'Elia, Rohde, Cogswell, & Gormann (1991), include intelligence gathering, searching for needed information, acquiring information, organizing and managing information, manipulating information, cooperative work, and dissemination of information. More specifically, in order to support these information processing activities of faculty and staff, the IIC was designed to provide the following services and technological capabilities grouped under the general areas of information acquisition and delivery, information storage, information manipulation, communication, and user education.

Information Acquisition and Delivery

The IIC would assist faculty and staff in locating and/or acquiring information by providing the following: A current awareness and selective dissemination of information service; reference service; database searching; downloading and conversion of imported data; document delivery service and interlibrary loan; retrieval of information from departmental administrative information systems (such as the budget and accounting system, the personnel records system, and the student records system); and access to selected University information systems and external networks (such as the University's administrative information systems, University Libraries, and proprietary databases).

Information Storage

The IIC would assist the departments in managing the information resources specific to its current activities by providing the following: Collection of information re-

sources—an organized and maintained collection of department-specific documents (for example, a newspaper clipping file or research reports); security for departmental administrative and research databases; a network version of a database management system for faculty and staff use; and management of the various collections of research reports that are collected and currently maintained by some departmental research centers and projects.

Information Manipulation

The IIC would assist faculty and staff in manipulating data by providing the following: A set of software applications for the integration and manipulation of textual, numeric, graphic, and image data; bulletin board and calendaring capabilities; evaluation of commercial and noncommercial software; desktop publishing; and group problem-solving hardware and software for the cooperative modeling of problems.

Communications

The IIC would provide enhanced communication links to colleagues inside and outside the departments by providing the following: A network gateway to the University's telecommunications backbone that is the link to CIS and AIS databases; electronic mail and gateways to the Bitnet and Internet networks; and facsimile transmission and electronic conferencing.

User Education

The staff of the IIC would assist faculty and staff in using the various information technologies by providing the following: Assistance in designing personal and project databases; training in software applications; technical consultation on the installation, operation, and maintenance of hardware and software; assistance in designing, implementing, and managing the departmental administrative information systems; consultation for software applications supported by the IIC and for other software applications with which the IIC staff may be familiar; and referrals to University software consultants for those questions which cannot be answered in-house.

The Organizational Structure of the IIC

One of the most perplexing issues involved in the design of the organization structure of the proposed IIC was the issue of the administrative placement of the IIC. In developing the model of an IIC, it was envisioned that an IIC could operate in either of two prototypic organizations. If the various information delivery systems within organizations (e.g., libraries, computing, MIS, telecommunications, etc.) were administratively unified, then an

IIC could be the on-site departmental service center of this integrated information utility. If, on the other hand, the various information delivery systems were administratively separate, then the IIC could evolve from within a department to act as the departmental interface and broker with the separate delivery systems. The administrative placement of an IIC within an organization would, therefore, depend on the degree to which the information delivery systems within the organization were integrated.

At the time that the proposal was submitted to U.S.D.E., the University was in the process of searching for a Chief Information Officer (CIO) and both Computer and Information Services (CIS) and Administrative Information Services (AIS) were being managed by acting directors. It was widely anticipated that with the hiring of a CIO, the University would attempt to develop a more unified campus information utility. Given this state of flux, University Libraries took the initiative in proposing the IIC as a 3-year demonstration project in collaboration with the Carlson School of Management and the Humphrey Institute of Public Affairs. The proposal specified that the IIC was to report to the Associate University Librarian for Public Services with shared oversight by the University Librarian and by the Deans of the School of Management and the Institute for Public Affairs. It was anticipated that, as the project progressed, representatives of CIS and AIS (or, if organized, the new unified information utility) would be involved in the implementation of the IIC and that both CIS and AIS (or the new information utility) would eventually participate in the delivery of IIC services. If a new unified information utility came into being during the project, it was assumed that the management of the IIC might be transferred to the new utility.

It should also be noted that at the time of the submission of the proposal, the School of Management and the Institute of Public Affairs had only rudimentary support services for the information technologies in place. Within the School of Management (SOM), a lecturer from the Information and Decision Sciences Department and a staff assistant provided support services for faculty and staff. The Institute of Public Affairs (IPA) had one staff member to support faculty and staff. The recognition by both academic units of the need for more formal and more substantive support services was a primary motivation for their interest in the IIC project. The proposal evolved under the assumption that the IIC would collaborate closely with the information support staff already in place and would incorporate, through transfer of effort, some of these staff and activities into the IIC.

This organization structure, therefore, represented an accommodation with the prevailing organization of information delivery services on campus as well as with school (i.e., SOM and IPA) concerns about control of local resources. This accommodation was justified on both practical and theoretical grounds. While it appeared that the University was moving toward a greater administrative coordination of the information delivery systems on campus, the prevailing state of flux and the uncertainty about future developments made it impossible to position the IIC as an organizational extension of the three campus information delivery systems. Compounding this state of flux at the University level was the strong tradition of collegiate and departmental autonomy. Many academic units, given both a lack of direction at the University level and the need to support the demands of their faculty and staff for personal computers and support services, were beginning to provide from their own budgets the equipment to network faculty and staff and the personnel to support these networking activities. This investment of departmental resources, stemming from and ultimately reinforcing departmental autonomy, argued for the organizational placement of the IIC at the departmental level within the University structure. In addition, advances in information technology were also pointing towards the integration of information technologies and services at a lower level in the organization closer to the end-user. An analysis of the tradeoffs between economies of scale (which would justify placement at the University level) and economies of control (which would justify placement at the departmental level) strongly suggested that control efficiencies would outweigh economies of scale thereby adding pressures for departmental control of the IIC (Beath & Straub, 1991).

Consequently, the IIC was placed administratively between the University level information systems and the departments served. It was designed to report administratively to University Libraries with shared oversight by the deans of the School of Management and the Institute of Public Affairs. It was to have its own dedicated staff with supplemental staff (by means of transfer of effort) drawn from the information systems professionals within the School of Management and the Institute of Public Affairs, as well as staff drawn from the other two information providers on campus (CIS and AIS). Its mission was to be an agency of integration, bringing together information resources from the central providers, the IIC itself, and the departmental units to better serve the end-users, the faculty and staff of the Carlson School of Management, and the Humphrey Institute of Public Affairs.

The Staff of the IIC

The staff of the IIC, hired with project monies, was to include a manager, a clerk, and graduate assistant programmers. In addition, the IIC staff was to include, by means of transfer of effort, a librarian from University Libraries and information systems professionals from the School of Management and the Institute for Public Affairs.

The Organization of the Project

The project employed three teams of faculty and staff from University Libraries, the School of Management, and the Institute of Public Affairs: A Planning and Implementation Team under the direction of the Project Director (the Associate University Librarian for Public Services) which had responsibility for the planning and implementation of the IIC; a Research Team under the direction of the Principal Investigator which had responsibility for evaluating the impacts of the IIC; and an Advisory Committee comprised of the University Librarian, the Dean of the School of Management, the Dean of the Institute of Public Affairs, and faculty representatives from these two units.

References

Beath, C. M., & Straub, D. W. (1991). Departmental level information resource management: A theoretical argument for a decentralized approach. Journal of the American Society for Information Science, 42, 124–127.

D'Elia, G., Rohde, N. F., Cogswell, J., & Gormann, K. (1991). Information requirements assessments of the Humphrey Institute. Journal of the American Society for Information Science, 42, 139–142.