Integrated Information Services in University Environments

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Abstract

Can or should universities integrate "technology-based" administrative and academic support services, including the academic library, into a single information services division? This article gives a history of integrated information services, details successful mergers, and explores professional and organizational issues that create conflict instead of collaboration. Newer, more flexible higher education environments may be more conducive to integration, and a focus on information "services" rather than on "technology-based" units are the keys to fostering cross-functional collaboration.

Today, many universities are studying the huge impact of information and instructional technologies on academic programs, budgets, and university culture. With network and inter-network infrastructures established, integrated software suites fairly standardized, and bandwidth increasing, the use of a wide variety of instructional technologies on campuses has become ubiquitous. Most members of the university community use these technologies daily.

How should the university teach technologically sophisticated students? How does it reach distance learners? How does the university persuade faculty to adopt multi-media methodologies for their courses? How does it make its information resources accessible from offices, dorm rooms, and remote locations statewide? How should the use of information and instructional technologies be financed? Indeed, how should the real costs of technology be captured and analyzed? Are there academic information technology organizations that are good models to study in order to help answer these questions?

Before Information Services Began Merging

At the start of the information technology revolution in the late 1960s and early 1970s, when isolated university departments began adopting computer technologies to streamline or improve specific functions, there was no centralized, integrated, systematic, collaborative technology planning process. Administrative services groups were building their own databases of employee and student information. Academic computer science departments exchanged information over networked computers. Libraries were using modems to search online databases of standard research indexes.

Later, groups of departments began to cooperatively develop information systems for storing and, more importantly, sharing data, because they needed essential student and employee information. When academic libraries, for instance, converted from card catalog systems to online catalog systems, they needed a technical interface with student and employee databases in order to create patron records and authenticate users.

Technologists became essential for the effective operation of universities. They were hired by academic departments to provide support for research computing. Administrative services hired technologists to provide technical expertise for business, personnel, and registrar database projects. The business or facilities officers, who were in charge of the telephone service, hired telecommunications specialists. Academic libraries hired systems librarians to implement online catalogs and database systems. Educational broadcasting specialists worked for the audiovisual services group, or with an academic program like broadcast journalism. As local area networks became essential, network infrastructure specialists reported to a facilities group. The decentralized employment of technologists mirrored the traditional decentralized lifestyle in universities.

The Rise of Integrated Information Services

Integration of information services began when universities started to implement very large projects involving mainframes and hired groups of technologists to manage the technical aspects of these projects. Universities concluded, when these projects succeeded, that consolidating some of the decentralized technologist workforce might be effective and produce a better planning environment. Often, administrative computing services, network services, and telecommunications were the first to integrate. Beginning in the early 1980s, universities and academic health sciences centers started experimenting with the integration of some or all of the following departments into one division:

- the networking and computing infrastructure groups
- the administrative services computing groups
- the academic/research computing groups
- the educational television and videoconferencing groups
- the telecommunications group
- the instructional media group
- the student computing laboratories
- the academic library

The driving force for integration was the institutional need for better coordination of delivery systems between information services groups. Matheson and Cooper (1982) at Johns Hopkins University, Battin (1984) at Columbia University, and others suggested that integrating information services could address the following issues: a) the blurring of the information services groups' identities caused by converging information technologies; b) the confusion users experienced when figuring out where to go for services and support; c) fostering a seamlessly accessible set of human, informational, and technical resources; and d) encouraging creativity, efficiency, and collaboration.

Integrating information services has received attention from important associations and institutions. In the health sciences, Integrated Academic Information Management Systems (IAIMS) grants were awarded by the National Library of Medicine to encourage these consolidations. The mission of the Coalition for Networked Information (CNI), founded by both academic library and academic technology associations, is to promote discussion and collaboration between the professions. Both CAUSE, a higher education technology group, and the American Library Association have published works on integrating libraries and computer groups (Hirshon 1998; Hardesty 2000).

By 1998, approximately one hundred colleges and universities had, to some extent, implemented an integrated information services organization (Hirshon 1998). Some of these universities were Case Western University, Cleveland State University, George Mason University, Lehigh University, Michigan State University, Oregon State University, Oregon Health Sciences University, Southern Illinois University, University of Illinois Chicago, University of Kansas Lawrence, University of California San Diego, the University of Wisconsin system, and Washington State University at Vancouver. There was little resistance to merging the computing networking, administrative, and telecommunications groups with the educational television, videoconferencing, instructional media groups, and student computing laboratories. There continues to be resistance, however, to centralizing the computing resources of the academic programs. Another issue is whether academic libraries should be part of an integrated information service. There is much discussion about the extraordinary effort it takes to integrate libraries and technology services.

The Nature of Work in Integrated Information Services

Technology professionals and librarians define their professions in similar ways. Both professions describe their work as: providing access to information, assessing available information resources, integrating resources, teaching how to use information-retrieval tools, and managing information resources. They define their overlapping functions as storing, retrieving, managing, and delivering information; establishing and managing local and external networks; and training users in computer and information literacy (Lipow & Creth 1995).

Each profession has its own unique functions. Technologists focus on large-scale computing, hardware and software standards, network security, network capacity, software support, and programming expertise. Librarians focus on identifying, acquiring, organizing and describing information resources in all formats, providing instruction in their use, and preserving and ensuring the continuity of information resources. Technologists and librarians have concluded that there are many areas where collaboration would be useful for universities. Some of these areas are:

- training users on information access skills
- collaborating with faculty
- archiving information and records management
- collaborating on developing electronic journals
- cooperatively writing user documentation
- co-locating parallel staff
- developing a campus-wide information system
- negotiating licensing agreements
- integrating technology, networked and multimedia information in the curriculum
- designing user interface and delivery systems
- strategic planning
- cross-functional training for frontline user support
- attending joint staff meetings periodically (Lipow & Creth 1995)

Today, some universities working with the integrated information services model have adopted collaborative approaches to the challenges listed above, including strategic

planning (Olsgaard & Terry 2000). Librarians and technologists collaborate on web development teams and participate in design and usability debates about their campus-wide information services. Now, both technologists and librarians are alert to how changes in network infrastructure and security affect access to the costly electronic information resources providing educational services to distance learners (Channing & Dominick 2000). Librarian/technologist teams work with faculty members to build high quality scholarly electronic journals hosted at campus websites (see, for example, www.amsreview.org). There are numerous reports of multidisciplinary teams of librarians and technologists developing information literacy and computer fluency training programs for faculty, staff, and students (Diller & Harrsch 1999). Cross-training and co-locating front line staff, and merging reference and student computer laboratories have been implemented successfully on numerous campuses (Meachen 2000). Teams of librarians, technologists, and instructional media specialists provide tailored instruction for specific academic disciplines about integrating networked and multimedia technologies in the curriculum (Sawyer, Diller, & Eccles 2000).

Difficult Issues for Integrated Information Services

While there have been successful academic library and technology group mergers, there are some that have not been successful. The debate over the causes of failure centers on several issues. There are questions about whether the academic library is a technology-based program, whether affiliation with a support unit could damage the library's academic stature, and about appropriate reporting relationships in a new hierarchy. Differences in funding models, issues of charging for services (free vs. fee), and issues of cost-shifting need to be understood by universities considering integrating library and computer centers.

Whether academic libraries are "information technology-based programs" is a distracting question because it suggests that libraries might be identified exclusively by their current reliance on computers, software, and bandwidth. Computers, software, and bandwidth, however, are only the most recent technologies being used for organizing, storing, and presenting information. Print technologies have performed these functions for centuries, and still do. Information is the common denominator, not the technologies that store and deliver it. Just as transportation is certainly more than cars, trains, highways, ports, and airplanes, so information is also much more than books, computers, routers, codecs, software, and magazines. Technologists and librarians need to come to an understanding that some of their perceived differences may result from a practical but narrow focus on the information technologies they are most used to working with.

Libraries generally have an educated and gracious service culture that enjoys the patronage of the university faculty. Might technologists not benefit from affiliation with a profession that has learned successful methods and manners for handling lengthy queues and irritable patrons? Might affiliation with the "tech support" culture, which has not been noted for its service ethos, erode the collegiality academic librarians enjoy with their patrons? Librarians firmly believe that their academic status provides them with the credibility necessary to both build the research collection and provide research assistance in using the collection. So the question of who directs the academic library, who

the library director reports to, and whether the academic library continues to be part of the academic program is very important when planning for an integrated information service.

Some argue that the development of digital/virtual libraries has caused a natural affiliation between information technology groups and academic libraries. Libraries have to rely heavily on machines, software, and bandwidth to deliver electronic resources to their patrons over the net to desktops and laptops. Libraries see integrating with information technology groups as beneficial because virtual libraries require a vast amount of technology and technical support. Technology groups do not see this argument for integration as being in their own best interest. They see this as a way of shifting the cost of technical support from the library onto themselves. Similarly, librarians who are involved with integrated services programs believe that their additional responsibilities essentially deprive the library of necessary staffing.

Finally, the financial cultures of technology and library services differ, in that information technology groups are most often required to bill for services while libraries are not cost recovery operations. Libraries firmly resist charging for access to their resources and services. These contrasting financial cultures cause each program's services to be viewed differently by their shared customer base. Universities may hope to achieve efficiencies through integrating these units. Issues involving different funding models, workload shifting, and professional values need to be defined explicitly and explored creatively.

Successful Integrated Information Services

There are some successful cases of integration. When there is strong leadership and support from their chief executive officers, large institutions like the University of South Carolina, with legacy information services departments, have achieved an integrated environment (Olsgaard & Terry 2000). Smaller, more nimble colleges like Carthage College in Wisconsin successfully merged library and computing services groups a decade ago (Engeldinger 2000). Urban campuses like the University of Illinois in Chicago and the Oregon Health Sciences University have found that compressing the energies of computing and library services into one division serves the best interests of their stakeholders (Ash 1999).

Integrated information services models seem to succeed more easily in endeavors like new university branch campuses located in urban areas. Colleges and universities in urban areas often collaborate in providing educational opportunities for place-bound learners. Collaboration is a familiar context for most new-campus builders. Collaboration finds a receptive audience with faculty and staff, whose normal lifestyle is one of flexibility and experimentation, when paired with the enterprising but resource-scarce reality of new-campus building. The corporate culture of new pioneering campuses lends itself to successful information services mergers.

Recently the Oregon University System chose Oregon State University to be the originating university for Oregon's first branch campus located in the city of Bend. OSU was an early adopter of the integrated information services model. OSU Bend students, faculty, and staff will expect the same high quality information services their

counterparts at the Corvallis campus receive. Cross-functional teams will quickly implement electronic access to essential information available through network infrastructure. These teams are already familiar with collaboration, and will feel comfortable building cooperative projects like sharing technical and library resources with their colleagues at other colleges in the Bend area.

User expectations of the information services delivery system at newer and branch campuses are just as high as those at more traditional long-standing universities, with all their established network infrastructure and collections. To meet these high expectations in smaller, leaner environments takes teamwork among the various information services professionals. Adopting these cross-functional team models is frequently the solution to very pressing university-wide concerns. For many universities, developing courses and curricula that use networking technologies and networked information resources is a major priority. At Indiana University-Purdue University Indianapolis, librarians and technologists lead cross-functional teams that also include faculty and students in the design and implementation of new Learning Communities in new courses using multimedia technologies (Tompkins, Perry, & Lippincott 1998).

Another merger that is working is at the Washington State University Vancouver campus. Three strategies were useful in establishing an integrated information service there in 1995. First, the school adopted a method of group process used for setting strategic goals and priorities that all departments felt gave them an equal voice. The second very important strategy was not rushing the merger. The third strategy was creating a cross-functional team to develop an "information literacy/computer fluency" program for the faculty, staff, and students (Diller & Harrsch 1999). Raising the computing and information literacies at WSU Vancouver through a successful collaborative program subsequently inspired technologists to invite librarians to join teams charged with reconfiguring the server infrastructure, planning the file structure of the campus website, and planning for Y2K. This was an event of extraordinary significance (Wykoff 1999). A successful collaboration on an important project led to significant collaborative efforts later on.

Conclusions

More than one hundred American universities are experimenting with an integrated information services model. Their information services divisions include many of the following departments: network infrastructure, administrative and academic computing, educational television and video-conferencing, telecommunications, instructional media, student computing laboratories, and the academic library. Nearly all reports about these experiments with mergers indicate that there are professional culture and power sharing struggles. However, all involved agree that collaboration is the key to providing the seamless, ordered information environment that universities want. Some feel that collaboration can be achieved without merger; others believe that it takes a degree of familiarity with other professional work and value systems in order to inspire a truly collaborative spirit.

Collaboration is something that happens when people professionally desire a goal or outcome that can only be achieved through combining forces and sharing expertise. When technologists, librarians, and others working in information services find a goal mutually desirable, such as increasing the information literacy/computer fluency of

their user group, they willingly and creatively collaborate. Further, it is much easier to imagine new collaborative possibilities when people are already working together closely and comfortably.

Technologists and librarians who work as teams in integrated environments find they develop respect for each other's professional competencies and the power of their combined strengths. This synergistic energy helps people appreciate qualities in others that were, at first, considered weaknesses. This synergy builds new collaborations. As with the information technology revolution itself, integrated information service organizations are still new. Time will tell whether the experiment is succeeding. Integrated information services, though, that are experiencing successful collaborative programs and projects would never want to return to a more traditional organizational structure; it is just too exhilarating to go back now.

Suggested Readings

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