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the Case of ILLiad 

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ABSTRACT. Libraries have walls. Recognizing this fact, the Interlibrary Loan Department at Virginia Tech is creating systems and services that enable our customers to reach past our walls at anytime from anywhere. Customer in-reach enables Virginia Tech faculty, students, and staff anywhere in the world to obtain information and services heretofore available only to our on-campus customers. ILLiad, Virginia Tech’s interlibrary borrowing system, is the library strategic system that attains this goal. The principles that guided development of ILLiad are widely applicable.

INTRODUCTION

Libraries have been providing electronic services since the development of online catalogs and online literature searching. Although useful, these early electronic services amounted to only minor variations on the traditional functions of libraries. The arrival of the personal computer and CD-ROM during the 1980’s introduced additional electronic services, but did not make fundamental changes in the way library customers obtained service. Only in the past five years, with the revolution caused by the Internet, has the viability of libraries and the library profession become absolutely dependent on the provision of electronic library services.

Increasingly, library customers expect 24-7 service, i.e., immediate delivery of services 24 hours a day, 7 days a week. If libraries cannot provide this kind of service, then our traditional customers may abandon us in favor of the myriad alternatives available to them through their personal computers connected to the Internet.

In response to the Internet challenge, many in the library profession have talked of creating virtual libraries consisting of information and pointers to information stored locally or elsewhere in electronic formats. But it is difficult to see how a traditional library organization will differentiate its virtual library from that true virtual library arising from the aggregation of government and commercial organizations on the Internet. Indeed, it can be reasonably argued that the Internet will allow anyone to get to anything from anywhere. Why, then, would anyone visit a virtual library when they could go directly to the original source? We see this effect already when we tell our customers they do not need to get a journal article from our library or through interlibrary loan. All they need to do is launch their Web browser to access the site where the publisher makes the full text of the journal available free of charge.

Discussions of virtual libraries usually neglect the value-added services provided by libraries. As librarians we must argue that there is an essential distinction between a real library and a virtual library. Real libraries, like the ones you and I work in, have a knowledgeable staff that provides services of value to their customers. The value of our libraries arises from knowledgeable information professionals applying human intelligence and judgement to the solution of our customer’s information problems.

While it remains to be seen whether society and our customers will continue to support this value-added function of libraries, it is the case that library employees have within their minds and hands the tools to demonstrate their worth. Demonstrating this value to others will require librarians to rethink the nature of their services and the conceptual framework within which those services are designed and delivered.
In this article I will describe one such effort that has transformed interlibrary borrowing from a minor back-office activity to a strategic service that contributes directly to the academic and research success of faculty and students at Virginia Tech.

LIBRARIES HAVE WALLS

Libraries have walls. Understanding the nature of those walls is the first step in designing public services for the future. The challenge is to use technology to allow customers to breach the walls and reach into the library from wherever they may be.

Traditional walls around a library are made of bricks and mortar, time, and distance. For customers who can travel to our library, we overcome walls of bricks and time by implementing convenient service hours, despite schedules that may be inconvenient for the staff. For customers who have little time to read, we provide audio books, tapes, and CDs. For customers located at a distance, we provide outreach services such as bookmobiles that deliver the library collection and staff expertise to the remote location.

The revolution caused by the World Wide Web has provided another means to overcome walls of time and distance. So popular has the Web become that we now read frequently how the virtual library of electronic information formats will solve all customer service problems caused by traditional walls.

“Library without walls” is a catchy phrase that is used often to attract attention to innovative uses of technology in libraries. When planning public services, however, it is important to remember that this phrase is merely a metaphor. It lacks content and has no operational definition.

Planning by metaphor is dangerous. Effective planning requires that we have a clear understanding of reality and a firm knowledge of the technology that enables us to manipulate that reality. We may find metaphors useful in leading us to an understanding of new realities. But once understanding is achieved, the metaphors must be abandoned in favor of accurate representations of reality. With this caution in mind, let us continue to think in terms of walls that are barriers to public service.

It is now well demonstrated that walls of time and distance can sometimes be overcome through electronic technology. What is not yet widely understood is that every technology can create new walls that technology alone may not be able to overcome. In particular, intellectual property laws and practices in the scholarly and commercial publishing industry are raising new walls around libraries. Only seldom have these new walls been anticipated during the first rush to build virtual libraries. (1) These new kinds of walls may turn out to be more restrictive than traditional temporal and physical walls.

By way of illustration, consider that 39% of Virginia Tech’s master’s theses and Ph. D. dissertations can no longer be made available through interlibrary loan. This result followed Tech’s implementation of a completely electronic system for these publications. (2) In some fields like psychology and veterinary medicine, 75% of theses are restricted to use only on the Virginia Tech campus network. Off-campus readers are denied access, and there is no mechanism by which the electronic information artifacts can be copied for distribution via interlibrary loan.

The need to restrict distribution of these electronic publications arose out of considerations of intellectual property rights, copyright law, and publisher practices that have been well-covered in the national media. (3, 4) The end result is unanticipated new walls around our library built in response to a technology that was expected to eliminate walls.
We see that walls surround virtual libraries just as they surround physical libraries. At Virginia Tech, we are mindful of library walls as we strive to improve our interlibrary borrowing services for Virginia Tech students, faculty, and staff. In particular, we are developing customer in-reach methods that enable our customers to reach over or through our walls to obtain information and service. Through the implementation and further development of ILLiad,(5) a library strategic information system, we continue to expand the possibilities for customer in-reach at the Virginia Tech Libraries.

WHAT IS A LIBRARY STRATEGIC INFORMATION SYSTEM?

In the business world, a strategic information system is one that contributes to a company’s bottom line. In other words, a strategic information system is one that contributes directly to company profits.

Libraries and other public service, non-profit organizations are frequently described as not having a bottom line. Thus, it is not surprising that the concept of strategic information systems in libraries is not much used. However, an appropriate perspective on strategic systems, such as that provided by Meyer and Boone (6), combined with the recognition that libraries have goals that are analogous to a bottom line, makes the strategic system concept a fruitful framework for thinking about library service development.(7, 8)

We can stipulate that a library’s bottom line is customer satisfaction achieved through effective library services. Then a successful library strategic information system is one that achieves customer satisfaction by contributing directly to the success and purposes of library customers.

In the past, library’s sought to use technology to work faster, cheaper, and more reliably. Emphasis was on automating existing procedures. Online catalogs were first developed to support clerical work in the library. Acquisitions systems were developed to handle orders processing and accounting functions. The focus of traditional library systems is on internal results achieved through staff use of software that helps the staff to perform an internal process. This use of software and automation is a cost of doing business.

A strategic library information system is the converse of traditional library systems. To think strategically we must do more than examine the tasks being performed in the library. We must strive to understand the nature of the library’s business and learn how that business contributes to the success of the library’s customers. A strategic library information system emphasizes the individual customer, not the institution. The success of a strategic information system is measured by external results that contribute directly to the purposes of the library’s customers.

This difference between traditional and strategic library information systems is profound. Development, implementation, and operation of a traditional system must be considered a cost of doing business. In contrast, a strategic information system is implemented so that the system itself becomes the business of the library. The system is not a cost of doing business; it is the business.

ILLIAD AS A STRATEGIC INFORMATION SYSTEM

The detailed functioning of ILLiad is described elsewhere.(5) Here we shall consider only some measures of ILLiad’s success and how the philosophy of strategic systems and an emphasis on customer purposes led to that success.
ILLiad’s borrowing functions were developed in the ILL Department at Virginia Tech and put into production on March 17, 1997. After 20 months of operation and 56,000 borrowing requests, the convenience and speed of ILLiad for customers has led to a 43% increase in ILL borrowing at Virginia Tech, with no accompanying increase in staff. Interlibrary borrowing is now seen as a viable and convenient alternative to local ownership of many library materials.

ILLiad reduced article turnaround time from 14 days to 9 days. It introduced automated e-mail notification to customers, as well as real-time status updates through the Web. The system introduced secure, automated electronic delivery of photocopies through the Web. ILLiad eliminated all paper files related to borrowing, and it eliminated almost all keying by library staff. Finally, ILLiad enabled Virginia Tech’s ILL Department to be the first, and perhaps only, department on campus to enable its customers to determine for themselves through the Web in real time just how well they are being served by the library.(9)

It was the philosophy behind ILLiad’s design and implementation that led to these comprehensive improvements in ILL service. ILLiad was designed from the beginning as a total replacement for Tech’s interlibrary borrowing process. Thus, the first stage in development was to build a complete flowchart model of that process. The flowchart began with the customer’s submission of a request and ended with the delivery of an item to the customer, or the return of an item to the lending library. Over many months the process was refined to achieve customer purposes. Only after the flowchart model was completed did software development begin.

ILLiad’s existence as a model, implemented in software, of the entire ILL borrowing process makes it particularly adaptable to changes in technology and changes in service demands. For example, electronic delivery of photocopies(10) for items received from lending libraries via Ariel was added as a service by inserting additional procedures into the existing conceptual model of ILLiad, followed by implementing those procedures with appropriate software.

WHAT DID WE LEARN?

**Customer service goals first, technology second.**

This simple rule is so often forgotten, both by librarians and by technologists, that it is worth repeating here. It is not the library’s goal to have technology or to use technology. The library’s goal, its bottom line, is to satisfy the customer’s information needs by providing useful and effective services. Discovering what services are needed and desired is the first order of business. Searching for a means, or a technology, to fulfill those goals is secondary.

Many library technology projects appear to be undertaken because a technology is available, there is money to spend, and there is a need to say that the technology is being used. Disappointment follows when customers see no purpose to the service, or rebel against using it. Implementation of electronic services acquires value through rigorous analysis of customer purposes.

**Twist your metaphors**

“Outreach” as a concept has served the library profession well as libraries responded to the information needs of those who could not visit the physical library. Outreach service finds customers and takes services to them. Outreach means reaching beyond the metaphorical walls to deliver services and information.
Twisting the metaphor leads to the concept of “in-reach.” In-reach service lures customers to the library. Implementation of customer in-reach services enables customers to reach in past the walls to obtain service and information.

**Think big**

Effective library services result from design and development within the context of the total library process. Piecemeal automation of tasks fails to take advantage of the flexibility and interoperability of modern computer technology. Analyzing the relationship among tasks in terms of achieving the purposes of the library customer leads to viable and adaptable services appropriate to the electronic information age.

**Think small**

The phrase “library information system” still calls up visions of massive online catalogs mounted on large, expensive computers maintained by computer professionals. But strategic library services that directly affect customer outcomes are delivered to individual library customers by individual library staff members. Progress in implementing strategic library information systems will come from analyzing the functions performed by those individual library employees.

Technology to develop support systems for individual employees is available cheaply and is readily managed. ILLiad and all its supporting software, including its Web server, mail server, and SQL Server database, run on a microcomputer less powerful than the computers that many high school students have in their bedrooms for game playing. A complete working ILLiad system can be carried around on a laptop. As the lion learned from the mouse in Aesop’s well-known fable, size and power are not preconditions for performance of strategic services.

**Do it now**

Develop services, design systems, and implement them now. Planning too far ahead simply leaves you too far behind. Building systems and services that are possible with available technology forms the required foundation for evolving those services to tomorrow’s technology and service demands. Learning through implementation is vital to library survival in this time of rapid change.

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**NOTES**


9. ILLiad’s statistical reports are available to anyone with Web access at the URL http://www.vt.ill.edu/IlliadReports/. At this site, all reports and graphs are generated in real time by ILLiad from data in the ILL Department’s live database.