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RE-ENGINEERING THE LIBRARY FOR IMPROVED ACCESS TO ELECTRONIC HEALTH INFORMATION: ONE RESEARCH LIBRARY'S EXPERIENCE *

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Abstract: Organizational changes such as downsizing, reinventing the organization, mergers, and customer-focused services are buzz words for the 90's. One way that organizations are dealing with change is by re-engineering. Re-engineering is reinventing the way one does business, by stepping back and examining values, goals, and the system processes used to meet these goals. Process redesign is often an outcome of this evaluation. However, the customer remains at the center of each process, with systems being redesigned to meet customer needs and demands. At the University of Illinois at Chicago re-engineering began by examining the Technical Services processes, but re-engineering has also had a major impact on Public Services offered to library patrons. This paper will describe two of these re-engineering projects: access to electronic reserves and access to full-text journals. Issues related to these projects such as staff involvement and training, equipment, copyright, and user reactions to these new services are discussed.

Re-engineering, which has been very popular in the business world during the 1990's, is reinventing the way one does business. It involves redesigning key processes, while keeping the customer at the center of process redesign. One can find many examples of re-engineering in the business literature (1,2). With the growing emphasis on quality improvements librarians are also searching for methods for cutting costs and improving services. There are examples of organizational restructuring of libraries to accomplish these ends, but fewer examples for library process redesign (3,4). These examples are mainly in the area of outsourcing (5,6).

At the University of Illinois at Chicago (UIC), the Library's Re-engineering Project began by examining Technical Services processes. As the project progressed, it became clear that it was difficult to separate Technical Services from Public Services, and the project has resulted in redesign of processes in Public Services areas as well. This paper will report on two of these projects, access to electronic reserves, and access to electronic full-text journals at the Library of the Health Sciences (LHS).

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Background

Several factors led to the University Librarian's decision to undertake re-engineering. UIC Libraries include the Main Library, Math, Science, and Architecture & Art Libraries, and the Library of the Health Sciences with its three regional site libraries in Peoria, Rockford, and Urbana, Illinois. LHS is an administrative entity within the University Library System

with its own Technical Services Department, performing similar processes. It was felt that some processes could be consolidated and some redesigned in order to reallocate staff from technical services into systems and public services projects throughout the UIC libraries. It was not envisioned that the number of staff would be reduced, but that savings from re-engineering would allow for new electronic initiatives.

Start-up Procedures

An outside consultant was brought in to introduce re-engineering concepts to staff and to guide the re-engineering process. A training session was held for selected staff and department leaders and during this session, participants developed goals for the project.

The re-engineering project consisted of a Steering Committee and two teams, a Before Team focusing on processes performed before materials arrived in the library, and an After Team focusing on those processes performed after materials are received. Each team had a champion who also served on the Steering Committee made up of department leaders and the University Librarian. The Steering Committee studies user expectations and behavior, and guides the entire process. A project coordinator was also appointed to coordinate, schedule, and document all activities, in addition to serving on both teams and the Steering Committee.

First Stages

The teams began to carry out their charges by first examining current processes, while the Steering Committee focused on user expectations and user behavior. Process redesign cannot be accomplished without adequate baseline information, and participants found that needed baseline data was not always available. Several studies were initiated to gather data on procedures and cycle times for current processes. User behaviors were examined by conducting an availability study, by analyzing public terminal use logs, and circulation and interlibrary loan patterns and statistics. User expectations were explored in focus groups, and library

performance was compared with other peer libraries and organizations outside of academe.

During the process of gathering data it became apparent to team members that some processes could be improved by "quick fixes". However, any proposed change in process required team consensus as well as Steering Committee approval. Some of these "quick fix" changes included decentralization of the withdrawal process, elimination of bibliographer's review for rush and firm order books, and minor software programming changes to improve ordering and shelf preparation procedures.

Clean Slate

After completing the preliminary steps, the teams were now ready to turn their attention to Clean Slate Design. Clean slate design is when one discards an old process, and then completely redesigns the process based upon customer needs and preferences.

The Steering Committee decided that a frame of reference was necessary to help teams plan for the future. It was decided to hold a joint all day meeting with both teams and the Steering Committee, called "Future Think Tank Day", to introduce and to discuss issues that might play an important role for libraries in the future.

Knowledgeable librarians within the UIC libraries made presentations on GUIs, (graphical user interface), EDI (electronic data exchange), images, relational databases, and medical informatics. Each presentation was followed by small group discussions where staff speculated on how these topics would relate to the library in the year 2000. Projects related to both Technical and Public Services were identified that might help position the library for these technological changes. The Technical Services clean slate design continues. A new process for ordering library materials has been implemented, and a Loading Dock team has planned the implementation process for a shelf ready project with one of our vendors. Other implementation teams are working on selected pilot projects related to the home page, and policies and processes for acquiring and cataloging electronic journals.

Electronic Full-Text Information

Based upon "Future Think Tank Day" it was affirmed that the Library should strive to provide access to electronic full-text information. The Library had been involved in several initiatives to bring information about library holdings and databases to the desktops of faculty and students. The Library's online catalog, the

fixed-fee agreement with the National Library of Medicine to provide campus-wide access to MEDLINE through the Grateful Med software, as well as cooperative state and regional agreements, already provide a wealth of information for UIC faculty, staff, and students. Two projects resulting from re-engineering efforts were Electronic Reserves and Electronic Full-Text Journals.

Electronic Reserves

Given the primarily article-based nature of course reserve materials to support health sciences education, the Steering Committee determined that the Electronic Reserves Project would be conducted at LHS. The project was to include all materials that faculty might place on reserve: course outlines and assignments, class notes, old exams, reading lists, journal articles, and graphics.

In order to be sure that all types of materials would be included in the project, two health sciences faculty members were contacted to ascertain if they would be willing to participate. These faculty members from the School of Public Health and the College of Medicine enthusiastically agreed to participate, and submitted required course materials and reading lists.

Copyright permission was not necessary for course materials prepared by faculty. Ordinarily faculty must request permission from the publisher for copyrighted materials placed on reserve, but for this project LHS librarians agreed to seek copyright approval for journal articles and graphics. Letters were sent to copyright holders requesting permission to place articles on electronic reserve for one semester, accessible only to UIC patrons. The library also agreed to affix required copyright statements.

Permission letters were sent to twelve publishers, and replies were received from eleven. Seven gave permission with no fees, two gave permission with access charges, and two refused permission. The decision was made to use only the articles from the seven publishers granting permission with no fee for the initial pilot project.

Equipment required for this project consisted of a scanner and a personal computer with an Internet connection. Portable document format (PDF) software was employed. PDF readers are available campus-wide for downloading, and these readers have been loaded on all library public terminals. Additionally a wireless network has been installed in LHS. Two laptop computers are available for check-out for use by patrons within the library, providing another option for accessing electronic reserve materials at LHS.

Staff were trained, in a relatively short time, to use the software and to attach the copyright statement. With experience, staff can prepare two articles per hour. Systems staff set up a secure file for copyrighted materials that is available only on a UIC IP restricted Web site.

This small project has been successful and will be expanded to other colleges at the Health Sciences Center. Student assistants have been trained to scan course materials, with library staff processing only copyrighted materials. Use statistics and patterns will be collected to determine not only use of electronic materials, but also future equipment needs for public access to full-text electronic course materials in the library.

Electronic Full-Text Journals

The Library also had limited experience providing access to full-text journals through various state and regional cooperative agreements. The Steering Committee determined that LHS should be the site for the electronic journal project for two reasons. Full-text electronic journals were becoming available in the biomedical sciences. As medical education moved off campus to clinical clerkship locations early in the medical curriculum, students did not have ready access to library materials. Although students had access to the Grateful Med databases (7), they needed access to electronic full-text journal articles.

A Task Force was appointed to evaluate available products and to determine equipment needs. After discussion with several producers, Ovid Technologies was chosen because it offered access to several databases plus a full-text core biomedical collection. LHS chose a campus-wide licensing agreement with access to the CINAHL (Cumulative Index to Nursing and Allied Health Literature) and IPA (International Pharmaceutical Abstracts) databases plus the Core Biomedical Collection, which is a collection of fifteen full-text major biomedical journals. By January 1999, LHS will have two hundred full-text titles from Ovid.

Technical requirements for access for multiple users of the Ovid system include a Z39.50-compliant Ovid Client/Server, an HTTP Web Server capable of loading PERL, and a Web browser. Databases and documents are accessed via the Internet rather than loading this information locally. Full-text access includes all graphics and hypertext links. This capability allows access to photographs, charts, tables and diagrams found in the full-text articles.

The Task Force also was charged with preparing documentation for this new resource, training of staff, preparing publicity to announce the availability of the Ovid resources, and holding an Open House for the campus community.

Discussion

Access to databases and full-text documents via the Internet have been well received by library users and library staff. An evaluation of these two new services is currently underway. Analysis of users' preferences and behaviors will provide insight for future projects. However, several issues that arose during this project will be of interest to other libraries planning to implement electronic services: printing, downloading, and lag time.

Library users want to be able to print articles for later study and reference. However, printing is sometimes a slow process and it requires large amounts of paper and ink cartridges, now supplied by the library. The campus may need to explore options for charging or imposing fees for printing in the future.

The ability to download files or to send files to an e-mail account is appealing to library users. Also library staff need not be as concerned when a print issue is missing or in use, when the needed item is available electronically for downloading. The library encourages users to download rather than to print, but library users do not always have a disk, and the library presently does not sell disks.

Publishers' embargoes create lag time before articles are available. For example, the publishers hold Nature for three months, and Science for ten days before it is available to Ovid. Ovid must re-key the information because the publishers do not provide marked-up language format. Despite the delay in receiving electronic publications, our users tell us that electronic access to full-text data is the best thing we have ever done. Since the initiation of this project, Ovid has worked diligently with publishers to formulate agreements to decrease the lag time.

Conclusion

The Library's initial efforts to provide electronic resources have been successful from several standpoints. The line between Technical and Public Services continues to be less discrete, and the implementation of these two projects has increased coordination among systems, technical services, and public services processes and staff members. Library staff and library patrons are becoming more adept at handling technological changes. And, perhaps, most important, the Library can now provide for our patrons, 24 hour access for selected materials.

The Library began its re-engineering efforts in 1994 and continues today. Many other projects have been completed or are underway. One of the things we have come to realize is that re-engineering is an ongoing process. Date collection and analysis, and monitoring of cycle times continues for current procedures and for

new processes. Change is an opportunity, but sometimes also a problematic fact of life. Planned and managed change remains the goal.

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