Date : 11/07/2006

Transforming the Document Delivery and Resource Sharing Engine

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Meeting:	**73 Document Delivery and Resource Sharing Section**
Simultaneous Interpretation:	No

WORLD LIBRARY AND INFORMATION CONGRESS: 72ND IFLA GENERAL CONFERENCE AND COUNCIL
20-24 August 2006, Seoul, Korea
http://www.ifla.org/IV/ifla72/index.htm

Abstract:
In order to transform the Library's identity and role in the digital era, the dynamic engines for the Knowledge and Information Society require new collaborations and strategies, but at the heart of this transformation is replacing uncertainty with knowledge. The redefining of our profession fundamentally relies on developing the knowledge and skills of our employees, engaging in adopting emergent technology and web services, and advocating new functional partnerships that cross organizational divides within libraries, with outside organizations, and more importantly, with the knowledge and information society.

The paper and presentation explores the periphery of emerging technologies and roles for document delivery and resource sharing with a focus on sharing best practices for adaptative strategies using practical examples such as new training programs and methods to collaboratively explore and adopt emergent technologies and web services, and new partnerships.

Examples of emergent technologies & web services include: Voice over Internet Protocol (VoIP), mobile technologies, social networking software and services.

Examples of new partnerships include: collaborative strategies for resource sharing within libraries; acquisitions, digital libraries, reference, and with vendors.

Examples of new training programs include: ALA RUSA STARS Education Committee, training programs at the University of Virginia Libraries and other resources.

Transforming the Document Delivery and Resource Sharing Engine

> "Change, by its very nature, is unpredictable, inconstant and often unmanageable, yet organisational success depends on an ability to predict and control change in some way… an effective organisation must be prepared to grasp the opportunities, alongside the threats, by responding proactively to the challenge of change." (Farley, p. 238)

Introduction

There is no precision or agreement to what a transformed library is or how it will emerge. Nevertheless, developing the knowledge and skills of Library employees is fundamental to the transformation process. By scanning emerging technologies, evaluating their potential impact or usefulness to document delivery and resource sharing, sharing and testing ideas, we can replace uncertainty with knowledge. Willing to explore new ideas, new collaborations, and new sharing strategies, resource sharing staff are more than witnessing the transformation of Library they are creating interesting opportunities to engage in the process, coincidentally better serving users, and adapting their skills and workflow to the transforming landscape.

Transformed Environment

The information environment has changed tremendously for users and for libraries.

- OCLC reports Perceptions, Information Trends, and 2003 Environmental Scan have valuable insights into how much the information environment has changed, in particular, how users perceive libraries, what is happening to information, and what patterns help us predict our future, these include:
    - 89% of electronic information searches by college students begin with a search engine, while 2% start at the Library web site. (OCLC, Perception 1-17)
    - In 2004, daily information exchange via: e-mail with attachments: 16.5 million, U.S. Interlibrary Loans: 51 thousand. (OCLC, Information Trends, 4)
- Pew Internet & American Life Project highlight many of the changes in our users environment, for example:
  The Internet Goes to College 2002: 73% of college students said they used the Internet more than the Library.
  Home Broadband Adoption 2006: 84 million subscribers to broadband at home, or 42% of all American adults, of which, 31 million broadband users have posted content to the web.
- Competitors and partners are everywhere and information is ubiquitous. Search engines and other organizations fulfill many of the functions and roles of libraries; however, they do so as both competitors and partners.

Information seekers (and Interlibrary Loan workers) have increased and overlapping opportunities to locate information, and increasingly free and fee-based services provide content traditionally found at libraries or obtained through resource sharing.

Surprisingly, the growth in sources of information challenge the automation benefits enjoyed by resource sharing by posing mediated conditions, whether it's the challenge of handling grey literature requests or optimizing choices of which source? Borrow, free, purchase, or rent. And which version? Pre-print, print or electronic published, or author's site. While computing technologies and automation have helped to radically streamline interlibrary loan, and to change the expectations of resource sharing, they are also creating opportunities to fundamentally change Library workflow across traditional units.

Emergent Resource Sharing

> "One can state one of the major challenges facing libraries in these terms. Historically, users have built their workflow around the services the library provides. As we move forward, the reverse will increasingly be the case. On the network, the library needs to build its services around its users' work- and learn-flows." (Dempsey, 2006)

Emergent resource sharing is shaped by the service expectations of our Library users, which in turn are framed by consumer and community-based web services, such as Amazon, iTunes, and Netflix. However, it is also true that we have opportunities to shape our services and workflow by solving the strategic problems we face today and tomorrow by creating the migration strategies with engaging new technologies.

Using the following examples, we can explore the strategic opportunities and migration trends useful in reshaping resource sharing. (Workflow diagrams and examples available during presentation):

Direct Delivery - Why handle a borrowed book?
Creating a direct lending system to ship borrowed materials directly to users anywhere is perhaps one of most important opportunities facing resource sharing, while this is especially important when a Library borrows a book and then sends that book to its remote user, the cost benefit of offering home delivery as customer service compares favorably to the overall cost of resource sharing pickup or re-shipping handling. The most widely practiced service models for library books is self-service (users find it or pick it up). Alternatively, fee based services ranging from Amazon, iTunes, Netflix, and even free reader based service such as Paperbackswap.com and other peer-to-peer web services send content directly to the user's home or desktop. Determining the factors needed for a lending library to send books directly to the requestor instead of to the borrowing library is critical to reshaping resource sharing. In addition to what it takes to directly lend, we need to create options for unaffiliated users. Some of the Direct Delivery opportunities are emerging:

- Library practitioners and vendors participating in the Rethinking Resource Sharing Forum created a manifesto and framework for direct lending, available at: http://blog.aclin.org/
- By the end of 2006, OCLC plans to offer a new Direct Delivery resource sharing service that uses tracking and insured expedited delivery services.
- Using purchase on demand, Interlibrary Loan can easily opt to have the Internet book seller send books directly to their user, and have the user return it to the Library with a set due date.

Purchase on Demand or Just-in-Time Acquisition – Why not buy it?

> "for monographs, purchase may be a reasonable substitute for interlibrary loan." (Holley, 2005)

Interlibrary Loan borrowing of books may not always be the best option for a Library or Library User. Increasingly, libraries are piloting Interlibrary Loan purchase on demand and/or Just-in-Time Acquisitions to acquire requested materials to better meet the needs of users, as in the case of new titles or difficult to borrow materials, such as audio-visual, or to improve turn-around times, as in the case of popular titles, and distance education materials. Institutions differ in how they implement pilot purchase by demand strategies, many limit purchasing to books that are requested through ILL with a publication date within 3 years, while others might compare the cost of purchasing a used book with cost to borrow.

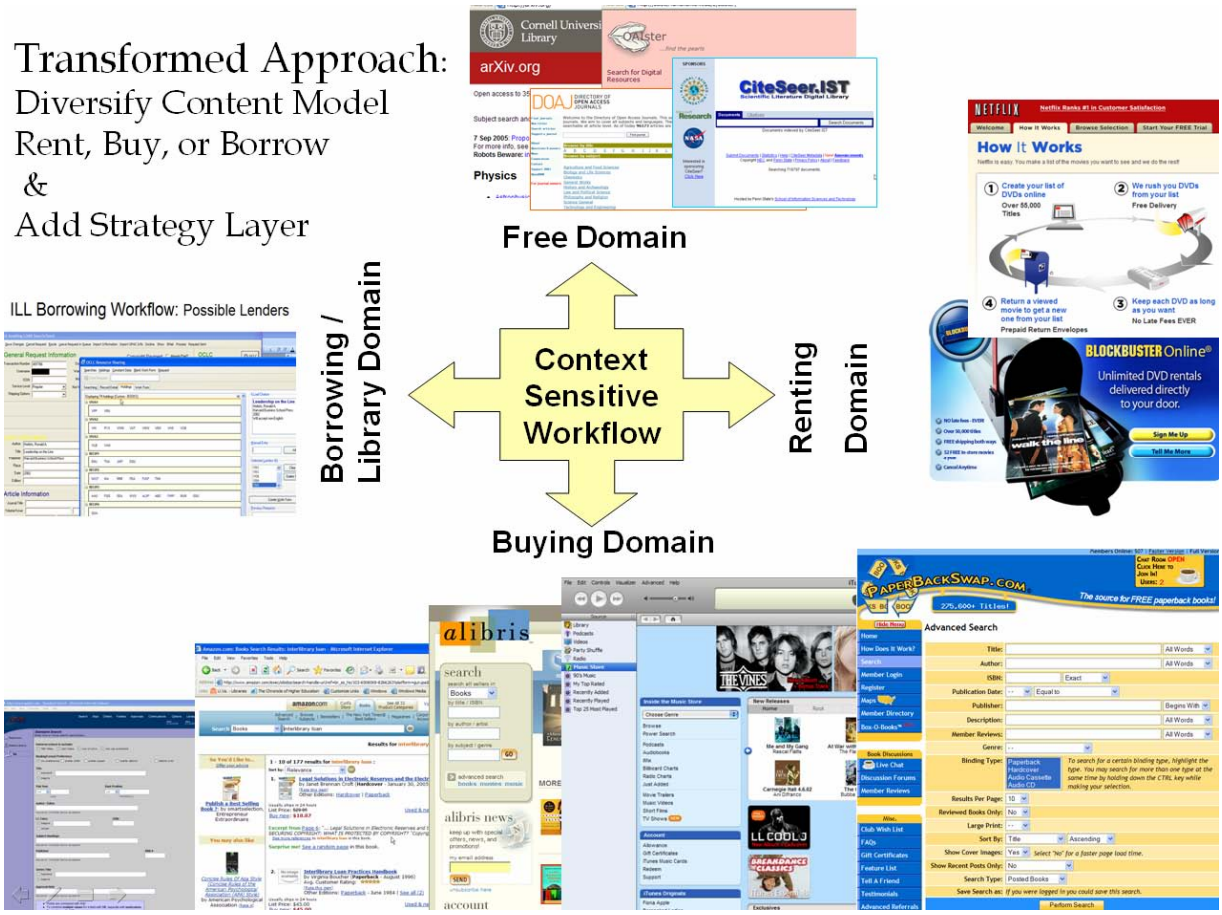
The University of Virginia Library has had a very successful purchase request system for many years; however, the Interlibrary Loan workflow wasn't well linked into that Just-in-time Acquisition process. Determining the best practice for University of Virginia Library began with starting a discussion with the Collections Group on building a machine readable collection building profile that could help us determine when does it make sense for Interlibrary Loan to purchase an item and/or automate the referral of the request to a selector. We formed the Collaborative Strategies taskforce to answer those questions. We first gathered charted our workflows and gathered data, sample data:

1	LoanAuthor	LoanTitle	LoanPublisher	PubDate	Purchase Express or Not ?	Lowest Price Purchase$	Source AL = Alibris AM = amazon	User says CitedIn	Status	Department
54	Low Donald Anthony.	History of East Africa /		1976		$19.89	AM	bibliography	FACULTY	POLITICS
55	Podhajsky, Alois.	The art of dressage : basic principles of riding and judging /		1976		$28.99	AM, AL=31.94		FACULTY	FRENCH
56	Stavropoulos, Christoforos, 1929-	Partakers of divine nature ... /	Light and Life Pub Co	1976		$49.00	AM, AL=$76.89		GRAD	RELIGIOUS STUDIES
57	Hinchliff, Peter Bingham.	Cyprian of Carthage and the unity of the Christian Church /	G. Chapman	1974		$63.00	AM	FirstSearch	GRAD	RELIGIOUS STUDIES
58	Weiss, Arthur, 1912-	O'Kelly's eclipse.		1968		$0.98	AM, AL=$2.95		FACULTY	FRENCH
59	Callahan, Daniel, 1930-	The secular city debate,		1966		$2.02	AL, AM=$9.99		GRAD	RELIGIOUS STUDIES
60	Young, Wayland Hilton, 1923-	Eros denied; sex in western society	Grove	1966		$2.95	AM, AL=$4.94	OCLC 534789	FACULTY	ENGLISH
61	Sweetman, Edward.	The unsigned New Zealand treaty ; a publication for the New Zealand centenary, 1840-1940,	Arrow Printery Pty	1939		$44.95	AL	OCLC 6141380	FACULTY	HISTORY
62	**Notes**	**Avg. Publication Date :**		**1992**	**Avg. Cost:**	**$31.79**	Total Cost for these 60 requests		$1,907.31	

As we determined parameters that change workflow, we also realized a need to redesign the request management system to include automatic pricing, purchasing, and possible integration with approval plans and Acquisition systems.

Request Management & Context Sensitive Workflow – What are the options?
Building in automatic pricing is only one option needed for the future of request management processing. In fact, the challenge of designing new staff interfaces and workflow that take advantage of a variety of options parallels the user environment. The plethora of discovery and get options for both user and staff must be flexible to the needs of the individual or institution if it wants to reach the marketplace. For instance; if

a user searches for an article that is not available in a Library database, they should find any available copy in an institutional repository, however, if they don't and request an ILL, the ILL request system should be able to interface with web searches to verify the record, or better yet, locate the item without requesting it from another library. For popular titles or videos that prove extremely challenging to borrow, the ILL request system should be able to display how much it might cost to rent or buy that work, and interface with selected systems used by renting/buying partners.



The ILL workflow can take advantage of the same environments as our users; however, we must be realistic and make simple and flexible interfaces that accommodate the variation in institutional policies and practice.

Digital Library in Workflow – If you scan it, why not capture it?
From about 2000-2005, the University of Virginia Interlibrary Services has processed about 15,000 articles in the public domain, not including government documents. In scanning materials or receiving scanned articles, resource sharing libraries should seriously consider developing a capture workflow to ingest these items into their digital libraries, or donate these into a central repository, such as OCLC's digital archive: http://www.oclc.org/digitalarchive/about/default.htm. Besides the advantages of already scanning these materials for resource sharing, requested items indicate a current value,

and the ILL request carries the bibliographic and citation values useful for digital library metadata. We are not only looking at how to couple article digitizing on demand with digital libraries, we are also interested in how to digitize books on demand using a page-turning scanner because during 2000-2005, we loaned about 5,740 books published pre-1923.

Communication in Workflow – How can we promote communication?
Emergent resource sharing must have better communication tools. Increasingly used at banks, voice over Internet protocol (VoIP) have increased flexibility, decreased time for changes, and reduced cost of telephony. (Werbach, 2005) At the University of Virginia Interlibrary Services, we have started to utilize Skype™, a VoIP software that provides additional internal communication tools, and is used for some external communication with other libraries. Several VoIP applications have contact awareness allowing you to see who in your contact group is available to call. VoIP also offers chat, conference calls, broadcast calls, and file transfers. If a global library and policies directory included these functions and was interoperable with the request management software, the ability to communicate and share resources with other libraries could be significantly enhanced.

Mobile Technology in Workflow – Can workflow work anywhere?
Taking work with you seems like an awful trade if it means working at all hours; however, resource sharing involves a lot of handling to get materials to our workstations. While at Portland State University, I had piloted a mobile workstation that allowed us to scan articles in the shelves on a cart that held a laptop, scanner, portable power pack. We also began testing a concept Library Anywhere, using a tablet PC and smartphone for mobile work. At University of Virginia Library, we are making progress with Library Anywhere with piloting the use of a Symbol MC70, an industrial smartphone with barcode scanner and VoIP. We plan to partner with vendors to integrate this mobile technology with Sirsi, our integrated system and ILLiad, our request management system for electronic paging, updating, and mobile printing. This summer, we are also testing different mobile scanning tools, such as portable scanning pens, and even using a smartphone camera.

Exploring emerging technologies and strategic opportunities for libraries, resource sharing staff individually or cooperatively chart the transformation of document delivery and resource sharing. Sharing the knowledge and preparing staff for the consequences of changing interlibrary loan workflow must include others in the Library, as well as, include vendors, because of the serious implications for Library as organization, and partners in the information environment. Relevant to the position we find ourselves in, Kate Wittenberg writes about scholarly publishing, libraries, search engines and online gaming… “Keep in mind that we are all mutually dependent, and that no group is in a position to dictate the discussions or the outcomes… …it is not clear what the exact models of cooperation will look like.” (Wittenberg, p. B20) Libraries of the future are transforming albeit without a complete blueprint in response to the dynamic and distributed information environment that has many competitors and partners, and

ubiquitous information. It is in this environment that preparing and engaging our staff for migrations becomes so essential.

Staff Training & Development as Migration Strategy

> "It is the way in which people respond to these challenges that will determine whether the necessary changes can be adopted successfully. The ability of library staff to meet the challenge of change is of utmost importance…" (Farley, p. 242)

While library instruction programs and library associations have created shared strategies and standards for information literacy and technology fluency to address the needs of lifelong learners, there is a need for such agreement and cooperation to address employee learning needs across libraries.

What are we training towards?

Having a training direction does not come naturally, because it requires multi-tiered development and involves several components with varying support and a variety of sources. A common approach starts with identifying core competencies or essential knowledge and skills for success. Beth McNeil and Joan Giesecke's chapter "Core Competencies for Libraries and Library Staff" describe some of the process used at University of Nebraska, Lincoln Libraries including:

- A committee formed and charged to "develop core competencies for library staff and to give strong consideration to flexibility, information literacy, and adaptability to new technology."
- An organization assumption was made; "staff needed to be engaged in the organization if the organization was to improve."
- "changing expectations for staff and the need to think beyond task-related skills to more systems-related thinking…" (McNeil & Giesecke, p. 50-51)

Examples of Library core competency are easily found:

- Reference & User Services Association (RUSA) a division of the American Library Association (ALA)
    - Professional Competencies for Reference & User Services Librarians: http://www.ala.org/ala/rusa/rusaprotools/referenceguide/professional.htm
- California Library Association (CLA)
    - Technology Core Competencies for California Library Workers: http://www.cla-net.org/included/docs/tech_core_competencies.pdf
    - Competencies for California Librarians in the 21st Century: http://www.cla-net.org/resources/articles/r_competencies.php
- Special Library Association (SLA)
    - Competencies for Information Professionals of the 21st Century: http://www.sla.org/content/learn/comp2003/index.cfm

Once core competencies are defined, they are variously implemented in an organization; in new hiring, through interview questions, training programming, and evaluations. (McNeil & Giesecke, p. 58-62)

At the University of Virginia Library, Library administration and Library Human Resources are very supportive of training, and have one full time employee dedicated to coordinating staff training. In addition, the Library's Human Resources department is developing Library core competencies using WorkKeys™, from which adapting and targeting training will follow. In Interlibrary Services (ILS), as part of my first year at the University of Virginia, I developed a set of iterative activities that combined getting to know the ILS staff with assessing individual and departmental needs. Initial work focused on assessment; I met individually with each employee, and let them get to know me; I explained that one of my priorities would be staff training and development. Three months later, departmental planning and group activity work were underway using techniques, such as;

- individually and collectively completing the sentence "We are in the business of…"
- articulating our adjacency requirements by outlining an eco-map, a visualized identification of our stakeholders, and
- departmental goal brainstorming and prioritizing those goals, our second highest goal is staff training.

The second phase expanded the learning opportunities by targeting the needs identified by staff and my observations. This later phase varies because the strategies range among general and specific goals, individual and group goals, and short and long-term goals, they include:

- Applications based training
  We encouraged and had a significant increase in staff attending Excel, Word, and other Office/Imaging application classes offered by Library training and University Information Technology & Computing. Similarly, we increased individualized and in-house training and use of these applications in ILS. Lastly, starting on June 2006, we subscribed to one year of full vendor training for request management software, ILLiad, and we are coordinating system wide ILLiad training.

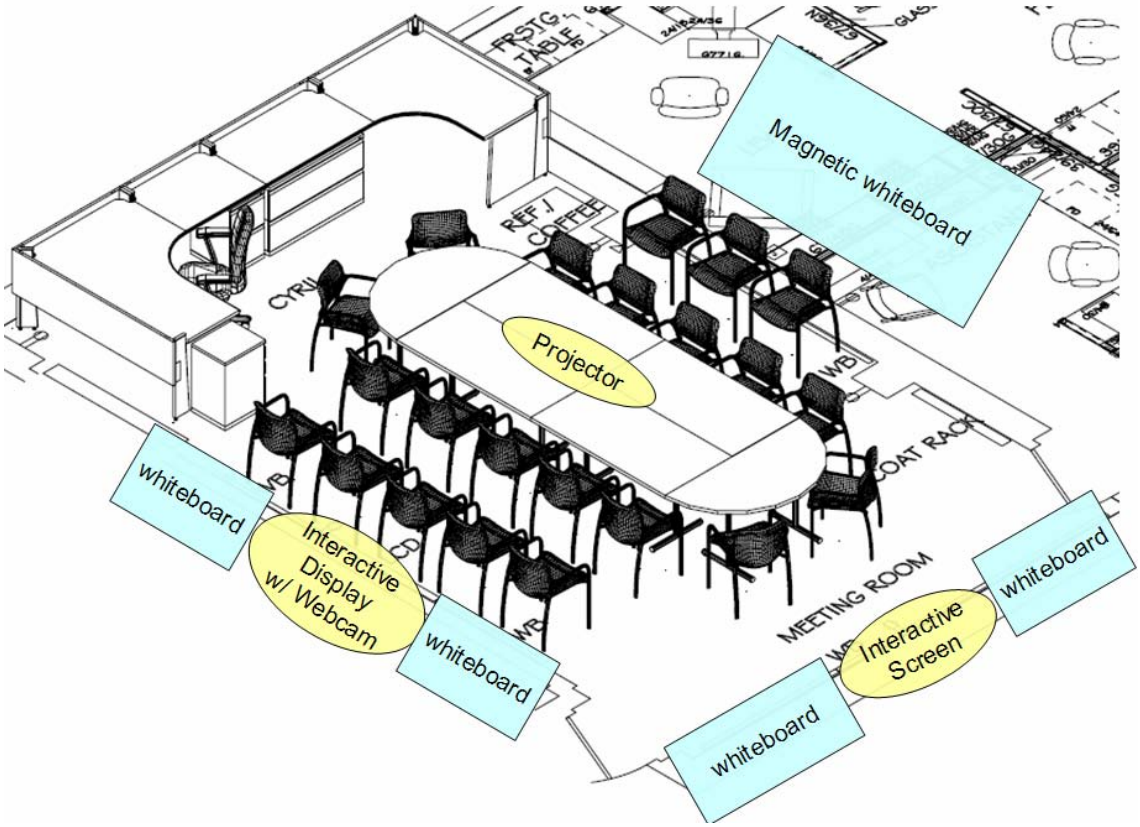
- Library & Information Architecture Certificate
  We created a certificate training program that involves core library information knowledge for Interlibrary Services, which is being adapted by the Library. Basic curricula of three 50 minute sessions include:
    - MARC Basics
    - Finding Electronic Resources Part I: University Library Resources
    - Finding Electronic Resources Part II: Alternative Resources
    - Bibliographic Verification.

- Innovation Strategies
  We were funded to innovate. This year, the innovation focuses on communications and mobile technology, but is integrated into the training and staff development program for ILS.
    - We introduced staff to SKYPE™, a Voice over Internet Protocol phone system by distributing microphone headsets and webcams to explore the uses of Internet phone and conferencing for departmental communications.

- We are in the process of ordering and implementing two smart phones, a tablet PC, and a portable scanner to develop expertise using portable computers, scanners and other mobile technologies for retrieval, article scanning, preparing materials for delivery, etc.
- We are building a training and conference facility in ILS.

- Library Tour Series
  An organized Library tour provides an opportunity for Library employees from various departments to get to know each other, while also learning about another Library. I usually select two or three units or activities to discuss at the destination Library, and manage to get attendees from throughout the Library. One of the most fascinating elements to the Library Tours is that on the way to the Library, everyone gets to know each other better, then during the visit, alternative ideas and workflow is shared in a neutral space, and finally, during the trip back, a debriefing happens along the way. The Library Tour Series will be incorporated into the University of Virginia Library's Professional Interest Committee.

- Designing a Training and Conferencing Facility
  Much of the emphasis on in-house informal and formal training in Interlibrary Services requires an adequate learning environment. During planning for the remodel of the Interlibrary Services, I decided to allocate a large part of the office to a conference room that supports training webinars, web and phone conferencing, plenty of white boards, and multi-media presentations. Design:



How do we share training?
While local staff training and development can meet many of the needs of emergent resource sharing, cooperative training is a critical piece to expand the benefits in an information sharing network, however distributed training can prove difficult to scale adequately and manage consistently.

Much of the regional resource sharing training workshops tend to be provided at local conferences and user meetings. Having organized the Northwest ILLiad users meeting in 2003, Western ILLiad users meeting in 2004, and participated in planning a few Northwest ILL conferences, I have found these venues very useful for staff training and development. In particular, a key to a successful training conference is identifying the needs and appropriately designing the forum to meet those needs. This year at University of Virginia Library, because the ILS staff requested more scanning and imaging training and that appears to be a general need in our profession, we are organizing a Scanning Forum, to be held in November 6-7, 2006 in Charlottesville. The idea is to provide a mix of vendor booths and presentations, and practitioner presentations, and workflow tours. Besides focusing on the best practices of scanning and imaging, presenters and vendors will be asked if they can resolve some strategic problems posed to library workflows, in particular, how to automate some of the quality controls in the process. This type of conference focuses information sharing of best practices with strategic problem solving, which helps the migration from sharing practices at conferences, to implementing systemic changes.

To direct broad systemic changes to the resource sharing engine, we also have to look at the whole organization, or the Library as dynamic engine. We have to find better ways to take local and regional generated knowledge and training, store it in a flexible space for sharing and repackaging among other interlibrary loan departments, and across functional divides, such as; resource sharing, acquisitions, cataloging, access services, etc. One approach is to develop or use an existing central repository of Library information documents, such as the E-prints in Library and Information Science available at: http://eprints.rclis.org/. Another approach is more community based and focuses on learning objects, for example we could use the Multimedia Educational Resource for Learning and Online Teaching (Merlot): http://www.merlot.org/Home.po which already has over 130 learning objects in library and information science (see: http://www.merlot.org/artifact/BrowseArtifacts.po?catcode=235&browsecat=233) Two community based examples are Online Programming for All Libraries: http://www.opal-online.org/about.html and the Blended Librarian: http://blendedlibrarian.org/ which uses LearningTimes, LLC as their online learning environment located at: http://home.learningtimes.net/library

Perhaps our biggest challenge to developing a shared training repository and active community portal will be focusing the contributions of our global community. We have seeded so many successful projects that it is difficult to focus on any one of them. Two large scale alternative examples that illustrate very successful knowledge management community based portals are SourceForge, an Open Source software development web site which has over 1.3 million users and supports over 120K projects

http://sourceforge.net/ , and Wikipedia, which has over 1.1 million articles in English, one of which is an Library and Information Science Wiki: http://www.liswiki.com/wiki/Main_Page . To combine the strengths of our community; ALA, IFLA, ARL, MLA, PLA, SLA, and non-associates, we must look into better ways to share information and training, and to communicate.

I propose that to focus resource sharing contributions and community, we have to develop a highly functional global library directory and knowledge base, much like enhancing the OCLC's policies directory with something like Merlot or the Blended Librarian. This global library directory should support several essential functions and thereby be used often enough to sustain and grow as a vibrant online community resource. Example functions:

- Provide a useful directory of libraries and library workers
- Promote communications: phone numbers, emails, chat names, RSS, and VoIP
- Connect individual profiles to learning communities, much like Source Forge, CiteSeer: http://citeseer.ist.psu.edu/ , Google Groups: http://groups.google.com/ , etc.
- Peer to Peer integration and referential awareness of collaborative tools including; email, chat, VoIP, file sharing, social bookmarks (http://del.icio.us/InterlibraryLoan) into Library systems.
- Accept community and vendor content contributions and annotations.

Conclusion

> "Going forward, our work must take a more experimental turn… …we need to initiate conversations with new players and new partners." (Wittenberg, B20)

The future of the Library is emerging as a discussion between the strengths and engagement of our staff, and the emergent consumer technologies that redefine user needs and expectations. In order to be a part of the discussion, staff exposure to and engaging new technologies and web services is fundamental in guiding and extending the transformation process. This process spans traditional Library functions and institutions, necessitating including all library employees as part of the organizational development, and working with traditional library and non-traditional vendors. Recognizing this is a time to experiment with organization, service, and technology, we must serve as the Library engine's change agent because we are highly experienced with distributed cooperation. In that role, we should lead education and training efforts because our work increasingly focuses on the more obscure materials and lastly, will be one of the most transformed in the next 5 years. Lastly, in order to strengthen our Library engine as a distributed cooperative effort, we need a better communication tool that serves as both a knowledge base, and as a communication based directory.

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