

**Report of the
New Generation Working Group
July 2006**

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INTRODUCTION

The mission of the library is to help its patrons find information that enhances their learning and research. User needs assessments over the past year have indicated that our patrons are increasingly drawn to “Web 2.0” search interfaces that deliver results and services we have not yet harnessed. These “Web 2.0” interfaces, according to Tim O’Reilly, who coined the term “make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others.” In order to provide these kinds of user-focused services, the library must design access points where, whenever possible, the complexities of the information sources being delivered are not apparent to the user, the interface allows patrons to search and find information across resources, and the information can be repurposed for the patron’s own use and be shared with others. This desire is not unique to NYU, and many libraries are grappling with the same issue. NYU’s position as a premier urban university, however, indicates that we should take a leadership role, meeting the challenges of a dynamic, fast-moving, and dispersed user base, while also taking advantage of a large pool of expert knowledge that exists within our institution. With information systems radically changing, we must take advantage of this opportunity to deliver our wealth of resources to users in ways that will be most satisfying to them.

SURVEY

Given today’s trends of Google-ized research and information-seeking behaviors, it has become evident that libraries must re-evaluate their user interfaces. In the many reports, surveys, and studies that the New Generation group has reviewed in the course of its work, we have found general agreement on the trends of information use and searching behaviors of our typical users. These can be divided into three categories of information need:

- ***A known object:***
The user has already identified a particular book, journal article, website, video, etc., and needs to find it.
- ***Information about a particular topic:***
The user has a specific research topic in mind, but has not yet accessed any subject information
- ***A topic:***
The user has a general idea about what he or she would like to research, but is not aware of the particular possibilities in that subject area, or he or she needs to narrow down a broad subject area and is not familiar enough with the topic to do so.

Likewise, once the user has identified materials of interest, there are similar patterns of behavior regarding what he or she wants to do with the found information. For example, users usually want to access the object directly, such as through a link to the full text of the object. Users also want to make the object "theirs" by either printing or downloading it, sharing the object with a friend through email, reviewing or rating the quality of the object, or "tagging" the object with their own set of terminology. Furthermore, users commonly repurpose the objects they find using editing tools, bibliographic management software, and e-portfolios.

Not only do users expect more options for finding and utilizing information, but they also expect to be able to access this information from anywhere. We cannot guarantee or expect our users to use the library as a "front door" to their information needs; rather we must meet our users where their information needs develop, regardless of the physical or virtual location of that need. Professor Terry Harrison echoes the sentiments of many with his comment about checking "journal topics in his pajamas on a Sunday rather than schlepping to Bobst." (See bibliography) This is especially true here at NYU where users face not only a plethora of physical locations engendered by our partnerships with other institutions, but also a proliferation of online "homespaces" (NYU Home, Blackboard, the NYU website). Users quite naturally have greater expectations in terms of access to materials and services between these diverse physical and virtual environments.

Ultimately, our users want a "one-box" search with the ability to rely on technology to understand and interpret their queries. If libraries do not deliver such search interfaces users will bypass the library in search of an easier method of finding information, regardless of whether that option delivers quality information.

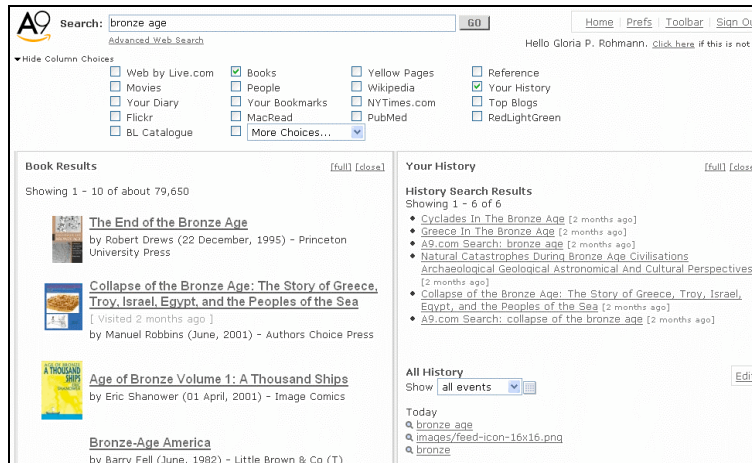
RECOMMENDATIONS

The New Generation group recommends the following guiding principles to create a more user-focused discovery environment.

1. "Smarter" Search Interface

- Federated searching – provides a single search interface with a single search box that queries diverse data sources.

An example from a federated Web search engine, A9:



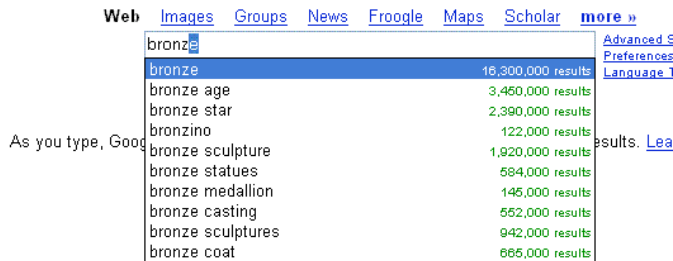
A9, a federated search engine from Amazon.com, allows a graphical display of results from the user-selected sources, including “Your History.”

- No dead-ends – guide the users forward, not backward; with user-friendly error/timeout messages that provide alternate options to improve their search results.
- Link to ILL services if item is not directly available.
- Query recommendations – “Others liked,” “More like this,” refinement of search, suggestions of related search terms, topic mapping.
- Automatic error correction of search queries – spell check, variations in terminology, language help, “Did you mean...?”

An example from the online retailer Amazon:



A search on Amazon.com for the term “davinci” resulted in “Related searches” and “Did you mean: ‘da vinci’?”



Google Suggest <http://www.google.com/webhp?complete=1> uses the power of AJAX scripting to “auto-suggest” items from the Google index.

- Instruction integrated into user interfaces (e.g., intuitive informational organization; context-sensitive help)
- Ability to accommodate both a simple and an advanced search interface for all levels of users needs.
- Improved OPAC features, including:
 - Universal keyword searching of the record that is not limited to selected fields.
 - Enhanced searching of materials (e.g., “Search inside the book”).
 - Provide for less literal search queries using variations/synonyms of terms.
 - Provide access to a searchable Table of Contents.
 - Visual maps of the collections so users can easily locate the materials directly from the OPAC screen to the stacks
 - Illustrate OPAC records with book cover images.
 - Provide links to biographical information of the authors, or book reviews.
 - Enable serendipity (simulate browsing of physical bookshelves)
- Integrate OPAC with the rest of the library's resources.

2. Value-Added Search Results

- Simple and transparent navigation of complex item sets (e.g., grouping various versions of a work, using the FRBR model (Functional Requirements for Bibliographic Records), as appropriate).
- Relevancy ranking – faceting, weighted data fields, etc.
- Links to the most direct access point for the item – enable a “Get It!” button.

- Integrated search results for multiple resources so that users do not have to perform the same search on each separate resource.
- Integrated online references sources in the results list which provide basic definitions, overviews, or summaries.
- De-dupe results list to avoid redundancy.
- Categorize results into logical areas or formats (e.g., reference sources, journal articles, websites, books, etc.), and allow further limits.

An example from Web of Science:

Web Of Science Results Analysis

Results Analysis

298 records. TS=(bronze)
Analysis: SubjCat=CLASSICS

Rank the records by:	Analyze:	Set display options:	Sort by:
Author Country/Territory Document Type Institution Name	Up to 100000 records.	Show the top 10 results. Minimum record count (threshold): 2	<input checked="" type="radio"/> Record count <input type="radio"/> Selected field

ANALYZE Rank results by the selected field.

Use the checkboxes below to view the records.
Note: The number of records displayed may be greater than the listed Record Count if the original set contained more records than the number of records analyzed.

VIEW RECORDS	Field: Document Type	Record Count	% of 298	Bar Chart	SAVE ANALYSIS DATA TO FILE
<input type="checkbox"/>	BOOK REVIEW	259	86.9 %		
<input checked="" type="checkbox"/>	ARTICLE	21	7.0 %		
<input type="checkbox"/>	MEETING ABSTRACT	9	3.0 %		
<input type="checkbox"/>	NOTE	3	1.0 %		
<input type="checkbox"/>	REVIEW	3	1.0 %		
<input type="checkbox"/>	POETRY	2	0.7 %		

VIEW RECORDS (1 Document Type value(s) outside display options.) **SAVE ANALYSIS DATA TO FILE**

Web of Science's "Analysis" tool allows results to be displayed by document type or other features.

3. Social Web Environment

- Allow users to interact with their search environment and results, and with other users, by supporting user ratings, reactions, and reviews.
- Allow users to categorize items by supporting social tagging and labeling by users (e.g., PennTags).

- Allow users to manage their output results and make them their own, through tools such as e-portfolios, “shopping carts”, RefWorks, etc.
- Allow users to personalize and customize their search interface, set their preferences, highlight their favorite resources, or track their search history, etc. (e.g., “MyLibrary”). This customization will help users narrow and focus their results. As Professor Chee Yap comments, “most of us users are very narrowly focused on a few subfields (math and computer science in my case). Nothing else matters to me. Even within this subfield, I have only some sub areas of interest and a few journals that I really want to look at.” He goes on to say “the best thing NYU library can offer to us ... is to provide facilities to store our search preferences and profile.” (See Appendix: Faculty Comments).

4. Portability

- Supports mobility of content via data feeds, syndication, and XML/RSS to a variety of platforms including mobile devices.
- Standardization – systems follow established standards to allow for easier migration and integration with other systems (e.g., HTML which feeds into RSS, etc.).
- Flexible “look and feel” - interface to library resources should be able to adjust to and match appearances of any user environment, (e.g., Blackboard, NYUHome, Google services, NYU bookstore, etc.); allows for all customization options dependent on environments.
- Modularity of content for different environments and uses –content should be modular to allow context-sensitive use of content; applicable pieces of an item could occur separately. (For example, a user working with articles could see instructions for citing articles, rather than undifferentiated instructions for citing all formats).
- Interoperates with open resources via established protocols (OAI, DOAJ, etc.)

5. Global/local needs

- Searches/leverages/incorporates/draws on all available data sources (images, reviews, etc.).
- Systems mirror local realities and needs.
- Systems learn from local peculiarities of work and need.
- Continuous improvement based on local user data and input is built into models.
- Allows for data interaction and shared services within the library (including the Digital Library initiatives) and between NYU and its partnerships.

- Allow for interoperability with online search engines and utilities (eg, expose OPAC to Google; allow for follow-on searching from OPAC; link to/from online bookstores)

6. Flexibility

- New methodologies, software, reports, studies will appear; must be vigilant and flexible in pursuing new avenues and features of access for our users.

PROCESS RECOMMENDATIONS

We recommend a standing committee to provide oversight during the selection, development of specifications, implementation, and maintenance of an interface solution. This group will be comprised of members from interested parties including: Library IT; University IT; Public Services; and Technical Services. It will be responsible not only for implementing this current project, but also evaluating, testing, and researching emerging trends and technologies. This group will create partnerships and leverage mutual technology assets within NYU, the library consortium, as well as with certain strategic corporate partners.

Several working groups will be established in order to facilitate proper implementation and integration. These groups will report back to the committee during this process. The working groups are outlined below:

Systems Support	Research, purchase, configure and deploy hardware, and required software foundation for selected application(s).
Functional Application Team(s)	Research, configure, and test selected application. An individual team will be assigned to each of the products acquired. Each team will be the functional expert for their particular application.
Integration Team	Responsible for making sure all components work well together in the NYU library environment. This team will need to have both technical and functional expertise.
Interface Design Team(s)	Research, design, and test the usability of each public front-end associated with all products. This includes web, RSS/XML, client applications, etc.
Quality Assurance	Work closely with the Functional Application Team(s), Integration Team, and Interface Design Team(s) to ensure end-to-end quality throughout the application(s) through rigorous testing.

POSSIBLE SCENARIOS:

1. Purchase best-of-breed application(s) with extensive vendor support that satisfies all the requirements outlined above. Isolate additional funds for requisition of hardware, software,

and support contracts. Additional staff will be necessary in order to integrate these applications into our existing infrastructure and manage the resulting environment once deployed.

2. Purchase single best-of-breed application that meets with extensive vendor support and satisfies 75% of the requirements outlined above. Isolate additional funds for requisition of hardware, software, and support contracts. A few new staff members will be necessary in order to integrate these applications into our existing infrastructure and manage the resulting environment once deployed.
3. Purchase single application that meets with vendor support and satisfies the top 50% of the requirements outlined above. This process will require research into identifying and prioritizing requirements that are mission critical. Integration and maintenance will be handled by current staff and will be integrated into the current support structure.
4. Identify and purchase best-of-breed open source applications that will be integrated into existing environment. This option will require extensive research, development, implementation, and maintenance requiring a large amount of new staff with specialized technical skill.

CONCLUSIONS

The pace of change in the world of information over the past few years has proven remarkable. Though only a few years into the wired world, we already find ourselves faced with the realization that the first generation of Web tools and applications is quickly becoming, at best, inadequate, and, at worst, obsolete. In the library world, our first forays into wired library resources and services yielded tremendous results, but like the Web at large, our resources have aged. The “Web 2.0” re-imagining signals that it is time to update and enhance the ways in which our information tools function, interact, and discover information. Libraries need to embrace the move to “Library 2.0,” or risk being left behind by users who can find and use resources more easily and more intuitively elsewhere. Libraries need not feel solely reactive to these changes; rather, we should remember proudly that the library OPAC was one of the first computer systems that most people ever encountered, and reignite our desire to deliver our truly value-added resources and services to our users via innovative methods. The longer we wait, the more difficult it will be for us, and the sooner we begin to understand and capitalize on these changes, the sooner we will regain our position as leaders in the discovery and use of high-quality information.

APPENDICES

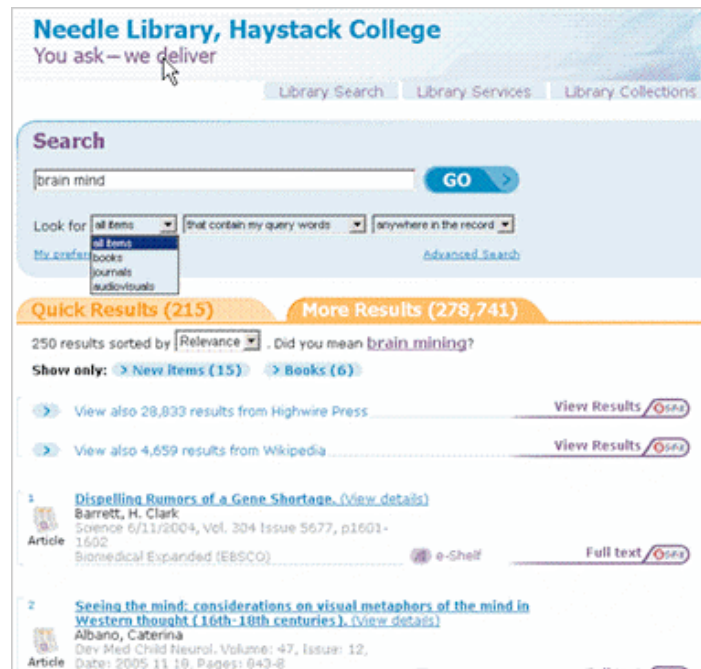
Product Solutions

***PORTAL SOLUTIONS AND INITIATIVES**

PRIMO

<http://primo.exlibris-usa.com/content8.html>

Without dismantling the OPAC, provides a “user experience layer” that puts the OPAC into an information mix of books, journal contents, and digital collections. A federated search solution, such as MetaLib, is part of the mix. Social computing features include reading and writing recommendations, tagging, sharing through RSS syndication. Several New Gen members will be attending a personalized demo at ALA. A “webinar” introducing the product is available at <http://w.on24.com/r.htm?e=22840&s=1&k=96EC7845E28A1F65639261CED6678E46>



PRIMO offers a single search box for local and remote resources integrated with delivery via SFX (OpenURL resolver). Federated searching is accomplished another product, MetaLib.

Endeca

<http://endeca.com/demo.html>

The Endeca “Guided Navigation” interface provides related terms in the form of a dialog that guides the search process.

NCSU LIBRARIES Search the Collection | Browse Subjects | Services | Library Information | Community | News & Events

MY LIBRARY: Library Account | My Courses

Catalog Search: bronze sculpture Anywhere Go Start Over Send search to: Go

Search 'bronze sculpture':
We found 53 matching items. Limit results to currently available items.

Browse By:
 C - Auxiliary Sciences of History (2) P - Language and literature (2)
 D - History (General) and History of Europe (4) S - Agriculture (1)
 G - Geography, Anthropology, Recreation (1) T - Technology (2)
 N - Fine Arts (40)

Narrow Results By:
Subject: Topic
 · Sculpture (8)
 · Bronze sculpture (8)
 · Criticism and interpretation (7)
 · Bronzes (7)
 · Antiquities (6)
 Show More ...
Subject: Genre
 · Exhibitions (7)
 · Congresses (5)
 · Catalogs (2)
 · Illustrations (1)
 · Art (1)
Library
 · D.H. Hill (44)
 · Design (5)
 · Satellite Shelving (6)

Brief View | Full View Sort By: Relevance

1. **From clay to bronze : a studio guide to figurative sculpture**
Author: Langland, Tuck.
Published: 1999.
Format: Book
D.H. Hill Library
 NB1230 .L36 1999 Stacks (5th floor) Available
2. **Celebrating the familiar :**
Author: Johnson, J. Seward, 1930-
Published: 1987.
Format: Book
D.H. Hill Library
 NB237 .J54 A4 1987 Stacks (5th floor) Available
3. **3-D art/techné**
Author: Brandauer, Aline Chipman.
Published: c2004.
Format: Book
D.H. Hill Library

Endeca extends the catalog of the North Carolina State University Library

<http://www2.lib.ncsu.edu/catalog/?Nty=1&N=0&Ntk=Keyword&Ntt=bronze%20sculpture>

VIEWS (Vendor Initiative for Enabling Web Services)

<http://www.niso.org/committees/VIEWS/VIEWS-info.html>

According to *Library Journal*, "Another strategy for innovation is to bring the web services and the **Service Oriented Architecture (SOA)** into library automation. Widely adopted in other industries, web services will allow library information systems to communicate with components of companies in other industries. This could include dynamic exchange of data with book suppliers, support for external authentication authorities, and integration with courseware systems and corporate portals. SOA provides an **XML-based infrastructure for behind-the-scenes communications among software applications based on web services.**

An industry consortium, called the Vendor Initiative for Enabling Web Services (VIEWS), was formed to focus on developing web services. Convened by Carl Grant of VTLIS, the consortium currently includes Dynix, Endeavor, Fretwell-Downing, Index Data, MuseGlobal, OCLC, Sirsi, Talis, TLC, and VTLIS. NISO participates in VIEWS as an observer. While everyone expresses interest, we've seen only limited deployment of products based on web services."

Breeding, Marshall. "Reshuffling the Deck." *Library Journal*, April 1, 2006

<http://www.libraryjournal.com/article/CA6319048.html>

*FEDERATED SEARCH SYSTEMS

Overview of products

“Libraries need the ability to offer simple search interfaces that span ever-growing collections of e-journals and other digital content, and many invested in this technology in 2005. **WebFeat**, by far, holds the top spot in metasearch, with total sales in 2005 of 651 library clients sold directly (485) or through ILS partners (166). Its **WebFeat PRISM** service appeals to both public and academic libraries. Web Feat’s ILS partners include SirsiDynix, TLC, and EOS International. Only a small number of ILS vendors have developed their own metasearch software. Among these, **Ex Libris’s MetaLib** holds the lead at 508 installations to date, with 58 sold in 2005. **Auto-Graphics’s AAgent portal** and **ZPORTAL from Fretwell-Downing** also developed their own metasearch products. Several ILS companies offer metasearch based on technology from **MuseGlobal**: SirsiDynix, Mandarin Library Automation, VTLS, and Innovative Interfaces, each of which saw only moderate sales in 2005. This year Endeavor switched allegiance from MuseGlobal to **TDNet**.”

-- Breeding, Marshall. “Reshuffling the Deck.” *Library Journal*, April 1, 2006
<http://www.libraryjournal.com/article/CA6319048.html>

MetaLib (Ex Libris)

<http://www.exlibrisgroup.com/metalib.htm>

Online Databases
BOSTON COLLEGE LIBRARIES

find articles, databases and e-journals

- Guest Library Catalog
- Electronic Resource Trials
- Report Database Access Problems
- Library Home Page
- Research Help
- Citation Linker

Find Databases | QuickSets | **CrossSearch** | Find e-Journal | My Resources

Search | CrossSearch Results | Previous Searches

Sign-in | End Session | Databases Help

Guest

CrossSearch

Use CrossSearch to search multiple databases. Sign in to create your own lists. See Cross Search Quick Guide for details.

Find database:
Quick Sets

Simple | Advanced

Enter search term: **GO**

Set: **Nursing Health** contains 11 databases

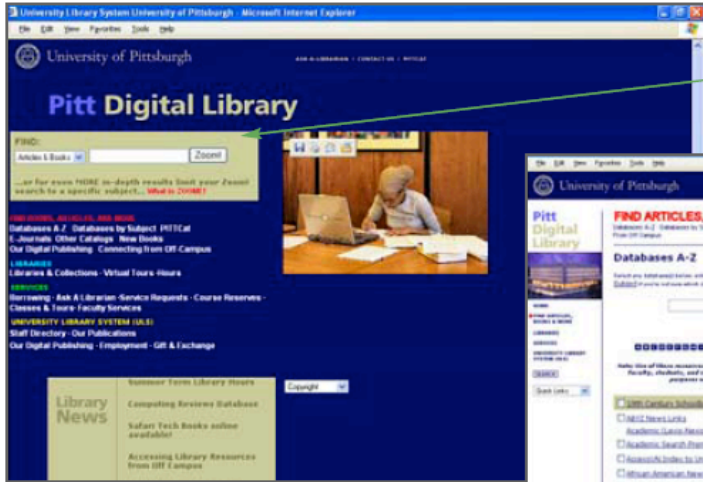
Database Name	Type	Actions
AgeLine	Article Index Database	
Alt-HealthWatch Full Text	Article Index Database	
CINAHL	Article Index Database	
Cochrane Library Full Text	E-books Documents	
EMBASE Pharmacy	Article Index Database	
Expanded Academic ASAP Full Text	Article Index Database	
Health & Psychosocial Instruments	Reference Source	
Health Reference Center Full Text	Article Index Database	

Icon Key

- Click for database info.
- Save in My Resources → My Databases.
- Saved in My Resources → My Databases.
- Database selected for CrossSearch.
- Sign-in required to search database/s.
- User not authorized to access database.

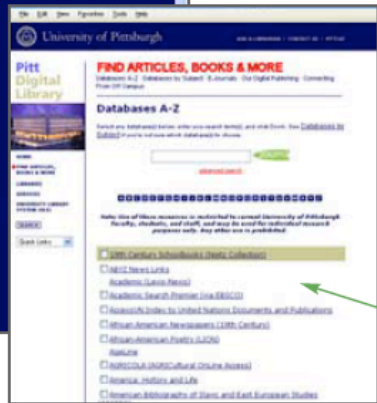
At Boston College, MetaLib allows searching across electronic collections grouped by subject
WebFeat PRISM

<http://www.webfeat.org/products/index.htm>



Zoom! allows users to perform a search from Pitt Digital Library's homepage without having to pre-select any databases. Zoom! performs a default search of the library's four largest and broadest databases. Users can also choose to include the PITTcat catalog in their search.

Experienced researchers who know what sources they want to use can select from a traditional A-Z menu of databases. WebFeat will simultaneously search all of databases that the user selects from the A-Z list.



Zoom! allows users to simultaneously search databases grouped by subject. These pages contain those databases that the library has identified as the most relevant for that topic.

Advanced searches enable the user to search by keyword, title, author, abstract and/or subject. And, it allows for limiting results to a specific date range.

page 2 of 3

University of Pittsburgh's PRISM configuration ("Zoom!") allows users to search simultaneously across databases grouped by subject. Experienced searchers can select from an A-Z list and search simultaneously across them.

Interviews with NYU Community Members

Response from Clay Shirky (6/23/06)

Looks fantastic – so pleased you all are doing this.

Three quick thoughts:

1. The scenario that this work has to beat would simply be letting Google index the collection, and then letting NYU users limit their googling to searching the NYU collection where appropriate. It may be that working with Google is in fact the best way to one-box searches, and would allow NYU to concentrate on the social value.
 2. Syllabi form a socially dense collection of links, and may provide a rich source of initial tagging/more like this value, rather than populating such a database from zero.
 3. it is an almost invariant pattern that these services move from 'use people who share your judgment to find relevant objects' to 'use relevant objects to find people who share your judgment.' There is a huge gap between social tagging systems designed for global use (e.g. Del.icio.us or Technorati) and the communities of practice in a university, so there's an opportunity here for things like the creation of social thesauri, to help narrow searches and to help define what a given community of scholars considers its literature.
-

Response from James Bullen (7/5/06)

Thanks again for the opportunity to review this report. I have a few comments.

I think the report is a pretty thorough listing of the desirable features. A few others that might be worth considering:

- seeding existing search engines
- support for topic mapping
- support for mobile devices
- links out to online bookstores
- integration with the DL repository

On the process side I think there should be more focus on specifying the requirements. Developing functional requirements and establishing evaluation criteria should precede the research so that the evaluation can be made against a benchmark and so that decisions can be made about the relative worth of features - no solution will have them all. I think the report itself is a good step in this direction, but if solutions are to be evaluated there will need to be a

clearer and more detailed view of how the interface will be used and by whom and with what objectives, and of how the features contribute to satisfying those user needs.

My 2 cents

James

Email from Prof. Chee Yap Friday 12 May 2006

Dear Gloria,

We just spoke on the phone, and you suggested I send this directly to you (after I discovered that the “ask a librarian” software is broke).

=====

I read with interest the SFX search engine described in *Connect Magazine* of NYU's ITS.

So I went in to try it out.

I instantly saw the huge (*sic*) selection and choices -- OK, well and good, but I thought to myself -- I really hope that I do not need to give this interface the SAME information every time, especially after I have established a pattern of use. So I looked for personalization and customization features. There does not seem to be any (not in FAQs anyway).

I want to say that this is a big mistake -- most of us users are very narrowly focused on a few subfields (math and computer science in my case). Nothing else matters to me. Even within this subfield, I have only some subareas of interest and a few journals that I really want to look at (this may slowly change over time, and it is only then that the large database of SFX comes in useful).

I hope the developers of SFX get this feedback. Until then, I doubt that I will use SFX unless I am in desperation. That happens about once every 1-3 years. In that case, I contact my librarian (Carol Hutchins and her staff at Courant Library) who invariably expedites my requests efficiently. Meanwhile, for daily use, I am quite happy to use a GENERAL search engines like Google -- if most people are like me, that would be a sad commentary for specialized scholarly search engines like SFX.

The best service NYU library can offer to us, through SFX or otherwise, is to provide facilities to store our search preferences and profile (or several profiles). You can actually learn a lot about your users by data-mining this database of search profiles (privacy issues properly taken care of). Google is happy to remember and personalize your searches for this reason.

I suspect I will be a repeat customer if NYU library offers this, with friendly user interface.

Thanks for your attention.

Chee Yap

Professor of Computer Science

Response from Jan Plass (7/14/06)

Dear Gloria,

First of all, my apologies again for not being able to provide my comments sooner; despite the fact that this is summer, things are still pretty busy in my lab.

I have read the NGWG report and found it very exciting, forward-looking, and extremely promising. As someone who uses the online offerings of the library extensively, I see pretty much all of my wishes addressed in this paper. And I agree that with this project, NYU would take an important leadership role.

I especially like the idea that all materials will be accessible in a single and smart search interface, and that, at the same time, different ways of search the db are possible. Your categories of information need could each lead to a different interface, one for a straight search, one for browsing of specific topic and subject headings, and one for more general topic browsing (I'm thinking of a ThinkMap - style browser here).

Under recommendations, I appreciate the different subheadings, which lend themselves nicely to a multi-phased approach to an implementation. For example, I could imagine that the smart interface and Value-added search results would be implemented immediately, and social features, portability, and global/local support would be added in subsequent releases.

Some features I would be very interested in are:-ability to store searches in "MyLibrary"-option to turn stored searches into "alerts" (I used to subscribe to journal alerts but found them too unfocused. Instead, I would like to be able to define a specific search for an area of interest, and to specify the frequency of alerts that would tell me about new additions to the db for these searchers, may they be from new journal issues, new books, or added collections).-a browser-integrated toolbar (e.g., in Firefox) for a quick library search

Again, this is a very exciting document, and I am looking forward to seeing it implemented. If you would like me to comment on any aspects of it in more detail, please let me know.

Best,

Jan

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"Interview with Prof. Terry Harrison," Interviews and Focus Groups. Bobst 21st Century KPL (Katzenbach Partners) Study. February 6, 2006.

Journal of Library Administration, 43:12, 2005.

Special issue on Library Portals

<http://www.refworks.com/refshare?site=010331031209200000/RWWS4A346563/Portals>

Lamson Library Catalog, Plymouth State University (New Hampshire) (Library Catalog at Plymouth State University using [WordPress](#) software)

<http://www.plymouth.edu/library/opac/>

Morgan, Eric Lease. "A 'next generation' library catalog."

<http://dewey.library.nd.edu/morgan/ngc/>. (Originally published in *LITA Blog*, July 7, 2006).

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