Trends and Advancements for Library Resource Discovery

Marshall Breeding
Independent Consultant,
Founder and Publisher, Library Technology Guides
http://www.librarytechnology.org/
http://twitter.com/mbreeding

http://www.ala.org/alcts/confevents/upcoming/webinar/021815
Marshall Breeding, an independent consultant, will provide an overview of the current realm of search tools that libraries provide to their communities, including index-based discovery services, socially enabled library portals, and related products. Looking beyond the current slate of products, Breeding will discuss some of areas of opportunity and possible areas of future development. Areas of interest include ways that libraries can leverage these capability of these tools beyond the confines of their own web sites to increase discoverability of library resources in other contexts such as learning management systems, community portals, and the general web.
Library Technology Guides provides comprehensive and objective information surrounding the many different types of technology products and services used by libraries. It covers the organizations that develop and support library-oriented software and systems. The site offers extensive databases and document repositories to assist libraries as they consider new systems and is an essential resource for professionals in the field to stay current with new developments and trends. Relevant news items are posted daily on Twitter:

**GuidePosts**

Perspective and commentary by Marshall Breeding

Blog Archive [RSS](#)

New Resource available in Library Technology Guides: ILS implementations by Carnegie Classification

One of the key components of Library Technology Guides is the libraries.org (formerly lib-web-cats) directory of libraries that provides details about libraries and the major technology products they use. This resource can be used to identify and assess the adoption patterns of systems used among any given group of libraries. The advanced search provides the ability to select libraries according to geographic categories, collection size, library type, and other factors. I had previously created specialized reports for groups of particular interest such as the members of the Association of Research Libraries, the Urban Libraries Council, and the Association of Southeastern Research Libraries.

An additional tool is now available that produces reports of academic libraries in the United States and their automation systems according to the Carnegie Classification Levels of their parent institutions. This capability was made possible through the extension of the data elements for of the entries for academic libraries in the United States.

View it now: [Report by Carnegie Classification](#)
# Library Technology Industry Reports

<table>
<thead>
<tr>
<th>American Libraries</th>
<th>Library Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014: Strategic Competition and Cooperation</td>
<td>2013: Rush to Innovate</td>
</tr>
<tr>
<td></td>
<td>2012: Agents of Change</td>
</tr>
<tr>
<td></td>
<td>2011: New Frontier</td>
</tr>
<tr>
<td></td>
<td>2010: New Models, Core Systems</td>
</tr>
<tr>
<td></td>
<td>2009: Investing in the Future</td>
</tr>
<tr>
<td></td>
<td>2008: Opportunity out of turmoil</td>
</tr>
<tr>
<td></td>
<td>2007: An industry redefined</td>
</tr>
<tr>
<td></td>
<td>2006: Reshuffling the deck</td>
</tr>
<tr>
<td></td>
<td>2005: Gradual evolution</td>
</tr>
<tr>
<td></td>
<td>2004: Migration down, innovation up</td>
</tr>
<tr>
<td></td>
<td>2003: The competition heats up</td>
</tr>
<tr>
<td></td>
<td>2002: Capturing the migrating customer</td>
</tr>
</tbody>
</table>
The library technology industry saw sharp competition in 2013, with a wide range of products vying to fulfill ever-rising expectations.

To better position themselves for this critical period during which many libraries are considering options for their next phase of technology, a significant number of major vendors worked to extend their global reach, streamline internal organizations, and complete ambitious product developments. Competition has intensified for the applications used by library personnel to manage the collections and automate their operations, including the new generation of library services platforms as well as enhanced integrated library systems. Discovery services continue as a major area of activity, seen by libraries as especially critical given their intimate connections with customers, serving as one of the main delivery vehicles for access to collections and services.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Symphony</td>
<td>117</td>
<td>207</td>
<td>124</td>
<td>134</td>
<td>91</td>
<td>71</td>
<td>121</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>126</td>
</tr>
<tr>
<td>Horizon</td>
<td>126</td>
<td>114</td>
<td>168</td>
<td>193</td>
<td>147</td>
<td>94</td>
<td>15</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>EOS.Web</td>
<td>18</td>
<td>157</td>
<td>196</td>
<td>257</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>186</td>
<td>97</td>
<td>91</td>
<td>58</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Millennium</td>
<td>157</td>
<td>136</td>
<td>144</td>
<td>119</td>
<td>107</td>
<td>95</td>
<td>95</td>
<td>64</td>
<td>45</td>
<td>39</td>
<td>32</td>
<td>30</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Library.Solution</td>
<td>79</td>
<td>70</td>
<td>73</td>
<td>58</td>
<td>41</td>
<td>34</td>
<td>35</td>
<td>32</td>
<td>30</td>
<td>43</td>
<td>48</td>
<td>13</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Carl.X / Carl.Solution</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Evolve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amlib</td>
<td>36</td>
<td>139</td>
<td>58</td>
<td>38</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voyager</td>
<td>50</td>
<td>44</td>
<td>35</td>
<td>22</td>
<td>34</td>
<td>12</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Aleph</td>
<td>80</td>
<td>58</td>
<td>51</td>
<td>53</td>
<td>83</td>
<td>67</td>
<td>29</td>
<td>26</td>
<td>47</td>
<td>39</td>
<td>25</td>
<td>26</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Virtua</td>
<td>37</td>
<td>60</td>
<td>67</td>
<td>35</td>
<td>25</td>
<td>27</td>
<td>30</td>
<td>39</td>
<td>18</td>
<td>22</td>
<td>13</td>
<td>14</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Polaris ILS</td>
<td>12</td>
<td>21</td>
<td>20</td>
<td>37</td>
<td>39</td>
<td>54</td>
<td>32</td>
<td>56</td>
<td>33</td>
<td>23</td>
<td>53</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Spydus 8 / MS</td>
<td>50</td>
<td>21</td>
<td>16</td>
<td>50</td>
<td>56</td>
<td>51</td>
<td>25</td>
<td>15</td>
<td>32</td>
<td>46</td>
<td>26</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vubis Smart</td>
<td>13</td>
<td>34</td>
<td>54</td>
<td>56</td>
<td>60</td>
<td>56</td>
<td>40</td>
<td>46</td>
<td>12</td>
<td>1</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>V-Smart</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>12</td>
<td>21</td>
<td>23</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Koha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>68</td>
</tr>
<tr>
<td>LibLime Academic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LibLime Koha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>57</td>
<td>40</td>
<td>44</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td>Koha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Evergreen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

http://www.americanlibrariesmagazine.org
## Discovery Service Installations

<table>
<thead>
<tr>
<th>Product</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBSCO EDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1774</td>
<td>2634</td>
<td>8246</td>
</tr>
<tr>
<td>Primo</td>
<td>12</td>
<td>37</td>
<td>53</td>
<td>506</td>
<td>111</td>
<td>101</td>
<td>98</td>
<td>88</td>
<td>1528</td>
</tr>
<tr>
<td>AquaBrowser</td>
<td>55</td>
<td>339</td>
<td>64</td>
<td>69</td>
<td>74</td>
<td>58</td>
<td>81</td>
<td>6</td>
<td>89</td>
</tr>
<tr>
<td>Encore</td>
<td>72</td>
<td>72</td>
<td>109</td>
<td>56</td>
<td>72</td>
<td>36</td>
<td></td>
<td></td>
<td>346</td>
</tr>
<tr>
<td>LS2 PAC</td>
<td>46</td>
<td>77</td>
<td>58</td>
<td>88</td>
<td>73</td>
<td>81</td>
<td></td>
<td></td>
<td>382</td>
</tr>
<tr>
<td>Summon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>164</td>
<td>214</td>
</tr>
<tr>
<td>Enterprise</td>
<td>16</td>
<td>75</td>
<td>100</td>
<td>102</td>
<td>123</td>
<td>150</td>
<td></td>
<td></td>
<td>538</td>
</tr>
<tr>
<td>Infor Iguana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Axiell Arena</td>
<td>61</td>
<td>57</td>
<td>33</td>
<td>35</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td>404</td>
</tr>
</tbody>
</table>
The Evolution of Library Resource Discovery
Challenge: fragmented approach to discovery and services

- Library Web sites offer a menu of unconnected silos:
  - Books: Library OPAC (ILS online catalog module)
  - Search the Web site
  - Articles: Aggregated content products, e-journal collections
  - OpenURL linking services
  - E-journal finding aids (Often managed by link resolver)
  - Subject guides (e.g. Springshare LibGuides)
  - Local digital collections
    - ETDs, photos, rich media collections
  - Discovery Services – often just another choice among many

- All searched separately
Online Catalog

Scope of Search

- Books, Journals, and Media at the Title Level
- Not in scope:
  - Articles
  - Book Chapters
  - Digital objects
  - Web site content
  - Etc.
Discovery from Local to Web-scale

- Initial products focused on technology
  - Mostly locally-installed software
- Current phase is focused on index-based discovery
  - Article-level representation: citation, abstract, full-text
  - A&I content (sometimes)
  - Local content (Harvested from ILS and other repositories)
Web-scale Index-based Discovery

Search: 

Consolidated Index

Search Results

Usage-generated Data

Customer Profile

Pre-built harvesting and indexing

ILS Data

Digital Collections

Web Site Content

Institutional Repositories

Aggregated Content packages

Open Access

E-Journals

Reference Sources
Public Library Information Portal

Search:

Search Results

Usage-generated Data

Customer Profile

Consolidated Index

ILS Data

Digital Collections

Web Site Content

Community Information

Aggregated Content packages

Customer-provided content

Reference Sources

Archives

Pre-built harvesting and indexing
Bento Box Discovery Model

Search: VuFind / Blacklight

Consolidated Index

ILS Data
Web Site Content
Digital Collections
Institutional Repositories

Aggregated Content packages
Open Access
E-Journals

Pre-built harvesting and indexing
Library Web Presence

Public Interfaces:

Integrated Library System
Library Web site
Subject Guides
Article, Databases, E-Book collections

Presentation Layer
Evaluating Index-based Discovery Services

- Intense competition: how well the index covers the body of scholarly content stands as a key differentiator.
- Difficult to evaluate based on numbers of items indexed alone.
- Important to ascertain now your library’s content packages are represented by the discovery service.
- Important to know what items are indexed by citation and which are full text.
- Important to know whether the discovery service favors the content of any given publisher.
Discovery Ecosystem

- Primary Publishers
- Secondary: A&I, Aggregators
- Libraries
- Library Customers
- Discovery Service Providers
Discovery Concerns

- Important space for libraries and publishers
- Discovery brings value to library collections
- Discovery brings uncertainty to publishers
- Uneven participation diminishes impact
- Ecosystem dominated by private agreements
- Complexity and uncertainty poses barriers for participation
Library Perspective

- Strategic investments in subscriptions
- Strategic investments in Discovery Solutions to provide access to their collections
- Expect comprehensive representation of resources in discovery indexes
  - Problem with access to resources not represented in index
  - Encourage all publishers to participate and to lower thresholds of technical involvement and clarify the business rules associated with involvement
- Need to be able to evaluate the coverage and performance of competing index-based discovery products
Multi-Role Stakeholders

- Content provider / Discovery Service
  - EBSCO Information Service
  - ProQuest

- Resource Management / Discovery Provider
  - OCLC
  - Ex Libris
Tension and Complexity

- Intersection of roles leads to tension and complexity
- What are the ties between Discovery and Resource management systems?
- Are their ties between Content provision and discovery
Discovery index issues

- Indexing full-text enables keyword-based relevancy
- Citations or structured metadata provide basic terms to support search & retrieval and faceted navigation
- A&I terms provide access points, relevancy indicators that cannot be reproduced algorithmically
- Important to understand what is indexed
  - Currency, dates covered, full-text or citation
  - Many other factors
Heterogeneous Representations

Content objects represented by

- MARC Records for books and journal titles
- Citation data for articles
- Full text for articles
- Full text for books
- Abstracts and Indexing data
  - Controlled vocabularies, related terms, abstracts, selected index terms produced by subject experts
- Other metadata or enrichment
To work effectively, discovery services need to cover comprehensively and evenly the body of content represented in library collections.

- What primary publishers participate?
- What secondary or A&I publishers participate?
- Is content indexed at the citation or full-text level?
- What are the restrictions for non-authenticated users?
- How can libraries understand the differences in coverage among competing services?
Evaluating the Coverage of Index-based Discovery Services

- Intense competition: how well the index covers the body of scholarly content stands as a key differentiator.
- Difficult to evaluate based on numbers of items indexed alone.
- Important to ascertain how your library’s content packages are represented by the discovery service.
- Important to know what items are indexed by citation, which are full text, and how A&I content is handled.
State of Discovery indexes

- Very strong coverage of primary publishers of scholarly materials
  - Especially English and other Western Languages

- Weaker coverage of scholarly content in other international regions
  - Asian languages, Arabic, etc.

- Mixed coverage of A&I resources
- Mixed converge of non-textual resources
Some Key Areas for Publishers

1. Expose content appropriately
2. Trust that access to material will be controlled consistent with subscription terms
3. “Fair” Linking
4. Materials not disadvantaged or underrepresented in library discovery implementations
5. Usage reporting
Representation of A&I

- Important to understand how a discovery service incorporates A&I resources
  - Does it receive content from the A&I provider directly and make use of value-added terminology
  - If not: citations or full-text indexing of some portion of the titles represented in the A&I product
  - NOT the same, and possibly misleading
A&I Content in Discovery Services

- What is the place for A&I services in the discovery ecosystem
- Are there technology solutions capable of substituting for A&I content?
  - Specialized and scoped search methodologies
  - Clustering, term extraction, etc.?
- Specialized vocabulary and other metadata make positive contributions to the discovery process
- Researchers value A&I tools
Participation of A&I in Discovery

- Libraries expect participation
- A&I providers have concerns:
  - Fear that inclusion in discovery will devalue A&I subscriptions
  - If content not positioned well, libraries may not see evidence of value and drop subscriptions
- How is the brand of A&I presented to users when accessed through discovery interface
- Statistical validation of contributions of A&I to resource selection in discovery services
Challenge for Relevancy

- Technically feasible to index hundreds of millions or billions of records through Lucene or SOLR
- Difficult to order records in ways that make sense
- Expectation that relevancy be neutral relative to content source or publisher
- Many fairly equivalent candidates returned for any given query
- Must rely on use-based and social factors to improve relevancy rankings
Socially-powered discovery

- Leverage use data to increase effectiveness of discovery
- Usage data can identify important or popular materials to inform relevancy engines
- Identify related materials that may not otherwise be uncovered through keyword matching
- Be careful to avoid introducing bias loops
Library Technology Reports

- The Current State of Library Resource Discovery Products: Context, Library Perspectives, and Vendor Positions

- In press for Publication January 2014
Update on the NISO Open Discovery Initiative
Balance of Constituents

Libraries
Marshall Breeding, Vanderbilt University
Jamene Brooks-Kieffer, Kansas State University
Laura Morse, Harvard University
Ken Varnum, University of Michigan
Sara Brownmiller, University of Oregon
Lucy Harrison, College Center for Library Automation (D2D liaison/observer)
Michele Newberry

Publishers
Lettie Conrad, SAGE Publications
Roger Schonfeld, ITHAKA/JSTOR/Portico
Jeff Lang, Thomson Reuters
Linda Beebe, American Psychological Assoc
Aaron Wood, Alexander Street Press

Service Providers
Jenny Walker, Ex Libris Group
John Law, Serials Solutions
Michael Gorrell, EBSCO Information Services
David Lindahl, University of Rochester (XC)
Jeff Penka, OCLC (D2D liaison/observer)
ODI deliverables

- Standard vocabulary
- NISO Recommended Practice:
  - Data format & transfer
  - Communicating content rights
  - Levels of indexing, content availability
  - Linking to content
  - Usage statistics
  - Evaluate compliance
- Inform and Promote Adoption
## ODI Timeline

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Target Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointment of working group</td>
<td>Dec 2011</td>
<td>✔️</td>
</tr>
<tr>
<td>Approval of charge and initial work plan</td>
<td>Mar 2012</td>
<td>✔️</td>
</tr>
<tr>
<td>Completion of information gathering</td>
<td>Jan 2013</td>
<td>✔️</td>
</tr>
<tr>
<td>Completion of initial draft</td>
<td>Jun 2013</td>
<td>✔️</td>
</tr>
<tr>
<td>Completion of final draft</td>
<td>Sep 2013</td>
<td>✔️</td>
</tr>
<tr>
<td>Public Review Period commences</td>
<td>Sep 2013</td>
<td>✔️</td>
</tr>
<tr>
<td>NISO Publishes Recommended Practice</td>
<td>June 2014</td>
<td>✔️</td>
</tr>
</tbody>
</table>
ODI Recommended Practices

- Metadata elements for content providers to contribute to discovery service providers
- Content providers disclose extent to which they participate with each discovery service
- Discovery Service providers disclose what content is represented in index
- Discovery services disclose any bias in search results or relevancy relative to business relationships
- Discovery services provide use statistics
ODI Standing Committee

- Fulfilling recommendation of the ODI that NISO charge an ongoing committee to promote ODI best practices and related issues.

- Discussions may include but are not limited to:
  - brainstorming on ways to publicize and educate the community on ODI
  - answering any support questions
  - checking on status of vendor support
  - liaising with other standards efforts as applicable
  - determining when is an appropriate time to consider updating ODI
ODI Standing Committee Roster

- Laura Morse – Harvard University
- Lettie Conrad – SAGE
- Aaron Wood – Ingram Content
- Elise Sassone – Springer
- Jason Price – SCELC
- Jill O’Neill – NFAIS
- Julie Zhu – IEEE
- Marshall Breeding – Independent Consultant
- John McCullough – OCLC
- Michael McFarland – Credo
- Rachel Kessler – Ex Libris
- Scott Bernier – EBSCO
- Steven Guttman – ProQuest
- Ken Varnum – University of Michigan Library
NISO Discovery White Paper

- Commissioned by NISO Discovery to Delivery Topic Committee
- First Draft Nov 2014
- Revised draft submitted in Feb 2015 with expected publication Feb 20, 2015
NISO Discovery Paper Outline

- General Background
- Integration between Discovery Services and Management Systems
- Linked Data
- Gap Analysis
- Opportunities for Future Enhancements in discovery
- Discovery Beyond Library-provided Interfaces
- Open Discovery Initiative: recommendations for Phase II
- Longer term prospects
The future of Resource Discovery

- More comprehensive discovery indexes
- Stronger technologies for search and retrieval
- Discovery beyond library-provided interfaces
- Linked Data to supplement discovery indexes
Metadata Management

- MARC-based cataloging prospects
  - Library collections shifting to electronic and digital
- Many components of collections appropriately described with other formats: Dublin Core, VRA,
RDA

- Resource Description and Access
  - [http://www.loc.gov/aba/rda/](http://www.loc.gov/aba/rda/)
- Major change relative to resources devoted to transition
- Minor impact relative to operational and strategic use of metadata
BIBFRAME

- Emerged from the Initiative for Bibliographic Transformation of the Library of Congress
  - [http://www.loc.gov/bibframe/](http://www.loc.gov/bibframe/)
  - bibframe.org

- Replacement for MARC (Machine Readable Cataloging), but broader in scope

- Encoded using RDF (Resource Description Framework)

- Major departure from MARC

- Today more conceptual than operational
New Technical processing workflows

- Demand-driven acquisitions
- Managing records in bulk
- Personnel Resources distributed among acquiring and describing electronic, print, and digital resources
  - Resource allocation should be loosely proportionate to collection budgets and high-level strategies
- New systems provide more flexibility to handle multiple families of metadata
Demise of the local catalog?

- Many library services platforms do not include the concept of an online catalog dedicated to local physical inventory.
- Designed for discovery services as public-facing interface.
- Implication: Discovery service must incorporate detailed functionality for local materials and related services.
Linked data

- Not yet a fully operational method for library-oriented content
  - Increasing representation of bibliographic resources
  - BIBFRAME stands to make great impact
- Universe of scholarly resources not well represented
- Will current expectations for content providers to make metadata or full text available for discovery expand to exposure as open linked data?
Hybrid models

- Can index-based search tools be improved through Linked Data
  - Browse to related resources
  - Add additional hierarchies of structure to search results
Discovery beyond Library Interfaces

- Improved performance of library content through Google Scholar
  - Same expectations for transparency?
- Better exposure of library-oriented content
  - Schema.org or other microdata formats
- Better exposure of scholarly resources
  - Open access & Proprietary
- Embedded tools in other campus interfaces
Improving Discoverability

- Search Engine Optimization
  - persistent URLs
  - Clean and structured content
  - Sitemap.xml
  - Enhanced Metadata

- Semantic enhancements to content presentation and resource descriptions
  - Schema.org
Article: Breeding, Marshall. Library Technology Forecast for 2015 and Beyond. Review of some of the accomplishments with technology in libraries and consideration of what might be in store. Each year brings an accelerating pace of change. It is important to look forward in order to be aware of the movement underway. Given the pace of change, interesting opportunities may slip by unless libraries move more aggressively in the development of new applications based on current technology advancements. This column gives a speculative glimpse of what might happen in the next year or so among the companies comprising the library-technology industry based on recent patterns. We also look at some specific technologies that are gaining momentum and warrant the library community’s close attention.
Library Technology Forecast for 2015 and Beyond
Brickl Memorial Library

Dickeyville, WI

Address: 500 East Avenue
Mail: PO Box 219

Dickeyville, Wisconsin
53808
United States

County: Grant

Phone: 608-568-3142

Connect to: Library Website Online Catalog

Library details: Brickl Memorial Library is a Public library. This library is affiliated with Village of Dickeyville (view map). The collection of the library contains 8686 volumes. The library circulates 17685 items per year. The library serves a population of 2151 residents.

Permalink: [http://librarytechnology.org/libraries/library.pl?id=196648](http://librarytechnology.org/libraries/library.pl?id=196648)
(Use this link to refer back to this listing.)

Control: The library is part of a publicly-funded organization. It operates on a Non-profit financial model.
Interpreted by Google Rich Snippets

http://www.google.com/webmasters/tools/richsnippets

<table>
<thead>
<tr>
<th>type:</th>
<th>property:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="http://schema.org/library">http://schema.org/library</a></td>
</tr>
<tr>
<td>legalname:</td>
<td>BrickI Memorial Library</td>
</tr>
<tr>
<td>openinghours:</td>
<td>Mo 13:00-18:30</td>
</tr>
<tr>
<td>openinghours:</td>
<td>Tu 1:00-18:30</td>
</tr>
<tr>
<td>openinghours:</td>
<td>We 15:00-18:30</td>
</tr>
<tr>
<td>openinghours:</td>
<td>Th 11:00-18:30</td>
</tr>
<tr>
<td>openinghours:</td>
<td>Sa 9:00-12:00</td>
</tr>
<tr>
<td>address:</td>
<td>Item 1</td>
</tr>
<tr>
<td>telephone:</td>
<td>608-568-3142</td>
</tr>
<tr>
<td>url:</td>
<td>Library Web Site</td>
</tr>
<tr>
<td>description:</td>
<td>BrickI Memorial Library is a Public library. This library is affiliated with Village of Dickeyville (view map). The collection of the library contains 8686 volumes. The library circulates...</td>
</tr>
</tbody>
</table>
Item 1

type:

http://schema.org/postaladdress

property:

streetaddress: 500 East Avenue
postofficeboxnumber: PO Box 219
addresslocality: Dickeyville
addressregion: Wisconsin
postalcode: 53808
addresscountry: United States
Item

type: 

http://schema.org/place

property:

geo:

Item 2

type: 

http://schema.org/geocoordinates

property:

latitude: 42.628544

longitude: -90.589024
Open Access / Open Source

- Open source tools exist for discovery Interfaces:
  - VuFind
  - Blacklight

- No open access discovery indexes
  - High threshold of expense and difficulty to build index
  - Platform costs
  - Software development
  - Publisher relations
  - Billions of content items to index and maintain

- Opportunities to lower barriers to entry?
Discovery <> Resource Management

- New Library Services Platforms offered with discovery services:
  - Alma + Primo
  - WorldShare Management Services + WorldShare Discovery Services
  - Intota + Summon
  - Sierra + Encore

- Exceptions
  - Kuali OLE (designed to work with any discovery layer)

- Should the linkage be strong or weak?
Questions and discussion