DISCOVERY SERVICES:
CURRENT OPPORTUNITIES AND FUTURE TRENDS

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

Breeding describes the general landscape of library resource discovery products, the trend toward web-scale, index-based services, and some of the issues that sparked this initiative to bring increased transparency and other improvements to the ecosystem involving libraries, content providers, and discovery service creators. As co-chair of the NISO Open Discovery Initiative, he summarizes the recommended practices that it developed.
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

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 the entries for academic libraries in the United States.

View it now: ILS report by Carnegie Classification.
Library Technology Industry Reports

American Libraries

- 2014: Strategic Competition and Cooperation

Library Journal

- 2013: Rush to Innovate
- 2012: Agents of Change
- 2011: New Frontier
- 2010: New Models, Core Systems
- 2009: Investing in the Future
- 2008: Opportunity out of turmoil
- 2007: An industry redefined
- 2006: Reshuffling the deck
- 2005: Gradual evolution
- 2004: Migration down, innovation up
- 2003: The competition heats up
- 2002: Capturing the migrating customer
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.
تقرير أنظمة المكتبات 2014

من الناحية التنافسية والتعاون الاستراتيجي

التنافسية والتعاون الاستراتيجي كان من أهم النماذج التي جرت عام 2013، فقد شهدت سناة تتبع ملحوظة لمجتمع المكتبات في مجتمع متعامل في نهاية التحول الفوري الذي لا تتبث أن ترتفع بمستمر، لتمكين

 tasawwufi و تدريبي مجال هذه الفترة الحالية، و الذي يدلى فيها العديد من المكتبات النظر في اتخاذها الملاحظ الفعلي للتنافسية.

استنادًا إلى هذا التقرير العديد من النصائح، والتي من أهمها:

- المدى من منجز المكتبات قبولاً بتوسيع الأشراف العالمي، كما ساري قيام بعض اللجان الكبرى بتوسيع منطقاتهم الداخلية و إيجاب ما نتبغ للمساءلة مملوكة.

- التنافسية قد شدّدت حتى خلال الطبقات التي يستخدمها مراقب المكتبات

- لإدارة مجموعات الكتب لديهم وームيتهم، و التي تشكل الجيل الجديد من مناصب المكتبات الكتبية إضافة إلى تعلم الكتب الكتبية.

- خدمات الاستشارة وأعمال البطاقة ك Vermiculite . ينذر إلى أمان المكتبات نظراً للاستمرار المباشر والطويل مع الزائر، كونه إحدى أهم وسائل الرسول والأعمال المختلفة.

- هذه المرحلة الصناعية قد خطط العديد من البطاقات لحقوق المكتبة الكبيرة أو الخصائص المتوفرة على حد سواء، البعض من هذه البطاقات مكتبة على

- النقاط المحورية أو الأدوات الألمنيومية، و بالرغم من أن الجيل الجديد من

- خدمات نقاط المكتبات قد قالب مسار الذي يتكون من قبل المبتك، لا

- يزال نظام المكتبات المتكامل في استخدام خصوصاً بعد تطوير إدارة الكتب الإلكترونية.

- منظمات جديدة داخل مجال تعليق الكتبنو وتمكينها، و نظريات أخرى تنافس بالبناء، هذه النظريات التي نسبي القدرة

- على إعادة إنشاء النظام المستقبلي العام على ما إذا كانت ستنعمل المكانية والتحولات التي وجدت

- يصف هذا التقرير موضع النافذة والانتاجات الناجحة والجوانبية والتفاوت والدراسات الناجحة لهذه النظريات والتي

- تقدم الدموع، و هو يفتح المجالات الرئيسية لإدارة الأدوار، و خدمات الأكاديمية، وغيرها من النظريات التي نمذجة الكتب داخلها

وناحيا معاً للوصول إلى المجامع والمكتبات.

مراجع: جمعية مكتبات América, مجلة ماليزية لتصحيح مجلة المكتبات الأمريكية

أصلاً من ماي 2014، حقوق النشر محمولة لتصحيح مجلة المكتبات الأمريكية

المصدر: American Libraries magazine
<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>
</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>
</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>
</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></td>
<td></td>
<td></td>
<td></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>
</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>
</tr>
<tr>
<td>Carl.X / Carl.Solution</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>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>
</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></td>
<td></td>
<td></td>
<td>5</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>12</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>6</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>
</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>
</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>
</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>
</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>
</tr>
<tr>
<td>V-Smart</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>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>7</td>
</tr>
<tr>
<td>LibLime Academic 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>
</tr>
<tr>
<td>LibLime 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>4</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>
</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>
</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>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>5612</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>1407</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>750</td>
</tr>
<tr>
<td>Encore</td>
<td>72</td>
<td>72</td>
<td>109</td>
<td>56</td>
<td>72</td>
<td></td>
<td>36</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>382</td>
</tr>
<tr>
<td>Summon</td>
<td></td>
<td></td>
<td>50</td>
<td>164</td>
<td>214</td>
<td>158</td>
<td>238</td>
<td>673</td>
</tr>
<tr>
<td>Enterprise</td>
<td>16</td>
<td></td>
<td>75</td>
<td>100</td>
<td>102</td>
<td>123</td>
<td></td>
<td>407</td>
</tr>
<tr>
<td>Civica Sorcer</td>
<td>7</td>
<td>12</td>
<td>22</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>Axiell Arena</td>
<td>61</td>
<td>57</td>
<td>33</td>
<td></td>
<td>35</td>
<td></td>
<td></td>
<td>316</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:

Search Results

Usage-generated Data
Customer Profile

Consolidated Index

ILS Data
Digital Collections
Web Site Content
Institutional Repositories
Aggregated Content packages
Open Access
E-Journals
Reference Sources
Pre-built harvesting and indexing
Bento Box Discovery Model

- ILS Data
- Web Site Content
- Digital Collections
- Institutional Repositories
- VuFind / Blacklight
- Search Results
- Consolidated Index
- Pre-built harvesting and indexing
- Aggregated Content packages
- Open Access
- E-Journals
E-Book Integration Model

Search: [Input]

Library Catalog

Search Results

Index

Aggregated Content packages

ILS Data

Web Site Content

Digital Collections

Local E-book Repository

OverDrive

External E-Book Lending Service

Authentication

Checkout - Download

Discovery
Talking about the U.S. Constitution:

It's a Free Country: The Bill of Rights - Privacy and Freedom of Speech

Mon., Oct. 13 • 6:30 pm
No One Writes to the Colonel, and Other Stories
by Gabriel García Márquez Published 2013
MP3 AudioBook, WMA AudioBook
Available from OverDrive
1 total copy, 1 is available. 0 people on the wait list.

No one writes to the colonel and other stories
by García Márquez, Gabriel, 1928-2014. Published 1979
Printed Materials
Available now at
Main-Popular Materials Fiction Garcia
1 total copy, 1 is on shelf.

Collected novellas
by García Márquez, Gabriel, 1928-2014. Published 1990
Printed Materials
Available now at
Green Hills, Hermitage, Main-Popular Materials Fiction Garcia
3 total copies, 3 are on shelf.
Library Web Presence

Public Interfaces

Presentation Layer

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

Unified Presentation Layer

- Self-Check / Automated Return
- Stock Management
- Enterprise Resource Planning
- Learning Management
- Authentication Service
- Smart Cad / Payment systems

Library Services Platform

API Layer

Search Engine

Consolidated Index

Other Resources

Digital Coll

EBSCO

JSTOR

ProQuest
Current State of Resource Discovery

- Four commercial index-based discovery services
  - Summon, EDS, WorldCat Discover Service, Primo
- Many commercial and open source discovery interfaces
- Library Portal products: BiblioCMS, Arena, Iguana, etc
- Increasing penetration of commercial products in academic libraries
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
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 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
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?
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
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
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
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
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 Report

- The Current State of Library Resource Discovery Products: Context, Library Perspectives, and Vendor Positions
- Published as LTR Issue for January 2014

www.alastore.ala.org/detail.aspx?ID=10895
LTR Components

- Vender questionnaire
- Library Survey
- Industry announcements
- Other articles and publications
### Library Discovery Survey

- Survey executed to gather data from libraries regarding their experiences with discovery services.
- Responses received by 396 Libraries:
- 29 Countries represented, 252 responses from United States.

<table>
<thead>
<tr>
<th>Library Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>247</td>
</tr>
<tr>
<td>Consortium</td>
<td>15</td>
</tr>
<tr>
<td>Government Agency</td>
<td>2</td>
</tr>
<tr>
<td>Law</td>
<td>7</td>
</tr>
<tr>
<td>Medical</td>
<td>5</td>
</tr>
<tr>
<td>Museum</td>
<td>1</td>
</tr>
<tr>
<td>National</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>Public</td>
<td>96</td>
</tr>
<tr>
<td>Special</td>
<td>14</td>
</tr>
<tr>
<td>State</td>
<td>4</td>
</tr>
<tr>
<td>Theology</td>
<td>3</td>
</tr>
</tbody>
</table>
### Overall Satisfaction

<table>
<thead>
<tr>
<th>Overall Satisfaction for Discovery Product</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td>Responses</td>
<td>0</td>
</tr>
<tr>
<td>EBSCO Discovery Service</td>
<td>63</td>
<td>1</td>
</tr>
<tr>
<td>VUfind</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>BiblioCommons</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Summon</td>
<td>70</td>
<td>1</td>
</tr>
<tr>
<td>WorldCat Local</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>AquaBrowser Library</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Enterprise</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Primo</td>
<td>65</td>
<td>1</td>
</tr>
<tr>
<td>Arena</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Encore</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>All Responses</td>
<td>354</td>
<td>4</td>
</tr>
</tbody>
</table>
## Overall Effectiveness

<table>
<thead>
<tr>
<th>Effectiveness of Interface</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td>Mode  Mean  Median Std Dev</td>
</tr>
<tr>
<td>Company</td>
<td>Responses</td>
<td></td>
</tr>
<tr>
<td>EBSCO Discovery Service</td>
<td>63</td>
<td>8 7.17 7 1.13</td>
</tr>
<tr>
<td>BiblioCommons</td>
<td>15</td>
<td>8 7.07 7 1.81</td>
</tr>
<tr>
<td>Summon</td>
<td>67</td>
<td>8 7.06 7 1.10</td>
</tr>
<tr>
<td>VUfind</td>
<td>18</td>
<td>8 6.94 7 2.12</td>
</tr>
<tr>
<td>WorldCat Local</td>
<td>23</td>
<td>6 6.91 7 1.46</td>
</tr>
<tr>
<td>AquaBrowser Library</td>
<td>10</td>
<td>7 6.70 7 2.53</td>
</tr>
<tr>
<td>Enterprise</td>
<td>10</td>
<td>8 6.60 8 2.21</td>
</tr>
<tr>
<td>Primo</td>
<td>66</td>
<td>8 6.58 7 0.98</td>
</tr>
<tr>
<td>Encore</td>
<td>40</td>
<td>7 6.30 7 1.11</td>
</tr>
<tr>
<td>Arena</td>
<td>18</td>
<td>7 5.50 6 1.41</td>
</tr>
<tr>
<td>All Responses</td>
<td>348</td>
<td>7 6.76 7 0.38</td>
</tr>
</tbody>
</table>
## Comprehensiveness: Academic Libraries

<table>
<thead>
<tr>
<th>Company</th>
<th>Responses</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summon</td>
<td>62</td>
<td>1 1 14 11 20 18 6</td>
<td>Mode 7</td>
</tr>
<tr>
<td>WorldCat Local</td>
<td>21</td>
<td>1 1 1 3 5 3 6</td>
<td>Mode 9</td>
</tr>
<tr>
<td>EBSCO Discovery Service</td>
<td>55</td>
<td>1 1 1 3 15 18 11 5</td>
<td>Mode 7</td>
</tr>
<tr>
<td>Primo</td>
<td>57</td>
<td>1 1 7 8 25 8 6</td>
<td>Mode 7</td>
</tr>
<tr>
<td>Encore</td>
<td>17</td>
<td>1 2 13 5 2 3</td>
<td>Mode 7</td>
</tr>
<tr>
<td>All Responses</td>
<td>230</td>
<td>4 4 5 7 18 41 77 46 28</td>
<td>Mode 7</td>
</tr>
</tbody>
</table>
## Relevancy Effectiveness

<table>
<thead>
<tr>
<th>Company</th>
<th>Responses</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mode</th>
<th>Mean</th>
<th>Median</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>AquaBrowser Library</td>
<td>10</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>7.00</td>
<td>7</td>
<td>2.53</td>
</tr>
<tr>
<td>BiblioCommons</td>
<td>15</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>7.00</td>
<td>7</td>
<td>1.81</td>
</tr>
<tr>
<td>VUfind</td>
<td>18</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>6.67</td>
<td>7</td>
<td>1.89</td>
</tr>
<tr>
<td>EBSCO Discovery Service</td>
<td>62</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>12</td>
<td>19</td>
<td>17</td>
<td>4</td>
<td></td>
<td></td>
<td>7</td>
<td>6.66</td>
<td>7</td>
<td>0.51</td>
</tr>
<tr>
<td>Summon</td>
<td>70</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>15</td>
<td>22</td>
<td>14</td>
<td>4</td>
<td></td>
<td></td>
<td>7</td>
<td>6.51</td>
<td>7</td>
<td>0.36</td>
</tr>
<tr>
<td>Enterprise</td>
<td>10</td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>6.50</td>
<td>7</td>
<td>2.21</td>
</tr>
<tr>
<td>WorldCat Local</td>
<td>23</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td>7</td>
<td>6.26</td>
<td>7</td>
<td>1.46</td>
</tr>
<tr>
<td>Encore</td>
<td>40</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td></td>
<td>5</td>
<td>5.83</td>
<td>6</td>
<td>0.47</td>
</tr>
<tr>
<td>Primo</td>
<td>66</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>14</td>
<td>13</td>
<td>11</td>
<td>1</td>
<td></td>
<td>6</td>
<td>5.62</td>
<td>6</td>
<td>0.12</td>
</tr>
<tr>
<td>Arena</td>
<td>20</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>5.35</td>
<td>6</td>
<td>1.57</td>
</tr>
<tr>
<td><strong>All Responses</strong></td>
<td>352</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>15</td>
<td>22</td>
<td>44</td>
<td>65</td>
<td>98</td>
<td>64</td>
<td>26</td>
<td>7</td>
<td>6.24</td>
<td>7</td>
<td>0.16</td>
</tr>
</tbody>
</table>
# Objectivity in Discovery

<table>
<thead>
<tr>
<th>Objectiveness of Discovery</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td>Mode</td>
</tr>
<tr>
<td><strong>Company</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AquaBrowser Library</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>WorldCat Local</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>VUfind</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Primo</td>
<td>61</td>
<td>2</td>
</tr>
<tr>
<td>Encore</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>Summon</td>
<td>68</td>
<td>2</td>
</tr>
<tr>
<td>BiblioCommons</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Arena</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>EBSCO Discovery Service</td>
<td>62</td>
<td>1</td>
</tr>
<tr>
<td><strong>All Responses</strong></td>
<td>336</td>
<td>6</td>
</tr>
</tbody>
</table>
### Objectivity in Discovery: Academics

<table>
<thead>
<tr>
<th>Objectiveness of Discovery</th>
<th>Response Distribution</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responses</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>WorldCat Local</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Primo</td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>Summon</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Encore</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>EBSCO Discovery Service</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>All Responses</td>
<td></td>
<td>222</td>
</tr>
</tbody>
</table>
Example Product rating chart

<table>
<thead>
<tr>
<th>Category</th>
<th>Responses</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Mode</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Satisfaction</td>
<td>65</td>
<td></td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>19</td>
<td>23</td>
<td>8</td>
<td>1</td>
<td></td>
<td>6.26</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Undergraduate Effectiveness</td>
<td>62</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>22</td>
<td>6</td>
<td></td>
<td>6.87</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Graduate Student Effectiveness</td>
<td>61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>6.28</td>
<td></td>
</tr>
<tr>
<td>Faculty Effectiveness</td>
<td>62</td>
<td></td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>16</td>
<td>13</td>
<td>16</td>
<td>7</td>
<td>1</td>
<td></td>
<td>5.84</td>
<td></td>
</tr>
<tr>
<td>Effectiveness for General Public</td>
<td>65</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>4</td>
<td></td>
<td>6.03</td>
</tr>
<tr>
<td>Comprehensiveness of Scope</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>11</td>
<td>27</td>
<td>9</td>
<td>8</td>
<td></td>
<td>6.73</td>
<td></td>
</tr>
<tr>
<td>Effectiveness of End User Interface</td>
<td>66</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>17</td>
<td>15</td>
<td>20</td>
<td>1</td>
<td></td>
<td>6.58</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Effectiveness of Relevancy Ranking</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>14</td>
<td>13</td>
<td>11</td>
<td>1</td>
<td></td>
<td>5.62</td>
</tr>
<tr>
<td>Objective Search Performance</td>
<td>61</td>
<td></td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>13</td>
<td>17</td>
<td>13</td>
<td>8</td>
<td></td>
<td>7.00</td>
<td></td>
</tr>
</tbody>
</table>

The table above shows the response distribution and statistical measures for various categories of product satisfaction. Each row represents a different category, and the columns show the number of responses and the distribution of responses across different rating levels (0-9). The final columns provide the mode, mean, and median values for each category.
Update on the NISO Open Discovery Initiative
ODI context

Facilitate a healthy ecosystem among discovery service providers, libraries and content providers
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
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
Possible new topics for ODI

- Address topics marked out of scope by initial ODI workgroup
  - More conducive to A&I resources
  - Relevancy
  - Data exchange protocols
    - Initial phase described rather than prescribed transfer mechanisms
    - High threshold of difficulty remains for new services
  - Interoperability with library resource management systems
  - Interoperability with university learning management systems
Advise Discovery to Delivery Topic Committee on possible areas of future interest or activity
Overview of the current state of library resource discovery
Recommendations for next stages of ODI
API ecosystem: extend and interoperate
Discovery beyond the library
Importance of Linked Data on future models of discovery
Extend keyword relevancy to leverage Linked Data
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
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
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?
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
Questions and discussion