Future trends in digital repositories

Javier Garrido, Venice, September 2018
The first digital repository was installed on 2005
There are currently almost 4,000 digital repositories

Source: OpenDOAR
Future trends in digital repositories

Distribution: Europe with 46%, EEUU with 25%
Italy is the 6th country in number of repositories

Source: OpenDOAR
The most used software is DSpace (42%)

Source: OpenDOAR
10 years ago we decided to evolve to advance to get better to evolve.

Future trends in digital repositories
we decided to bet on DSpace
Future trends in digital repositories

+ 6 million digital objects

37 installations

since 2008

more than 200 customized developments
Consequences of our work and innovation

- **Consolidation**
  - Dos recognized brands:
    - Ibai Sistemas → DSpace
    - Scanbit → Vufind, Koha, Aliada, LibriSuite

- **Increase**
  - 90 employees

- **High specialization and cutting edge**
  - Free software and services for Libraries and Archives

- **Internationalization**
  - Italy, Germany, UK, Mexico, Colombia, Cyprus

Future trends in digital repositories
Current status of digital repositories

- Number of repositories: 4,000
- Extension: international
- Years of evolution: 13
- Most used platform: DSpace
- Main objectives achieved:
  - Digital contents preservation
  - Access to digital content (open or authenticated access)
  - Dissemination of the institution and the contents
  - Measurement of use and downloads
  - Integration with other systems: automated loads, access to contents, etc.
Future trends in digital repositories
Trend # 1 - Collect external digital material

1. Current situation
   The material collected comes from the institution itself and the members of its community

2. New trend
   Collection of digital material from other repositories and websites

3. Applied solutions
   Collection through:
   - OAI-PMH protocol
   - Specific programming
**Trend # 1 - Collect external digital material**

<table>
<thead>
<tr>
<th>Type of item:</th>
<th>Article already published</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective:</td>
<td>Generate a new item automatically</td>
</tr>
<tr>
<td>Source:</td>
<td>Pubmed / Scopus</td>
</tr>
<tr>
<td>Key data:</td>
<td>Pubmed ID / DOI</td>
</tr>
<tr>
<td>Method:</td>
<td>Search + detail + item insertion</td>
</tr>
<tr>
<td>Implementation:</td>
<td>Specific programming in DSpace</td>
</tr>
</tbody>
</table>
Trend # 1 - Collect external digital material

Nuevo envío: obtener metadatos de un servicio bibliográfico externo

- Modo predeterminado de envío
- Buscar identificador
  - PubMed ID:
    - e.g. 20524090
  - DOI (Digital Object Identifier):
    - e.g. 10.1021/ac0354342

[Formulario de búsqueda Form | Resultados]

Buscar

Salir
Trend # 1 - Collect external digital material

Nuevo envío: obtener metadatos de un servicio bibliográfico externo
Trend # 1 - Collect external digital material
Trend # 2 - Updating the repository to its latest version

Current situation

1. The repository was running for several years, and there were no need to change it

New trend

2. Updating the repository to its latest version
   + New functionalities
   + Avoid obsolescence

Applied solutions

3. Specialized company:
   - Evolutionary maintenance
   - Specific project
Trend # 2 - Updating the repository to its latest version

Evolution every 6 months:
- Mayor versions
- Minor versions

End of 2018

Next Major Release: DSpace 7.0
DSpace 7.0 is under current development. The latest status of that work can be found at DSpace Release 7.0 Status. If you wish to help with development, consider joining the DSpace 7 Working Group.
## Trend # 2 - Updating the repository to its latest version

![DSpace 7.0 version](image)

<table>
<thead>
<tr>
<th>#</th>
<th>Priority 1 features</th>
<th>Design - Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Single User Interface</td>
<td>DSpace currently maintains two user interfaces in parallel (JSPUI and XMLUI)</td>
</tr>
<tr>
<td>2</td>
<td>Standards-based REST API</td>
<td>DSpace's current REST API is limited in features</td>
</tr>
<tr>
<td>3</td>
<td>Single Approval Workflow system</td>
<td>DSpace currently has two workflows: Basic and Configurable</td>
</tr>
<tr>
<td>4</td>
<td>Single built-in Statistical Engine</td>
<td>SOLR Statistics</td>
</tr>
<tr>
<td>5</td>
<td>Configurations in Admin User Interface</td>
<td>Instead of command line</td>
</tr>
<tr>
<td>6</td>
<td>Non-functional: Module Framework and Registry</td>
<td>Third-parties can create, maintain and distribute their own &quot;modules&quot; as add-ons</td>
</tr>
<tr>
<td>7</td>
<td>Lower the effort to deposit content</td>
<td>The DSpace deposit process should integrate more closely with external data sources, in order to automatically populate (or suggest) data on deposit</td>
</tr>
</tbody>
</table>
Trend # 3 - Measure growth to evaluate results

1. Current situation
   - The repository has grown over time, due to the efforts of the institution's staff

2. New trend
   - Measure the growth to see the result of the efforts employed

3. Applied solutions
   - Evolution of statistics
   - New metrics: altmetrics, impactstory, readermeter
Future trends in digital repositories

Trend # 3 - Measure growth to evaluate results

Citations

Altmetrics

Social networks:
   Facebook and Twitter

Academic field:
   Academia.edu
   ResearchGate
   Mendeley
   SlideShare
   Microsoft Academic Search

Citations

Altmetrics

Tweeted by 64
Blogged by 1
Picked up by 10 news outlets
On 3 Facebook pages
437 readers on Mendeley

View details on Altmetric's website
Trend # 3 - Measure growth to evaluate results

Selection for niche differentiation in plant communities increases biodiversity effects.

Overview of attention for article published in Nature, October 2014

**Summary**

- **Title:** Selection for niche differentiation in plant communities increases biodiversity effects.
- **Published in:** Nature, October 2014
- **DOI:** 10.1038/nature13809
- **Authors:** Edward B. Longley, Bernhard Schönfeld, Jana S. Pásek, Michael Brach, William E. McEwan, Alex De Gay, James H. L. Brown
- **Abstract:** Experimental plant communities, relationships between biodiversity and ecosystem functioning...

**Altmetric**

- **Attention Score:** 128

**Twitter Demographics**

- The data shown below were collected from the profiles of 64 tweeters who shared this research output. Click here to find out more about how the information was compiled.

**Geographical Breakdown**

<table>
<thead>
<tr>
<th>Country</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>8</td>
<td>13%</td>
</tr>
<tr>
<td>France</td>
<td>6</td>
<td>9%</td>
</tr>
<tr>
<td>Japan</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>6%</td>
</tr>
</tbody>
</table>

**Demographic Breakdown**

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members of the public</td>
<td>40</td>
<td>63%</td>
</tr>
<tr>
<td>Scientists</td>
<td>21</td>
<td>33%</td>
</tr>
<tr>
<td>Practitioners (doctors,</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>other healthcare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>professionals)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science communicators</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>(journalists, bloggers,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>editors)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Trend # 4 - Content migration

Current situation
The repository has content, but should have many more

New trend
Migration of content to the repository

+ The most demanded
+ The easiest to incorporate

Applied solutions
- Cataloging of contents
- Transformation of contents
- Specific loading programs
Trend # 4 - Content migration

Content migration affects:

- Qualified Dublin Core
- Data storage
- Copyright
- Creative Commons
- Audit processes
- Certificates
- Persistent identifier
- Handle
### Trend # 4 - Content migration

Common services in a content migration:

<table>
<thead>
<tr>
<th>Content</th>
<th>Source</th>
<th>Services / processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata</td>
<td>Excel, Access, marc21, etc</td>
<td>Mapping, transformations</td>
</tr>
<tr>
<td>Type of documents</td>
<td>Books, thesis, preprints, articles, reports, presentations, journals, etc</td>
<td>Transformations</td>
</tr>
<tr>
<td>Formatos</td>
<td>PDF, Word, Excel, JPEG, etc</td>
<td>Transformations, covers, miniatures</td>
</tr>
<tr>
<td>Licenses for use</td>
<td>---</td>
<td>Creative Commons</td>
</tr>
<tr>
<td>Access</td>
<td>---</td>
<td>Open / private</td>
</tr>
</tbody>
</table>
Trend # 5 - Publication of journals and articles

1. The institution needs to publish journals and articles

2. Publication of journal and articles in the repository

3. - Use the repository's publication functionality
   - Use OJS (Open Journal System)
Trend # 5 - Publication of journals and articles

Example: publication of a journal in DSpace from OJS
Trend #6 - Responsive and minimalist design

1. Current situation
   - Many institutions are renewing the image of their digital repository

2. New trend
   - Responsive and minimalist design

3. Applied solutions
   - New design applied to DSpace
Future trends in digital repositories

Trend # 6 - Responsive and minimalist design
Trend # 6 - Responsive and minimalist design
Trend # 6 - Responsive and minimalist design
Trend # 7 - Integration with other systems

Current situations

1. The digital repository needs to be connected with other systems

New trend

2. Integration with other systems

Applied solutions

3. • Data integration
   • Processes integration
Trend # 7 - Integration with other systems

Data integration (information)

Ensuring that information in various systems is consistent. EII (Enterprise Information Integration).

Example: to have the same users in the student portal and in the repository.

Solution: replication of the user table from one system to the other.

Processes integration

The processes are designed to link the different applications.

Example: unified user maintenance for all systems of an institution.

Solution: creation of a single user maintenance process that interacts with different systems.
Future trends in digital repositories

Trend # 7 - Integration with other systems

Example of integration: Basque Government

- **DSpace**: Digitalized books and historical press (about 1.5 million of images)
- **LiburuKlik**: Loan of digital books (about 16,000 books)
- **Ondare.net**: Storage and preservation of thematic websites related to Euskadi
- **Vufiod**: Book search (for the citizen)
- **Absys.net**: Management system of the libraries
- **eLiburutegia**: Example of integration: Basque Government
Trend # 8 - Presence in harvesters

Current situation

1. The diffusion is a fundamental task for the repositories

New trend

2. Presence in harvesters

Applied solutions

3. • Monitoring of harvests
   • New harvesters
Trend # 8 - Presence in harvesters

Presence in national and international directories

- ROAR
- OpenDOAR
- BuscaRepositorios
- OAI Data Providers
- re3data
- Google Scholar
- OpenAire
- BASE
- Hispana
- Europeana
- Rebiun
- Open Archives
- OAIster
- Open Access Map
- Recolecta
Trend # 8 - Presence in harvesters

Important

This is a legacy version of OpenDOAR that is running to allow the graceful migration of our users' API-based applications. Records are no longer being updated, and this version will be turned off on November 21st, 2018.
Please use http://v2.sherpa.ac.uk/opendoar

Search or Browse for Repositories

Result 1 of 1

EMD (Euskal Memoria Digitala)

- **Organisation:** Sancho el Sabio Foundation, Spain
- **Description:** This site provides access to digital scans of monographs relating to Basque culture. The interface is available in English, Spanish and Basque.
- **OAI-PMH:** http://www.memoriadigitalvasca.eus/dspace-oai/request
- **Software:** DSpace
- **Size:** 48346 items (2018-07-19)
- **Subjects:** Multidisciplinary
- **Content:** Books
- **Languages:** English, Basque, Spanish
- **Policies:** Metadata re-use policy explicitly undeclared; Full date item policies explicitly undeclared; Content policies explicitly undeclared; Submission policies explicitly undeclared; Preservation policies explicitly undeclared
- **OpenDOAR ID:** 1430, Last reviewed 2009-02-03, Suggest an update for this record. Missing data is needed for: Policies
- Link to this record: http://opendoar.org/id/1430
Trend # 9 - Promote visibility of the repository

Current situation

1. The repository implementation is adequate but not its scope

New trend

2. Promote visibility of the repository

Applied solutions

3. • Training and advices
   • Promotion actions
   • Social networks
Trend # 9 - Promote visibility of the repository

Training and advices

- Training sessions for the incorporation of items
- Guides and support materials
- Advice for users

Promotion actions

- Promotion of open access (ex. Open Access Week)
- Event organization
- Presentations
- Campaigns in faculties and departments
- Seminars
- Posters

Use of social networks

- Facebook
- Twitter
Trend # 10 - Improvements in the export of records

Current situation

1. Appearance of new standards and formats

New trend

2. Improvements in the export of records

Applied solutions

3. Possibility to visualize
   - Possibility of export
   - New metadata schemas
Trend # 10 - Improvements in the export of records

Possibility of displaying / exporting item metadata in different metadata schemas:
New trends in digital repositories

01 Collect external digital material
02 Updating the repository to its latest version
03 Measure growth to evaluate results
04 Content migration
05 Publication of journals and articles
06 Responsive and minimalist design
07 Integration with other systems
08 Presence in harvesters
09 Promote visibility of the repository
10 Improvements in the export of records
DSpace Projects in Ibai Sistemas / Scanbit

01) Ministry of Culture - Europeana adaptation report
02) Basque Government - Liburuklik
03) Basque Government - eLiburutegia
04) Basque Government - Biltzailea
05) National Library of Spain – Tracking tool
06) Junta de Andalucía - Ministry of Culture
07) Junta de Andalucía - Instituto Andaluz del Patrimonio Bibliográfico
08) Aragón Government - Citarea
09) Diputación Foral de Guipúzcoa - Repository
10) AEMET – Spanish Meteorological Statal Agency - Arcimis
11) Bilbao Council - BLD
12) Instituto Geológico Minero de España - Repository
13) Granada University – DSpace Services
14) Navarra University - Dadun
15) Oviedo University - Digibuo
16) San Pablo-CEU University - Repository
17) International University of Rioja - Reunir
18) Jaen University - DSpace Services
19) Jaume I University - Repository
20) Sancho el Sabio Foundation - EMD
Future trends in digital repositories

DSpace Projects in Ibai Sistemas / Scanbit

21) Pontificia Università della Santa Croce - DSpace Services
22) Open University of Cyprus - DSpace Services
23) Ministry of Culture of Marruecos, General Library and Archives of Tetouan
24) Instituto de Salud Carlos III - Repisalud
25) Diputación Foral de Bizkaia - Repository
26) Archivo Histórico Diocesano de Madrid - Repository
27) Tabakalera - Repository
28) CENIEH - Museum of Human Evolution - Repository
29) AZTI - Technological Center for Marine and Food Research
30) ASSITEJ - Association of Theater for Children and Youth
31) Eguía Careaga Foundation (SIIS) - Ibero-American Repository on Disability
32) Orona - Multinational business group with more than 30 companies - Repository of images
33) Complutense University of Madrid – Elme project
34) Azkuna Zentroa - Repository
35) San Jorge University - Repository
36) Bank of Spain - Institutional repository
37) IMDEA Nanociencia - Institutional repository

Next repository: # 38
Future trends in digital repositories

Javier Garrido
Development Manager
Ibai Sistemas, S.A.

+34 638 98 59 29

javier@ibai.com