Solving Scholarly Publishing Problems by Building Upon Institutional Repositories: Two Case Studies Based on the Digital Commons and Islandora Platforms

Enabling a Spatial Search and Visualization Overlay on Digital Commons Content

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Leveraging Institutional Repository Collections as Distributed Service Layers

Institutional Repositories as Unique Content Stores

- Expansion of open access scholarship
- Leveraging of local collections
- Administrative and archival information
- Policies
- Yearbooks
- Campus newspapers and other student publications

Prevalence of IR

![Pie chart showing the prevalence of institutional repositories.](http://www.acrlmetrics.com)

Figure 1: N = 314 (232 Yes, 82 No)


Materials Accessioned into IR

Figure 2: N = 314 (232 with IR, 82 without)

Figure 3: N = 314 (232 with IR, 82 without)
Materials Accessioned into IR


Integrating Content & Services

- Driver of IR usage outside of the library
- Public access (Sandia National Labs/NM Technical Reports)
- Content management (Natural Heritage New Mexico Forest Service images)
- Ancillary services: DOI, preservation, metadata federation

Integrating Data Management & Curation

Figure 4:

Integrating Data Management & Curation

What are the benefits of integrated services?

- Mixing applications that are optimized for particular functionality. In our case:
  - DSpace
  - Digital Commons
  - Elastic Search
  - Angular JS & Leaflet
- Dependent upon open standards support
  - Dublin Core + Geo
  - OAI-PMH
  - GeoJSON
- Enabling component evolution and specific application independence

Key Interoperability features in IRs

- Core Standards/Protocols
  - Metadata
  - Harvesting
- Application Programming Interface (API) support for full lifecycle functions:

  Table 1: *OAI-PMH provides a limited read API that is leveraged in the current version of the project workflow

<table>
<thead>
<tr>
<th>Action</th>
<th>DSpace</th>
<th>Digital Commons</th>
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<tbody>
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</tr>
<tr>
<td>Read</td>
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<td>✗*</td>
</tr>
<tr>
<td>Update</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Delete</td>
<td>✓</td>
<td>✗</td>
</tr>
</tbody>
</table>

Native American Water Rights Settlement (NAWRS) documents project

Common Thread - enabling location-based discovery and access to a repository of Native American Water Rights settlement documents

Phase 1: 2011-13

- Document acquisition, scanning, metadata development
- DSpace integration
- Geodatabase development (Google Fusion Tables)
- Map interface development (Google Maps)

Figure 5: Environmental Data in the IR
Figure 6: Phase 1 NAWRS Workflow
Native American Water Rights Settlement (NAWRS) documents project - Phase 2

- May 2016 - April 2017
- Migration from DSpace to Digital Commons
- Metadata enhancement
- Metadata harvest
- Hybrid spatial/text search interface

Architecture Overview 1 - Data Flow and Processing

Building the service

Metadata Mapping

- Completed on migration from DSpace to Digital Commons

Metadata Mapping

Moving the Data

- Metadata only: search results currently refer users back to Digital Commons
Figure 8: Phase 2 NAWRS Workflow
Figure 9:

Figure 10: Common Fields

<table>
<thead>
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<tr>
<td>dc.type</td>
<td>document type</td>
</tr>
</tbody>
</table>
Architecture Overview 2 - User Interface

Future work

- Usability - we have the architecture, time to focus on features
- auto harvest and processing of updated collection content
- Digital Commons API pending - re-architect the backend as needed to more smoothly integrate services
- Transition to a long-term sustainable hosting platform
- Explore opportunities for building on metadata hosted in other repositories

Acknowledgements

- Phase 1 Funded by: Native American Rights Fund, the National Congress of American Indians and the Western States Water Council in collaboration with the Utton Center, the American Indian Law Center (AILC), and the University of Idaho (UofI)
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- Collaborators: Darcy Bushnell (Utton Center), Helen Padilla (AILC), Jeff Dickey, Barbara Cosens (UofI)
- Developers: Jon Wheeler, Akashia Lee Allen, Karl Benedict, Jeff Dickey
Figure 12: geoJSON in the Admin UI
Figure 14:
Demo

Play/Pause

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