

DISC Investigation: Common Digital Library System

Executive Summary

At its March 2011 meeting, CSUL “approved that DISC investigate a common digital library system, and expand their investigation of the common digital library system to include consideration of the needs of the college system libraries for digital library systems in our merged environment.”

To carry out this action item, DISC revised and approved a checklist of *Features Required in a Digital Library System* and involved the State University Libraries (SULs) and Florida College System libraries in weighting the importance of the features itemized in that document. They also identified nine systems for preliminary investigation, and conducted a more in-depth investigation of four systems. The in-depth investigation included setting up test versions of the systems for hands-on use, and evaluating known features of the systems against the weighted checklist.

The result of the investigation is that only two of the systems examined, SobekCM and Islandora, appear to be promising candidates for a future common digital library platform. SobekCM powers the Digital Library of the Caribbean (dLOC) and the UF Digital Collections (UFDC) and has been and is being developed by Mark Sullivan from the University of Florida. Islandora is a Drupal interface on top of the Fedora content manager, and is being developed by the University of Prince Edward Island. DISC believes that further investigation on a defined timeline would be useful in developing a recommendation.

Evaluation Process

At the March 2011 meeting, CSUL approved DISC’s investigation into a common digital library system. DISC established a subgroup to conduct the testing and data collection. The subgroup was formed of volunteers from DISC and was in constant communication with the full DISC group through the shared listserv, the shared wiki, and every DISC conference call.¹

The primary evaluation criteria and weightings were developed from DISC’s recent research. The evaluation process used the *DISC Analysis: Digital Library Initiatives* and the requirements list developed in *Features Desired in a Digital Library*, which was revised as a part of this investigation.² The group surveyed the State University Libraries (SULs), Florida College System (FCS) Libraries, and Florida Center

¹ The group notes are on the DISC wiki: <http://swiki.fcla.edu:8000/DISC/59>

² DISC Analysis: <http://ufdc.ufl.edu/UF00103461>; and *Features Desired in a Digital Library* (2010 and 2011 revisions): <http://ufdc.ufl.edu/UF00103112>

for Library Automation (FCLA) to weight the requirements listed in the revised *Features Desired in a Digital Library*.

To properly apply the assessment materials, DISC divided the requirements for a common digital library system into two components:

1. Common digital library system (primary)
2. Companion tools to augment the primary system (supplemental; require primary)

Focusing on the common digital library system, DISC members conducted a three-step review process. First, the group identified possible systems and conducted a preliminary review of the systems. Systems in use by any of the SULs, as well as systems known to be used successfully by other research libraries or consortia were considered.

From this preliminary review, several systems were immediately eliminated from consideration for their inability to meet the majority of core requirements. The elimination process required that a DISC member provide a brief explanation of the inadequacies of the system and a recommendation that it be removed from consideration. DISC then reviewed the explanation and unanimously agreed to eliminate the system, or the system remained under consideration. After the preliminary review, 3 systems (SobekCM, XTF, and Fedora in some form) remained under consideration for further analysis. During the second review stage, two systems (XTF and Fedora-Blacklight) were eliminated for failure to meet core requirements. Another Fedora-based system, Islandora was then added to the review process.

For the third and final review stage, the remaining 2 systems (SobekCM and Islandora) received testing and evaluation, as detailed in the following sections.

Evaluation/Review Results

Stage 1

Using the assessment materials, several systems clearly failed to meet basic needs and were eliminated and not considered for the primary system:

CONTENTdm

CONTENTdm is a proprietary system found to be lacking in functionality for use as a statewide common platform. It was removed from consideration for these reasons:

- Multi-site server support lacking
- Search engine optimization support lacking resulting in problematic search rankings of materials
- Branding/customization does not meet DISC membership requirements
- Handling of various standard metadata formats for complex objects is unwieldy

- Database optimization can be unnecessarily complicated; scaling is problematic
- Batch import tools complex to use
- Batch import tools limited in terms of size of files and quantity of batch
- Usability issues with the user interface
- Proprietary: modifications and customizations totally dependent on the vendor

DigiTool

DigiTool is a proprietary system with annual maintenance costs for the SUS approaching \$30,000. The system is flexible but overly complex. FCLA staff reported difficulty training library staff users and noted that a high level of ongoing user support is required. Limited options for branding, limited control over the user interface, and insufficient support for serial publications were among the critical functional failings.

Digital Commons/Bepress

Digital Commons / Bepress - Digital Commons is an institutional repository system. While it fulfills the needs of an IR, it falls short in a number of the key functional requirement areas DISC has outlined for a common digital library system, including broad file format and metadata schema support as well as display of complex/compound objects.

DSpace with/without Manakin

DSpace is an institutional repository system that meets basic IR needs but does not meet the needs of a full digital library system. Manakin is an in-development front-end for DSpace that ameliorates some of the difficulty configuring the DSpace interface, but it does not meet key functional requirement areas.

Fedora with Fez

Fedora is a powerful repository system for digital content management. It needs to be coupled with a user front-end to be used as an institutional repository or digital library. Fez as a front-end meets many of the requirements for an institutional repository but it fails to meet basic digital library needs.

Luna

Luna is a visual resources collection system, largely in use by visual resources centers and art-focused collections. Like the institutional repository systems, Luna is appropriate for its intended uses but is insufficient for the needs of a common digital library system.

Omeka

Omeka was designed as an exhibits system and not a full digital library platform. While Omeka has some very promising features, it cannot handle the main platform needs defined without significant work and modification. DISC recognizes that Omeka may be a valuable companion tool to the main platform and a summary of the evaluation of Omeka as a companion tool is included in this report.

Stage 2

At the end of Stage 1, three systems appeared to meet basic needs and continued to the next review phase. Selecting a Fedora Commons system for testing also required testing the interface and functional components because Fedora is only a framework. To ensure Fedora could be fully tested, two types of Fedora systems were selected, bringing the test group to a total of four systems:

- SobekCM³
- Extensible Text Framework (XTF) (with other required components)⁴
- Fedora Commons with Blacklight⁵
- Fedora Commons with Drupal, known as Islandora⁶

To proceed with more in-depth investigation of the remaining systems, “sandbox” test instances of three of the four systems were created and all four systems were demonstrated to DISC. UF created a sandbox instance and gave a demonstration of SobekCM, FCLA did the same for XTF, USF for Fedora Commons-Blacklight, and the Islandora developers did so for Islandora.

Detailed test plans were created earlier in the investigation process to standardize test behavior across testing institutions, and include information on size of ingest, types of materials ingested, and tester feedback. DISC members looked at the features available in the sandboxes and ingested items into each. DISC members also contacted librarians and staff at institutions running production versions of the systems to discuss their experiences and evaluated online examples of the systems to confirm the evaluation of the systems.

Based on the demonstrations and feedback from the groups that implemented the systems locally, XTF and Fedora Commons-Blacklight were eliminated from consideration as potential common digital library platforms. During the installation and configuration of the sandboxes, it became clear that both Fedora-Blacklight and XTF would require extensive, long-term development to meet the functional requirements established in *Features Desired in a Digital Library System*.

The basic features and problems resulting in the elimination of XTF and Fedora-Blacklight are as follows:

XTF

- XTF serves best as a full-text search and display system, but does not offer basic “back-room” support for loading and managing content

³ SobekCM is the full digital library system and suite of tools powering the UF Digital Collections and the Digital Library of the Caribbean (dLOC).

⁴ XTF is an open source platform for accessing digital content, developed by the California Digital Library (CDL).

⁵ Blacklight is a discovery interface with Solr for indexing and searching, configurable as a frontend to a repository.

⁶ Islandora is a digital asset management system composed of Drupal modules, Solr, and Fedora by the University of Prince Edward Island's Robertson Library.

- System does not have any built in display mechanisms to handle image or audio/video files
- Ingest deposit architecture would not work well for multi-site use
- Although the indexing system is well formed, the system is better suited for archive collections with finding aids than for complex digital library objects

Fedora-Blacklight

- Fedora-Blacklight lacks an ingest deposit workflow; it is not a complete digital library system
- Blacklight's default system is limited in functionality out of the box and would require considerable customization

Demonstrations of SobekCM and Islandora were given by the developers of each system. Mark Sullivan (Programmer, UF) demonstrated SobekCM. Kirsta Stapelfeldt (Islandora Repository Manager, UPEI) and Donald Moses (Islandora Digital Initiatives and Systems librarian, UPEI) demonstrated Islandora. From the demonstrations and preliminary reviews, DISC members found that both systems appeared to sufficiently meet many components of the evaluation criteria and the systems merited further testing and evaluation.

Stage 3

This stage focused on a detailed review of

- SobekCM
- Islandora

In evaluating SobekCM and Islandora, three values were used to rate how well the system met each criterion from the *Features Desired in a Digital Library System*:

- Meets the requirement
- Does not meet requirement, but potentially could with development or currently under development
- Does not meet the requirement

In total, these systems were evaluated using the requirements approved by DISC at the outset of this investigation and reconfirmed throughout the process with 156 areas of evaluation, covering 9 major topics:

1. Architecture
2. Content
3. Metadata
4. Ingest
5. Search and retrieval
6. Display and use
7. Export
8. Management and reporting

9. Budget

Concurrently, State University System (SUS), Florida College System (FCS), and Florida Center for Library Automation (FCLA) library contacts were invited to participate in a survey to prioritize and rank the features desired in a digital library system, so that requirements deemed most important could be given more weight in the evaluation process. The survey asked respondents to rank requirements on a scale of five values, in accordance with the needs of their library, ranging from an undesired to critical.

The survey received 23 responses from 10 FCS institutions, 11 SULs, 1 museum, and FCLA. The average response for each requirement was calculated in order to rank the requirements in priority order, from most necessary to least necessary. The system evaluation ratings were also weighted according to the results of the survey, to provide a final quantitative analysis.

The final weighted evaluations of Islandora and SobekCM (available as the appendix to this report) found that both meet over 80% of the requirements, and each has areas where additional development would be desired. After discussion of the results, DISC members concluded that both systems hold promise.

Companion Tools

Throughout the review process, DISC also reviewed companion tools for appropriateness. These are the *Companion Tools* selected to be reviewed in the report:

MANGO

MANGO is the State University Libraries' discovery interface, including features of the traditional online public access catalog.⁷

Open Journal Systems (OJS)

Open Journal System (OJS) is an open source tool for managing and publishing scholarly journals. OJS is a highly flexible editor-operated journal management and publishing system. FCLA is hosting a central instance of OJS for use by the State University Libraries.⁸

Omeka

While Omeka was not a viable candidate for a common digital collections platform, Omeka may be a valuable companion tool to the main platform. A basic overview of positives and negatives for Omeka is included here. Omeka.net offers a number of free plans.⁹

- Positives:

⁷See <http://fclaweb.fcla.edu/mango>

⁸See <http://journals.fcla.edu/>

⁹See <http://www.omeka.net/signup>

- Free-Open-Source, infrastructure
- Fairly easy to install and experiment
- Efficient with limited or no delays in searching or browsing
- Entirely web-based administration; exception of FTP directory for uploading files
- Active user and developer community with growing functionality through plugins
- Within limitations of import support, fairly easy to import files
- Support for customizing the interface; downloadable themes
- Designed around support for user interaction: creation of exhibits, tagging, etc.
- Fairly easy to learn interface
- Negatives:
 - Metadata support is limited (Dublin Core)
 - Display customization seems necessary and requires more than basic user skills
 - No support for complex objects
 - Batch import support is limited (CSV, no XML support; images only through URL)
 - Image files can be batch loaded using a drop box, but without additional metadata; there seems to be no way to batch link images and additional metadata within the system
 - Batch handling in general is difficult; in addition to import and update it is rather difficult to delete more than one record at a time

Conclusions

The DISC investigation into a common digital library system began with a large number and variety of different systems and tools. Each system was measured against the requirements defined in *Features Desired in a Digital Library System*. Many systems immediately failed to meet critical requirements and were eliminated. Several systems were effective, but too narrow in focus to be complete digital library systems and a subset of these retained for consideration as “companion tools.”

Only two systems have the potential to meet the need for a common digital library platform: SobekCM and Islandora. In conference calls throughout the process, DISC members considered a number of different issues. The detailed evaluations and ratings were carried out primarily by a few DISC members. With the allotted time period, some DISC members felt that they did not have sufficient information to conclusively assess the systems with confidence. Additionally, the primary developers of SobekCM (Mark Sullivan, Programmer, UF) and Islandora (Mark Leggott, lead developer for Islandora, primary investigator on the Islandora development grant, and CEO of DiscoveryGarden, a paid service provider of Islandora) served as the primary sources of information for the system evaluations. Further investigation of SobekCM and Islandora would alleviate concerns held by some DISC members about this investigation.

Critically needed additional work includes testing on a large scale. Testing for a common digital library system must conclusively show that the system can support batch ingest of tens of thousands of items

at a time. Most importantly, the system needs proven support for user and administrator access to hundreds of thousands of items and millions of pages within a reasonable response speed, measured in milliseconds and not seconds. In addition to testing on outlined requirements, further exploration of the two systems will provide DISC members with the opportunity to discover additional features not listed in the requirements or specifically outlined in the systems' available documentation.

DISC supports further investigation of each system. However, technologies are always rapidly evolving and a clear timeline and requirements would be needed for a productive investigation to continue. The test loading of a large sample or all materials from PALMM and SUL collections to the systems would provide for a more comprehensive assessment of the two systems. In order to conduct further investigation, clear goals for the deliverables from the investigation, a set timeline, and a set resource allotment are needed.

Evaluations of Final Two Systems: Islandora & SobekCM

The two systems to be considered each received a more detailed evaluation. The systems were rated against each of the requirements from the list as follows:

● = meets requirement

○ = does not meet requirement, but potentially could with development or currently under development

x = does not meet requirement

A	Architecture	Islandora	Comparison	SobekCM
A1	Architecture supports multi-site use.	●	-	●
A2	User permissions:			
A2a	Architecture allows multiple levels of user permissions, which can be configured based on collections, collection groups, or institutional units, for example.	●	-	●
A2b	Various levels of administrator and staff user permissions are available for institution staff to change system settings and content.	●	-	●
A2c	Simple and secure user (non-administrator) account creation is available for students and faculty to upload files and add metadata.	●	-	●
A3	Architecture facilitates library staff in setting up collections and assigning or ingesting items to collections.	●	-	●
A4	System does not require users to have a static IP address.	●	-	●
A5	There are no conventions that must be followed for naming directories or files, or the conventions are documented, verified, and easy for library staff to follow or create, and/or they are followed through an automated process as part of a tool or application.	●	-	●
A6	Collections are logically, not physically, defined; they are easily created, deleted and redefined by library staff. A bibliographic item can easily be added to a collection, assigned to a new collection, allocated to multiple collections, or removed from a collection by library staff.	●	-	●
A7	The system can accommodate bidirectional connection between itself and other tools – that is, if a user is directed to a page within the platform from an outside discovery tool, the path back to that tool should be clear and automatic.	○	-	○
A8	Text can be stored in appropriate flavor of Unicode as necessary	●	-	●
A9	Indexes:			
A9a	Indexes can be updated to include new or changed content without having to reindex the entire database	●	-	●
A9b	Indexing runs in the background (no downtime for using the system during indexing).	●	-	●
A9c	New items can be indexed in real time so that they are available to the public immediately.	●	-	●
A10	Collections can be created, populated, and viewed by authorized users while remaining invisible to unauthorized users.	●	-	●
A11	Customizations can be tested by library staff in a way that is invisible to unauthorized users and that does not affect the rest of the system. Having a test function within the system would satisfy this requirement, as would having a separate test instance of the system.	●	-	●

A	Architecture	Islandora	Comparison	SobekCM
A12	All content from the current PALMM Collections can be imported into the system with no loss of information or functionality. All content in UFDC Sobek, USF Fedora, UCF CONTENTdm, non-PALMM DigiTool, and other current SUS systems can be imported into the system with no loss of information.	○	→	●
A13	System support:			
A13a	(a) The system components are affordable, dependable, and supportable by existing staff resources. This includes all software required to run the digital library system in actual operation: database, operating system, digital library software, and support software required in addition to the digital library software itself.	●	-	●
A13b	(b) Open-source tools will be weighted more heavily because they can be tested, validated, maintained, developed, and budgeted to a more exacting level for more accurate initial requirements and future projections.	●	-	●
A14	System natively supports content in multiple languages.	●	-	●
A15	The system supports multilingual interfaces For example, automatic support if library staff provides translations; or set search terms already automatically supported with translations already in place.	●	-	●
A16	Documentation that is usable accompanies the code including clear and concise comments and examples.	○	→	●
A17	Custom configuration settings are available at the collection level for collection-specific behavior and appearance with collection settings overriding global settings.	○	→	●
A18	Custom pages allow the creation of collection home pages and other landing pages based on institution, format, topic, etc.	●	-	●

B	Content	Islandora	Comparison	SobekCM
B1	All of the content from the PALMM and State University Libraries' collections can be supported in terms of file format, file relationships and structure, including multimedia collections.	●	-	●
B2	The system must support at least the following formats:			
B2a	TIFF images	●	-	●
B2b	JPG / JPEG images	●	-	●
B2c	JP2 / JPEG 2000 images	●	-	●
B2d	Single-page and multi-page PDFs	●	-	●
B2e	Text	●	-	●
B2f	Audio	●	-	●
B2g	Video	●	-	●
B2h	Streaming audio / video (URLs to streaming server)	●	-	●
B2i	Remote content (URL links to externally stored files and embedded viewers as applicable)	●	-	●
B2j	Files intended for download rather than display (e.g. data formats, spreadsheets)	●	-	●
B3	The system supports the following special genres:			
B3a	EAD finding aids (with structured display, links to digitized content, XML to HTML translation and option to also display as PDF)	●	-	●

B	Content	Islandora	Comparison	SobekCM
B3b	Serial display with hierarchy (for newspapers, journals, and other serials)	○	→	●
B3c	Audio for simple object (music file alone), and for complex/compound objects (oral history with a transcript that can be displayed while audio is played)	●	←	○
B3d	Books/monographs (structured table of contents, page turning and "go to")	●	-	●
B3e	Newspapers (NDNP and METS/ALTO formats, search term and full article segmentation highlighting)	○	-	○
B3f	TEI-encoded full-text	●	←	○
B4	Must allow integrated multimedia collections – can have text, images, audio, video, etc. all in the same collection.	●	-	●
B5	Must support related objects, defined as groups of objects with some relation to each other, such that: - if one is retrieved, all are retrieved - the relationship among the objects is made clear - related objects do not have to all be in the same format - any number of related objects can comprise a group	●	-	●
B6	Must support complex objects with METS structural metadata. Must preserve METS for export.	●	-	●

C	Metadata	Islandora	Comparison	SobekCM
C1	System has documented, verifiable support for ingest, display, and translation of the primary descriptive metadata in use (simple and qualified DC, MARC21, MODS and VRA Core). System is not solely library-centric or MARC-centric – must work for museums, archives and gallery collections as well.	●	-	●
C2	DL System has a readily available easy process and tools for library staff to:			
C2a	Input/update metadata	●	-	●
C2b	Add local fields (including administrative fields not shown to the public)	●	-	●
C2c	Ingest existing metadata records	●	-	●
C2d	Edit ingested existing metadata records	●	-	●
C2e	Export metadata records	●	-	●
C3	Metadata can be created/edited online, or created offline and uploaded	●	-	●
C4	Metadata can be:			
C4a	In the system before an object is in the system and associated with the object when the object is loaded	●	-	●
C4b	Added to the system at the same time as the associated object is loaded	●	-	●
C4c	Added to the system and associated with an object after the associated object is loaded	●	-	●
C5	Has input forms and edit routines for descriptive metadata in:			
C5a	Simple Dublin Core	●	-	●
C5b	Qualified Dublin Core	●	-	●
C5c	MARCXML	○	→	●
C5d	MODS	●	-	●
C5e	VRA Core	●	-	●

C	Metadata	Islandora	Comparison	SobekCM
C6	Pre-existing metadata in the above formats can be loaded as XML records or as tab-delimited or CSV files with associated mappings.	●	-	●
C7	It is possible for library staff to design our own metadata input/update templates.	●	-	●
C8	Simple forms for metadata entry can be provided for untrained users (for IR functionality).	●	-	●
C9	It is possible to include technical and administrative metadata elements which do not display to the public.	●	-	●
C10	It is possible to enable and maintain a controlled vocabulary (standardized or user generated) for any given field. A tool or method is available for making desired changes easily in a manner that meets library staff needs.	○	→	●
C11	Bibliographic records from the Aleph library catalog, OCLC records, or any MARC records from anywhere, can be easily imported into the DL system.	●	-	●
C12	The system can expose metadata to search engine crawling/indexing to ensure good coverage in major search engines.	○	→	●
C13	EXIF and IPTC metadata embedded in JPEG and TIFF images can be automatically extracted. Users may map this metadata to Dublin Core or Qualified Dublin Core fields.	●	←	○

D	Ingest	Islandora	Comparison	SobekCM
D1	Metadata can be harvested from OAI-PMH accessible collections for inclusion in the DL.	●	-	●
D2	The system supports both:			
D2a	Manual upload to ingest	●	-	●
D2b	Automatic batch upload to ingest	○	→	●
D3	If any translation/conversion is needed prior to ingest, a documented process with a tool/application is available that library staff feel is sufficiently simple and has adequate support for their needs.	●	-	●
D4	Provides immediate verification of ingest success or, in the case of ingest failure, provides error messages that communicate to staff what needs to be fixed for successful ingest.	●	-	●
D5	Ingest processing is speedy enough to meet library staff needs. (For each DL System under review, discussions over the value of increased speed should consider the benefits of that speed in relation to the costs/delays for staffing, software version upgrades, etc).	●	-	●
D6	Thumbnail images can be created at the time of ingest from all image and document formats supported in the system. Default resolution and size can be over-ridden at ingest.	●	-	●
D7	Custom thumbnail images created outside of the DL can be:			
D7a	Added to the system at the same time as the associated object is loaded	●	-	●
D7b	Added to the system and associated with an object after the associated object is loaded.	●	-	●
D8	The system can automatically create multiple file formats from TIFF images. The process should be testable so that library staff can evaluate the process of creating derivatives and products (multiple manifestations created from the TIFF file) for quality and any other needs. File formats available for automatic creation from TIFF include at minimum:			
D8a	Searchable full text via OCR	●	-	●

D	Ingest	Islandora	Comparison	SobekCM
D8b	JPEG2000 images, with library-defined resolutions (not just a default set that cannot be changed)	●	-	●
D9	The system should provide options for how uploaded TIFFs are handled, for example:			
D9a	Create derivatives and do not store TIFF	●	-	●
D9b	Store TIFF but do not display to users	●	-	●
D9c	Store and display TIFF to users.	●	-	●
D10	The system can automatically index full text from formats including PDF, Word, Open Office, HTML, and XML.	●	-	●
D11	When a complex object with manifestations exists in the system, it should be possible to replace a specific file or files without having to reingest the entire object.	●	-	●
D12	The system can accommodate a single ingest process for universities using ProQuest ETD Administrator (Possible SWORD-like process?)	●	-	●
D13	System offers an IR mode of ingest, that supports the following functions:			
D13a	Non-staff, authorized users can submit content and metadata by a simple process	●	-	●
D13b	Content and metadata are not added to the system (or are added with provisional or non-display status) until reviewed	●	-	●
D13c	Authorized staff are enabled to review and approve, edit or reject metadata and content	●	-	●
D13d	Submitters are notified by email, text message, or other electronic communication about the approval status of the item.	●	-	●

E	Search and retrieval	Islandora	Comparison	SobekCM
E1	System has a Z39.50 server, equivalent JSON interface, or other documented system-access method.	●	-	●
E2	Users have the option to search or to browse. A simple search view (single search) is always available.	●	-	●
E3	For serial publications, the user should be able to search for individual articles by author and title. The user should also be able to list and browse the tables of contents of issues, listed in reverse chronological order.	●	-	●
E4	The user can choose to search metadata only and both metadata and full text together.	●	-	●
E5	Both Google-like simple search (all fields, one search box, all terms OCR'd) and advanced search (choice of specific fields, limits, choice of Boolean operators) are allowed.	●	-	●
E6	Users can search and browse:			
E6a	Within a single collection	●	-	●
E6b	Across all collections	●	-	●
E6c	Across groups of collections defined by staff	●	-	●
E6d	Across ad hoc groups of collections defined by the user	●	-	●
E7	Assistance for search and navigation is provided through:			
E7a	Alternate suggestions when no results found	○	→	●
E7b	Faceted browsing	●	-	●
E7c	Clickable links within metadata (author, subject, format, etc)	●	-	●
E7d	Pre-determined canned searches	●	-	●

E	Search and retrieval	Islandora	Comparison	SobekCM
E8	Hits are displayed in a way that makes sense to the user; it is clear whether an object is a book, photo, recording, etc.	○	→	●
E9	The results returned from a search should be sortable by author, title, publication date and relevance:			
E9a	Any of these can be set as the default view by the user for that session / account	●	-	●
E9b	Any of these can be set as the default view by staff for general use	●	-	●
E9c	Different default views can be set for different collections	●	-	●
E10	The results returned from a search can be represented visually in document space ala AquaBrowser or similar tools.	○	→	●
E11	When performing a cross-collection search and retrieving hits from multiple collections, it is clear to the user which collection each hit comes from.	●	-	●
E12	A “new additions” feature is available to display the “n” most recently added items.	●	-	●

F	Display and Use	Islandora	Comparison	SobekCM
F1	An outline or table of contents display is available for complex structured bibliographic items. It is possible to expand and contract any heading in the outline hierarchy.	○	→	●
F2	When a textual object is retrieved by a full text search:			
F2a	The number of occurrences of the term in the object is displayed in the list of hits.	○	-	○
F2b	When the textual object retrieved by a full text search is displayed, the search term is highlighted on the page.	○	-	○
F3	When multiple manifestations (e.g. image and full text, audio and transcript) are available, they can be displayed simultaneously on the screen.	●	←	○
F4	Branding is obvious, explicit, and restrained as wanted for both collection owning repository (could be library, museum or agency) and the digitizing repository (could be library, museum or agency). The branding is in place at the collection level and item level (all views).	●	-	●
F5	Multiple brands (icons) can be associated with and displayed with an object.	●	-	●
F6	All collection items display under a collection specific to the collection-owning repository, as well as in other collections as selected by the collection-owning repository.	●	-	●
F7	Users can display, download, print and/or email content (unless these functions are restricted for a particular computer file, bibliographic item, or collection).	●	-	●
F8	Restrictions on access and use can be implemented at the computer file and/or the bibliographic item level by password and by IP filter. When an object is restricted, the restriction is clear to the user.	●	-	●
F9	Objects and records may be restricted under embargo, ideally with automatic release of the embargo once it expires.	●	-	●
F10	There is a portfolio ("my collection") function for end users.	○	→	●
F11	The implementation can control display characteristics such as what fields and labels are used.	●	-	●

F	Display and Use	Islandora	Comparison	SobekCM
F12	The end user can control some display characteristics such as the number of hits to show on a page and how the results are displayed with options such as thumbnail, citation only, title only, and hierarchical (for newspapers and volume/issue materials).	○	→	●
F13	Easy to understand help files and/or tutorials are available to assist users with search, display, and use functions.	○	→	●
F14	Interface should be attractive and easy to use.	●	-	●
F15	Easy-to-use training materials are available for all user levels – robust user-community involvement a plus especially if the user community has effective input into the design/development process.	●	-	●
F16	A “bookmarkable” URL should be displayable for all bibliographic items.	○	→	●
F17	Links (URLs) embedded in any field will display as clickable links. The system has a convention for representing anchor text to display as an actionable link instead of the URL.	●	-	●
F18	RSS – Really Simple Syndication for user created feeds to search for recently added items, subjects, authors, etc.	●	-	●
F19	Share feature: Users can share an item via email, Facebook, Twitter, or other social networking sites.	○	→	●
F20	Commenting capabilities – Users can write a comment about the digital item. Moderated comments written about the item can be displayed.	○	→	●
F21	Tagging feature – Users can add a tag to describe a digital item. Moderated tags for the item can be displayed.	●	-	●
F22	User can save searches.	○	→	●
F23	User can see search history.	○	→	●

G	Export	Islandora	Comparison	SobekCM
G1	The system can export simple objects as files and associated metadata.	●	-	●
G2	The system can export both simple and complex objects as packages with METS descriptors.	●	-	●
G3	Regardless of the format of origin, bibliographic data can be exported in MARCXML for import into a catalog system.	○	→	●
G4	There is an OAI broker capable of exporting all metadata, regardless of the format of origin in oai_dc format.	●	-	●
G4a	Custom OAI sets can be created using a logical search of content.	●	-	●
G4b	OAI harvesting can be disabled for certain content (test content, incomplete collections, etc)	●	-	●
G5	Designated content can be exported from DL to FDA automatically, without additional effort (sending, processing, any manual work) on behalf of library staff.	○	→	●
G6	User can export a set of saved items (portfolio) for use by another tool (e.g. Omeka).	○	→	●

H	Management and reporting	Islandora	Comparison	SobekCM
H1	Ad hoc and canned reports can be run. Documentation is available on existing automatic reports and samples of reports are available for evaluation by library staff for their needs.	●	-	●
H2	The system automatically logs usage statistics which can be aggregated for any time period on:			
H2a	Number of searches (by collection, by object contributor, and by date/time)	○	→	●
H2b	Materials accessed (by title and aggregated into various categories)	○	→	●
H2c	Users	○	→	●
H2d	User sessions	○	→	●
H3	Sample usage reports are available for review by library staff	●	-	●
H4	The system provides counts of objects at both the bibliographic and file level:			
H4a	By collection	●	-	●
H4b	By contributor	●	-	●
H4c	Created since [date]	●	-	●
H5	The system can provide a report of the most popular titles in a specified time period			
H5a	By collection	●	-	●
H5b	By contributor	●	-	●
H5c	System wide	●	-	●
H5d	Title and single volumes for serial items so that the usage is tabulated for both single issues and for the aggregate of all volumes for the particular serial title	●	-	●
H6	The system keeps a count of the number of times each bibliographic item is rendered, and can display this with the metadata for the item in the public interface.	○	→	●
H7	The system can automatically send monthly reports to authors regarding their usage statistics.	○	→	●

I	Budget	Islandora	Comparison	SobekCM
I1	The DL System has clear cost figures for the existing system and enhancements.	○	→	●
I2	When evaluating the DL System, cost considerations should include: - licensing cost - cost per record - costs of additional software for the DL System host - costs of additional software/tools for each of the libraries - costs of customized programming to accommodate the libraries' needs (staffing costs, with timelines available for review that detail implementation plans)	○	→	●