STIM Institutional Repository Subcommittee Report

April 25, 2013

Group Charge

1. To compare Total Costs of Ownership (TCO) of the CSU Chancellor's Office Systemwide Digital Library Services *DSpace* implementation with a CSU system-wide implementation of bepress' *Digital Commons*;

2. To provide recommendations on *MetaArchive* & Private LOCKSS Networks for the CSU;

3. To provide a recommendation on the need for and appropriateness of a CSU system-wide IR coordinator position situated at the Chancellor's Office Systemwide Digital Library Services.

Membership

- Andrew Weiss, Chair, Northridge
- Aaron Collier, Fresno (now at Chancellor's Office)
- Bin Zhang, Sacramento
- Carmen Mitchell, San Marcos
- David Walker, Chancellor's Office
- Jeremy Shellhase, Humboldt
- Joan Parker, Moss Landing
- Suzanna Conrad, Pomona

Recommendations

1. Continue to offer *DSpace* as a centrally hosted service.
2. Examine open source solutions for journal publishing and other IR services.
3. Begin investigation of next-generation open source IR platforms.
4. Begin efforts for CSU collaboration across all IRs regardless of platforms, including data management planning, Open Access initiatives, and CSU-wide access portal for IRs.
5. Continue to use current Amazon Glacier system in place for digital preservation, but subsequently evaluate *MetaArchive* in more detail.
6. Do not fund an additional staff position at the Chancellor's Office at this time, but revisit staffing needs at a later date.

Executive Summary

The report is divided into the following sections:

I. TCO of *DSpace* vs*. bepress' Digital Commons*
II. System comparisons between *DSpace* and *Digital Commons*
III. Current CSU IR landscape: basic ROI calculations for selected campuses with IRs
IV. Overall recommendations for IR development in the CSU system
V. Discussion of Charge 2 (MetaArchive) and Charge 3 (recommendation on position)

In Section I, the feasibility of providing a TCO for both *DSpace* and *Digital Commons* is examined. Overall, the costs for the CSU system-wide implementation of *DSpace* amount to $130,000 per year. The comparative figure from *bepress* for CSU campuses would amount to $930,000.

In Section II, high-level features for each system are provided. The rationale to adopt *Digital Commons* will still remain based on campus-specific factors. The IR subgroup recommends that the CO begin piloting the implementation of various open source equivalents to the services that are provided by *bepress' Digital Commons* such as the *Open Journal Systems.* It is also recommended that the CO begin investigating open-source alternatives to *DSpace* such as *Islandora* and *Hydra* within the next few years for future sustainability.

In Section III, the current CSU IR landscape is examined. The results show that the size of repository collections can impact efficiency but other metrics demonstrate robust use of materials regardless of platform. Ultimately, a repository's success depends on the amount of work-hours dedicated to it.

Section IV outlines several IR recommendations stemming from the group's discussions. The recommendations include the following:

- Eliminate the largely artificial boundaries between IR platforms, including the development of a systemwide content portal or other collaborative measures;
- Create a CSU system-wide Faculty Open Access mandate.

Section V addresses Charge 2 and Charge 3. The second charge to examine *MetaArchive* is discussed. Currently a digital preservation solution exists with *Amazon Glacier*. As time permits, however, the group will examine *MetaArchive* in more detail. The third charge is to provide a recommendation for an IR Project Manager funded in part by each campus that uses the CO's *DSpace* services. The general recommendation from the group is that this position should not be recommended for the coming year, but revisited at a later date once the needs of the Chancellor's Office Library Services have been clearly established.

Analysis and Discussion

I. Total Cost of Ownership Analysis

At the direction of COLD, the STIM IR Subcommittee spent much of the year focused on a total cost of ownership analysis between bepress' *Digital Commons* service and the centrally hosted *DSpace* service offered by the Chancellor's Office.

Immediately the group felt that phrasing the comparison in this way was inadequate. Although *Digital Commons* and *DSpace* are both institutional repository applications, there are a number of important differences between the two systems that make a direct comparison difficult. Nevertheless, the chart below offers a high level cost analysis. Several parts of this analysis need explanation, which is included below.

Costs (annual)	***DSpace***	***Digital Commons***
Servers	$2,000	Included
Storage	$10,000	Up to 1 TB (per campus) included. $1,000 per year for each additional TB
Contracting	$40,000	Included
Staffing	$80,000	Included
Preservation service	$120 per TB	N/A
Basic IR software licensing	$0	$690,000
Faculty profile pages	N/A	$240,000 (optional)
Journal hosting	N/A	Included
Total cost of ownership	$132,000 per year	$930,000 per year

1. bepress does not offer group discounts

In a number of phone conversations with the committee and the Chancellor's Office, Irene Perciali, Director of Strategic Initiatives at bepress, made it clear that the company does not offer group discounts. She explained that there are no economies of scale that bepress can achieve when implementing *Digital Commons* for a consortium. The annual fee covers things like basic hosting and storage costs, customizations, and support services, and therefore supporting 23 *Digital Commons* instances costs bepress 23 times what it costs them to support a single instance. Bepress is willing to offer deep discounts on a shared portal site, which would provide a systemwide view of all CSU repositories, but they are unwilling to offer deep discounts on the core service itself.

The quote for *Digital Commons*, attached as **Appendix A**, reflects this position from bepress, insofar as it only includes pricing *per campus*, with no systemwide discount. It also does not include San Luis Obispo or San Jose, as they are already bepress customers. The numbers above therefore include estimates for San Luis Obispo and San Jose based on similarly-sized campuses in the quote.

2. *Digital Commons* is not a preservation system

Digital Commons is, properly speaking, an *access* system rather than a *preservation* system. Many institutions using *Digital Commons* also run Fedora, or another preservation system, usually to archive high-resolution versions of images, audio, or video they acquire. These institutions then include a lower-resolution copy in *Digital Commons* for end-users to access.

Although, in theory, it's possible to upload both the original, high-resolution file and the access copy to *Digital Commons*, bepress does not recommend this as *Digital Commons* is not designed for that purpose. Perhaps even more importantly, high-resolution audio and video files can be quite large, and even a modest collection will quickly exceed the 1TB of storage included as part of the *Digital Commons* service. Bepress currently charges an extra $1,000 per year for each additional TB of storage used.

This is more than just a theoretical concern. A number of CSU campuses are currently using, or are planning to use, the centrally hosted *DSpace* service for both preservation and access of multimedia file. San Marcos, for example, has recently acquired a collection of images close to 6TB in size. Fresno has a similarly sized digital photograph collection. Fullerton's Oral History Center, housed in the library, has a collection of audio and video over 8TB. Housing just these three collections in *Digital Commons* would collectively cost those campuses $20,000 per year in addition to the annual service fee.

The Chancellor's Office could archive these files in a centrally hosted preservation system at a much lower cost, but those costs would have to be added to the total cost of ownership of *Digital Commons*. As this would essentially be the same server, storage, and staffing costs as *DSpace*, the total cost of running *Digital Commons* as just an access system would essentially be in addition to current costs, rather than replacing them.

The total cost for running *DSpace* above covers both access and preservation. This includes not only archiving of large multimedia files in *DSpace*, but also storing additional copies of all files in Amazon's Glacier service in order to provide distributed, long-term digital preservation. A similar enhanced preservation service is available to *Digital Commons'* customers via a newly created private LOCKSS network, but again that is in addition to the yearly service fee.

II. System Comparisons – *DSpace* and *Digital Commons*

Generally speaking both systems provide the same basic IR functionality, including the ability for IR staff and users to upload content, and the ability for end-users to search across the full-text of all content and collections. For an in-depth comparison of the systems please refer to **Appendix B**. The summary below highlights some of the important *differences* between *DSpace* and *Digital Commons* in the following areas: Metadata Formats, Format Conversion Tools, Web 2.0 Tools, Machine-to-machine Interoperability, Administrator Functions, Journal Publishing, Preservation, and multi-media streaming.

Top-level comparisons

Metadata formats:
Both systems are OAI-PMH compatible and use Qualified Dublin Core as their default metadata schema. However, *Digital Commons* seems to not be designed to work specifically with METS, PREMIS or MARC. *DSpace* is able to handle these metadata schemas. Advantage: *DSpace*

Format Conversion Tools:
Digital Commons provides tools that will automatically convert files into PDF and into XML. *DSpace* is not able to provide this. However, third-party software solutions exist that can be implemented. Advantage: *Digital Commons*.

Web 2.0 Tools:
With the exception of RSS feeds, *Digital Commons* does provide greater potential for Web 2.0 (Social web) functionality. In particular, functions such as tagging, comments, and bookmarks are available. For sharing of content, *Digital Commons* provides a tool while a third-party solution is available for *DSpace*. Advantage: *Digital Commons.*

Machine-to-Machine Interoperability:
DSpace supports the SWORD (Simple Web-service Offering Repository Deposit) protocol, which allows third-party systems to submit content into a repository. Northridge's current all-electronic ETDs submission system, developed by their Pioneering Technology group for Graduate Studies, for example, uses SWORD to send the completed thesis to *DSpace*, and handles 500-700 thesis submissions per academic year. Proquest's thesis submission system, which is used by a couple of CSU campuses, can also submit a copy of the completed thesis to

DSpace via SWORD. It is worth noting that *Open Journal Systems* comes with a SWORD plug-in that can be enabled by an administrator, if desired. *Digital Commons* does not support SWORD. Advantage: *DSpace.*

Administrator Functions:
Digital Commons provides a tool that automatically generates a cover page for each submission into the repository. This is a useful time-saving function. Currently *DSpace* does not have such a function. Advantage: *Digital Commons.*

Journal Publishing:
On the surface it appears that bepress' *Digital Commons* has significant advantages over *DSpace*. In particular, the biggest current advantage for *Digital Commons* is bepress' journal publishing service. This provides an online start-to-finish publishing option for repositories. It includes workflows for submissions, peer-review, publication and journal graphic design and customizations. The system is robust, yet becomes costly if an institution has a large publishing culture. Using more than five journals will add extra costs to the quoted yearly licensing prices.

In comparison, *DSpace* does not have a built-in journal publishing software system. However, there are a handful of open source journal publishing systems that would provide comparable functionality to bepress' journal system and can be integrated with *DSpace*, including *Open Journal Systems*, developed by the PKP Project. The Chancellor's Office could host *OJS* or a similar system for all campuses *utilizing its existing staff and technology at no extra cost*.[1] Advantage: *Digital Commons*

Preservation:
Neither *DSpace* nor *Digital Commons* provide preservation services out of the box. *Digital Commons* does support LOCKSS, and so bepress customers have the ability to use a private LOCKSS network, such as MetaArchive, to back-up their content. *DSpace*, on the other hand, has built-in support for the open source *DuraCloud* preservation system. The Chancellor's Office has recently integrated the Amazon Glacier preservation service into *DSpace*, using code based on DuraCloud, and so the centrally hosted *DSpace* already provides a robust digital preservation solution at no additional cost to campuses. Advantage: *DSpace*

Support for JPEG 2000 images and streaming audio and video:
Although *DSpace* itself does not natively support JPEG 2000 images, the Chancellor's Office has integrated the open source *Djatoka* image viewer into *DSpace*. This allows users to zoom in and pan around large image files. Likewise, although *DSpace* does not natively support streaming video or audio, the Chancellor's Office is currently integrating the open source *Kaltura* streaming media server with *DSpace* so end-users don't have to download large multimedia files before viewing them. *Digital Commons* does not provide a JPEG 2000 viewer or support streaming of audio and video files, and so all files must be downloaded in full before viewing. Advantage: *DSpace*.

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[1] The Rochester Institute of Technology has integrated *OJS* into their instance of *DSpace*: https://ritdml.rit.edu/

Recommendations

Overall Recommendation:
As the analysis above makes clear, the comparison here is not so much between *Digital Commons* and *DSpace*, but rather between *Digital Commons* and an open source IR service hosted by the Chancellor's Office, which currently includes *DSpace*, but also a number of other systems and modules that supplement and enhance the core *DSpace* system, including *Djatoka*, *Kaltura*, *Amazon Glacier*, and possibly in the future *Open Journal Systems*. The Chancellor's Office may even decide in the future to switch to a different open source institutional repository system, such as *Islandora* or *Hydra*, in order to achieve greater functionality.

It was the consensus of the committee that this open source strategy is the most cost-effective way for the CSU libraries to pursue digital library projects, especially when the service is centrally hosted by the Chancellor's Office. This allows campuses to devote their limited local resources to hiring staff to work on these projects, which we believe has a much greater impact on the success of an IR than the technology platform being used (see next section).

However, it is ultimately up to each campus to decide whether they want to use the freely available IR service hosted by the Chancellor's Office or pay for *Digital Commons*. Each system provides certain strengths and weaknesses, depending on local needs, and the significant annual cost of *Digital Commons* will naturally be an important factor.

Publishing Platform Recommendation:
It is recommended that the Chancellor's Office test an *Open Journal Systems* implementation with the goal of providing the same journal publishing functionality as *Digital Commons*. This, the group believes, is in keeping with the CSU system's public mission. Furthermore, as the software is available free of charge, the staffing is in place, and labor costs go to existing positions, *the implementation could be completed at no extra cost to the Chancellor's Office.*

Future Directions:
It is also recommended that the CO spend time looking into other systems that can provide greater functionality for *DSpace* as well as test out other more powerful, flexible, or more sustainable open-source IR solutions/frameworks such as *Islandora* and *Hydra*. The task force requests that a more in-depth analysis of other systems take place within 2-3 years with an end goal of implementation and data migration within 4-5 years, if determined necessary.

III. A Snapshot of CSU repositories: Return on Investment for IRs in CSU

In order to determine the ROI on individual IRs at CSU campuses, the STIM IR Subgroup contacted all CSU campuses for the following information:

- If they currently were supporting an IR or if they had plans to support one;
- What software they were using to support their repository;

- Classifications for faculty and staff working on the IR;
- The number of hours each of these faculty and staff members spent working on the IR on a weekly basis;
- Any costs associated with their IR software;
- Downloads and uploads for the last 12 months;
- Total files in the repository.

Salaries were either obtained directly from the campuses or from the Sacramento Bee State Worker Salary Search site. If no information was available via either of these channels, salaries were estimated based on classifications of the individual employees.

Of the 24 campuses contacted, 18 responded. Seven are not currently actively maintaining an IR or are undergoing changes. Of the remaining campuses, 11 provided comprehensive details on staffing, costs, downloads, uploads and total files. One campus' numbers (San Diego State) were estimated based on a case study report from the CSU Digital Repository Working Group Report (DRWG) from November 29th, 2010. Information has not yet been received from Channel Islands, Chico, Stanislaus, Bakersfield, Sacramento and San Bernardino.

The factors listed above were used to calculate the following:

- *Total yearly IR costs:* yearly staff salaries for IR related tasks plus yearly software costs;
- *Cost per download:* total yearly IR costs divided by downloads for the past twelve months;
- *Cost per upload:* total yearly IR costs divided by uploads for the past twelve months;
- *Yearly average number of downloads per item:* downloads for the last twelve months divided by the total number of files in the repository.

See **Appendix C** for more in-depth data.

Discussion and Analysis of ROI Calculations

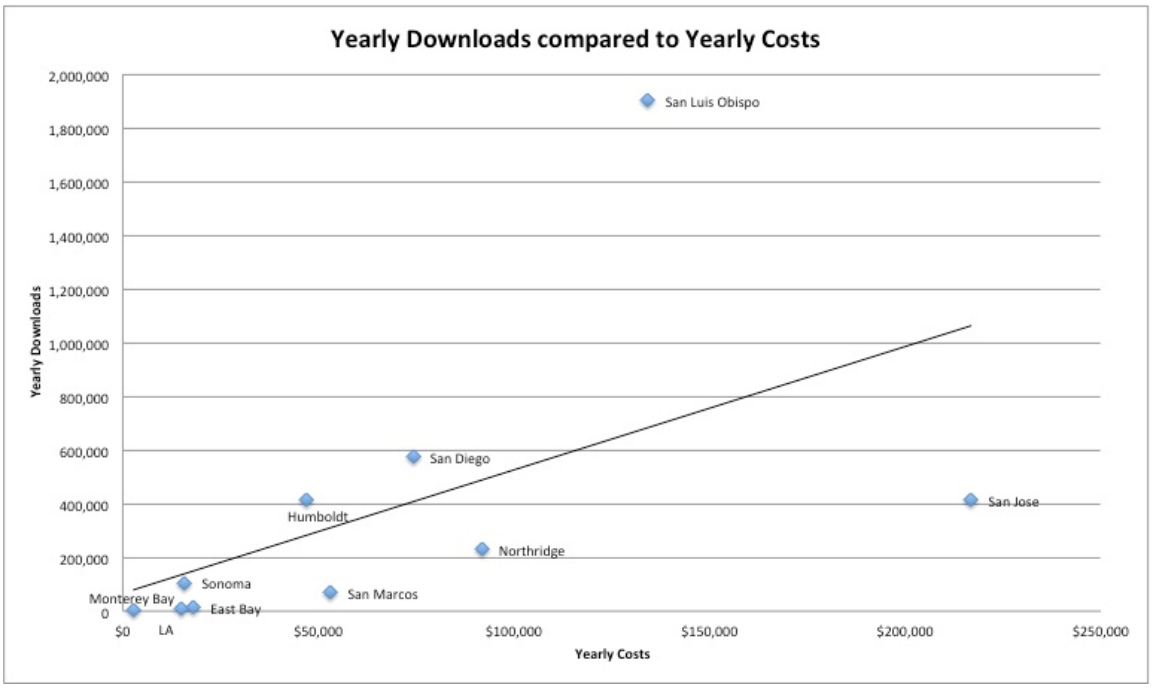

Figure 1: Yearly Downloads compared to Yearly Costs
Based on the data from 10 campuses, the general trend line indicates a rise in downloads with an IR that is well staffed and funded.

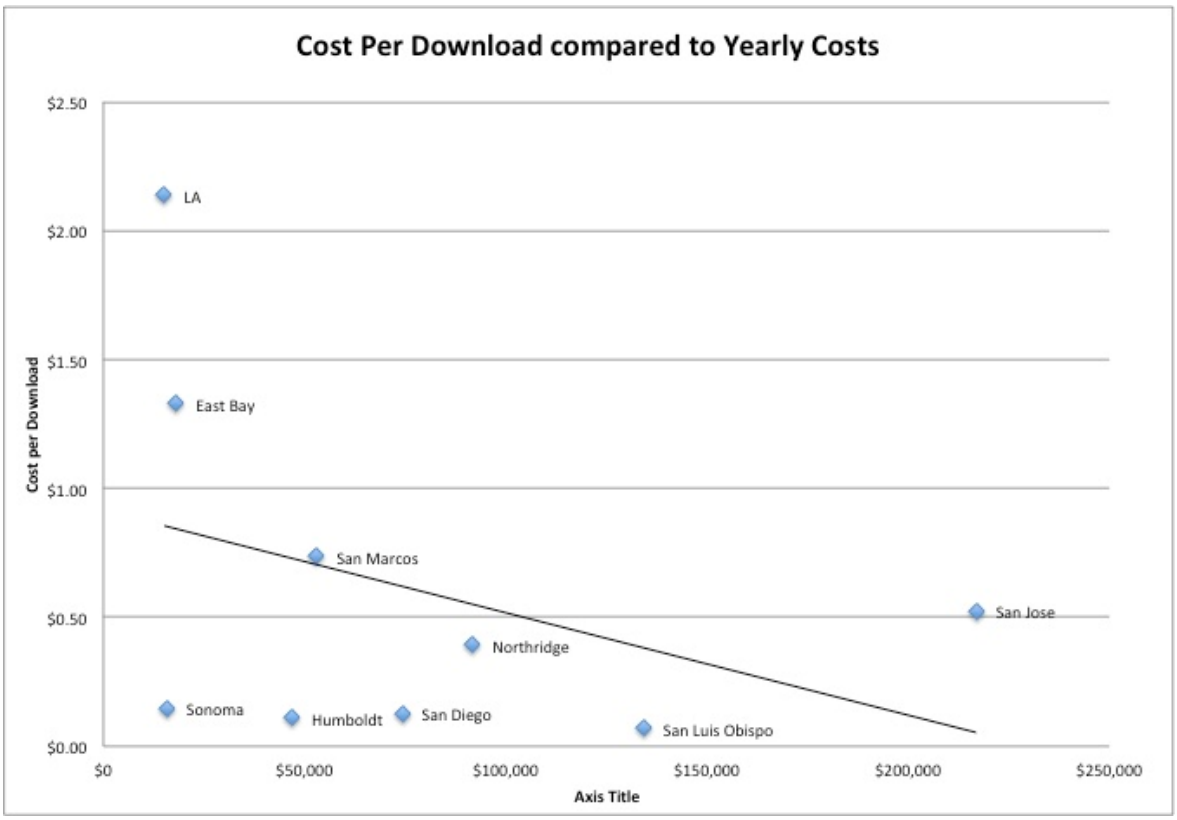

Figure 2: Cost per Download compared to Yearly Costs

Similarly to Figure 2, when more funding is invested in the IR either through staffing or software costs, the more economies of scale are reached in the cost per download.

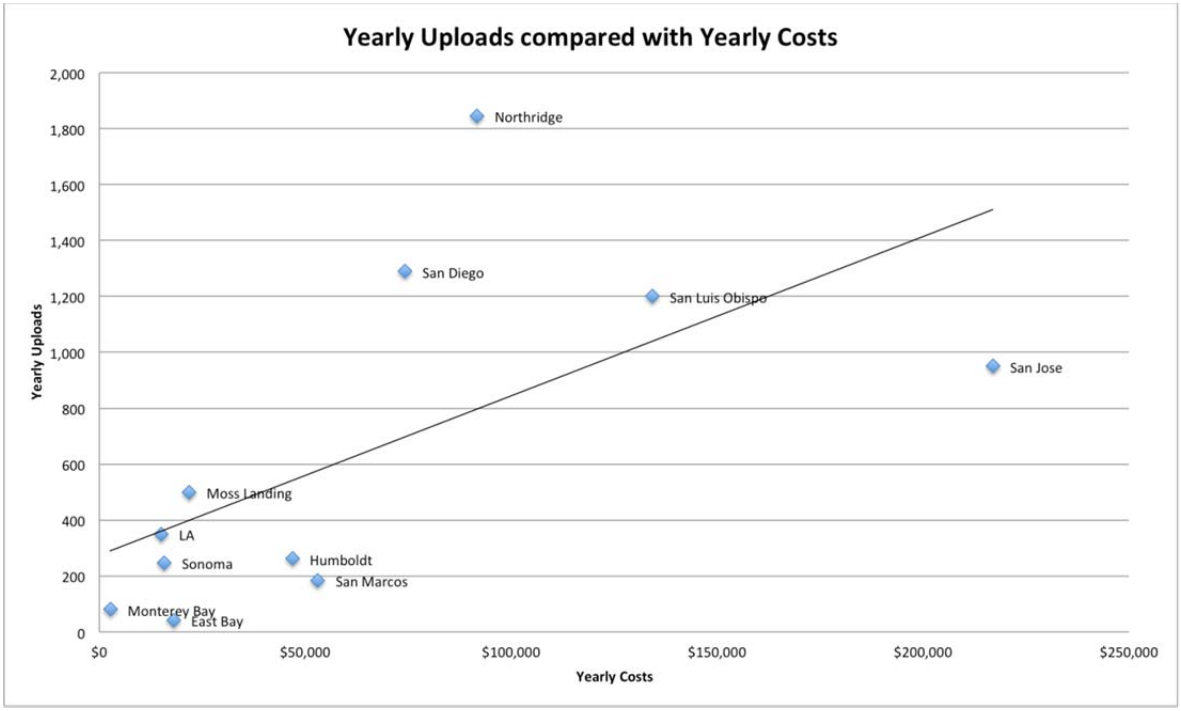

Figure 3: Yearly Uploads compared with Yearly Costs

Based on data from 11 campuses, the trend line indicates that the more staff that is available and assigned to work on the IR, the more content will be uploaded and available.

The data collected appears to indicate that regardless of the platform used, the success of the IR largely depends on the local campus' commitment to staffing the IR.

IV. IR Development Recommendations for CSU

The choice of repository platforms should include consideration of how the software will enable support of research data services for members of the CSU community.

Data Management

While funder mandates are an important driver for the addition of these new services, a growing awareness of the need to discover and re-use existing data is an equal factor. A robust repository solution will support data management through the data lifecycle. *DSpace* is a fully compliant OAIS (Open Archive Information Systems) supporting Metadata Encoding and Transmission Standard (METS) and the preservation metadata vocabulary (PREMIS). Both are

essential components for curation and preservation of data. One of the advantages of METS is that it can function as a packet submission tool for a variety of content, metadata, and forms. *Digital Commons* advertises that it will add any metadata element but it has not explicitly adopted either METS or PREMIS. The cost of including additional metadata elements and creating Submission Information Packets may be additional fees for the *Digital Commons* option.

Systemwide IR interface & Content Aggregation Portal

By providing a general interface for content deposit into *ScholarWorks* that is system agnostic, it will allow a CSU campus not using *ScholarWorks* (whether *Digital Commons*, a local *DSpace* instance, or other) to utilize the same interface for ingestion and provide a more robust methodology for statistics tracking across the system. It should be noted, that without further information from bepress, it is possible that the SWORD (Simple Web-service Offering Repository Deposit) interface isn't supported in *Digital Commons*.

By centrally maintaining the ingestion system into digital repositories (for both individual items and bulk deposits) all campuses involved in digital archiving and repository management can be involved in collaboratively defining the requirements for both input and archival of data components used for content deposit.

A repository deposit portal is in the initial phases of definition, design and development that will utilize the SWORD interface of digital repository systems primarily for bulk deposit, but also individual deposit. The goal of this system will be to provide a more robust mechanism for customizing deposit requirements per collection and community in *ScholarWorks* with the assumption that the backend system for *ScholarWorks* is ambiguous.

CSU Systemwide Open Access Initiative

Open Access is emerging as an increasingly important topic in Scholarly Communication. Open Access removes price barriers (subscriptions, licensing fees, pay-per-view fees) and permission barriers (most copyright and licensing restrictions). The Public Library of Science's shorthand definition, "free availability and unrestricted use," succinctly captures both elements.

Some grant and funding organizations have Open Access requirements for their recipients, requiring them to place their research into publicly accessible repositories such as *PubMed Central*. The National Institutes of Health has had an Open Access requirement for grantees since 2008.

Many universities have implemented OA policies for their faculty, as well as for certain areas of student work. (Like electronic theses and dissertations - ETDs.) Some of the CSU campuses have OA Statements, though mostly for ETDs. Having OA policies or supporting OA practices helps to further support the mission of the CSU system as well as helping to enable free or low cost educational resources. A CSU recommendation or initiative for Open Access would provide the push needed to improve participation in all CSU repositories. It would also help to provide the framework for CSU campus-wide institutional OA mandates.

V. Other STIM IR subgroup charges

Charge 2: MetaArchive

In addition to a comparison of *DSpace* and *Digital Commons*, COLD asked the IR Subcommittee to investigate digital preservation options, including *MetaArchive*. Although, at the time of this report, the committee had yet to undertake a full analysis of preservation options, the group intends to perform a full analysis as time permits. In the meantime, the Chancellor's Office already provides a digital preservation solution for the centrally hosted *DSpace* service using Amazon Glacier, and the committee recommends that campuses continue to use that service.

Charge 3: CSU ScholarWorks Systemwide Project Manager

Background:
The third charge for the STIM IR subgroup is to provide a recommendation of action for the CSU ScholarWorks Systemwide Project Manager position. The funding for the position was proposed to be applied across the 17 campuses that benefit from the services provided by the CO's *Systemwide Digital Library Services* division. The proposed salary for the position would range from $51,768-$105,972 for ITC 2, and $73,992-$118,800 for ITC 3. The position, if costs were spread evenly across all 17 campuses, would result in $3,045-$6,234 for ITC 2 and $4,352-$6,988 for ITC 3 per campus per year. If based on FTE, ranges will differ slightly. The position is proposed to provide project management and training to IR staff/faculty at various campuses using *DSpace*, and to oversee the consistent application of best-practices for CSU IRs. The position would help to coordinate projects across multiple CSU campuses and foster communication between multiple IR managers and staff.

Discussion:
Several members of the STIM IR subgroup are not supportive of the idea. The Chancellor's Office has recently reorganized its Systemwide Digital Library Services department, and hired Aaron Collier to a full-time position devoted to the ScholarWorks project. For the first time in the history of the CSU IR project, the Chancellor's Office now has a full-time, in-house position dedicated to this task. Previously, the Chancellor's Office relied almost entirely on consultants to do the technical work on *DSpace*, *Kaltura*, and related systems. This change, coupled with a major re-architecting of the *DSpace* application itself to make it easier to maintain, should now allow the Chancellor's Office to much better meet campus demands for customization and support of *DSpace*, in turn perhaps making an additional position unnecessary.

At the very least, it may be wise to wait to see how well this re-organization meets campus needs before looking to hire yet an additional position. It was also noted that funding the position through campuses could be unstable as the position's existence would depend upon two things. First campuses would need to continue to use *DSpace* and the IR services provided by the CO; second, they would have to remain committed to funding this position. It was

proposed that money spent on an outside consultant might be a better use of funds. The uncertainty of overall cooperation and sustainability for the position was cited as a major flaw in the proposal.

Other members of the group who were supportive of the position stated that the position could still provide some needed services, including shared documentation, training, guidance on best practices, collaboration with CSU systemwide ETDs aggregation, as well as providing a stronger sense of centralization in the IRs.

Recommendation:
Following the main concerns of those who are not in favor of hiring a CSU ScholarWorks Systemwide Project Manager, the STIM IR Subgroup recommends that the position not be pursued at this time. However, the group does strongly recommend that the proposal be reevaluated again in the upcoming 2013-2014 academic year.

APPENDIX A: DIGITAL COMMONS QUOTE

February 6, 2013

David Walker
Director, Systemwide Digital Library Services
California State University

Dear David,

We would welcome the opportunity to work with the California State University system to establish an institutional repository and publishing platform for your campuses. This proposal outlines the services and costs for each institution that is interested in Digital Commons.

Digital Commons has long fulfilled the complex needs of groups of academic institutions through a range of flexible configuration and customization options. Our commitment to a full-service hosted model is unique in the market.

We propose a combination of robust and fully supported software, attractive branding and customizations, and a tailored program of training on strategy and best practices, to make sure all the CSU repositories have a strong start. Local success for each site means group success, and is critical to the value of the service for all.

I look forward to your feedback for this proposal. Thank you again for the opportunity to discuss Digital Commons with the California State University.

Sincerely,
Irene

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Digital Commons Group Model

Bepress proposes its Digital Commons platform as an ideal way for each member of the California State University to have a successful repository, customized to its own needs and built at its own pace. Additionally, bepress proposes tailored outreach and support services to give CSU schools the opportunity to learn from one another and collaborate within the CSU community.

Bepress already offers the lowest possible price for our products without compromising the industry leading service that is the cornerstone of our business model. The Digital Commons model for groups includes a few additional features and services designed to support the success of the group as a whole:

Independent Digital Commons sites for each member of California State University, with the unlimited support that is bepress's hallmark. Each member can opt in to their site when they are ready, and customize it as they need. Members each have the option to add SelectedWorks or any other additional service.
Tailored events for the CSU community: In consultation with the group, bepress will design a custom program of training and events for the first year of CSU IRs. The program will include events such as a kick-off workshop, in-person visits, virtual meetings, a group IR Day, trainings, and webinars. The program is designed to foster a strong start for CSU campuses during the first year (often the most challenging): strong sites out of the gate, a strong community, and support and orientation for other members who are still undecided about opting in.
A portal site for the CSU system that aggregates all the member repositories and offers system-wide search and browse. We will build this portal for a $10,000 annual fee once five members have live sites.

The following features are available in Digital Commons portal sites:

- A portal site includes links to each member repository, the ability to browse or search for content across all member repositories, the ability to showcase individual items or collections from a member repository, and the ability to browse all collections for each member site in one place.
- Collections can be published directly on the portal site: for example, administrative documents for the group, system-wide conferences, the consortium's own archival collections, and shared collections that are developed jointly by several members.
- The portal site is custom designed and branded to showcase the identity of the entire group, for example with a slideshow that features images of member sites or their collections. See for example the NELLCO Legal Scholarship Repository at http://lsr.nellco.org.
- The portal site can feature special collections, "Paper of the Day" , publications like journals, books, or dissertations, and other items from individual sites.
- Visitors can search across portal site content or portal and member site content; they can browse authors, collections, and disciplines on all member sites at once. This includes bepress's new "Discipline Wheel" for visual browsing. See for example the CARLI consortium site at http://digitalcommons.carli.illinois.edu

California State University Campuses	FTE	Digital Commons (Annual)	SelectedWorks (Optional)	Total with SelectedWorks (Annual)
California Maritime Academy	798	$13,067.00	$5,470.00	$18,537.00
California Polytechnic State University-San Luis Obispo	18,611	Current Subscriber		
California State Polytechnic University-Pomona	19,016	$32,819.00	$11,730.00	$44,549.00
California State University-Bakersfield	7,004	$21,575.00	$8,022.00	$29,597.00
California State University-Channel Islands	3,353	$16,713.00	$6,564.00	$23,277.00
California State University-Chico	15,657	$29,172.00	$10,514.00	$39,686.00
California State University-Dominguez Hills	10,170	$24,614.00	$8,995.00	$33,609.00
California State University-East Bay	12,405	$26,437.00	$9,602.00	$36,039.00
California State University-Fresno	18,678	$31,907.00	$11,426.00	$43,333.00
California State University-Fullerton	28,991	$41,023.00	$14,465.00	$55,488.00
California State University-Long Beach	29,588	$41,935.00	$14,768.00	$56,703.00
California State University-Los Angeles	15,911	$29,172.00	$10,514.00	$39,686.00
California State University-Monterey Bay	4,248	$17,929.00	$6,926.00	$24,855.00
California State University-Northridge	27,914	$40,112.00	$14,161.00	$54,273.00
California State University-Sacramento	24,691	$37,377.00	$13,249.00	$50,626.00
California State University-San Bernardino	14,917	$28,261.00	$10,210.00	$38,471.00
California State University-San Marcos	7,642	$21,575.00	$8,022.00	$29,597.00
California State University-Stanislaus	6,564	$20,360.00	$7,658.00	$28,018.00
Humboldt State University	7,319	$21,575.00	$8,022.00	$29,597.00
Moss Landing Marine Lab	under 200	$14,007.00	$5,884.00	$19,891.00
San Diego State University	28,916	$41,023.00	$14,465.00	$55,488.00
San Francisco State University	25,262	$38,288.00	$13,553.00	$51,841.00
San Jose State University	24,887	Current Subscriber		
Sonoma State University	7,604	$21,575.00	$8,022.00	$29,597.00
California State University System Portal Site	-	$10,000.00	-	$10,000.00
	Pricing good until June 30, 2013			

Platforms and Services

Digital Commons As the leading hosted institutional repository (IR) software platform, Digital Commons offers the features of a traditional IR as well as professional-grade publishing software and management tools to promote and disseminate research to your institution as well as the world. With Digital Commons, you can collect, preserve, and make visible all of your institution's intellectual output, including post-prints, working papers, journal articles, dissertations, master's theses, conference proceedings, presentations, creative works, and a wide variety of other content types. A list of institutions using Digital Commons is available here: Subscriber gallery.

SelectedWorks is a research announcement tool that allows scholars and researchers to maximize the readership and impact of their work. With SelectedWorks, scholars can create their own search engine optimized webpage in minutes, build a network of colleagues who follow their work, track readership of their work, and submit papers for inclusion in the institutional repository. SelectedWorks is an optional add-on to the Digital Commons suite, and pages can be incorporated into the repository to provide visitors with rich display and browsing. It is a valuable tool for feeding and growing Digital Commons repositories because it provides incentive for faculty participation. More information about SelectedWorks can be found at: Selected Works overview.

Digital Commons IR Kickstart is a set of services that assist a new customer to populate their repository, build marketing strategies for their repository and establish best practices in working with faculty. Digital Commons Kickstart brings together several core repository population services in one package. See pricing below.

Digital Commons IR Kickstart Pricing

Service	Institution Carnegie Class	One-time Price
IR Kickstart	Carnegie 15-17	$20,055
IR Kickstart	Carnegie 18-20	$15,524
IR Kickstart	Carnegie 21-23	$13,860

Pricing good until June 30, 2013

Repository Migration Services

Service	Price

Bepress is available to assist with the migration of your existing repository to Digital Commons. Price is determined by repository size and file types.	**Custom quote**

Pricing Notes:

We base our pricing upon the student and faculty FTE as stated in the Carnegie Classification List .

Digital Commons can handle an unlimited number of journals. The Digital Commons price enables support for up to 5 journals. Each additional journal beyond the initial five journals will incur a **one-time** $1500.00 setup-fee only.

Includes implementation, training (provided remotely), and on-going support. In addition to the mutually-agreed-upon program of tailored events for the first year, training is provided via conference call and webinar sessions, on an incremental and as-needed basis as part of the annual subscription. Also included in the above annual costs: Bepress provides interface customization in consultation with new customers, and will make a limited number of periodic revisions to the interface upon request and viability of the request. Other customizations requiring programmer development time may require a daily cost.

Unlimited storage: Customers using the bepress Digital Commons may store unlimited amount of content. Bepress encourages an active and growing repository for each customer. In the event that the Customer intends to load extraordinary amounts of content, bepress reserves the right to have the customer share in the cost of storing the excessive content.

The Digital Commons annual price may increase from year to year.

APPENDIX B: Digital Commons/DSpace Comparison

APPENDIX B: SYSTEM COMPARISONS

SYSTEMS:	Digital Commons	DSpace
	http://digitalcommons.bepress.com/	Dspace Foundation - http://www.dspace.org/
Creators	bepress; July 2007, the Berkeley Electronic Press	MIT with Hewlett Packard
License Cost	Commerical; no hardware or software infrastructure to support—either in initial capital expenses or ongoing maintenance; no programming or other technical costs; no worries about upgrades and managing platform obsolescence; cost is a single annual license, which means that costs are predictable and stable over time; The typical Digital Commons subscription includes up to five journals. Additional journals can be added for a moderate one-time setup fee ($1,500); annual subscription cost is based on Carnegie list FTE schedule total campus population.	Free with an estimated $40K required for initial implementation (Nabe); currently the amount the CSU spends per year on DSpace alone is roughly $140,000, including labor costs, servers, software. Spread across 17 CSU campuses, this equals $8000 per campus per year. However, the figure is slight inaccurate because not all of the labor hours are dedicated completely to DSpace. Other services include Xerxes, SFX and other CSU system-wide services. There are no costs passed on to campuses.
Product Type	Hosted Service	Software
SUPPORT:		
Free Support (community)	Meetings, events, workshops, newsletter and a network of the entire Digital Commons client community; DC "Collaboratory"	Largest community support network of any IR systemj; http://www.dspace.org/; wiki available
Update Cost (minor)	Upgrades to the platform are done quarterly, free of charge, and with no downtime	Performed by CO
Update Cost (major)	As above	Performed by CO
SUPPORTED ITEM TYPES: (storage and rendition)		
Documents	Current standard .doc, .rtf, .pdf, etc…Digital Commons accepts any discrete file type.	Current standard. DSpace supports all file formats. Full text documents are indexed in DSpace, enabling full text searching with DSpace, and also in Google/other search tools.
Images	Current standard. Any discrete file formats including audio, video and image file; bepress has built out of the box presentation templates for a variety of content types, including an image gallery, books gallery, and many others.	Current standard. DSpace supports all file formats. JPEG2000 3rd party image viewer available.
Video	Current standard. Streaming service/server required otherwise all downloads	Current standard. DSpace supports all file formats. Streaming service/server required otherwise all downloads
Audio	Current Standard. As above.	Current standard. As above.
Learning Objects	Yes.	Current standard. DSpace supports all file formats. Streaming service/server required otherwise all downloads.
STORAGE LOCATION:		
	Digital Commons provides storage on bepress managed servers.	local servers (UNIX); also need Postgres or Oracle database to create the structure and manage the data; also a web application server (Apache Tomcat or Jetty) that delivers the web pages; servers and backups provided by the CO.
METADATA FORMATS:		
Dublin Core	Fully OAI-OMH compatible	Fully OAI-PMH compatible
Qualified DC	Yes	Current standard.
METS	No. But supports the capture and display any requested metadata fields.	Yes - can export / import
PREMIS	No. But supports the capture and display any requested metadata fields.	Yes - can export / import
MARC	No. But supports the capture and display any requested metadata fields.	Yes - can export / import
Other	Qualified Dublin Core is Digital Commons internal metadata schema, though non-DC elements are supported in the user interface.	MODS can be exported and imported as well
USER INTERFACE FUNCTIONS:		
End-user Deposition	Digital Commons is built upon a full, web-based, commercial grade publishing system; SelectedWorks™ is a research announcement tool and an optional add-on to the Digital Commons suite. It costs extra.	User interface using Jana Server Page interface or the Manaken
Multi-Language Support	Digital Commons supports unicode metadata and full-text objects	Current standard.
FORMAT CONVERSION:		
Convert to pdf	Yes	3rd party
Convert to pdf FROM	auto-converts Word, WordPerfect, and RTF documents to PDF	3rd party
Convert to XML	Yes	3rd party
ADVANCED SEARCHING:		
Field-Specific	Yes	Yes
Boolean Logic	Yes	Yes
Sorting Options	Yes	Yes
Other	Can search across all Digital Commons repositories	Can search across all communities, sub-communities, and collections
BROWSE VIEW OPTIONS:		
Author	Yes	Yes

APPENDIX B: SYSTEM COMPARISONS

Academic Unit	Yes	Yes
Subject	Yes; 3-tier taxonomy which is simple to use, and enables easy browsing by subject.	Yes
Year	Yes	Yes
Title	Yes	Yes
Collections	Yes	Yes
Other (configurable?)	Full-text indexed, visible in major search engines	Full-text indexed, visible in major search engines
WEB 2.0/SYNDICATION		
RSS	Email alerts and RSS feeds	Yes. Current Standard
Tagging	Yes	No
Comments	Yes, by way of embedded 3rd party commenting tool	No
Ratings	No	No
Reviews	3rd party	No
Bookmarks	Yes	No
Sharing	Yes	3rd party
STATISTICAL REPORTING:		
Top Downloads	Automatically sends monthly readership reports to all authors whose work has been published in Digital Commons repositories. Email reports of activity/downloads can be sent to academic administrators (eg., Dean of Arts and Sciences).	Downloads, item views, collection and community views, logins, OAI requests are tracked cumulatively and monthly
Count of Full Records	Yes	Yes. Current Standard
MACHINE TO MACHINE INTEROPERABILITY:		
OAI-PMH	Digital Commons supports OAI-PMH version 2.0; Digital Commons sites support the OAI Protocol for Metadata Harvesting (OAI-PMH) as a means of exposing metadata, but the sites do not harvest OAI data from other sites.	Current Standard. OAI-PMH supported; OAI-PMH requests are tracked
SWORD	based on lack of customer demand thus far, SWORD has not been developed	Current standard
OAI-PMH Harvesting	No	Current standard
ADMINISTRATOR FUNCTIONS:		
Bulk Import	Institutions can add their content to their repository through batch uploads, by linking to external sites, or via a one-off submit form	Yes. Current Standard
Bulk Export	Yes, metadata records can be easily exported into Excel spreadsheet; DC also offers quarterly feeds of all content in a Digital Commons site (metadata and corresponding digital objects)	Yes. Current Standard
Cover Sheet Generation	Digital Commons features a "title page creation" tool, at the document level, which automatically generates a title page for PDF's, and prepends that page to the originally submitted document.	No. Not available.
Customizable Workflow	Yes; the Edikit back end of Digital Commons provides "out of the box" workflows which can be customized project by project. DC is very workflow oriented in the backend, be default.	Yes. Current Standard
SCALABILITY:		
	Does not scale for the CSU; no group pricing model available. Prices based on FTE	CSU systemwide implementation of DSpace currently allows 17 CSU campuses to use an IR for no cost.
JOURNAL PUBLISHING:		
	Core feature for the complete administration of electronic journal publishing, including peer review; supports open access or subscription-based journals	Full support for the management of electronic journals provide through third-party systems; Open Journal systems.
PRESERVATION:		
	System of failover servers, on and off-site backups, third-party archival services, and automated system monitoring; repositories backed up every 4 hours and store the data off-site with Iron Mountain; All pages maintain a persistent URL	Bit level; checksums part of repository system; CNRI Handle System ensures persistent URLs; CSU also provides backup, archival services, etc.
Digital preservation solutions	Digital Commons is a “presentation repository”, not a “preservation repository”. There is compatibility with LOCKSS. A preservation repository, unlike Digital Commons, however, will record and preserve authentication, versioning, rights, structural and descriptive metadata. In Digital Commons such data will not be preserved for migration/exit strategy purposes to a preservation repository.	Plug in with DuraCloud for digital preservation
Creative Commons Licensing	Yes, embedded on the submission form when desired, expressed in the public view of the metadata record	Yes, embedded on the submission form when desired, expressed in the public view of the metadata record.
Migration/Emulation	Export metadata records into an Excel spreadsheet, and also the opportunity to revise those records and re-import them into Digital Commons, thereby achieving “batch revise” functionality.	Supports tools for a selection of common, published formats; unknowns marked as a generic

APPENDIX C: CSU IR Data (Abridged)

Campus	Total hours per week spent by staff	Total yearly staff costs for IR tasks	Yearly software costs	Total yearly IR costs	Downloads for past twelve months	Cost per download	Uploads for the past twelve months	Cost per upload	Total files in the repository	Yearly average number of downloads per item
East Bay	11	$10,058	$8,000	$18,058	13,554	$1.33	43	$419.95	49	277
Los Angeles	0.25	$7,106	$8,000	$15,106	7,061	$2.14	350	$43.16	408	17
Humboldt	29	$38,879	$8,000	$46,879	414,286	$0.11	262	$178.93	656	632
Northridge	70	$83,750	$8,000	$91,750	232,000	$0.40	1,846	$49.70	2,121	109
San Diego	*35*	$66,207	$8,000	$74,207	574,979	$0.13	*1,290*	$57.52	3,376	170
San Jose	180	$179,522	$37,377	$216,899	413,370	$0.52	*950*	$228.31	5,517	75
San Luis Obispo	84	$90,877	$43,333	$134,210	1,901,144	$0.07	*1,200*	$111.84	17,865	106
San Marcos	30	$45,000	$8,000	$53,000	71,660	$0.74	185	$286.49	191	375
Sonoma	6	$7,712	$8,000	$15,712	106,401	$0.15	248	$63.36	1,213	88
Monterey Bay	2	$2,634	$0	$2,634	2,000	$1.32	80	$32.93	1,630	1
Moss Landing	14	$13,820	$8,000	$21,820	Unknown	Unknown	500	$43.64	500	N/A

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Moss Landing	14	$13,820	$8,000	$21,820	Unknown	Unknown	500	$43.64	500	N/A