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2015-2016 Data Management Strategic Agenda - Final Report

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BACKGROUND STATEMENT

Boise State University identifies research and creative activity as a [Core Theme](#) of its institutional mission. This concept is clarified through several objectives which outline the importance of transferring knowledge for “societal, economic, and cultural benefits”. The university expects its work to have “substantial disciplinary impact and contributes to the overall reputation of the university,” so that, “community members can connect with and benefit from our researchers, artists, and students.” This core theme of scholarly contribution is further confirmed in the university’s [Goals and Strategies](#) which detail specific activities Boise State will undertake. For example in goals 3 and 5, Boise State establishes its commitment to effective research and creative efforts by investing in developing key competencies, building necessary infrastructures, and encouraging external funding and philanthropic support.

In consideration of these university goals, Albertsons Library is also actively advocating for Boise State’s research and creative activities through its own [Strategic Plan](#). In Library Strategic Objective 4, Albertsons Library has committed to identifying “critical areas of needed Research Support then build expertise, capacity and services to meet these needs.” In pursuit of this objective, library personnel will “collaborate with other campus units to build the expertise and resources needed to support the discovery, management, and use of data sets.”

PHASE I (January 2015 - December 2016) ACCOMPLISHMENTS

Between January 2015 - December 2016, the library’s Core Data Management Team, consisting of Michelle Armstrong, Megan Davis, Heather Grevatt (2016 - present), Margie Ruppel (2015 - 2016), and Amber Sherman, established a [2 year Strategic Agenda](#) and engaged in a variety of activities to ensure the proactive management of Boise State’s data sets. During this period, the Team accomplished several key goals:

- Increased the library’s capacity to support Boise State researchers in managing and making publicly available data sets, and deliver services at key points throughout the research lifecycle including data management planning, data description, research dissemination, and researcher education.
- Developed relationships with faculty, research groups, and other university support services to identify and deliver needed services.
- Began the development of a technical and workflow infrastructure to ensure the permanent curation and accessibility of Boise State’s research data sets.

The following is a report of the library's specific activities for this period.

1. Increase data management skill sets across campus through instructional efforts.

- **Activity 1.1:** Continue to develop current data management information resources in response to campus researchers and library staff needs.

Maintain a comprehensive website with information and support tools so that Boise State University researchers can develop effective data management plans. Maintain an internal Google site to collect data management-related information including readings, continuing education and instruction resources, and relevant tools for the Core Team.

Status - Continuing: The Core Team is in the process of transitioning the content from the current library guide, to a more accessible and flexible “Researcher Support” web site integrated into the library’s web presence. The new site is expected to be completed Spring 2017.

- **Activity 1.2:** Strategically educate researchers about data management and data management planning.

Combine general campus-wide education with targeted department-level workshops about data management. Offer general, campus-wide data management workshops. Work with individual colleges, schools, and departments to provide discipline-focused data management workshops. Incorporate data management information as part of the library orientation session for new faculty prior to the start of each fall semester. Promote data management resources including the data management library guide and [DMPTool](#) to university researchers.

Status - Continuing: Basic data management resources were presented to new staff during the August 2015 and 2016 New Faculty Orientation. Members of the Core Team also participated in a data management presentation during the September 2016 Coffee and Donuts with Researchers event, a presentation during the Biomolecular Research Center Grand Rounds, and a poster presentation for the 2017 annual NSF EPSCoR meeting.

- **Activity 1.3:** Educate graduate students by creating instructional content for research courses.

Develop data management instructional modules to be incorporated into relevant undergraduate and graduate research courses. Utilize relevant faculty input to develop the modules and implement it in the most effective way.

Status - Completed: Nine online data management instructional modules are now available for university faculty to include in their courses where and as appropriate.

Utilizing results from a campus-wide survey of faculty, graduate staff, and lab managers, Megan Davis developed the curriculum which covered data organization, quality assurance and control, metadata, and data preservation. The modules are available at: <https://sites.google.com/a/boisestate.edu/data-management-curriculum/>.

- **Activity 1.4:** Increase data management competencies across library staff.

Continue to offer a variety of training opportunities for entire library staff, including shorter “Data Dish” sessions and more in-depth sessions as topics/resources warrant.

Status - Continuing: The Core Team has hosted 6 Data Dishes and a webinar on finding data sets for library staff. As a part of these presentations, the liaison to the public policy department provided an overview of the ICPSR data collection services and her interest in the topic of data resources also enabled her to present on the topic during the Fall 2016 School of Public Service meeting. Amber Sherman also provided an introduction to library staff on the implementation of the university’s new DOI service.

2. Provide an infrastructure (tools, policies, direct services, staffing, etc.) to actively manage Boise State’s research to make it discoverable and accessible.

- **Activity 2.1:** Help identify and track Boise State’s data sets by working with the Office of Sponsored Programs and Office of Information Technology (OIT).

There have been several efforts to identify Boise State data sets. These activities have included listing data related to a specific grant project, creating administrative metadata associated for data housed on the OIT servers, and development of the Boise State Data Portal. Similarly, several faculty noted as part of the data interview project that they would like others to know about the data assets they manage, as well as be able to find similar Boise State data sets. The Core Team will work with its various partners to help identify, locate, and determine management responsibilities for these assets. These activities may involve the creation of a tracking system or further development of existing data discovery tools.

Status - Completed: Using information already collected in ScholarWorks, library staff reviewed four academic departments and identified references to research data in faculty publications. Of the almost 800 articles reviewed, less than 1% of data cited were publicly available. As a next step, researchers will be contacted and provided information on how they can make their data publicly available.

- **Activity 2.2:** Develop a data management plan template in collaboration with OIT to help manage and facilitate data discovery.

Create a customized, institution-level data management plan template using the DMPTool

specifically for data sets stored on OIT servers. Metadata is one crucial component the template needs to facilitate data discovery. Before creating this template, the library will talk to OIT to discover their needs, and look at other university storage processes and policies. In addition, other campus stakeholders and their specific requirements will need to be identified, and that information incorporated into the template.

Status - Completed: Margie Ruppel worked with OIT staff to develop a basic DMP template to help OIT manage data stored on their servers.

- **Activity 2.3:** Conduct a demonstration project utilizing a local researcher's data to identify the potential scope of library metadata services.

In collaboration with a Boise State researcher, the demonstration project will be designed to determine the feasibility, distinct processes, various objectives, and participant roles needed to deliver library metadata services. Based on this project, the Core Team will report to the library administration recommendations for next steps in this area.

Status - Completed: Amber Sherman worked with members of the MILES grant project, including Jean Barney, to explore supporting researcher's metadata needs. A summary of the time required and tasks completed was submitted to the Core Team. This information was then used to develop a metadata librarian job description. Additionally, ScholarWorks now contains 5 data set collections to hold descriptive metadata and data files for Boise State data sets. New collections will be added as requested by faculty and departments. These collections utilize a metadata schema correlated to the DataCite Metadata Schema 4.0 and have DOIs issued for each data set. This service allows for proper citation, increased discoverability, and the availability of usage metrics.

- **Activity 2.4:** Explore integrating Boise State data into NKN, DataOne, Dryad, and ICPSR.

One of the most important ways of increasing the visibility of the work of Boise State researchers is to make data sets available through publicly accessible data repositories. Albertsons Library already provides several resources for researchers to explore smaller discipline-specific repositories, but there are several larger repositories that the Core Team would like to investigate in more detail. The Core Team will review the policies and procedures for the Northwest Knowledge Network (NKN), DataOne, Dryad, and the Inter-university Consortium for Political and Social Research (ICPSR). Based on the findings of these investigations, the Core Team will identify possible partnerships the university could establish with these repositories, possible support services the library could provide, and any administrative/funding support needed to utilize these repositories.

Status - Completed: Boise State MILES data sets, published through ScholarWorks, are

automatically harvested into Northwest Knowledge Network (NKN), a regional data hub. ScholarWorks is also a registered data source for SHARE, a national initiative to maximize research impact. As a result, curated metadata for all Boise State data sets are now harvested and available through the SHARE search and notification services. Policies and procedures for submitting data sets to Dryad and ICPSR, two of the largest data repositories in the US, were also reviewed and remain viable options for recommending to researchers. As Boise State's data collection continues to grow, the possibility of becoming a DataOne Member Node will be explored.

3. Facilitate researcher data management activities by providing point of need services.

- **Activity 3.1** Consult with individual Boise State University researchers on their data management plans and related needs.

Provide time-sensitive, personalized data management consultations with Boise State University researchers at their point of need. Recognizing that researchers have a broad range of requirements related to creating data management plans, librarians will utilize data interviews to assess researcher needs. During the data interview, the librarian can determine the level of support needed and begin to implement the appropriate services.

Status - Continuing: After meeting with researchers across campus, the Core Team released a [data management needs report](#). In Spring 2016, Michelle Armstrong began responding to consultation requests for data management plans - a scorable requirement for federal grant proposals. As a part of this work, she reviews the DMPs for compliance with funder requirements, identifies useful university data resources, and provides recommendations for improvements. To date, she has consulted on 13 proposals. Members of the Core Team have also consulted with researchers from Biomolecular Research Center, LEAF Laboratory, Sociology, Biology, and an EPSCoR grant.

- **Activity 3.2** Educate Boise State University faculty in the best ways to publish their data sets as scholarship.

Provide Boise State University researchers with the information they need to publish data sets in scholarly, tenure-worthy venues such as data journals. Creating and publishing data sets can help a researcher earn recognition in their field for having the skills to perform experiments and observations; increase their visibility when other researchers use their data; gain credit towards promotion and tenure; and promote open science and open access. Educate researchers on these opportunities through workshops, department flyers, email messages, and a checklist.

Status - Suspended: Members of the Core Team members explored a variety of publishing options available through data journals. The review revealed that the majority

of data journals require a fee to publish. Since other publishing options are available to researchers, the Core Team decided to not pursue this dissemination strategy at this time.

- **Activity 3.3:** Create targeted support tools (checklists, helpful tips, FAQs, etc.) for faculty, graduate students, and other campus researchers.

In response to Boise State researchers needs, appropriate data management tools will be integrated into the processes of partner campus units. The Core Team envisions these support tools to be helpful and time-saving and may include checklists, tip sheets, instructions, and FAQs created in response to the needs of campus researchers. A parallel goal (#5) is to “Increase and strengthen relationships and active collaborations with both institutional and regional partners.”

Status - Continuing: The Core Team has met with members of the Office of Research Compliance, Technology Transfer, Faculty Senate, and the OIT Information Security Office to discuss ways that data management planning can be conducted to ensure best practices. The Core Team has also created a variety of resources in response to specific events and researcher needs including a data management handout with common data management plan requirements, a ScholarWorks data collection FAQ, a core list of metadata fields used in Boise State data set collections, and a README.txt template to assist with study-level documentation.

- **Activity 3.4** Continue to customize and maintain the DMPTool.

The Core Team will lead an effort to customize and maintain the DMPTool, which facilitates the creation of data management plans using templates based on large grant funders. Each organization requires specific elements in the data management plans that are a part of grants submitted to them. While Boise State University has customized the templates currently in the DMPTool, there is a need to update the language used in current templates.

Status - Continuing: Due to limitations in usability, the DMPTool was not significantly promoted during this period. However, Core Team members are continuing to explore ways that the service might be customized and used for local needs.

4. Increase library personnel resources focused on data management services.

- **Activity 4.1:** Facilitate the formal and ad hoc assignments of data management job duties in response to developing services and projects.

As with all areas of library services, data management services are being designed to proactively identify ways that the library can be a collaborative research partner, as well as provide “point of need” resources. As a result, this approach relies on an evolving and

flexible staffing model. To efficiently facilitate a responsive workforce, the Core Team will communicate with the library's administration, including individual unit heads, any ad hoc and on-going staffing needs. These conversations will include discussions regarding allocation of staff time, needed skills sets, timeframe, and strategies for reducing burdens on current staff and projects.

Where appropriate, the Core Team will work with other university departments to identify shared staff positions and assist in advocating at a university-level the need for and funding of skilled data managers.

Status - Continuing: The Core Team has explored a variety of ways to provide sufficient personnel resources for the university's data management needs. In addition to Michelle Armstrong and Amber Sherman who serve as scholarly communications and data management librarians, Megan Davis and Heather Grevatt also have a portion of their assigned workload allocated to data management. The library worked with the MILES project to allocate office space for for their part-time data manager, allowing library and grant staff to work together more easily. Members of the Core Team have also collaborated with staff from Access Services on specific research data projects.

- **Activity 4.2:** Develop metadata skills in-house.

Efforts will be undertaken to increase in-house skills and service capacity in the area of metadata creation. This includes self-education activities, participation in formal learning opportunities, and hosting library-wide events. Library staff will be encouraged to self-identify their interest in this area which will allow the Core Team to facilitate support for release time, training funds, and evaluation recognition for their participation and skill development. By increasing capacity throughout the library's personnel, Albertsons Library will be able to more quickly respond to specific research projects, and operationalize and sustain needed metadata services. Activity 4.3 details the strategies that will be used to acquire dedicated metadata librarian services.

Status - Continuing: As a result of the metadata demonstration project (Activity 2.3), creation of the ScholarWorks data set collection, and training received at various conferences, Amber Sherman has developed competencies with a variety of metadata standards including Dublin Core Metadata, ISO 19115 schema, Darwin Core, and DataCite. As new projects arise and additional metadata schema are utilized, additional competencies will continue to be developed.

- **Activity 4.3:** Acquire a metadata librarian.

Academic libraries have an established presence in the data management arena. Common metadata services include creation of templates and specific metadata sets, compliance with individual metadata schema, and assistance with submission to appropriate

repositories. The complexity of these activities can vary greatly depending on the specific project. The common elements for all of these tasks however, are quality management and discovery of data assets. Currently, Albertsons Library does not have a trained librarian on staff to provide this broad metadata expertise and leadership. Hiring a metadata librarian and acquiring the on-going financial support will be a priority during Phase I. To pursue this goal, the Core Team will:

- Create a complete job description, including expected salary, for a metadata librarian that can be shared with all campus stakeholders.
- Use multiple communication methods to advocate to library and university administration the need for the position (data interview report, annual budget request, metadata demonstration project results).
- Explore alternate service delivery models, including outsourcing and consortia with regional universities.

Status - Continuing: The Core Team has worked with the Biomolecular Research Center to include funding for half a research data manager/metadata librarian position in a recent federal grant proposal. If funded, the library would provide the rest of the financial resources for the position. Additionally, the library's administration has continued to explore budget options and identify available resources to support this position, including submitting a request for a metadata librarian position as a funding priority for the FY2018 library budget.

- **Activity 4.4:** Continue to develop the Core Team's competencies and skills.

The Core Team already has a successful record of self-development. These efforts have provided them the ability to advocate and provide leadership for the library's data management initiatives. To continue this progress, the Core Team will actively pursue formal learning opportunities, as well as engage in self-education activities.

Status - Continuing: In addition to the above mentioned metadata skills, members of the Core Team have participated in a variety of research data related conferences and trainings including a Data Carpentry workshop, International Data Week, North American Data Documentation Initiative conference, FORCE16, and the Research Data Management and Sharing Coursera course. Resources are also shared during a weekly team meeting and through a private Google site.

5. Increase and strengthen relationships and active collaborations with both institutional and regional partners.

- **Activity 5.1:** Seek partnerships by exploring the integration of library data management services into university processes.

As noted previously, library data management services should be designed to provide point of need support for researchers. However, much of the data management activities involve systems, such as the grant proposal process, that the library is not currently engaged with. To deliver this ideal of “point of need”, the Core Team will seek out partners and services that would benefit from library support. This review will include looking at related university policies and requesting guidance from Office of Sponsored Programs personnel regarding projects or systems that would be receptive to such collaborations. Once identified, the Core Team will use a project management approach to identify and prioritize appropriate points of integration and work with these partners to develop methods of providing library support services via their systems.

Status - Continuing: Members of the Core Team actively participate in a variety of meeting and collaborative projects with partners across campus. The Core Team has helped host the Coffee & Donuts with Researchers events, is facilitating a University Research Data Discussion group, collaborated with OIT on providing discovery and access to large data sets hosted on OIT servers, and established an agreement with the MILES grant (Award No. IIA-1301792) to fund the university’s DOI license.

- **Activity 5.2:** Identify possible partnerships with other data management professionals, especially those located in the Northwest region.

With limitations on available financial resources and dedicated personnel, the library will explore external collaborations to deliver needed data management services. The focus of these discussions will be with library and data management personnel at the University of Idaho, as well as other data management professionals in the Northwest region.

Status - Continuing: By participating in the Data Carpentry Workshop, Michelle Armstrong was able to meet other data managers in the Northwest region and members of the Core Team arranged a dinner with University of Idaho data librarians during the 2015 Idaho Library Association conference. Amber Sherman has participated in a variety of meetings with the MILES and NKN staff and is currently a member of the International Association for Social Science Information Services & Technology.

6. Gather needed information to inform Phase II.

- **Activity 6.1:** Conduct an environmental scan of campus data management needs and activities in order to make decisions about future services and priorities.

To prepare for Phase II and to best meet the needs of the Boise State research community, an environmental scan will be administered with consideration given to all relevant campus partners. This will likely consist of interviews and surveys to identify strengths and gaps in the university’s current data management services and resources. Results of the scan will provide direction for Phase II of the Core Team’s strategic agenda.

Status - In Process: The environmental scan has been proposed to the University Research Data group and has received team buy-in. To share data openly via ScholarWorks, it was determined that Institutional Review Board approval was needed. To date, approval has been granted and the environment scan survey has been issued. Data is currently being collected and will be reviewed during Spring 2017.

ADDITIONAL OUTCOMES

In addition to the above accomplishments, Amber Sherman, in collaboration with the MILES Data Manager, has also been exploring ways to identify and manage protected data. Building on their experiences of working with sensitive data, they have submitted funding requests to support the development of an open source software toolkit to scan for restricted data and have begun working with a MILES Undergraduate Research and Internships (MURI) student to identify relevant policies and laws related to protected data.

NEXT STEPS

Continuing this management approach, the library's Data Management Team will develop another two year strategic agenda (Phase II) beginning Spring 2017. Building upon the information gleaned from the environmental scan and expanding upon the capacities described in this report, it is expected that the library will focus on ensuring the sufficiency of resources to support this work, expanding existing data management services throughout the research lifecycle, integrating these efforts into the existing research infrastructure, and increasing data management training of future researchers.

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