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## Summer 2017 - Spring 2019 Data Management Strategic Agenda: Final Report

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# Summer 2017 - Spring 2019 Data Management Strategic Agenda Final Report

Between Summer 2017 - Spring 2019, Albertsons Library's Research Data Management Group worked on implementing a strategic agenda. Below is a report of the activities undertaken in response to that plan. In particular, the work of the group has been shaped and impacted by several key factors:

- Over the past two years, the group had several changes in membership with two members departing, one new member joining, and another assuming additional job duties. Unlike earlier configurations of the group which focused more on exploration and development, the Research Data Management Group had evolved to the point where we are delivering services. As a result, changes in membership have a greater impact on the work and focus of the group.
- As the university has wrestled with providing support for research data, the focus and priorities of other campus units has moved the Library's group away from collaborative approaches and towards point-of-need interactions. This shift has furthered due to a limited ability for all partners to engage in shared goals.
- Beginning in fall 2019, the Research Data Management Group began to notice a change in direction with the inclusion of the library's new data visualization librarian. As the group has adjusted its focus, we found our priorities and interests have also changed. It is expected that further shifting will occur as the new Head of Scholarly Communications and Data Management arrives and have identified managing those changes as important goals to accomplish in the next two years.
- At this stage, the Research Data Management group has determined it wants to build upon our previous strategic agenda by concentrating on establishing a sustainable service model and focusing efforts on clear areas that we can affect, particularly in regards to external stakeholders.

## **1. Continue to increase library capacity to deliver data management services.**

### **Activity 1.1: Assist library liaisons in building discipline-focused data management skills.**

The 2015-2016 Data Management Strategic Agenda Activity 1.4 provided training opportunities for all library staff across a broad spectrum of data management topics. Focusing these efforts on library liaisons and within specific disciplines will allow the library's Research Data Management Group to have a stronger return on instructional investment with measurable outcomes, such as liaison referrals for research data management support. The Research Data Management Group will investigate the best format for disciplinary support materials, develop appropriate support materials including a means of tracking use, and provide liaisons with sufficient knowledge of research data lifecycle resources to facilitate departmental referrals to the group

**Status - Incomplete:** The RDM Group met with two liaisons to discuss their individual efforts to meet department, faculty, and researchers' data needs. The ability to address these needs vary depending on the requests received by the liaisons and their capacity to focus on this area. There is potential to engage more liaisons in this work. However, it is unlikely that more will be done in this area until there is greater consensus through the library's current liaison initiative about the focus and purpose of the program as a whole.

**Activity 1.2: Work with university administrators and departmental partners to identify financial resources required to hire a metadata librarian.**

Description: Metadata is an essential component of managing and making accessible research data. To help researchers establish systems for creating high quality, standards based metadata, librarians need in depth discipline specific knowledge of various metadata schema. Hiring a metadata librarian with the appropriate level of technical expertise would allow the library to provide these core data management services. To facilitate this activity, the Research Data Management Group will continue to advocate for the required financial resources, and provide use case information, service usage data, and other details about the impact and benefits of these services.

**Status - Incomplete:** Metadata expertise continues to be a valued and needed skill set for Albertsons Library. Once again, the change in library personnel has shifted the focus away from prioritizing this position. However, with the majority of the development work completed, ScholarWorks has an established data publishing workflow, which supports some aspects of data curation and by default provides descriptive metadata services. As a result, those workflows are effectively "person-independent" allowing for continuity of services. At this time, these services are adequate to provide for the discovery of data sets but more work can be done at the data curation level in the future.

**Activity 1.3: With a focus on managing complex data issues and facilitating access to research software and technology, continue to develop the library's Research Data Management Group's skills and competencies**

The Research Data Management Group continues to maintain a successful record of self-development. These efforts have helped establish research data management initiatives requiring progressively more sophisticated knowledge and skills including software, legal code, intellectual property, and contract issues. The Research Data Management Group will actively pursue formal learning opportunities and self-education activities with a focus on current skill gaps.

**Status - Ongoing:** Since the beginning of the Library's efforts to develop data management services, group members have prioritized learning as a key activity. Most recently, the group has

engaged in shared readings and discussions of relevant articles, web sites, and government publications. It is expected that this strategy will continue in future meetings.

**Activity 1.4: Ensure adequate and ongoing coverage for established research data management services by expanding and assigning specific responsibilities to the library's Research Data Management Group members.**

Boise State researchers have begun seeking assistance for data management services such as creating data management plans for grants and publicly sharing data sets as a part of journal article publishing activities. Often, these requests are time-sensitive, requiring responses within one or two days. To ensure that all library data management services are available when needed, the Research Data Management Group will cross-train on specific activities, identify individuals responsible for providing back-up services, and develop a process for notifying each other when additional coverage is needed.

**Status - Complete:** Members of the RDM Group received data publishing training. Additionally, with the departure of the SCDM Librarian, primary data publishing responsibilities were shifted to the SCDM Library Assistant 3. As Data Management Planning consultation requests are received, all members of the RDM Group are invited to lead, attend and contribute to the consultation.

**Activity 1.5: Create a cost estimate process to identify expenses associated with managing, preserving, and publishing research data.**

Effective costing allows researchers to more easily incorporate financial requests for data management services into their grant submissions. It also helps demonstrate measurable, value-added services performed by the Research Data Management Group. The Research Data Management Group will investigate and develop methods to estimate material and personnel costs associated with the research data lifecycle. They will also explore ways to make researchers aware of these costs and facilitate inclusion of research data management costs in grant submissions.

**Status - Incomplete:** Heather Grevatt created a costing tool that can be used by the RDM Group or campus researchers to estimate the full cost of managing research data throughout the lifecycle of a project. Although accessible on the library's website, the RDM Group has not publicized or made other attempts to make campus researchers or research development staff aware of the tool.

## **2. Utilizing strategic relationship building, help establish the necessary university infrastructure to support the creation, use, and dissemination of research data.**

### **Activity 2.1: Facilitate the identification of core processes, policies, services, and resources related to research data.**

As awareness and use of research data management services has increased across campus, there has been a growing need to provide a comprehensive overview of the various activities, policies, and staff working in this area. In collaboration with campus partners, the library's Research Data Management Group will help create a model of the currently available data management resources. This model will help identify how the different campus units fit into the bigger research data picture and highlight where supports are lacking. It is also expected that once completed, the model will assist staff to provide more efficient responses and when appropriate, referrals to other campus groups

**Status - Suspended:** Amber Sherman and Jean Barney created a data publishing workflow chart. Based on this, they created an initial workflow chart for other areas of the data management lifecycle. After receiving some initial feedback from other members of the University Data Management group, the workflow chart was updated. Although helpful, the group did not find this work to be particularly useful at a university level. No further work was done.

### **Activity 2.2: Working with campus partners, identify and receive needed approval for data related policies.**

Unifying university-level policies are necessary to transition from ad hoc adoption of best practices to consistent standards for research data acquisition, use, custody, maintenance, retention, access, and transfer at Boise State University. The library's Research Data Management Group will investigate current policy gaps, develop language for proposed policies, and work with campus partners to introduce data management policies through appropriate channels.

**Status - Suspended:** The RDM Group determined that this work is not needed at this time and that there is no university-level support for pursuing this initiative.

### **Activity 2.3: Establish formal agreements with key university stakeholders to facilitate the effective management of Boise State's research data.**

Multiple stakeholders within the university bear the responsibility for research data management throughout the research lifecycle. Strategically positioning the library's data services with these stakeholders, including the Office of Sponsored Programs, will facilitate the effective management of the University's research output. To ensure these strategic collaborations are

stable as staff change over time, the library's Research Data Management Group will, as needed, establish Memorandums of Understandings with campus stakeholders.

**Status - Suspended:** The RDM Group has determined that at this time there is no need for this.

**Activity 2.4: Continue to build relationships with state and regional librarians, repository staff, and other data managers.**

Connecting with people in the Northwest region with shared interests in research data will help the Research Data Management Group build professional networks. Setting up a listserv will allow the group to share resources and ask questions from professionals at other institutions. A semi-regular virtual meeting with librarians, repository staff, and other data managers in the region will facilitate relationship building.

**Status - Completed:** The IdahoDM Google Group was established as a listserv and eventually included three data professionals from the University of Idaho, two data professionals from Idaho State University and five data professionals from Boise State University. A kickoff virtual meeting was held in December 2017 and monthly meetings were scheduled. The agendas and meeting notes were made available through an open Google Document. This group was recently suspended though due to lack of a shared purpose.

**3. Promote high quality data management practices through university-focused outreach and education activities.**

**Activity 3.1: Increase awareness of the importance and value of research data management through the implementation of a strategic communication plan.**

Researchers are often under great pressure to accomplish multiple goals. As a result, gaining the attention of faculty, staff, and students can be a significant roadblock to making progress in the delivery of data management services. Based on other successful outreach and marketing initiatives undertaken by the library, the Research Data Management Group will develop a communication plan focused on campus-wide and point-of-need communications.

**Status - Ongoing:** Michelle Armstrong and Megan Davis created a draft strategic communication plan detailing stakeholders, communication channels, target audience, priority, etc. However, the plan has not been implemented. This work will be revisited during the next strategic agenda, specifically when the RDM Group offers campus-wide workshops.

**Activity 3.2: Create targeted support materials (checklists, helpful tips, FAQs, etc.) in response to campus researchers' need.**

Researchers require point-of-need assistance that may not be facilitated by current support materials. Using responses from the Faculty Needs Assessment, Research Data Management

Environmental Scan, and anecdotal evidence, the Research Data Management Group will develop support materials that better address researcher knowledge gaps while complimenting the ways in which they typically seek out information or support.

**Status - Ongoing:** The RDM Group has created several support items including a section of the library's website focused exclusively on data management, information about how to manage files, a costing tool, and a series of data management planning rubrics. This work is expected to continue as new researcher needs are identified.

**Activity 3.3: Implement and assess the library's data management instruction modules.**

Online data management instruction modules were created in 2016 to assist faculty members teaching graduate research courses in introducing these skills to their students. To maximize use of these modules, the library will work with 4 courses to adopt the curriculum. During this phase, assessment of the content, format, and implementation of these modules will also take place. Based on assessment results, needed revisions will be made in order to improve the curriculum.

**Status - Completed:** During the Spring 2019 semester, two courses used parts of or all of the data management curriculum (BIOL 281/481 Research in the Biological Sciences and GEOS 480 Research in Geosciences). Assessment took place at the end of the Spring 2019 semester via student survey. Analysis of the survey results took place in Summer 2019 with suggested minor updates to the curriculum to occur in Fall 2019. Increased promotion of the curriculum will be targeted in the upcoming 2019-2021 Strategic Agenda.

**Activity 3.4: When communicating with researchers, provide information about data management best practices and available library supports to achieve those standards.**

Most researchers engage in some form of data management. However, few have received formal training in this area or are part of a discipline with established data management standards. Consequently, researchers do not always have the skills or knowledge to maximize the benefits of their data outputs. When consulting on creating, analyzing, archiving, and publishing research data, the Research Data Management Group will promote established or standards-based best practices. To ensure the effective implementation of these practices, the group will also inform researchers about relevant library supports and any related university policies.

**Status - Ongoing:** Over the past two years, the RDM Group has expanded the content on the library's web site in order to provide best practices. This work has most recently continued through the revision of the content provided through the DMPTool. Members of the RDM Group updated that content and also developed some expanded information, such as how to select a data repository, which will be added to the library web site. It is expected that as the RDM Group responds to researcher needs, that this work will continue.

#### **4. Assist researchers in creating high quality, actionable data management plans.**

##### **Activity 4.1: Create a standards based rubric to be used when reviewing data management plans.**

Reviewing a researcher's data management plan is a growing service provided by the library's Research Data Management Group. In order to build out this service, a rubric will be created based on internal and external standards and available institutional resources. This rubric will allow the group to help researchers create good data management plans regardless of grant requirements. A rubric will also allow group members to maximize inter-rater reliability when reviewing plans. The standards that are developed with the rubric will be communicated to researchers in an appropriate manner.

**Status - Completed:** Megan Davis created a collection of fifteen rubrics for NSF directorates and sub-directorates. These rubrics are currently used when consulting on NSF-funded grant proposals to ensure that appropriate content is included in the data management plan. The rubric collection will be updated on an annual basis to adhere to any modifications made by NSF.

##### **Activity 4.2: Formalize the data management plan review and evaluation process utilized by library staff.**

Over the last year and a half, the Research Data Management Group has been responding to requests for reviews of data management plans. Through this work, a basic approach to this service has developed. To ensure a high quality and timely delivery, the library will detail the processes and standards used for the reviews. The Research Data Management Group will also outline the levels of services we are able to provide. By doing this, group members will be able to efficiently and consistently assist researchers in submitting competitive grants, identify university resources committed to the project, and help integrate the data management planning process into a complete research lifecycle service model.

**Status - Ongoing:** There is currently a system in place for reviewing/evaluating data management plans that provides for an interview process resulting in a draft data management plan which the team submits to the researcher. Over the past summer, these activities have expanded to all members of the RDM Group, providing for a variety of cross-training opportunities. Overall, progress has been made, but further refinements are desired.

##### **Activity 4.3 Evaluate and report upon the usefulness of the DMPTool for Boise State Researchers.**

Created with funding from the National Science Foundation, the DMPTool provides a platform to help researchers create funder compliant data management plans for their grant applications. Although useful, anecdotal information has indicated that researchers struggle to understand the purpose, structure, and content needed for an effective and feasible plan. Additionally, suggested



language provided through the tool appears to create more problems by encouraging researchers to commit university resources in ways that are not appropriate for their grant project. The Research Data Management Group will evaluate the DMPTool to determine if appropriate customizations can be made for Boise State researchers and if educational materials will help when utilizing the tool. If it is determined the DMPTool is not the best option, the group will provide information to campus partners and through the library's web site regarding alternatives.

**Status - Completed:** Michelle Armstrong and Megan Davis reviewed the DMPTool for usefulness in the current data management climate. Since the initial deployment of the DMPTool, additional opportunities to customize institutional guidance have been added, likely increasing the value of the tool. The team has decided to keep the DMPTool available for interested researchers and update the institution-specific guidance during Summer and Fall 2019.

## **5. Establish methods for ensuring implementation of and accountability for research data management plans.**

### **Activity 5.1: Iterate and formalize a data management plan implementation process.**

Once a grant is funded, researchers are responsible for implementing and reporting upon the approved data management plan. However, it can be challenging for researchers to do so with the numerous responsibilities and competing time commitments they face. Therefore, the Research Data Management Group will help researchers implement their specific data management plan while using best practices throughout their research project. Additionally, the group will design supports to reduce the time and resource burden on the researcher

**Status - Completed:** The RDM Group completed a proof-of-concept project, developing an implementation plan for the S-STEM project. The process of creating the implementation plan was useful for the team to determine the need for content related to discuss file management practices. Going forward, this service will be presented as an option during the data management planning process.

### **Activity 5.2: Review, annotate, and make accessible tools and software used for producing and managing research data.**

There are a number of software programs and online tools available to help researchers produce, manage, analyze and visualize their research data. Some of these tools require a subscription, training, or are discipline-specific. The Research Data Management Group will search for and review data management tools, create an annotated list on the data management website, and work with campus partners in OIT and Research Computing to make them accessible to researchers

**Status - Complete:** The library data management team and University Research Data Group reviewed the annotated list of software programs and online tools. The list is now available on the research data website.

**6. Provide the technological and procedural infrastructure (tools, policies, direct services, staffing, etc.) to actively curate and make discoverable Boise State’s research data.**

**Activity 6.1: Document the ScholarWorks research data ingest workflow.**

Data curation and ingest of data sets to ScholarWorks involves many steps and one librarian is currently primarily responsible. Documenting the process will allow all members of the Research Data Management Group to use the documentation in case of absence. A manual detailing decisions will ensure consistency across time and people involved in the project. As new standards for data curation are introduced, the documentation can be updated to allow for a more efficient workflow. Each step of the data ingest process will be recorded and explained and shared on a Google Site available to members of the Research Data Management Group. The parts of the documentation that are relevant to other campus stakeholders will be shared appropriately.

**Status - Completed:** A manual detailing decisions and workflows was created and shared with the RDM Group. Megan Davis and Heather Grevatt used the manual to walk through a dataset to ensure the instructions allow someone else to curate and publish a dataset in my absence.

**Activity 6.2: Utilizing information gathered in the previous 2-year strategic agenda period, work with faculty to publicly share their existing research data.**

During Phase I, the Research Data Management Group found over 500 original data sets referenced in recent articles published by Boise State authors, but less than one percent were publicly accessible. Contacting these authors and helping them curate their data sets for public sharing will provide greater discoverability and use of Boise State’s data assets. The Research Data Management Group will also continue to work with other researchers as they publish and find out about the data curation services.

**Status - Completed:** Researchers were emailed with an offer to publish the datasets identified from their journal articles. The outreach resulted in a low response and new dataset deposit rate but did remind or introduce data publishing services to researchers in Geosciences. Continuing to look for datasets from previously published papers is not recommended.

**Activity 6.3: Explore becoming a DataONE Member Node.**

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. DataONE is “the foundation of new innovative environmental science through a distributed framework and sustainable cyberinfrastructure that meets the needs of science and society for open, persistent,

robust, and secure access to well-described and easily discovered Earth observational data” (<https://www.dataone.org/what-dataone>). Given the number of Geosciences data sets ingested to ScholarWorks during Phase I, becoming a Member Node of DataONE will facilitate greater discoverability of Boise State Geosciences data with the environmental science community.

**Status - Suspended:** This will be revisited at a future date.

## **7. Assess the effectiveness and impact of the library’s data management services.**

**Activity 7.1: At the end of the two year strategic agenda period, provide university administrators a comprehensive report that includes both statistical and descriptive information about the university’s research data assets.**

As data management activities continue to increase across campus, decisions about planning and allocation of resources should be informed by quantitative data. Working with other university groups, the library will gather information about the number of data sets created at Boise State, how these assets have been publicly shared, usage of these data sets, and university resources required to manage the data sets. This information will help articulate the need for adequate staffing and other researcher supports in this area.

**Status - Suspended:** The RDM Group is not currently positioned to do this work, nor does there seem to be a need for this at the moment.