

University Libraries Grand Challenges White Paper

Nature of the Problem

The mission of the UW Libraries' Education and Research Service Division is to support faculty and researchers in all their associated duties at the University of Wyoming. The mission of the UW Libraries' Digital Collections Office is to help foster and create open data, research, and scholarship at the University of Wyoming. We are not asking for funding to support a specific library project, but rather pitching our free services to collaborate and help others accomplish their projects. Complementing President Seidel's priorities, the Libraries strive to be more entrepreneurial, digital, interdisciplinary, and inclusive. We are a group of faculty whose jobs focus on the promotion of and support for open access and information literacy. So, our activities focus on supporting researchers, faculty, and staff who are working on Grand Challenges, in order to provide them with the resources they need during the course of their projects and to publicize and promote their outputs.

Names of Team Members

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Research team: UW Libraries' Education and Research Service Division and Digital Collections Office

Work Plan

Our work plan can be broken down into five general themes where we can assist potential partners: infrastructure, metrics services, research and instruction services, content creation, and promoting access. This may appear to be a broad range of activities. However, the Libraries already provides these services and has the relevant expertise to make such a program a success. The goal of the program is to make these resources available and more discoverable, leading to higher impact in academic and public circles.

Infrastructure

UW Libraries runs open-access repositories of publications and research data. This infrastructure would ensure findability and long-term preservation for research outputs originating from the Grand Challenges. We can support virtually all file types in this repository, including, but not limited to, data sets, pre-prints, open access versions of commercially published journal articles, audio, video, 3D models, books, maps, curriculum materials, works of art, and more. We have robust systems that ensure access to content online and have the staff to ensure persistence over time. This means researchers do not have to curate their own data. The repository offers unique and persistent identifiers for all records in the form of Digital Object Identifiers (DOIs), ensuring easy citation and long-term access regardless of platform. Because we know the value of discoverability, all content in the repository is indexed by Google, Google Scholar, Google Dataset Search, and other major search engines to ensure high visibility and discoverability on the open web. We are also able to embed content hosted in the repository on any other website such as UW's

Learning management System, Canvas, for student engagement. While the Libraries do encourage openness, if a researcher wants to delay access to anything in the repository (such as a publisher release date, patents, etc.) we do offer the ability to set an embargo date.

Recognizing that open research data is now an integral component of modern scholarship and publishing, the institutional repository is also able to hold datasets in a variety of formats, along with their supplemental material. This allows others to find, view, download, and reuse data produced by researchers as part of Grand Challenges research. Data records in the repository can also cite publications that resulted from the data, highlighting the relationship between them. A full-time Data Management Librarian assists with such work. Like all records in the repository, each dataset also receives a unique digital object identifier, or DOI. Many publishers are now requiring DOIs for datasets accompanying articles. This allows readers to easily locate a data set from an article and cite it themselves. In addition, many funding agencies are also requiring grant recipients to deposit their data in a repository. The Libraries repository can serve that function. Last, while we understand that researchers have many choices in terms of where to deposit their data, many providers impose sometimes hefty data processing charges (DPCs); our service is 100% free to any researcher at UW.

Metrics

For researchers using the repository, either for data or other materials, the Libraries is able to provide a variety of metrics. We can provide usage metrics such as article views and downloads, in addition to more granular details such as where users are located which. Depending upon the content, this may be useful if the goal is to prove (or disprove) that Wyoming users are benefitting from the content. We can also provide Altmetrics. Altmetrics are a way to track and identify public engagement with research on social media such as Twitter and Facebook, news websites, blogs, additions to Mendeley, as well as other popular websites. If you are unfamiliar with Altmetrics, many large commercial publishers such as Elsevier, Wiley-Blackwell, Springer, and Taylor & Francis have all incorporated Altmetrics into their journal hosting platforms. In an era where we must increasingly prove our worth to the public at large, this public engagement data could be very useful.

The Libraries can also facilitate the creation of unique identifiers. We would encourage the Grand Challenges program to promote the creation and use of these identifiers and facilitate where possible. One such example is Open Researcher and Contributor Identifiers (ORCID) for researchers at the University of Wyoming. An ORCID is much like a social security number, but for your academic endeavors. They provide a persistent digital identifier (an ORCID) that the researcher owns and controls which distinguishes them from every other researcher. The use of ORCID identifiers for individual researchers would allow UW to more accurately track research outputs, gauge scholarly and public impact, identify collaborations between institutions, as well as potentially help identify new funding opportunities. Publishers, funders, research institutions, and other organizations have already widely adopted ORCID and others are increasingly adopting or supporting ORCID. The University of Wyoming has integrated ORCID with WyoVita to enable a seamless syncing of data between the two systems (so one does not have to re-enter the citation information in WyoVita, an obvious time-saver). Such metrics can add tangible data in the case of use and scholarly impact. The Libraries can help researchers register and create ORCID identifiers.

Research and Instruction Services

In addition to resources provided and managed by the Libraries, librarians offer a variety of services for researchers and instructors. Such services can include tutorials on using Libraries resources (such as

databases) or effectively using citation management tools. The Data Management Librarian is available for consultation on many data topics, including data management plans (DMPs). These documents are a norm and requirement for many federal and private granting agencies, such as the NIH, NSF, and NEH. Even when not required, data management plans can help researchers organize data responsibilities in large research groups, such as who backs up the data, who performs quality control, how will files be named, where will they be stored both in the short-term and the long-term, etc. Instruction from librarians for your research group or students can include tutorials and on-demand workshops for topics such as data cleaning, information literacy, literature and database searching, citation management, or data visualization. Librarians can also consult on these topics, and we can match researchers with librarians who have the necessary expertise.

Content Creation

Librarians are not just limited to infrastructure and services support. They can also aid faculty in content creation as well. For researchers working with media, the Libraries has a specific space, Studio Coe, dedicated to audio and video creation and editing. These videos can be hosted online in the repository to make them available to anyone (as well as preserve them for long-term access, something YouTube does not offer). The Digital Collections Office also offers digitization services including professional 2D scanning of objects such as textual documents, photographs, or books, as well as 3D scanning of small to medium sized objects using both photogrammetry and structured light scanning. Librarians can also consult with embedding these objects in a course or on a website. Librarians can also provide support for those in various disciplines interested in creating Open Education Resources such as text books, streaming videos, or other media types. These resources can be used by teachers and researchers to instruct students, not only at the University of Wyoming, but at other institutions as well. The Libraries runs an [Open Educational Resource grant program](#) to support faculty creating these resources.

Promoting Access

The Libraries also offer professional open access journal publishing software that could allow researchers to launch their own journal focusing on work conducted at the campus. This free service is also available to student researchers and groups. One such example is the annual reports published by the AMK Ranch through the platform (please see <https://journals.uwyo.edu/index.php/uwnpsrc>).

As mentioned in the infrastructure section, UW Libraries runs open-access repositories of publications and research data. This infrastructure would ensure findability and long-term preservation for research outputs originating from the Grand Challenges. Such “research outputs” are quite broad in scope, as noted in that section.

In conclusion, there are a lot of services the Libraries can provide to those tackling Grand Challenges. We hope this whitepaper sparks some ideas for how the Libraries can support your research. If you’re not sure if there’s something we can collaborate on, I encourage you to get in touch—this was not an exhaustive list of services we offer the university community. We look forward to finding opportunities to work together!