Public Access to Research Data: The Role of Universities and Disciplinary Societies

March 17-18, 2022 in Washington, DC

In an effort to align academic and society-level discussions on public access to research data, AAU and APLU cohosted a workshop with the American Geophysical Union (AGU -- **Public Access to Research Data: The Role of Universities and Disciplinary Societies on March 17-18, 2022 in Washington, DC** (AGU Headquarters, 2000 Florida Ave, NW)**.** The workshop built on the AAU and APLU Accelerating Public Access to Research Data NSF-funded project (#1939279) and AGU We Share Data NSF-funded project (#1838990).

The workshop focused on the unique role professional and disciplinary societies can play in supporting data access and how it is different from, but complementary to, recent efforts undertaken by AAU and APLU. Participants discussed how disciplinary societies can advance access to research data by developing and promoting standard data sharing practices and expectations; creating discipline-specific templates for data management plans; and helping researchers identify and store data in disciplinary repositories.

Workshop Goals:

- Engage representatives from professional/disciplinary societies and universities to discuss their collective and complementary role in research data access.
- Expand awareness of leading data and software sharing policies and practices
- Discuss the cross-cutting challenges to advancing data sharing and understand the landscape of data repositories.
- Identify areas for collaboration, potential synergies, and greater alignment between universities, professional/disciplinary societies, and federal agencies' efforts to support data access.
- Facilitate conversations to inform next steps to engage a broader community of faculty members and relevant organizations.
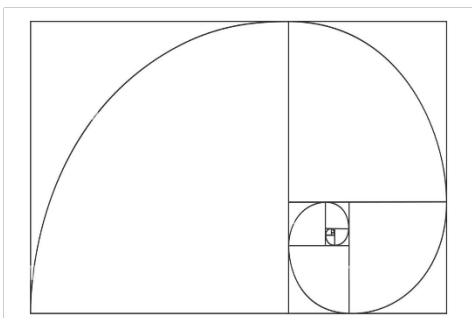
Summaries:

After a day and a half of discussion, we asked participants to think through each of the opportunities and challenges related to culture and infrastructure that were generated during the meeting. We asked them to create a just-in-time poster that addressed the following questions:

- What strategies would you propose to make progress on these challenges and opportunities?
- What approaches would you propose to support synergies and greater alignment between universities, professional/disciplinary societies, and federal agencies?
- What indication/evidence would you use to judge that progress is being made?

We provide here the summary posters and key themes from the four small groups.

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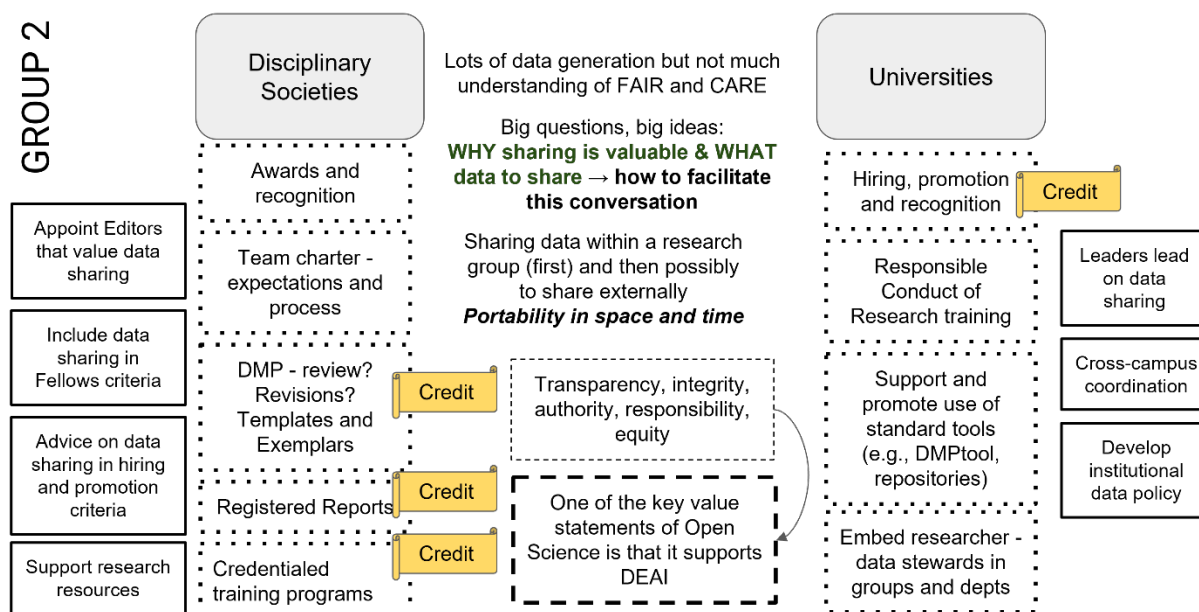
Alter Culture Through Tightening Circles

Takeaways

- Foundational infrastructure - standard practices and goal setting across societies, agencies, universities
- Education and incentivization must go hand in hand
  - Gold - financial - budget support for curation, coordinate resources, funding decisions
  - Ribbon - promotion, awards, highlights in media
  - Puzzle - demonstrate impact on science when data done well
  - Grand Challenge - CMIP type challenge for different communities
- Need to rely upon libraries - to help alignment and break through silos
- Measure success with:
  - Data access, use, and citation
  - Proliferation of standardization - data, metadata, DMPs
- We are at a turning point. There is momentum because people want to collaborate and work together
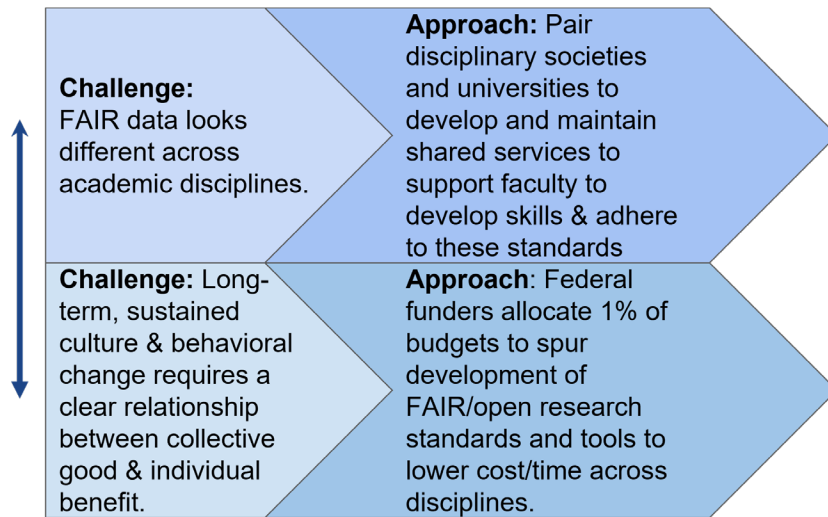
Group 1

GROUP 2

Measuring adoption: ACTIVITIES → collaborative advocacy OUTPUTS → shared templates - examples - stories - DMPs - registered reports - data - recognition criteria OUTCOMES → trust - sustainability development goals

Evidence of Success and Deliverables: Discipline-specific repository use, measuring reuse of data (publication & grant citations of data), universities have compliance requirements

Group 3

Challenge: FAIR data looks different across academic disciplines.

Approach: Pair disciplinary societies and universities to develop and maintain shared services to support faculty to develop skills & adhere to these standards

Devil-y details: Who pays & who gets to decide expenditures/ priorities? What tradeoffs & political capital is required? How do different institutional contexts differentially benefit/lose out?

Challenge: Long-term, sustained culture & behavioral change requires a clear relationship between collective good & individual benefit.

Approach: Federal funders allocate 1% of budgets to spur development of FAIR/open research standards and tools to lower cost/time across disciplines.

Devil-y details: Dissemination model for funds/funders? Change management approach with research community?

Evidence of Success and Deliverables: Disciplinary plan w/in 2 years—define community standards + recommendations for curation; recommendations on repository; est ROI + measures of use, plan for publishing partners
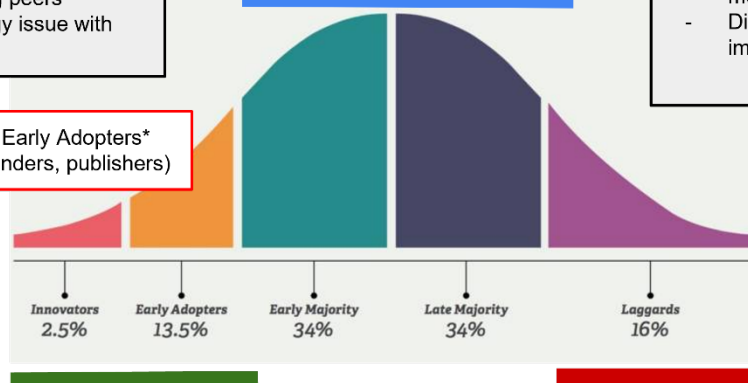
Group 4

Challenges
- Process for citing datasets
- Determining impact
- Connecting peers
- Terminology issue with "Open"

easy

Infrastructure - "Make it easy!"

Metrics for Success
- Citation/download of Data Sets
- *Value* of reused data (how to measure?)
- Disciplines provide measures of impact(?)

Coalition of Early Adopters (societies, funders, publishers)

| Innovators 2.5% | Early Adopters 13.5% | Early Majority 34% | Late Majority 34% | Laggards 16% |

Infuse $$ / Infrastructure
- Education in Good Data Management (shared curriculum)
- Narratives from Early Adopters

Motivations
- Peer Networks (pressure)
- Tangible Results (e.g., ORCiD badges)

iD

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Key Themes and Action Items:

By the end of the meeting, participants agreed that the workshop had helped identify areas of potential collaboration between disciplinary society, university, and federal agency efforts to improve access to data. Below are key themes and options for next steps.

Participants pointed out that collective action is required to drive the culture change necessary to advance widespread data access and sharing; without that coordination and culture change, it will be difficult to achieve much. Therefore, higher education associations and scientific societies should continue to collaborate to improve access to data at multiple levels.

Specific focus areas identified at the workshop for this collaboration between disciplinary societies and higher education associations and institutions centered on efforts to:

- Develop shared values, principles, common messaging, and commitments to promote the importance of data sharing at multiple institutional levels and across disciplines.
- Coordinate efforts and develop, share, and deploy effective practices for data sharing, especially those which help to promote and make data sharing easier for university researchers/faculty.
- Jointly identify and promote the required data infrastructure required for data sharing, including coordinating our respective advocacy efforts and messaging surrounding the need for large disciplinary and cross-disciplinary data repositories supported by federal research agencies.
- Work jointly to develop and promote new data sharing training for early career researchers, perhaps as a part of existing agency responsible conduct of research (RCR) training requirements and modules.
- Work jointly to encourage data sharing to be considered as a means by which faculty can meet the broader impacts requirements for NSF grants; explore how data sharing can be incorporated into public engagement and other efforts to enhance the impact and fully leverage federally funded research results.
- Jointly explore new measures and metrics to assess, evaluate, recognize and reward effective data sharing efforts by individual faculty and disciplinary-based units and departments.

In terms of specific actions that societies can take in follow-up to the conference, they can:

- Help to develop common frameworks and elements within their disciplines for data management plans.
- Help share effective practices to promote and encourage data sharing across disciplines.
- Continue conversations across disciplinary societies with disciplines that have a history of data sharing working with those societies and disciplines that don't to help them to change their disciplinary culture to promote data sharing.

- Develop specific common data sharing standards and expectations within specific disciplines.
- Give awards to individuals that set outstanding examples for effective data sharing, use of FAIR data practices, and outstanding data stewardship.
- Convene or use existing convenings of department chairs as a time to discuss the importance of recognizing and rewarding faculty data sharing and sharing effective data sharing practices and policies at the departmental level.
- Develop, refine, and/or promote disciplinary-based national and international data repositories.

Specific possible next steps that were identified and discussed included:

- Build on the discussion held at the workshop and expand the number of scientific and disciplinary societies involved as a part of the AGU data sharing pinnacle seminar and other future AGU, scientific society, and AAU/APLU convenings.
- Reconvene small action-oriented groups of scientific society, higher education association, and individual institution representatives to pursue specific areas of mutual interest such as data sharing infrastructure and repositories, faculty and graduate student training, and new metrics and approaches to recognize and reward data sharing.
- Continue to work together to seek opportunities to develop additional convenings, which help forge and strengthen relationships between researchers and "outsiders" like librarians, publishers, federal research agencies, etc.
- Jointly explore the role of private industry in the data access landscape. FAIR principles apply to data that are behind paywalls, as well as those that are open. At the same time, these private players (e.g., Amazon, Google, etc.) often have robust data infrastructure systems that might provide an opportunity for the data-sharing community to learn.
- Convene a small working group coming out of the workshop to articulate shared values and to determine what to prioritize from the many further activities and actions discussed during the workshop. Send a draft to workshop participants for feedback and to help determine specific priority actions. Consider reconvening workshop participants virtually to then discuss and move towards working groups surrounding the specific action items and identified priorities.