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Going beyond data management planning

Comprehensive research data services

The number of academic libraries offering research data management services increased dramatically¹ after the National Science Foundation (NSF) announced that all funding proposals from 2011 onward must include a data management plan (DMP). Motivated by this NSF requirement, DMP-related outreach, training, and consultation has become a core service offered by many libraries. However, because most researchers do not receive federal funding that requires creation of a DMP, a focus on providing DMP services serves to ignore the majority of campus researchers. Therefore, DMP services should be only one component of a more comprehensive research data services program designed to meet the needs of a larger researcher population.

Making DMP services the pinnacle of a library's research data services program can reinforce the idea that most researchers, at least those in the sciences, receive federal funding that requires submission of a DMP and adherence to requirements for data accessibility.

I suspected, however, that this is not the case. Based on my experience as a scientific researcher prior to my entry into academic librarianship, it is my impression that most faculty members do not receive NSF grants but instead rely on start-up funding, other types of institutional funding, or grants from private or public external funding sources that do not require DMPs or have data sharing policies.

To determine the number of faculty members at my institution who might be required to create, or adhere to, a DMP, I accessed information on all NSF, National Institutes of Health (NIH), National Aeronautics and Space Administration (NASA), and National Oceanic and Atmospheric Administration (NOAA) research grants held by University of Michigan (UM) faculty members in 2012.² As UM consistently ranks among the top public universities for research and development expenditures, its faculty population might be expected to consist of a relatively high proportion of researchers who receive grants from federal funding agencies. However, I found that only 9% of faculty were principal investigators (PIs) or Co-PIs on one or more NSF grants, 6% had one or more large NIH grants that require a data sharing plan (i.e., projects requesting more than \$500,000 per year in direct costs), less than 1% had one or more NASA or NOAA grants, and 1% had grants from more than one of these agencies. Therefore, as many as 83% of UM faculty in 2012 were under no obligation to prepare a DMP or comply with data sharing policies of these federal research funding agencies.

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These estimates should be interpreted with caution. On one hand, I may be underestimating the true proportion of UM researchers affected by funding agency data mandates. This is because I disregarded previously funded research projects for which data sharing policies might still apply (i.e., those that ended before 2012). Also, due to a lack of available information, I did not include researchers who wrote DMPs for funding proposals that were ultimately unsuccessful. On the other hand, I could be overestimating the potential segment of faculty members who may turn to the library for DMP assistance. That is, it was not uncommon for several faculty members (up to 53) to be listed on a single grant, suggesting that not all of these individuals are actively involved in writing a DMP or managing/archiving the data.

Despite variation in how these numbers are interpreted, it is clear that the majority of faculty members at any given point in time may not be concerned with preparing or adhering to a DMP. Therefore, a focus on providing DMP-related services overlooks most researchers on campus, including many faculty members in the sciences; most faculty members in the arts, humanities, and social sciences; and graduate students and postdoctoral fellows who are often responsible for the bulk of day-to-day research data management. Moreover, researchers who must prepare DMPs might require assistance from a support provider only once, after which they can simply repurpose old DMP text within future grant proposals. As such, DMP consultation may be “. . . a thin thread on which to hang an entire service.”³

We should keep in mind that DMP requirements impact only a small proportion of academic researchers and, furthermore, that such requirements are only one factor motivating researchers to share their data. Just as many, if not a greater number of, researchers might face expectations from journal publishers to share the data underlying their research articles. Some researchers receive funding from federal agencies that

have data sharing policies but that do not require a DMP. Also, many researchers may desire to make their data available to a wide audience for personal or altruistic reasons, such as to permit others to replicate their methods and analysis, to allow others to re-purpose their data in new ways, or to increase the visibility and impact of their work.

Rather than making DMP preparation and compliance the focus of a library research data service program, we should seek to provide more comprehensive support for the management of research data generated on our campuses.

Such support may include providing instruction on best practices in data management to graduate students, reaching out to faculty members to share information on emerging trends in open data and new avenues for data dissemination, promoting and facilitating the use of disciplinary data repositories (in addition to institutional repositories) to make datasets more discoverable by relevant communities of interest, and working with researchers to adequately describe their datasets prior to submission to data repositories. Broadening the types of available research data services promises not only to reach a greater number of researchers, but also to deepen the commitment of academic libraries to supporting the entire research lifecycle.

Notes

1. David Fearon Jr., Betsy Gunia, Barbara E. Pralle, Sherry Lake, and Andrew L. Sallans, “SPEC Kit 334: Research Data Management Services,” Association of Research Libraries (2013).

2. Grant information was downloaded from the UM Office of Research and Sponsored Project’s Sponsored Awards on the web (<http://cgi.research.umich.edu/saw/>).

3. Regina Raboin, Rebecca C. Reznik-Zellen, and Dorothea Salo, “Forging New Service Paths: Approaches to Providing Research Data Management Services,” *Journal of eScience Librarianship* 1, no. 3 (2012): 134-147. //