UC Berkeley
UC Berkeley Previously Published Works

Title
Building A Research Data Management Service at UC Berkeley

Permalink
https://escholarship.org/uc/item/1xn897d0

Authors
Wittenberg, Jamie
Elings, Mary

Publication Date
2016-12-13

Peer reviewed

Building A Research Data Management Service at UC Berkeley

Jamie Wittenberg and Mary Elings

Abstract:

UC Berkeley's Library and the central Research Information Technologies unit have collaborated to develop a research data management program that leverages each organization's expertise and resources to create a unified service. The service offers a range of workshops, consultation, and an online resource. Because of this collaboration, service areas that are often fully embedded in IT, like backup and secure storage, as well as services in the Library domain, like resource discovery and instruction, are integrated into a single research data management program. This case study discusses the establishment of the program, the obstacles in implementing it, and outcomes of the collaborative model.

Keywords: Data Services, LIS as a Profession, Academic Libraries

Context: Establishing the partnership

The University of California at Berkeley is one of the top research universities in the country, receiving over $730 million in research funding last year and supporting over 100 research centers (Best College Reviews, 2016). In addition, UC Berkeley supports 170 academic departments and programs that are home to over 10,000 graduate students, 27,000 undergraduates, and 1,600 full time faculty. This community is dispersed across over 1,230 acres in hundreds of buildings working in countless organized research units, centers, institutes, laboratories, facilities, and groups (UC Berkeley, n.d.).

With such an active and highly distributed research environment, the university has a significant task in providing research support to its campus community. An area of particular focus in the last year has been the adoption of Open Access Policies that aim to make UC research outputs widely accessible. Despite the adoption of the UC Open Access Policy by the Academic Senate in 2013 and issuance of an expanded OA policy in 2015, these policies did not cover data specifically[1].

As research changes and evolves, the services and needs of the community are evolving, especially with current data-driven research activities that rely on access to diverse data resources, data-intensive methods, and distributed computing tools and platforms in addition to meeting unfolding new federal requirements for data re-use and data security (Ferguson et al., 2014). In response to this evolving environment and its needs, the research community is seeking support in managing, storing, sharing, and preserving the

---

[1] University of California, "Open Access Policy for the Academic Senate of the University of California," http://osc.universityofcalifornia.edu/open-access-policy, (July 24, 2013). The scope of the policy only applies to scholarly articles.

data they produce in order to maintain the viability, reproducibility, and re-use of research data.

Tenopir et al. (2014) demonstrate in "Research data management services in academic research libraries and perceptions of librarians" that technical (hands-on) research data services are less common than informational (consulting) services. This lack of technical data services in libraries may be addressed through a Library and IT partnership, and the UC Berkeley program attempted to address both technical and informational research data needs through such a partnership.

In 2015, the UC Berkeley Library and Research Information Technologies (Research IT) joined forces to develop a research data management program to support this need for its large and active research community. The Library and Research IT partnership brought together two key organizations participating in the research process. Research IT is a unit situated in UC Berkeley's Office of the CIO. Research IT provides research computing technologies, consulting, and community for the Berkeley campus. Research IT works in close partnership with the Office of the Vice Chancellor for Research and other campus technology services units, including the Library. The UC Berkeley Library connects students and scholars to information and services in support of research across campus. The Library seeks to select and create, organize and protect, provide and teach access to resources that are relevant to our campus programs. Together, these two organizations support the depth and breadth of campus research needs, which are increasingly digital in nature.

The goal of this collaborative partnership is to develop a program that will bring together the campus-wide systems and technical knowledge of Research IT with the research support and preservation expertise of the Library. This collaboration is a change for these two organizations and represents a new way of working together where each group is contributing to the process and sharing the costs. It is part of a push from several campus leaders, including leadership in Research IT and the Library, to build meaningful service collaborations between groups charged with providing campus wide services. It serves as a useful model of two large and diverse organizations taking joint ownership of a campus need, and working together to meet that need.

The collaboration of the Library and Research IT around the topic of research data management grew out of earlier work on the Research & Academic Engagement (RAE) Benchmarking project (2013), which was an effort by UC Berkeley's Research IT group and Educational Technology Services, with involvement from the Library[2]. The benchmarking project looked at existing and planned technology services and compared them with a set of peer institutions to help Berkeley develop a strategy for improving research, teaching, and learning technology support. One of the areas RAE looked at was research data management, and the Library and Research IT recognized a shared interest in this area, as well as shared expertise, that could be brought together to advance the topic and provide support services.

---

2 Research and Academic Engagement (RAE) Benchmarking Project:
https://www.ets.berkeley.edu/projects/rae-services-peer-benchmarking

A natural partnership flowed from the success of that project. By bringing the combined expertise of the Library and Research IT to bear on the emerging needs around research data management, we could advance use of services supported by Research IT and expand adoption of research data management as part of the public facing mission of the library.

With offerings like high performance computing (HPC), virtual computing environments, and infrastructure services available through Research IT, and the Library's focus on research support and data management, the collaborative partnership covered many of the bases in a research data management portfolio. The more consultative role of the library and the service-oriented role of Research IT completed the picture in terms of a research data management program, and thus the partnership was formed.

RDM Program and Goals: Improving campus support for research

The stated objective of this effort was to establish a program for research data management (RDM) services at the UC Berkeley campus level, through a joint partnership between Research IT and the Library. The goals in year one (January 2015-December 2015) were to design and deliver workshops, develop an RDM service guide, and develop an RDM consulting service.

The programmatic goal of the RDM initiative is to improve campus support for research output across all domains and subject areas, offering services around research data to help researchers steward, protect, and disseminate their data. Research data includes tabular and numeric data, text, images, audiovisual content, code, or any other actionable information generated during the research process. This typically excludes administrative data like financial and student records, as well as technical data, like the operations information generated by servers and laboratory equipment. RDM supports research data across domains and organizations, particularly in the areas of planning, organization, active data management, and sharing.

Research is highly distributed at Berkeley, and so are the services that support research. The efforts around creating a centralized RDM program can also be viewed as an attempt to knit together and coordinate a range of specialized and somewhat siloed services funded by departments, organized research units, and external "soft" money. The RDM program aims to establish workflows and policies related to activities surrounding research data at Berkeley in addition to developing consulting, active data management, and training offerings. Digital Humanities has been managing the bulk of data management and curation requests focused on humanities data.

Contributions: Library and IT roles

The RDM initiative at Berkeley is led by a core group consisting of leadership from both organizations, each committing one administrator to the team. The effort is managed by a team made up of a project manager, the research data management analyst, and an IT project manager. The core group working under this direction includes librarians and technical staff in the library, Research IT staff, a staff member from the California Digital Library, and a staff member from the UC Berkeley Campus Shared Services - Information Technology group. The core group meets bi-weekly and activities and deliverables are kept on a master calendar managed by the IT project manager. Meetings are led by the program manager, who also prepares the meeting agendas and keeps meeting notes.

By providing for equal staffing and equal participation, the program is expected to promote equal engagement in this effort on both sides. While there are no plans to establish a separate RDM unit within either organization, the work will continue to be coordinated among library and Research IT staff going forward. Research data management will become part of what these groups provide, and that work will be shared among the participants.

As part of this effort, the Library and Research IT agreed to share support for a full time Research Data Management Analyst who would split time between each organization. This position reports to both entities and has a physical space in both offices. The Library has provided a space for bi-weekly meetings and workshops, which to date have largely been focused on creating a cohort among librarians.

The role of the Library group in the RDM program has been to bring expertise in supporting the research process. The inclusion of librarians in the sciences, social sciences, and humanities brought a broad perspective to the core group. These participants are also part of a larger consulting network of departmental liaisons and subject specialists who are involved in research support on a day to day basis. These librarians offer support for and provide access to several data services including DASH, EZID, and the DMPTool, all hosted by the California Digital Library, another key partner in the collaboration.

The role of the Research IT group in the RDM program is to provide direction in the areas of active data management and data security, bringing expertise in data transfer, storage, and security. Research IT encompasses two groups that work very closely with RDM: Berkeley Research Computing (BRC) and Digital Humanities at Berkeley. Both of these groups are actively involved in projects that support the goals of RDM. BRC offers consultation and builds services related to high performance computing support and infrastructure. They are involved in experimental work on virtual workstations that are piloting solutions for RDM use cases - for example, developing an analytics environment for textual humanities data.

The partnership between the Library and IT is critical to the success of the RDM program, as is partnership with other organizations on campus like Educational Technology Services, the Berkeley Institute for Data Science, and the D-Lab. Support

and participation by CDL is also central in this effort and will be increasingly important as the program moves forward.[3]

Professional Culture: Navigating Library and IT culture

The cultural differences between the Library and Research IT organizations posed some challenges during the development of a joint program. It is important to note that the Research IT group has been involved in long term work in museum informatics through the development of a collection management platform (CollectionSpace) and, consequently, Research IT has been deeply engaged in the libraries, archives, and museums space on multiple community source projects. This is highly unusual for a research computing group, and has been important in forging relationships between organizations. Despite this, fundamental cultural differences between the organizations emerged.

As detailed by Verbaan and Cox (2014) in their discussion of occupational sub-cultures in research data management collaborations, librarians and IT staff have different and occasionally competing perspectives on RDM, wherein "Broadly speaking, IT Services focused on short term data storage; Research Office on compliance and research quality; librarians on preservation and advocacy". This description of focus and scope aligns with the experience of the RDM program at UC Berkeley working with central IT more broadly.

For example, Library positions, being academic, are more flexible than IT staff positions, and it is not the norm for librarians to have a percentage of their position assigned to projects. In IT, it is typical to have a 10% appointment or 50% appointment to a project where time spent on the project is tracked and assessed. A senior librarian provided feedback that the project had more IT-focused elements than library-focused elements. Perhaps one reason for this is that the time commitment of librarians is not as explicitly defined as the time commitment of IT staff, there were occasional misunderstandings related to workload, role, and commitment. As a result, some work related to the RDM program skewed more in the IT interest (active data management, storage), than the librarian interest (scholarly communication, preservation, research).

One significant example of an area where cultural difference between the Library and Research IT emerged was in approaches to researcher privacy. As established by the American Library Association (2002), "Protecting user privacy and confidentiality has long been an integral part of the mission of libraries. The ALA has affirmed a right to privacy since 1939...In keeping with this principle, the collection of personally identifiable information should only be a matter of routine or policy when necessary for

---

[3] These organizations represent the programs primary partners in the UC system. Research IT: http://research-it.berkeley.edu/. Berkeley Research Computing: http://research-it.berkeley.edu/programs/berkeley-research-computing. Digital Humanities at Berkeley: http://digitalhumanities.berkeley.edu/. California Digital Library: http://www.cdlib.org/. Berkeley Institute for Data Science: https://bids.berkeley.edu/. Educational Technology Services: https://www.ets.berkeley.edu/. D-Lab: http://dlab.berkeley.edu/

the fulfillment of the mission of the library." Leadership in Research IT preferred that identifying information like research names and departments be collected and shared among other consulting groups in order to provide a higher level of coordinated service. However, the Library has a more conservative stance towards information-sharing and does not systematically collect this kind of patron data. The resolution has been an endeavor to jointly draft a privacy policy.

Because RDM is an emerging field, it helps to have people working on the project that have a professional development mindset. Outreach and partnership with other organizations working in research data management is crucial to providing services that are relevant. Some examples of this are attending method and tool-based workshops related to scholarly communication, digital scholarship, and transparent research at UC Berkeley. We found that planning in these activities was an important part of the project.

Implementation: Consulting, Resources, and Training

Developing the RDM Guide[4] was the first step in preparing to launch the program. The Guide is designed to serve as a resource for both service providers (consultants and librarians) as well as researchers. Content for the Guide was written collaboratively by members of the team, based on area of expertise. It was developed in Drupal and is hosted by Pantheon, a web hosting platform. The public-facing Guide contains content organized loosely by stages in the research lifecycle. Content consists of best practices, service offerings at UC Berkeley, useful tools, and case studies. There is also a back-end to the Guide, called the *Knowledge Base*, which is accessible to core team members only. The *Knowledge Base* serves as a tracking and record-keeping system that consultants use to document details of their consultations. This system is used primarily for program assessment.

Building the RDM Guide was an important part of the program because it offered the first opportunity for Research IT and the Library to collaborate on an enduring and publicly available RDM resource. Librarians and IT staff researched and wrote content together, defining the scope of the project and sharing knowledge.

As the RDM Guide took shape, development began on the consulting service. The RDM Consulting service is supported by three 'triage' staff members who respond to requests and reach out to the broader consulting network to refer questions they are unable to answer. This network includes domain specialists, data scientists, qualitative data experts, librarians, and IT staff. There are many existing consulting services on UC Berkeley's campus, including in Digital Humanities, Berkeley Research Computing, the Data Lab, and the Berkeley Institute for Data Science. It was important that the research data management consulting service integrated well with these existing services, and this allowed the team to borrow protocols and practices from partner organizations.

---

[4] researchdata.berkeley.edu

Building the consulting network was, in large part, an outreach and engagement objective. There were several individuals and groups that were already stakeholders in the RDM program who could serve as consultants, but one of the drivers for the development of the RDM program was bringing together distributed pockets of data management expertise. The consulting network was an opportunity to leverage knowledge in a range of domains, like cloud storage or metadata standards, for a research application.

The first goal of the RDM program was to train the staff that would make up the consulting network. Staff training for the RDM initiative has focused on three major groups: partner organizations, IT support, and librarians. Partner organizations did not receive formal training, but were engaged through a series of meetings and presentations. Following the September 2015 soft launch, RDM developed a training model targeting IT support staff and librarians. This model proposed to create a cohort of early adopters that would participate in RDM training and serve as a point person for their unit or division. Cohort models have proved successful in training librarians, as demonstrated by Nardine and Moyo (2013) and Witteveen (2015). This group of early adopters made up 'Cohort 1.'

Central IT (CSS-IT) support staff responsibilities are location-based, and a staff member is designated to a campus zone. That staff member will then respond to service requests within that zone. These staff are on the front lines in terms of responding to IT problems, some of which are related to research data. Because IT staff operate independently in this way, each zone representative was recruited for participation in Cohort 1. A total of 7 members of the central IT group participated, including two supervisors.

UC Berkeley librarians typically operate within a division structure that partitions librarians and library staff based on domain. Library divisions include: Arts & Humanities, Engineering & Physical Sciences, Instructional Services, Social Sciences, and Life & Health Sciences. Because the University Library system at Berkeley comprises 32 constituent and affiliated libraries, these divisions can contain multiple libraries. Thus, the RDM team made the decision to recruit two representatives from each division that could serve as members of Cohort 1. Representatives were selected by the RDM team and division heads, based on expressed interest in RDM activities and the data-intensive nature of the librarian's role. A total of 11 librarians participated, including four division heads.

Cohort 1 members committed to a semester-long program that consisted of an orientation, a workshop, and an evaluation. The goal of the orientations was to introduce members to the need for and principles of RDM, to demonstrate the use of our online documentation, and to provide them with contacts for referral in the event that they or a colleague are asked an RDM question. Four orientations were offered during fall 2015: two for librarians, and two for IT. It was important to provide training for these groups separately in order to target existing workflows and tap in to referral processes within these organizations. Following these orientations, the RDM group presented RDM

developments at a library-wide meeting and encouraged librarians and staff to seek out cohort members for more information, or with questions.

The fall 2015 workshop brought all of Cohort 1 together to introduce cohort members to different aspects of RDM and to some tools that they might find useful when engaging with researchers. The workshop began with a keynote by John Chodacki, director of the California Curation Center (UC3) at the CDL. Several of the data management tools that Berkeley uses are developed and supported by the CDL, so this also provided an opportunity for relationship-building between these organizations. Following the keynote, three RDM team members gave lightening talks highlighting research data management use cases. One focused on data security, one focused on writing codebooks, and one focused on data confidentiality. Participants then split into small groups made up of both librarians and IT staff.

These groups completed an exercise that involved responding to various scenarios with research data management components. One sample scenario asked participants "I am a researcher in agricultural economics and I have been publishing my data on my department's password-protected server, but my department is no longer going to maintain a server. What should I do to make sure that people can still find my data?" Participants then collaborated to answer the following questions:

- Who in the data management consulting network could help you answer this?
- What services exist at Berkeley that might provide support?
- Are there data privacy or security considerations?
- Are there policy, copyright, or intellectual property considerations?
- Where in the RDM Guide would you look for an answer?

This group exercise offered an opportunity for participants to practice working through some of the issues researchers face when interacting with data, as well as to work with their fellow cohort members.

The final element of the workshop was delivering two demonstrations of tools, both developed and supported by the CDL. The first, the DMPTool, is widely used at research institutions across the United States. It offers step-by-step guidance to researchers who are completing a Data Management Plan to fulfill the requirements of a funding organization - usually as part of a grant application. Data Management Plan review can serve as an effective basis for librarian training in RDM (Davis and Cross, 2015). The second demonstration was of DASH, an interface for data deposit into the Merritt data repository. Because UC Berkeley does not have an institutional data repository, DASH serves that function. Currently, the service is free to researchers and subsidized by the university library, which makes it an attractive option for researchers who are interested in depositing their data and an important tool for Cohort 1 to be familiar with. Cohort 1 members were given access to test sites for each tool and encouraged to experiment with them.

In response to feedback from Cohort 1 members, the RDM Library Training group, made up of librarians and IT staff, shifted direction in 2016. Librarians requested training that

was more nuanced, more concrete, and more directly relevant to their everyday activities. Several analyses have identified liaison librarians as critical to the success of an RDM program, and liaison librarian training was thus prioritized (Cox and Pinfield, 2014; Soehner et. al., 2010). The training team developed a 12 month, domain-based proposal for a training program for librarians[5]. The program divided the year into two-month training cycles. Each two-month training cycle targets a single domain, based on the existing library division structure. Library divisions will partner with the RDM team to create specialized content relevant to their domain. During a division's training cycle, the RDM team and division representative(s) collaboratively build workshop curricula and deliver two workshops. A monthly "Topics in Research Data Services" series, tailored to the domains of the training cycle, will support librarians and library staff as they develop a broad understanding of the challenges researchers face and gain confidence discussing various aspects of data management and stewardship. The first training cycle focuses on the Social Sciences Division. The curriculum was approved by the head of the Social Sciences division and developed in partnership with the Anthropology and Qualitative Data Librarian.

Outcomes: Resolving consultations, raising awareness, and training

The RDM program has been successful in several areas: raising awareness of the program among UC Berkeley researchers, resolving RDM requests, training service providers in IT and the Library, and meeting project milestones on schedule.

In the 12 weeks between the service launch and the end of the semester, the program hosted or participated in 28 events, ranging from invited talks, to town hall presentations, to workshops, to demonstrations of the Guide. These events targeted both service providers and researchers. The program received 28 consulting requests from 19 departments and organized research units, 25 of which were resolved by the end of the quarter. The majority of researchers requesting consultations were faculty and staff, closely followed by graduate students. Requests from undergraduates were rare. The Guide received 556 unique visitors who viewed approximately 2,700 pages. The most frequently visited pages, after the home page, were: Data Management Best Practices, Consulting, and Data Management Planning.

Consultants were able to resolve many RDM questions, but several areas emerged as areas of greater need, with less support. In particular, active data management and securing research data need greater attention. Two working groups have convened to address these areas and develop recommendations.

Domain-based training has proved to be very successful, with high levels of participation and engagement from librarians. This training is more successful than the generalized RDM training that attempted to target service providers from all domains and organizations.

---

[5] Educational resources associated with the librarian training program may be found at: http://n2t.net/ark:/b6078/d1v88t

Project Management has been a very helpful part of the program development. As we have ramped up the work, having a project manager who kept the group on target and focusing on achieving goals across these two groups was very successful. Sticking to a firm calendar has helped the project manager to keep the deliverables on track. With only a handful of staff with time committed in real hours (FTE), other staff and librarians have had to make an effort to remain involved and committed given other priorities around their regular work.

The program now serves as an organized mechanism to help us better understand future researcher and support staff needs. It will help us determine where to focus our time and resources in an essential support area that is evolving fairly rapidly. In addition, we are building the foundation for future work, which will include a broader campus launch of RDM services and the development of additional services. The RDM consulting network helps to share important information with other campus service areas, such as computation (BRC) and learning analytics (ETS). All of this work taken together is helping us build a broad, meaningful service collaboration between groups charged with providing campus wide services.

Reflections on collaboration

A collaboration of this type is not a simple undertaking for two large, complex, and disparate organizations like the Library and Research IT, but the shared interest in research data management support provided a common goal. A collaboration of this type can vary widely in terms of extent and outcomes, falling along a continuum ranging from a simple interaction over a common goal to highly interdependent activities that involve shared risks and benefits. There is a model that is useful in discussing the trajectory of such partnerships called *The Collaboration Continuum* (Zorich et al., 2008). In that model, partnerships move from basic contact through increasingly deepening relationships between the parties involved to a point of actual convergence. When a partnership reaches convergence, the collaboration is so ingrained that the parties no longer see it as a collaboration, but rather as a shared infrastructure that both parties have come to rely upon. Because the Library/Research IT partnership is a complex one, it might be instructive to look at how it has moved across this continuum.
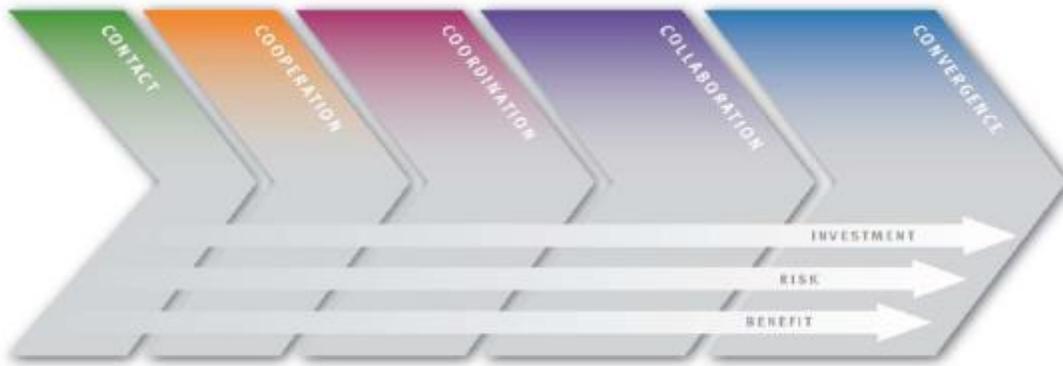
Figure 1: The Collaboration Continuum. (Originally published in _Beyond the Silos of the LAMs: Collaboration Among Libraries, Archives and Museums_.)

Figure 1: The Collaboration Continuum. Reprinted from "Beyond the Silos of the LAMs: Collaboration among Libraries, Archives, and Museums.: By Zorich D, Waibel G and Erway R (2008) _OCLC Research, p. 11_. Copyright 2008 by the OCLC Online Computer Library Center, Inc. Reprinted with permission.

In the case of the RDM service model, the process began with contact between two administrative leaders of the organizations. This started with an initial meeting to explore the idea of launching an RDM service. Research IT has a stake in the research process from the research cyberinfrastructure (RCI) side -- tools, services, and community -- and the library has a similar position in supporting the research process through instruction, research design, access to resources, and publishing expertise. When they decided to work together on developing the program, the two parties moved from the contact stage of the partnership to cooperation, which made no commitment of time, money, or space, and had nothing in writing, but was simply an informal agreement to move the partnership forward.

As the partnership progressed, the parties agreed to coordinate on writing a job description for the shared RDM analyst and putting together a working group, which required a time commitment on both sides. Next they coordinated efforts to establish a calendar of work and deliverables which was managed by the assigned project manager and the leadership group. Because this stage required a written agreement of how the analyst position would be shared and paid for, a commitment of some FTE of a project manager to the effort, as well as a commitment of time on the part of the two parties to meet regularly, this moved the project further down the continuum toward coordination.

As we see the partnership now, where we have the financial commitment of a shared position, a contribution of space where the analyst can work in each office, and written commitments of FTE to the project, we have reached the higher level of collaboration. At this point there is more investment from each party and a higher level of risk than in previous stages of the partnership. Should one of the partners back out of the

collaboration, there would be a financial loss in staffing and time to untangle resources and dissolve written agreements. Having shared communication and program management responsibilities in the project has been a key method by which UC Berkeley has mitigated this risk.

On the plus side, each party has gained through sharing the work towards a common goal. The library has formed relationships and gained knowledge from interactions and sharing information with the Research IT staff. The Research IT group has gained a greater understanding of the research support process and the work done by librarians in this space. This has broadened the network of consultants across the campus that both groups can reach out to for support of research needs, so the campus community will also benefit. We have learned from each other and are better at what we do as a result.

Where the work to this point was largely additive, as we have moved toward true collaboration, the work is becoming more transformative as we begin to share work and reduce duplication of effort. This stage suggests a level of trust between the partners, where they share risks and responsibilities, as well as the rewards.

The RDM program at Berkeley has not yet reached a point of convergence where each partner has become completely dependent on the other. This was not part of the program's stated goals, even though it is the next logical step in a collaboration. For this to happen, the Research IT group and the Library would need to, for example, commit resources to permanently support the shared position, or dedicate a shared space for this work, supported by shared funding. We would need to serve each other's missions in a way that dedicates resources across the partnership, or establish a formal partnership that forms a new organization to support this work. As the collaboration moves forward, these goals may become desirable but, for now, the close partnership will continue to work toward the shared RDM goals and continue to build an extended network of partners across campus as we move down the continuum.

Next Steps: Formalizing and scaling the program

The Research IT and Library partnership has come a long way in terms of their collaboration in a relatively short time. The collaboration has evolved into a successful venture to date and will continue to evolve as the RDM program establishes additional trainings and workshops, continue to develop its guide to services, and continues to share expertise across the two partners, as well as the extended network of partners.

As the program explores possibilities for additional services related to secure and active research data management, collaboration with other campus organizations is becoming increasingly important. As Wilson and Jefferies (2013: 245) discuss "Towards a Unified University Infrastructure: The Data Management Roll-Out at the University of Oxford," researchers prefer data management guidance that is specific to their discipline and methodology. This drive towards the provision of RDM services on a domain-specific basis necessitates domain expertise. This expertise does exist at UC Berkeley, but it is distributed among departments, research units, administration and support teams.

Partnering with these organizations is necessary to provide the support that researchers are looking for.

Because of the success of programs like this and a driving need for holistic solutions to research computing problems, Research IT is becoming increasingly involved in forging new collaborations with organizations at Berkeley and with other UC campuses. This includes a pilot project for managing OCR data between Research IT, the Library, the D-Lab, and Digital Humanities. This project uses new analytics environments developed by Berkeley Research Computing to make licensed OCR software available to the entire campus community. Furthermore, Research IT is spearheading a consulting project that centers around a bi-annual consulting summit. This summit brings together consulting groups from IT, Educational Technology, the Library, the Berkeley Institute for Data Science, and the Geospatial Innovation Facility. In addition, the Library is partnering with UC San Diego to deliver a Data Carpentry workshop for librarians. These efforts aim to promote collaboration across these groups, and improve the impact and quality of research support services.

The library role has changed in terms of being better prepared to address data management and preservation needs as part of the broader research process. We are seeing this reflected in new library positions that include digital methods and data support as part of their portfolio. This situates these skills within the library and indicates that an RDM community is beginning to be built within the library, one which could extend to include other UC Libraries. In addition, the library has gained an understanding of other services offered across campus and identified experts that can serve as partners, consultants, or referrals.

In 2016, the Library and Research IT hope to be able to substantially support to the RDM needs of campus. The RDM collaboration will continue to build relationships between IT and Library groups, pilot new services in active data storage, strengthen partnerships with the California Digital Library and researchers, and broker access to secure computing environments. By 2017, the program will be focused on formalizing RDM efforts within the institutional structure.

Funding

Works cited

University of California, Berkeley (n.d.) By the numbers. Available at:
    http://www.berkeley.edu/about/bythenumbers (accessed 13 May 2016).

Cox A and Pinfield S (2014) Research data management and libraries: Current activities and future priorities. *Journal of Librarianship and Information Science* 46(4): 299–316. DOI: 10.1177/0961000613492542

Davis HM and Cross WM (2015) Using a Data Management Plan Review Service as a Training Ground for Librarians. *Journal of Librarianship & Scholarly Communication* 3(2): 1–20. Available at: http://jlsc-pub.org/articles/abstract/10.7710/2162-3309.1243/

Ferguson, A. R., Nielson, J. L., Cragin, M. H., Bandrowski, A. E., & Martone, M. E. (2014). Big data from small data: data-sharing in the 'long tail' of neuroscience. *Nature Neuroscience*, 17(11), 1442. DOI:10.1038/nn.3838

Nardine J and Moyo L (2013) Learning community as a model for cultivating teaching proficiencies among library instructors – a case study. Available at: http://library.ifla.org/106/1/100-nardine-en.pdf (accessed 1 September 2016)

An Interpretation of the Library Bill of Rights (2002). *American Library Association*. Available at: http://www.ala.org/advocacy/intfreedom/librarybill/interpretations/privacy (accessed 13 May 2016).Soehner C, Steeves C, Ward J, et al. (2010) E-Science and Data Support Services: A Study of ARL Member Institutions. *Association of Research Libraries*. Available at: http://www.arl.org/storage/documents/publications/escience-report-2010.pdf (accessed 21 September 2016).

Tenopir, C, Sandusky R J, Allard S, and Birch B (2014) Research data management services in academic research libraries and perceptions of librarians. *Library & Information Science Research*, 36(2), 84–90. DOI: http://doi.org/10.1016/j.lisr.2013.11.003

Best College Reviews (n.d.) The 50 Top Research Universities. Available at: http://www.bestcollegereviews.org/top-research-universities/ (accessed 13 May 2016).

Verbaan E and Cox AM (2014) Occupational Sub-Cultures, Jurisdictional Struggle and Third Space: Theorising Professional Service Responses to Research Data Management. *The Journal of Academic Librarianship* 40(3–4): 211–219. DOI: http://dx.doi.org/10.1016/j.acalib.2014.02.008

Wilson JAJ and Jefferies P (2013) Towards a Unified University Infrastructure: The Data Management Roll-Out at the University of Oxford. *International Journal of Digital Curation* 8(2): 235–246. DOI: 10.2218/ijdc.v8i2.287

Witteveen A (2015) Better Together: The Cohort Model of Professional Development. *Library Journal* 3 December, 2015. Available from: http://lj.libraryjournal.com/2015/12/careers/better-together-the-cohort-model-of-professional-development/ (accessed 14 April 2016).

Zorich D, Waibel G and Erway R (2008) Beyond the Silos of the LAMs: Collaboration among Libraries, Archives, and Museums. *OCLC Research*. Available from: http://www.oclc.org/content/dam/research/publications/library/2008/2008-05.pdf (accessed 21 September 2016).