

Strategic Agenda for Library-based Research Data Support Services

Background

The Lamar Soutter Library (LSL) provides the University of Massachusetts Medical School (UMMS) research community with the relevant information resources, services, and support they need to conduct research, communicate their discoveries, and broaden the impact of their research. This includes support not just for the products of the research process—the scholarly journal article, for example—but also for the underlying data that is collected, created, used, or aggregated as a basis for research discovery and analysis. LSL awards for [National Library of Medicine Informationist Supplemental Grants](#) are significant motivators for pursuing service models in this area, as are the [National Network of Libraries of Medicine / New England Region](#) efforts to implement a [curriculum](#) for research data management in response to nation-wide trends in data-driven, networked research.

This strategic agenda is the result of several environmental scanning activities, including the collection of existing campus policies and services for research data; interviews with faculty, University administrators, and information technology administrators about data services and strategies; and a survey of students' data management comfort and familiarity with data management activities and best practices. The goal of the environmental scan was to articulate the current state of support for research data on campus, so that the Library can develop appropriate services and make effective collaborations. It is part of an effort to plan library services in a systematic, rather than *ad hoc*, fashion.

UMMS is highly research-intensive, as evidenced by numerous managed and individualized infrastructure solutions on campus, and Principle Investigators have a great deal of autonomy with regard to conducting their research. Institutional support for research includes grant administration, compliance, and a range of institutional infrastructure services. However, overall awareness of institutional services, policies, and tools is fragmented; communication is difficult; and institutional visibility of research projects and expertise is very low.

Strengths:

- Library is a positive component of the institution, with strong relationships and a history of collaboration.
- Principal Investigators have a great deal of autonomy when conducting their research and experience with managing their own data.

Weaknesses:

- The current funding model for research does not work well for addressing data issues.

- Historically, the culture, policies, and cost structure of UMMS IT support and services do not match the needs of researchers.
- The hospital/school separation and infrastructure, specifically related to IT, do not support science/team science.
- Faculty and researchers see data compliance (e.g. data sharing mandates, data management planning requirements, etc.) as taking them away from their work.
- There is mixed reaction to the library's role in data management services.

Opportunities:

- There is interest in institutional acquisition of virtual research environments and/or electronic lab notebooks. This could help standardize some practices around data.
- There is interest in research data management training, particularly for students and early researchers, as well as research impact metrics.
- There is interest in improved communication and visibility of existing research funding, policies, tools, infrastructure, collaborations, opportunities, etc.

Threats:

- Many researchers seek out 3rd-party services to manage their data as they are cheaper, easier, and more convenient than internal solutions. This raises the risk of commercial services and publishers managing access to data rather than the research community and librarians.
- NIH is not enforcing mandates and some journals do not require data deposit or sharing at this time.
- Well-funded researchers drive policy decisions both at the institutional and national levels.

Potential Opportunities

Resources	Education	Outreach	Collections	Impact	Facilities
Aggregate and provide access to relevant information resources.	Provide data literacy/data management training for students in collaboration with SOM, GSBS, GSN, ORF, CCTS, QHS.	Promote research collaborations by enhancing connectivity in existing infrastructures.	Expand services and build collections to support the storage, discovery, and presentation of research data generated by the campus community.	Research impact, education: informing and advocating for complementary metrics.	Support the creation of collaborative research support spaces on campus.
Participate in the acquisition of needed analytic tools and electronic lab notebooks for campus use.		Disseminate information about research tools, resources, and services to the campus.		Research impact, tools and service: using new and proven impact measures and tools to help the institution meet its institutional research goals and make new ones	

There are many opportunities for the library to play a role in supporting data-driven, networked research at UMMS. These opportunities fall within the following six broad areas: resources, education, outreach, collections, impact, and facilities.

1. *Resources:* The library will serve as a central place within the University for information resources related to research data management. These resources can include information related to policies, software tools, infrastructure, funders' mandates, and data management guides. Potentially the library could acquire needed resources such as electronic lab notebooks [ELNs] and other software for campus use.
2. *Education:* Librarians will collaborate with centers and departments within the School of Medicine, Graduate School of Biomedical Sciences, Graduate School of Nursing, the Center for Clinical and Translational Science, the Department of Quantitative Health Sciences, as well as the Office of Research to provide research data management training. This training could include data literacy and data management best practices, training in the use of specific software tools, and the use of complementary or alternative metrics for measuring research impact.
3. *Outreach:* The library will promote research collaboration at UMMS by enhancing existing connectivity between the school's existing research information infrastructures such as Profiles, Community of Science, and eScholarship@UMMS. While each of these resources serve as tools for promoting collaboration and supporting dissemination of research output, they have different purposes and features. By collaborating with IT and the Office of Research, the library can identify information gaps and assist in building interoperability between these systems to promote research activities on campus in a more integrated way. An example of this could be linking Community of Science or Profiles with eScholarship@UMMS, so that users would be able to search and navigate information relevant to grant funding, expertise, and research publications easily. Marketing and communication also fall within Outreach. Because the library serves the entire University and will be aggregating information resources for research data, it is well-positioned to disseminate information about research tools, services, and resources to the many research groups within the school and school-affiliated clinical areas.
4. *Collections:* eScholarship@UMMS, the school's digital institutional repository, currently stores and provides access to the intellectual output of the UMMS community such as dissertations, papers, posters, and journal articles. Most federal funders and many journals now have requirements about the management, sharing, and availability of research data. We expect that these requirements will be even more stringent as federal agencies develop policies to support President Obama's 2013 directive that research data generated from

federally funded projects be managed and made publicly available¹. In response, eScholarship@UMMS will support the long term storage, discovery, and presentation of appropriate research data sets generated by UMMS researchers. The library will identify appropriate repositories for data deposition, assist individual researchers with data deposition, assign DOIs (digital object identifiers which enable data citation and linking) to data housed in eScholarship@UMMS, and enable monthly usage reports for data housed in eScholarship@UMMS.

5. *Impact:* Traditional and complementary metrics allow individual researchers and the institution as a whole to measure their scholarly influence. The library provides access to tools for traditional metrics, such as the Journal Impact Factor and h-Index, and continuously monitors and applies new metrics as they emerge. These measures include download counts, page hits, shares, and other indicators of online attention for publications as well as data sets. The library will educate researchers on complementary or alternative metrics for measuring research impact. Collectively, the use of new and proven impact measures will help the school meet its institutional research goals and develop new goals.
6. *Facilities:* The library will support the creation of research support spaces such as research commons, visualization spaces (e.g. “data walls), and collaboration spaces within physical library or other available building spaces, that can be available for use by the entire campus.

Risk Assessment of Opportunities

Opportunity costs (if we *do not* pursue these activities):

- The library would in effect be supporting only one mission of the institution, the educational mission, rather than both the educational and research missions of the institution.
- The library would not be highly involved in research activities, which are a growing priority for the institution.
- Other units within the institution will undertake research support activities without the input or partnership of the library, potentially leading to redundancy of services, institutional inefficiencies, and inequitable access to services for the UMMS community.
- There is a risk continuing to provide services in an *ad hoc*, not systematic, way.
- Institutional policies might be created that would undermine future library initiatives.
- The institution might compromise its ability to acquire funding, which in turn might be detrimental to library and departmental funding.
- There is a risk of not attracting good professional library staff.

Risks of failure:

¹ <http://www.whitehouse.gov/blog/2013/02/22/expanding-public-access-results-federally-funded-research>

- It's worse to do nothing than to fail in this case. Not sure what failure looks like here – the only failure is to not do anything.
- Failure to implement successful programs/projects is an opportunity for more growth and a learning opportunity.

Organizational Implications

1. *Staff capacity:* It is vital that the institution determine both the types of skills that are needed for new roles and/or work, as well as the current skill sets available, in order to provide services in this area. Additionally, the issues of scalability and economics as they relate to staffing numbers must be addressed. By writing out a strategic plan and using it as a guide for future decisions, the library will likely be more focused and thus successful in these efforts.
2. *Tools and resources:* The library, while focusing on research support services, must evaluate its existing resources and match these against any new services. The library will look to emerging trends, such as measuring the impact of research, and determine what tools and knowledge are necessary to implement services here.
3. *Partners:* The Library has and will continue to form successful partnerships and collaborations across the institution and nationally. Locally, partnerships might include working groups or advisory boards. The ultimate goal is to improve communication between the disparate groups on campus, as well as promote the Library's services to the same. Along these lines, communications from the Library need to be unified, well-articulated, and integrated into all aspects of the day-to-day workings of the institution. Nationally, the library has strong partnerships with other entities across the region, e.g. the Boston Library Consortium, the National Network of Libraries of Medicine / New England Region, the UMass System Libraries, Simmons College's Graduate School of Library and Information Science, etc. The Library will leverage these relationships to be successful in our local partnerships and in future initiatives with peer academic health sciences libraries, particularly those with institutional repositories such as the University of Cincinnati, Virginia Commonwealth University, The University of Washington, Washington University at St. Louis, the University of Vermont, and others.

Next Steps

1. Communicate strategic plan with stakeholders.
2. Prioritize activities with Library Data Services Advisory Group.
3. Implement new services and collaborations.
4. Communicate regular status updates to stakeholders.

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