

Report on Multidisciplinary Research Infrastructure: The Role of 21st Century Libraries

A Project Supported by The Andrew W. Mellon Foundation

The principal purpose of this project was to explore the extent to which 21st century research libraries are strategically positioned and prepared to support current multidisciplinary research. Today's research libraries have increasing potential to partner in the development of a critical research support framework, including information resources, technologies and expertise. In order to discern the requirements most important in supporting multidisciplinary research, the project conducted three-day workshops to enable direct participation by scholars in articulating their primary needs.

Three multidisciplinary research clusters spanning areas of strategic priority to the University were identified: Arctic Studies, Smart Cities, and Visual Analytics. Arctic Studies and Smart Cities scholars represented a diverse array of disciplines, and Visual Analytics scholars were involved in research directly relevant to the approaches and tools increasingly employed by researchers in the other two clusters. Leads for each cluster were recruited to assist in identifying participants representing the range of disciplines within each cluster and in recruiting external disciplinary experts to provide advice based on experience on other campuses and to actively participate in workshop discussions. Workshop participants represented a wide spectrum of disciplines: anthropology, archaeology, architecture, biochemistry and molecular biology, cell biology and anatomy, chemical and petroleum engineering, civil engineering, computer science, environmental design, geography, geology, history, military, security and strategic studies, political science, public health, real estate studies and urban planning.

During the workshops, members of the Libraries and Cultural Resources (LCR) Project Team and Research Services Office (RSO) staff acted primarily as observers and also described existing research support capabilities. The workshops were led by an international team of outside facilitators, providing leadership in ensuring a free and open flow of opinion and broad participation by those attending. A series of "mixers" preceded the workshops to give faculty participants a primer on the purpose of the study and an opportunity to meet other participants, including RSO staff and the LCR Project Team.

The workshops took place in the Taylor Family Digital Library on November 18, 19 and 20. Participants were fully engaged and the individual research clusters worked on identifying principal infrastructure needs. When the clusters were brought together, common priorities were identified and differences were acknowledged. The three external experts, from Toronto, Queens and Carleton universities, added a layer of richness to the discussions.

These workshops centered on discovery of evolving research needs. Participant opinion was not specifically sought on the value or adequacy of traditional library services, but it was evident that these traditional services are no longer seen as essential to new research patterns. Findings indicate that a substantial transformation and realignment of investment within libraries is crucial to the retention of campus centrality by research libraries.

Conversations and discussions over the three days resulted in a consensus on common research infrastructure needs across research clusters, providing ample evidence that these needs are shared across projects and disciplines and that researchers are confident in the library's potential for leadership.

Common Research Infrastructure Needs

Data and Data Repositories

Participants discussed their needs for a data repository infrastructure, including support for data curation and assistance with individualized data management planning, data stewardship and preservation, and the ability to make data accessible and shareable through improved repository platforms. Outside of the repository itself, the ability to accommodate and store large dataset transfers from outside data sources was also a common topic across clusters.

Digitization

Digitization services were identified as an ongoing need across all research clusters, including digitizing archival content for analysis, clearing copyright for use in research, and creating digital collections to share digital content.

Expertise

The need for consultative, service-based expertise was raised, requiring knowledge from a variety of areas, including licensing, metadata development, data cleaning, visualization, statistics, scholarly dissemination, survey development, rights and intellectual property support, and GIS and map development.

Space

The need for centralized, interdisciplinary, collaborative space with up-to-date technologies and support was expressed repeatedly. The TFDL was identified as an attractive location.

Skills Training

The importance of providing educational opportunities for building cross-disciplinary skills was discussed, with conversations focusing on topics such as data management, open access publishing, survey research, GIS techniques and guidance in meeting the requirements of sponsored funding.

Funding

Participants discussed the need for funding that values and rewards collaborative, interdisciplinary partnerships, as well as partnerships with other organizations.

Implications and Future Plans

Findings from the workshops illustrate that a new framework for supporting multidisciplinary research is necessary in research universities. While this is amply demonstrated by the common research platforms supporting medicine and other sciences, the needs for such platforms have not routinely been addressed in today's research clusters spanning the social sciences, humanities, arts, and environmental planning and design.

A new model is envisioned that will be centrally coordinated through the Library, serving as a source of cutting-edge technologies and expertise; spatial, numeric and audiovisual sources; digitization and reformatting services; data and metadata curation; intellectual property rights management; training programs; event hosting; project spaces for partnerships among various disciplines; and a commitment to neutrality and efficiency in serving all disciplines. This model requires executive support and it may prove advisable to designate this new resource network as a unique centre or institute. It is vital that it

have direct association with centres for computing technologies and campus data management. New cross-sector appointments within the governance of these collaborative activities may also prove useful.

The University of Calgary is positioned to design and implement this new system of research/library collaborations and will seek funding from The Andrew W. Mellon Foundation and other private and public agencies to create, manage, test and evaluate a new prototype with the potential to be an international model.

News Articles

Sowa, J. (2015). University of Calgary explores new role of libraries in academic research: Libraries and Cultural Resources received grant from The Andrew W. Mellon Foundation to lead North American study of the role of next-generation libraries in enhancing multidisciplinary collaborations. *UToday*. Retrieved from <https://www.ucalgary.ca/utoday/issue/2015-06-05/university-calgary-explores-new-role-libraries-academic-research>

Sowa, J. (2015). University faculty explore changing roles of libraries: Innovative study examines role of next-generation libraries in multidisciplinary research. *UToday*. Retrieved from <http://www.ucalgary.ca/utoday/issue/2015-11-24/university-faculty-explore-changing-role-libraries>

University of Calgary. (2015). *University of Calgary 2015 Community Report*. Retrieved from <http://www.ucalgary.ca/report/>

Presentations

Hickerson, T. (2015). Developing research platforms: New roles for new libraries. Preconference, Designing Libraries IV Conference, Raleigh, NC, September 2015.

Scheduled Presentations

Hickerson, T., J. Lippincott, K. (Ranjit) Ruddock, S. Sadler. (2016). The role of next generation libraries in enhancing multidisciplinary research. Coalition for Network Information Spring Membership Meeting, San Antonio, TX, April 2016.

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