What is the Future of Libraries in Academic Research?

- Thomas Hickerson
- John Brosz
- Suzanne Goopy

Research supported by:
The 2015 Study

- Anthropology
- Archaeology
- Architecture
- 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
- Urban Planning
The 2015 Findings

• Data and Repositories
• Analytics and Visualization
• Digitization
• Metadata Services
• Rights Management and Dissemination
• Collaborative Spaces
• Expertise and Skills Training
Research Platform

- Analytics & Visualization
- Data Curation & Sharing
- Metadata Services
- Virtual Reality
- Collaborative Spaces
- Digitization
- Rights & Dissemination
- Web Development
<table>
<thead>
<tr>
<th><strong>Sub Grant Process</strong></th>
<th><strong>Letter of Intent</strong></th>
<th>Mid-July</th>
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<tbody>
<tr>
<td></td>
<td>• Adjudicated by committee</td>
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<tr>
<td><strong>Development Meeting(s)</strong></td>
<td>August</td>
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<td></td>
<td>• Library personnel &amp; research team</td>
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<tr>
<td><strong>Proposal</strong></td>
<td>Mid-Sept.</td>
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<td>• Adjudicated by committee</td>
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<tr>
<td><strong>Project Lifetime (6-8 months)</strong></td>
<td>Nov - July</td>
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<td></td>
<td>• Kickoff, DMP, Monthly Meetings</td>
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<tr>
<td><strong>Project Finish</strong></td>
<td>Mid-July</td>
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<td>• Project Report</td>
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<td>• External Review</td>
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- Multidisciplinary
- Substantial work with the library
- Research Themes: Smart Cities, Cultural Discourse, or Arctic Studies
Development Meetings

- Library personnel
  - Librarians, Archivists, Curators, Specialists in various functional areas
- Adjudication feedback
  - (library & senior researchers)
- Library feedback
  - Strengthen library partnership
- Generative discussion

Substantial improvement from Letter of Intent to Full Proposals
Interactions

- Point of contact
- Data management plans
- Project management
- Intercommunication
- Staff effect
Research Platform

Analytics & Visualization
Data Curation & Sharing
Metadata Services
Virtual Reality
Collaborative Spaces
Digitization
Rights & Dissemination
Web Development
Open Data for a Smarter City

Lead: **Ryan Burns**
Geography, Sociology, Geomatics, Economics

- Repository for Calgary datasets created by researchers, community associations, non-profits, and others.
- Augment Calgary’s city-maintained open data collection that is restricted due liability and quality concerns
- 292 datasets, 15 community contributed
- [https://yyndatacollective.ucalgary.ca](https://yyndatacollective.ucalgary.ca)
Paper Traces in Digital Environments

Lead: Stefania Forlini
English, Computer Science

- Expanding mass digitization to incorporate more material information
- Working with collection of 850+ hand-crafted anthologies of speculative fiction (Bob Gibson Collection of Speculative Fiction)
- Material traces mark difference between “pulp” and “glossy” publications
- We must preserve more than text; need information on the materials and physical characteristics for later analysis and historical study
Digitally Preserving Alberta’s Diverse Cultural Heritage

Lead: **Peter Dawson**
Archaeology, Geomatics, Fine Arts, Environmental Design

• Create a digital platform to preserve and disseminate datasets from cultural heritage resources

• Datasets include 3D scans and building information models that provide the means to preserve and monitor at-risk heritage sites

• Use the photorealistic 3D models to create virtual reality apps for education and outreach

• [https://preserve.ucalgary.ca/](https://preserve.ucalgary.ca/)
ArcticSensorWeb

Lead: Brent Else
Geography, Anthropology, Geomatics

• Provide public, real-time access to scientific weather/environment sensors in the Arctic
• Provide Northern communities with useful visualizations of local environmental conditions
• Research giving back to the communities in which they conduct their research
• http://sensors.arcticconnect.ca
Mapping and Visualizing Victorian Literary Sociability

Lead: Karen Bourrier
English, Geography

• How did social network sustain careers of Victorian writers, editors, and publishers?
• Particularly important for women as they did not have access to clubs or publisher’s dinners
• Geo-reference residences of writers, editors, and publishers to examine how propinquity facilitated careers and collaboration
Are Smart Cities Healthy?

Lead: Jenny Godley  
Sociology, Business

- Explore how Canadian cities of compare in terms of economic, social, and infrastructure factors
- Linking information from sociology, economics, geography, business, and public health
- Long tradition of studying how socioeconomic factors influence individual health; extend this by incorporating economic factors pertinent to building smart, sustainable cities
- Create a guide on mixing two common data sources in the library, public aggregate data and restricted access census & survey microdata
Visualizing a Canadian Author Archive: Alice Munro

Lead: Murray McGillivray
English, Classics & Religion, Computer Science

• A multidisciplinary group of digital humanists and computer scientists exploring visualization possibilities in textual research

• Visualizations will promote a significant archival asset while offering researchers new insights into the significance of the fonds

• Use of visualization to inform expanding the fonds’ metadata as well as in analyzing the material
Soper’s World:
A Journey Into The Canadian Arctic Through Art

Lead: Maribeth Murray
Anthropology, Geomatics

• Digitization of J. Dewey Soper’s paintings from his travels in the Canadian Arctic 1921-31
• Creation of a virtual exhibit mapping these explorations to promote the Arctic geography, art, history, and biology
• Create an educational windows on the Arctic providing content for teaching and research as well as for a planned art exhibit
BeeASmartCity:
Making Specialized Natural History Collections Accessible

Lead: Mindi Summers
Biological Sciences, Engineering, Environmental Design

- Provide data on Albertan bees for scientists, city planners, and interested members of the public
- High-resolution digital photographs of physical, native bees specimens
- Allow people explore biodiversity, identify the diversity they encounter in their city, and access resources related to bio-inspired urban design and planning
Preserving and Dissemination Maker Skills with Mixed-Reality

Lead: Anthony Tang
Computer Science, Environmental Design, Education

• Help teachers and learnings become effective users of Makerspaces through mixed-reality videos for self-learning
• Provide an effective alternative to 1:1 methods of teaching Makerspace skills
• Create filming tools and sample videos; study their effectiveness with teacher-candidates
SmartCampus: Interactive Visualizations for Data-driven Design

Lead: Wesley Willett
Computer Science, Environmental Design, Psychology

- Design data visualizations of phone GPS data from University of Calgary students for use by campus designers and researchers
- Design guidelines and usability of prototypes will be developed through a series of participatory focus groups
- Each session, featuring practicing architects and designers, will focus on two core questions:
  - What questions do architects ask of these data?
  - How can we visualize the data so that architects can answer these questions?
Mapping Urban Healthscapes

Lead: Suzanne Goopy
Nursing, Medicine, Education, Linguistics

• Development of an empathic cultural map to provide detailed, qualitative insights into individual and groups experiences of living and working in a particular area

• Apply map to knowledge translation and exchange activities with community members, policy makers, and educators

• http://bit.ly/storymapecm
What is the future of libraries in academic research?

The researcher and the library: Opening conversations and discovering new ways of thinking about an old friend

Suzanne Goopy PhD. BA(Hons) RN
Associate Professor – Community Health
Faculty of Nursing

11 December, 2019
CNI Meeting, Washington DC
Mass migration (voluntary or forced) challenges held identities and can often provoke the adoption of reactive positions towards otherness.

Through storytelling and the visual representation via maps, photographs, diary entries, videos and comedy, ECM presents a platform for the process and experience of making sense of urban healthscapes.
How to bring data together?

• To create knowledge
• To allow knowledge to flow between intersections
• To make knowledge accessible and usable.
• Knowledge as the space in which we can “think with others”
Maps are aesthetically pleasing and encourage people to think about what is around them.

Maps may encourage people to see themselves within their surroundings and to engage more actively in their communities, for example by locating people, resources and facilities to aid in social, work and family life.

GIS technology and ‘big data’ have enabled the easy creation of maps that show location of hospitals, schools, shops etc. within cities, but, such maps do not reflect the particular uses that people make of cities and their subjective attitudes to their surroundings.

ECM uses data drawn from innovative qualitative research projects focused on a particular communities within Calgary and existing ‘big data’.

The ECM is accessible to community members, policy makers and educators.

The ECM provokes dialogue.
ECM’s value...

• The configuration of knowledge to foster the user’s capacity for empathy – the ability to see the world from someone else’s perspective.

• ECM presents valuable information in an accessible form to community members, policy makers and educators.
Knowledge is negotiated.

Knowledge does not always flow comfortably between intersections.

Knowledge can take on multiple forms and these can determine what we come to know.

Effective KTE = the space in which we can ‘think with others’
It Takes a Village...

Kathryn Ranjit (Digitization manager) - With assistance from digitization projects team, all materials used for this project that were physical data were digitized to facilitate good quality images for the ECM as well as long-term repository storage. We worked with Kathryn to move our data to Dataverse: a solution that works for both the library and our research team.

Ingrid Reiche (Metadata librarian) - Ingrid developed a metadata schema for us to use in order to create details for each component of our data; she was also involved with the movement of our data to Dataverse and is completed a metadata schema that makes sense for this repository.

Peter Peller (SANDS librarian) - Facilitated access to ArcGIS stats and other statistics that are accessible through the U of C library. Peter assisted the team in looking for new statistics to reflect our questions around the "big data" end of the map as they have arisen from our qualitative work.

John Brosz - Facilitating our access to visualization room, fielding our many questions, providing technical support, assisting us to identify additional library resources that can enhance our project.

Alix Hayden - Liaison librarian for Nursing is consulting with us to assist us in creating a tool that will be of value to students and researchers and educators.
Re-imagining the library

- Allowed us to realize our goal
- Facilitated our research creation
- Supported our development of a prototype for a creative and interactive tool that supports Knowledge Translation and Exchange
- Provided a space for educators, policy makers, knowledge users, researchers, and the general public to come together
Thank you

Empathic Cultural Mapping (ECMTM) Urban Healthscapes

ECMTM on Twitter: @EmpathicMaps
What are principal elements of the future of libraries in research?
Disciplinary to Functional

In the profile of our services and organizational structures, we need to rebalance our energies toward enhancing functional capacities with less focus on disciplinary roles. Cross-disciplinary platforms serve multiple disciplines.
Digital Media and Analytical Tools

The sources scholars use today are valued in association with the analytical tools that enable research outcomes.

Therefore, our choices about content must be increasingly linked to analytic capacities.

This creates a new synthesis driving our content decisions and expenditures.
Research Resources to Research Experiences

We must refocus our attention on the nature of research today.

Our responsibility is not to keep investing in resources that we have acquired in the past.

Today’s research sources are largely drawn from beyond what we purchase or licence, especially in an age of open science.

Our responsibility is to employ an evidence-based response to current research practices and needs.
Partnerships Rather than Transactions

Libraries should be involved in all stages of the research life cycle, not just capturing the end products of research.

Ideally, library staff will have deep partnerships in the research process, offering expertise, infrastructure, and interdisciplinary connections.

Our spaces will become labs serving as hubs for discovery and creation.
Permanence to Permeability

We should both redesign and reposition the library environment in a manner constantly responsive to evolving needs.

We must acknowledge our inability to envision all of the ways in which scholars and students will be working and interacting.

We should no longer concentrate on knowing how it should “Best Be Done,” but embrace a spirit and practice of permeability, pursuing opportunities to reshape scholars’ vision of the library and to have their experiences reshape our own vision.
In early 2017, the Association of Research Libraries initiated the development of new Membership Criteria reflecting the principal Elements for Success as a 21st Century Research Library.

In articulating new and evolving roles and responsibilities, the inclusion of criteria specifically addressing the role of libraries as “strategic and engaged partners in the research ecosystem” was mandated. The new criteria were adopted unanimously at the Spring 2018 Membership Meeting.

Roles illustrated by these criteria are vital to the success of all academic libraries today, as both our scholars and our students engage in new paradigms for knowledge creation.
This redefinition of the Library’s role in research is essential to our continuing relevance.
Acknowledgements

Icons from the Noun Project

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THANK YOU