



**UNIVERSITY OF
CALGARY**

What is the Future of Libraries in Academic Research?

- THOMAS HICKERSON
- JOHN BROSZ
- SUZANNE GOOPY

Research supported by:

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FOUNDATION

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



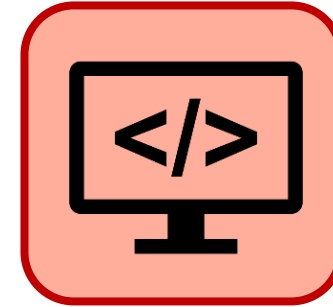
Collaborative
Spaces



Digitization



Rights &
Dissemination



Web
Development

Sub Grant Process



Letter of Intent

- Adjudicated by committee

Mid-July



Development Meeting(s)

- Library personnel & research team

August



Proposal

- Adjudicated by committee

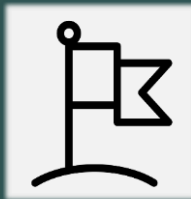
Mid-Sept.



Project Lifetime (6-8 months)

- Kickoff, DMP, Monthly Meetings

Nov - July



Project Finish

- Project Report
- External Review

Mid-July

Projects

- Multidisciplinary
- Substantial work with the library
- Research Themes:
Smart Cities, Cultural Discourse, or
Arctic Studies

Geography
Engineering
Anthropology and Archaeology
Linguistics
Environmental Design
Sociology
Nursing
Psychology
Economics
Geomantics
Engineering
Medicine
Classics and Religion
Biological Sciences
Computer Science
English
Education
Arctic Institute of North America

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



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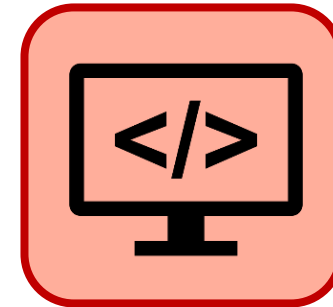
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Open Data for a Smarter City

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://yycdatasetcollective.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

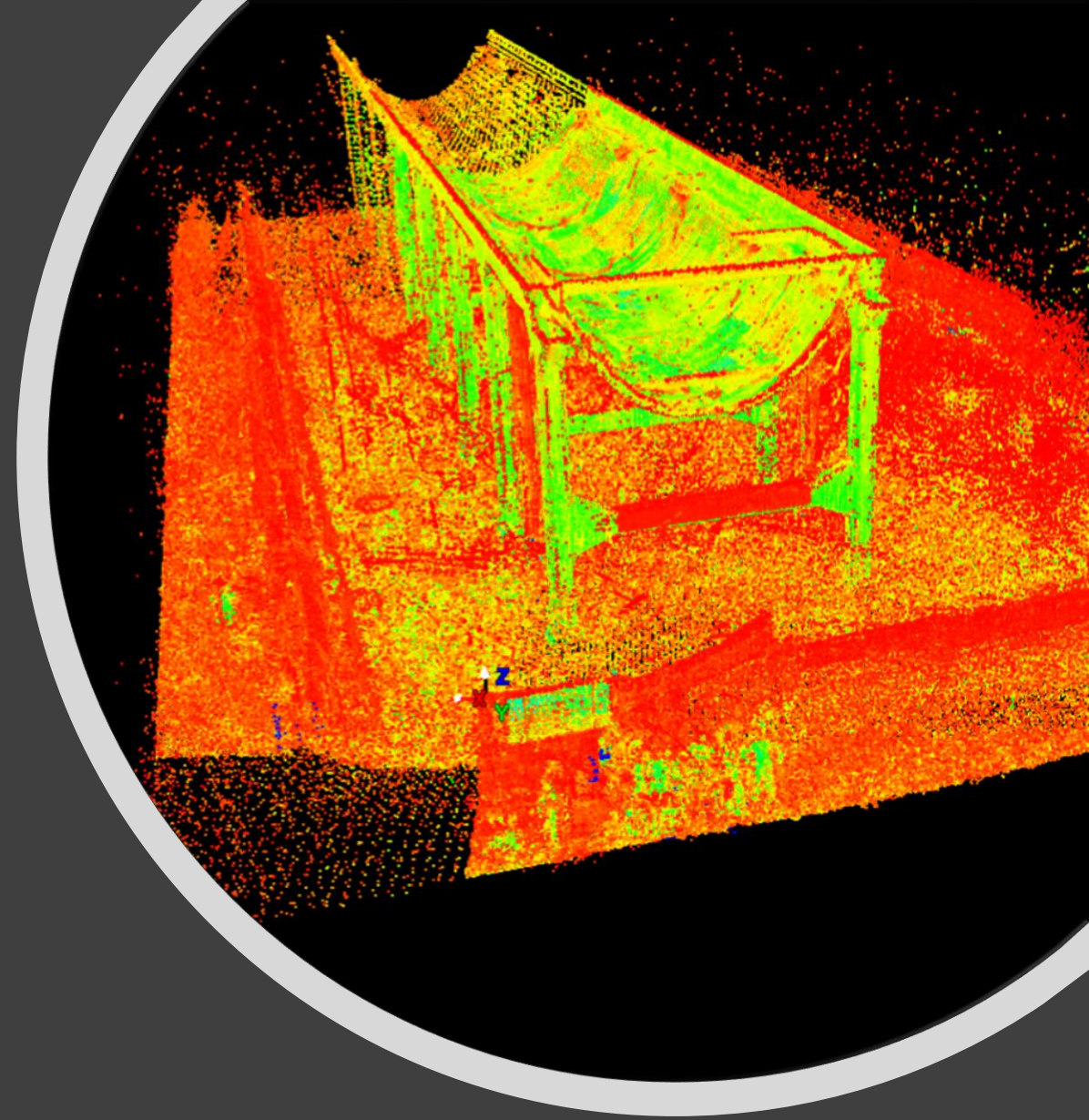


Digitally Preserving Alberta's Diverse Cultural Heritage

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/>



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 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 learners 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>



Platform



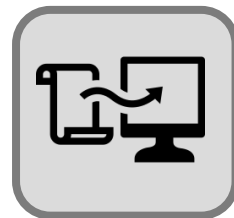
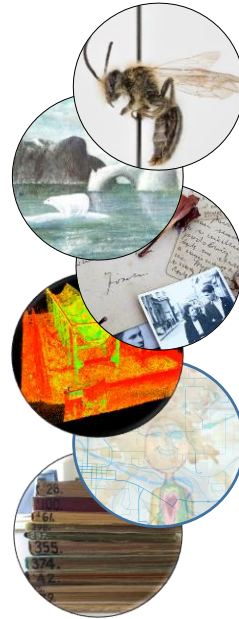
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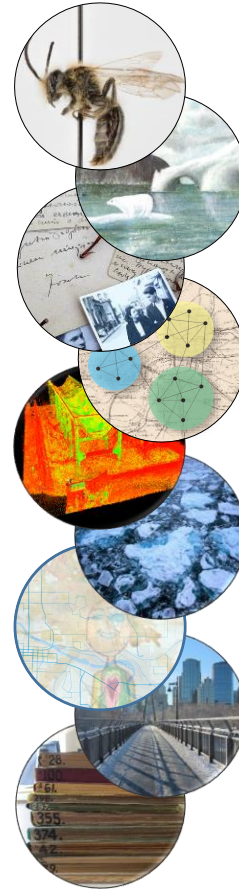
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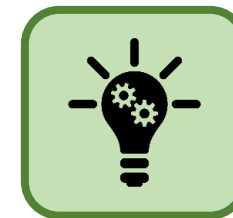
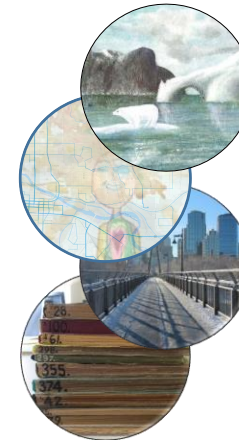
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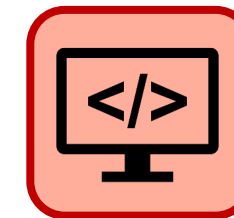
Digitization



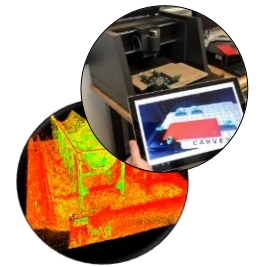
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What is the future of libraries in academic research?

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

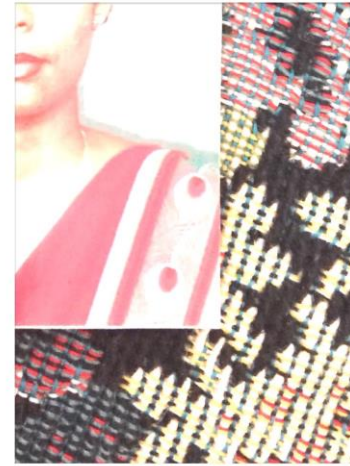
Urban Healthscapes: Empathic Cultural Mapping

Mass migration (voluntary or forced) challenges held identities and can often provoke the adoption of reactive positions towards otherness.

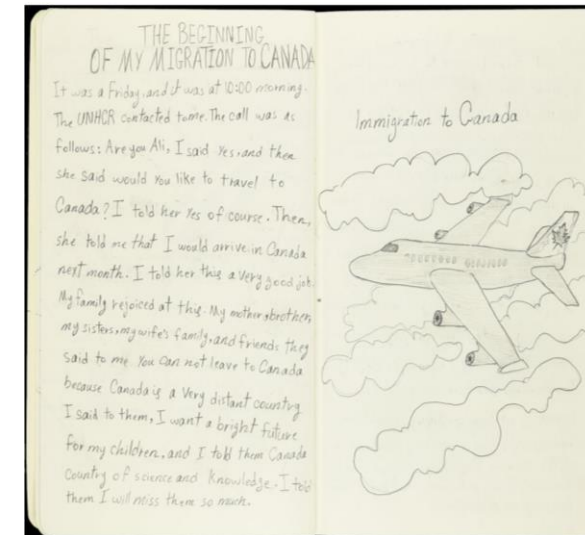
Through storytelling and the visual representation via maps, photographs, diary entries, videos and comedy, ECM presents a platform for the process and experience of making sense of urban healthscapes.

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”



Column 1	Forest Lawn	Saddle Town (Ridge)	Whitcomb	Rundle	Mayland Heights
Population	3888	6205	7395	6885	2670
Ave Household Size	2.4	4	3.3	3.1	2.2
Average Number of Children	1.1	1.5	1.3	1.2	0.9
Total Number of Households by Size					
1 Person	870	225	460	505	840
2 Person	1000	535	940	1110	975
3 Person	510	600	615	740	1180
4 Person	320	880	665	630	775
5 Person	145	550	300	330	180
6 Person	120	195	135	150	35
Living with Relatives	320	540	480	485	500
Living Alone	870	230	460	505	835
Number of Common Family Persons	5055	12385	9955	9535	4360
Living with Non-Relatives	925	370	760	855	180
Total Immigrant Population	2490	4345	4740	4070	1175
Total Male Immigrant Population	1335	2165	2415	1975	560
Total Female Immigrant Population	1155	2180	2325	2095	615
First Generation	2845	4480	5110	4595	810
Second Generation	985	1665	2100	2360	325
Third Generation	55	55	135	80	40
Period of Immigration					
Before 1971	45	20	75	110	45
1971 to 1980	370	250	575	210	40
1981 to 1990	385	385	635	830	50
1991 to 2000	615	1085	1530	995	200
2001 to 2011	1060	2615	1825	1915	350
South Asian	245	3715	3460	2135	240
Chinese	470	175	755	925	180
Black	520	410	460	1015	285
Latin American	330	75	125	210	115
Arab	290	0	680	1005	155
Southeast Asian	745	475	385	360	40
Languages					
Arabic	355	0	485	980	70
Bengali	25	105	30	45	10
Gujarati	0	75	170	20	10
Hindi	20	785	1075	785	20
Nepali	0	0	100	190	5
Punjabi	180	2750	2630	780	23
Pakistani	0	0	220	255	10
Rundi	0	0	0	0	5
Unemployed Immigrants	205	315	335	335	40
Employed Immigrants	1795	3030	3710	3135	545
Employed Female Immigrants	710	1300	1570	1360	255
Unemployed Female Immigrants	70	130	170	145	8
Employed Male Immigrants	1080	1730	2145	1770	295
Unemployed Male Immigrants	120	160	120	185	0



An Empathic Cultural Map

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

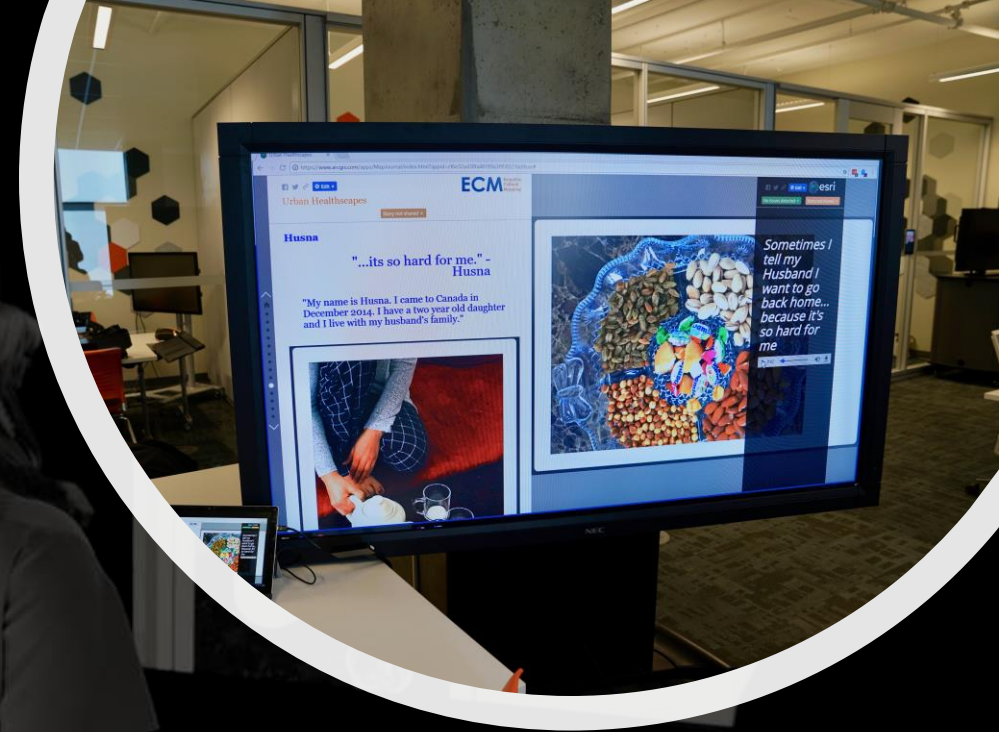
ECM uses data drawn from innovative qualitative research projects focused on a particular communities within Calgary and existing 'big data'

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 Translation and Exchange (KTE)

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.

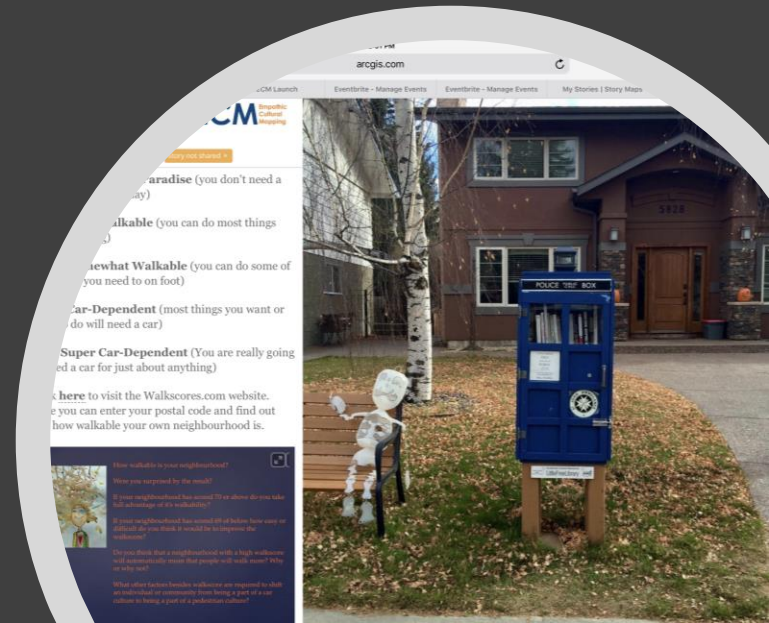
Peter Peller (SANDS librarian) - Facilitated access to ArcGIS stats and other statistics that are accessible through the U of C library. Peter assisted the team in looking for new statistics to reflect our questions around the "big data" end of the map as they have arisen from our qualitative work.

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

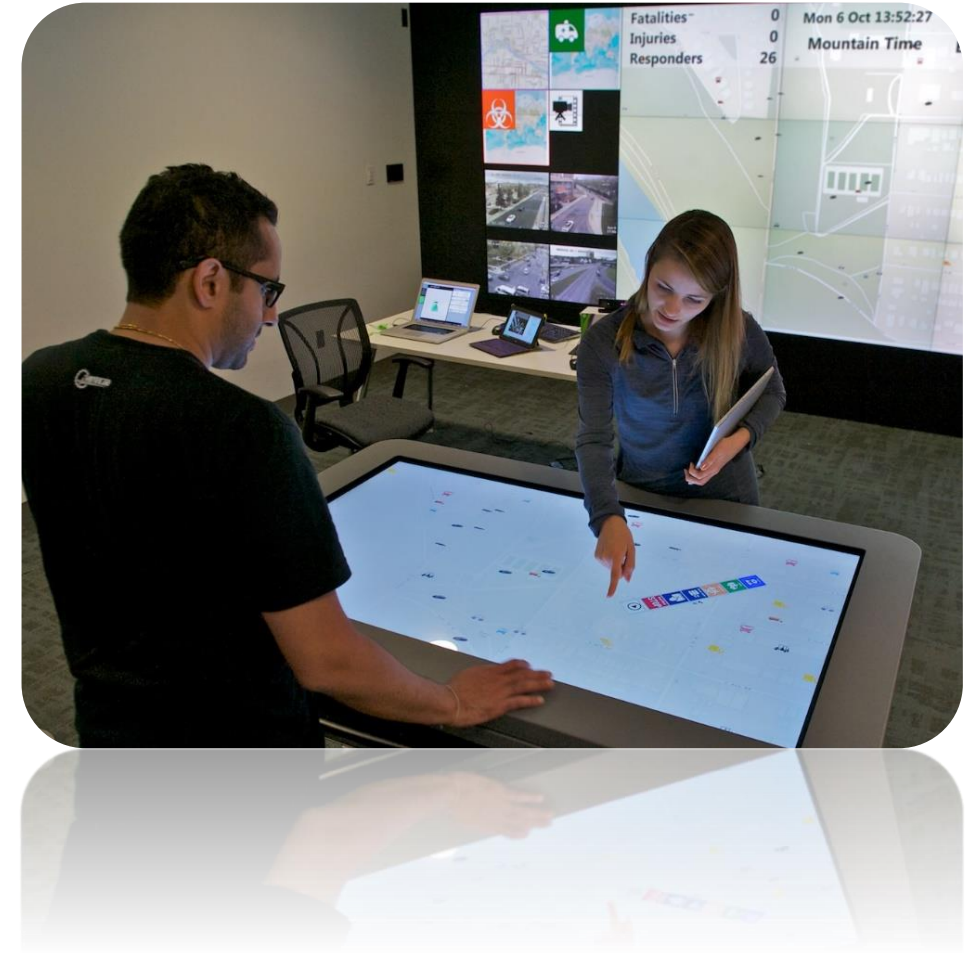
Empathic Cultural
Mapping (ECMTM) Urban
Healthscapes
<http://bit.ly/storymapecm>

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.



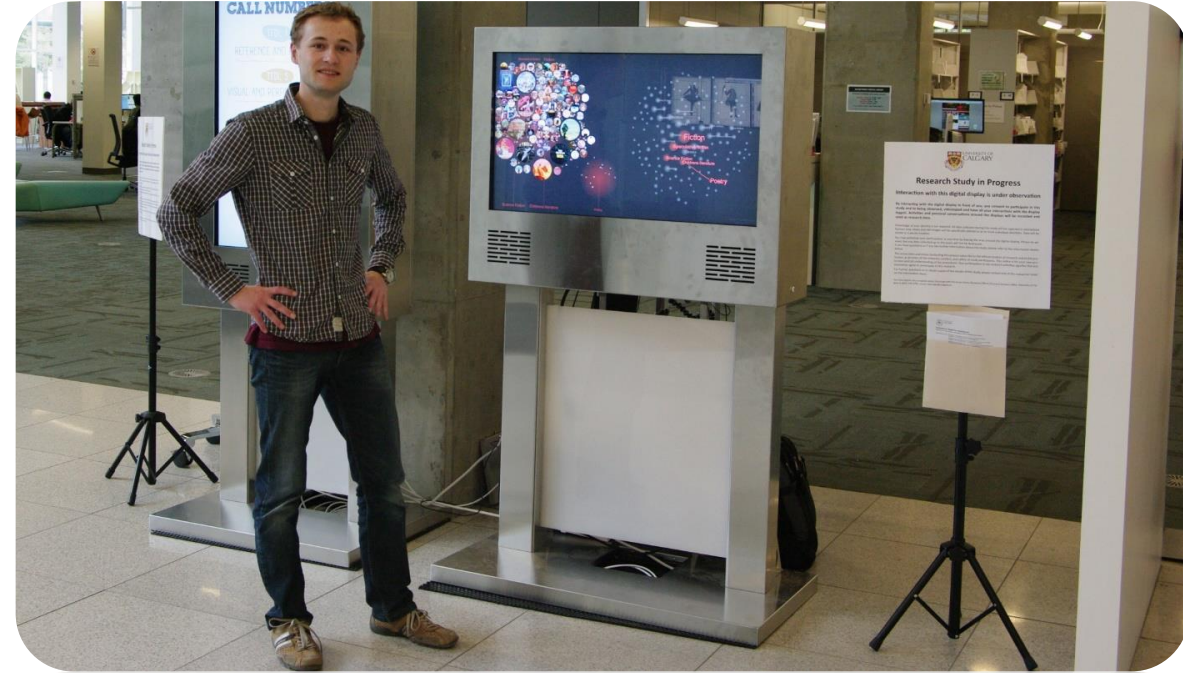
Research Resources to Research Experiences

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.

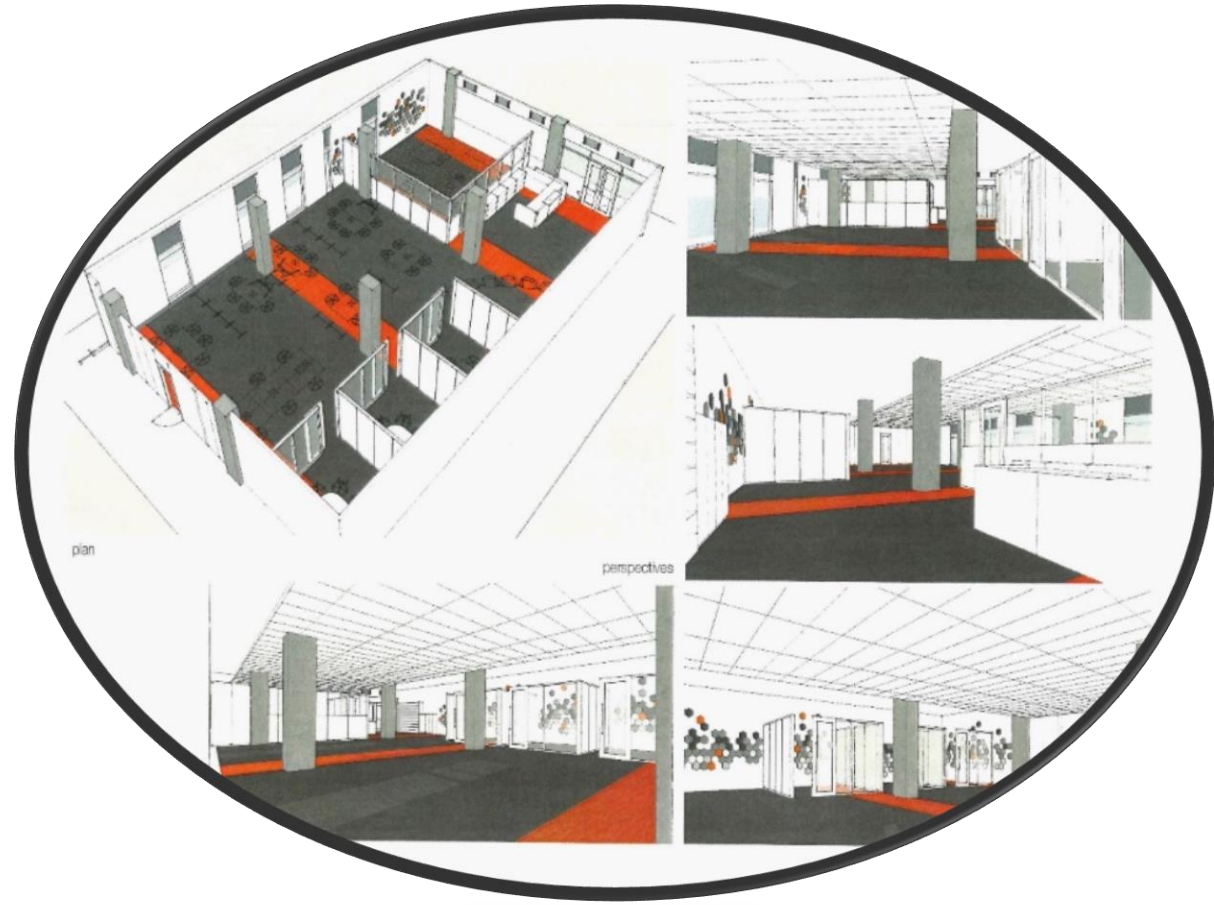


Permanence to Permeability

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.



This Is the Moment: A Profession-Wide Redefinition Is Underway

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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