GEOTHINK

New Year's Greetings for 2015

We are now in 2015 and Geothink is moving forward. 2014 saw continued growth in the number of projects as well as our membership. With the continuing evolution to open and geospatial data in Canada, 2015 will be an exciting year for us, especially as we involve more students and projects. Our student body continues to grow, with a total of 37 (as of Dec 2014).

For this issue, we are presenting yet another of our municipal partners, the City of Kitchener. We also have reports on student projects, which will give insight into some of the research we are doing here in Geothink.

We are currently working on revamping our website and have brought in help for some of our media output (see New Staff bio), so we hope our communications will better serve you in the coming year. You will also be seeing more online discussions led by students, such as our recent webinar and Twitter chats. Although hosted by students and academically focused, we still welcome all members of Geothink to participate and provide their own views. Our main online media output come from: our website (geothink.ca), Twitter (@geothinkca, #geothink), and the occasional video on YouTube.

Finally, we have annual events where you can expect to meet Geothinkers, such as the Association of American Geographers (AAG) conference in April and our own Annual General Meeting (AGM), to be held in Waterloo, Ontario this coming June.

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Geothink Research Themes

Here is a reminder of our six research themes.

Theme 1: Anywhere, Anyone, Anytime

We believe that Web 2.0 and its associated technologies will dramatically shift the way cities talk to their constituents and others. People can communicate with cities from anywhere, outside of a jurisdiction, and at any time, for example, which means outside formal venues like city council meetings. Anonymity implies that you do not know the identity of the contributor. It challenges our traditional definitions of community, citizen, and participation. We will evaluate the processes of technology development and that impact on the city and the citizen.

Theme 2: Spatial Authenticity, Accuracy, and Standards

The moment you bring up volunteered geographic information (VGI) (e.g., with Open 311), you worry about the quality of data. This theme considers questions of data structures, standards, and documentation practices used by public agencies. The research produced by this theme also will affect consensus on terminology, data standards, and dissemination regarding opening up government data and accepting VGI.

Theme 3: Laws, Norms, Rights and Code

Data related to governance is not simply a technical matter. Issues that are policy and legal in nature will be a primary focus as we try to understand the way Geoweb 1) fits in existing law and policy, and 2) shapes new policies and law. Specific legal domains of interest are privacy, intellectual property, access to information, access to justice, and the interplay between norms, codes and technology with regards to governance.

Theme 4: Open Everything

We will track municipal open data engagement over time, theorize about the impacts of open data on governance, and from a practical perspective understand and develop best practices. We also have the opportunity to document best practices and track the evolution of open data practices over time.

Theme 5: Social Justice

We will explore aspects of Geoweb - Society relationships as they pertain to social justice. We will identify the success and failures of Geoweb for community development. Using a case study approach we will use participatory research to identify emerging concepts of place, the intersection of community, engagement and social justice, and the accessibility to Geoweb.

Theme 6: Geoweb Political Economy

This theme will focus on understanding the political economy of the Geoweb as it concerns ownership structures, institutions, and policies. Power relationships between actors and processes of inclusion and exclusion among social media owners and users also will be our focus.
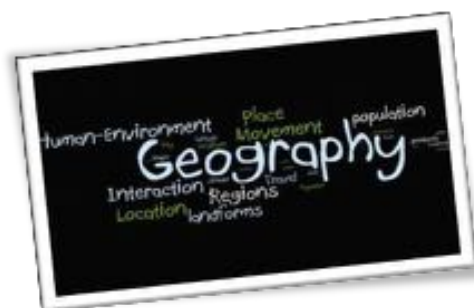
Partner Spotlight: City of Kitchener

Earlier this year the City of Kitchener, one of our research partners, opened up their new open data catalogue. I got in touch with Dan Murray and Dianne Adams to find out more about this new project.

Thank you for joining me today. You are both involved in technical development for the City of Kitchener's open data catalogue?

Dan: Correct. I am the Director of Technology Innovation and Services and have been involved in our open government project, which started last year and I am also involved in open data from the IT perspective.

Dianne: I am the GIS Manager at the City, and I became involved in this [open data] project in July, taking over the role of the Open Data Lead from another IT staff person. It's quite a natural fit, moving the role to GIS since we are often involved with figuring out how to get data out to other people. This time it is just outside the city.

Where did the motivation to actually start up the open data catalogue come from?

Dan: The City had an Accountability and Transparency Policy that was due for review and while deciding how to approach that, we chose to look at it from a larger open government perspective. Open data was an integral component of the Transparency principle from our open government project. Our open government project focused on three principles: *accountability, transparency, and participation*.

What stage are you in, in terms of development? Are you focusing on releasing more data, or are you also looking to incorporate more features?

Dan: We launched in May with 32 datasets. We recently put out more datasets in advance of a hackathon event we were holding, bringing us up to around 63 datasets.

We are looking at both expanding our catalogue and incorporating new features. We originally went with a relatively simple open data website design. Our plan was to better understand what people were really looking for in terms of open data catalogue functionality before we invested in a platform. We are now, looking to move to a platform with a more functionality now that we have a better idea what features people are looking for.

In terms of data, we are constantly looking to expand the catalogue. From a GIS perspective, we put out a number of 'easy' datasets. These were high in quality and could be automated with little effort. Now, we are branching out and moving into areas that appear to be valuable to people, but we may have to put a little more work to get it to the right open data standards.

In your catalogue, you are detailing every single field available in a given dataset. What made you decide to go into so much detail upfront?

Dianne: This was promoted by our previous Open Data Lead and the city is committed to ensuring that people understand what it is that we have in each of the fields within our datasets. Otherwise it would be tough for someone to use data when they don't really

know why or how it was collected. Even a short description is enough to allow others to better understand the dataset they would like to use.

Dan: We also met with some local open data groups before we started to put any data out. We spoke to the Open Data Waterloo Region group and got feedback from them regarding challenges to using open data. Understanding what was in the data set without having to download it was something they highlighted to us.

What sort of collaboration have you had with other governments?

Dan: We work a lot with the Region of Waterloo, who have their own open data catalogue. They shared their processes and we collaborated on the open data license as well. We wanted to make sure that our open data license would be compatible with the Region and other municipalities in the area. With the number of municipalities located in such a small geographic area, it's highly likely that people are going to want to consolidate datasets. Having an open data license that would allow that became pretty important.

We use Version 1.0 of the Open Government Licence, with the slight modification that removes the requirement for attribution, which makes it consistent with local municipalities.

Dianne: We have also had a close relationship with our fellow GIS people in our neighbouring municipalities, where we work together on the interoperability of our GIS data. Internally, we are moving to make some of our datasets, such as addressing, single line street networks, cycling and trails

routes compatible within the region. Once they have been integrated, the intent is to make them available through open data. We have a pretty good team of people working on GIS within the region, so there has been some good progress.

What about collaboration within the City of Kitchener itself?

Dianne: Kitchener has a corporate or centralized GIS team, so we do all the data maintenance and collection for the entire City. We [the GIS section] create and maintain the data in our Corporate Database repository but are not considered the data owners. For example, for a planning layer, it will be a Planning Director that makes the decision to move the layer to open data. In terms of privacy and legal matters, there is also a Director of Legislative Services, who has the final say on the release of open data. In this way, we are quite lucky as we have just a 3-step process involving just us [GIS], the data owner, and the final sign-off from Legislative Services. The GIS section will help facilitate the process of automating the data onto our Open Data site.

Do you see open data as something separate from your other operations?

Dianne: Right now, open data is separate from our day-to-day tasks but eventually, we want people from within various departments of the City to come together to ascertain which datasets need to be moved to open data. There is a lot of data outside of the GIS area, so this team of staff will be able to suggest datasets for open data based on their areas of expertise. The City has adopted the "Open by Default" principle through our Open Government Action Plan and work will be done in 2015 to build that into the daily operations of the City.

What kind of data challenges have you had with your efforts in integrating data across the region?

Dianne: We have agreed that data collection does not have to be done with the exact same standards across the region however, we (Kitchener, Cambridge and Waterloo) are using the Region of Waterloo as the central data model. We may have data formatted for our own individual city needs but when we ship it to the Region [of Waterloo], we will ship it to them according to their requirements. This has been agreed upon by the other cities from a GIS perspective. .

Dan: Another area of opportunity we are looking at, is having a consolidated site for regional datasets. With that, it would make things a lot easier in terms of file formats and file structures. We haven't started that yet, but we have had initial discussions.

What potential benefits are there to consolidating data across municipalities?

Dan: Think of parks and trails, where a trail begins in one City and ends in another. If someone wants to build an app to display bike paths, they would really benefit from datasets that properly join together.

Dianne: Another good example would be road closures since we have people moving or commuting between our Cities. Drivers need to be aware of road closures outside their own locale.

Does this promote app growth across the region instead of within individual cities?

Dan: It's something we're anticipating. The data for each City does not provide the full picture. For someone to create an app with road closures, you are only getting part of the picture with one dataset. You need all the datasets to get the full picture.

Why cooperate at the regional level, instead of the provincial?

Dan: I'd say it's a good starting point. There are various efforts to create consolidated sites, but we also need to aim for something that is achievable right now.

Dianne: From a GIS perspective we don't have that much to do with the provincial level of government. The Region has that relationship. The GIS section does not ship any data to the province directly so even though data such as Emergency Response data may come from us, it is sent to the Province through the Region. The regional level is where we have our collaboration.

What about community feedback?

Dan: This area does not seem to have as large an open data community as some other areas. However, there is a lot of entrepreneurial interest in open data. We recently worked with a student-run group called the Nspire Innovation Network and merged our hackathon with their 24-hr Start-Up event with considerable success. We gained access to a body of highly motivated and entrepreneurial students, allowing us to speak to them about the potential value open data could have to them. As they worked through their business ideas in their start-up event, a lot of ideas incorporating open data came through.

Looking to the next 6-12 months, what kinds of changes should we expect to see to the City of Kitchener's open data catalogue (other than more data)?

Dan: The key change in the future will be moving to a platform with more functionality. This will include an API that will allow easy access to data for developers, as well as the potential for visualisation of data. At the moment most of our data is GIS-related, but as

we put financial and other information visualisation will become increasingly important. This is especially relevant for people who are not necessarily interested in manipulating raw data, but are still interested in exploring the data to see what it contains.

Do you have any challenges you have come across that you would like to share?

Dianne: One of our challenges has been with people asking for data layers such as zoning or land parcels but since we purchase our land parcels from a 3rd party source we are unable to share the data on our Open Data site. This can be frustrating for peo-

ple wanting to use the data but unable to obtain from us.

Dan: Another challenge I would bring up is the need for a shift in culture. For years we have been collecting and storing data, but the shift to open data is about making it available. It takes time to get people to appreciate what the point of open data is. People need to be comfortable with releasing open data.

We are moving towards gaining people's acceptance. Most of the information we had was high quality and readily available. When we start putting out other datasets, such as budget or service performance, there may

be challenges with people's comfort level in releasing such data.

Thank you to Dan Murray and Dianne Adams for this interview. View the City of Kitchener's open data catalogue here: http://app.kitchener.ca/opendata/

Our main point of contact at the City of Kitchener is Nicole Amaral, who put us in touch with Dan and Dianne.

Email: Nicole.Amaral@kitchener.ca

"It takes time to get people to appreciate what the point of open data is. People need to be comfortable with releasing open data"

One key challenge to Kitchener: *Data interoperability within the Region of Waterloo*

The City's catalogue provides detailed descriptions of every single field within a dataset

Social Justice and the Geoweb at UBC Okanagan

By: Ailsa Beischer, Logan Cochrane, Jon Corbett, Mike Evans, Mark Gill and Emily Millard

Under Prof. Jon Corbett, Geothink researchers at the University of British Columbia, Okanagan, are investigating issues of social justice.

Under GeoThink Theme 5 (Space, Place and Social Justice), our research seeks to analyse the interrelationships between citizens, government, open data and the geoweb from the perspective of social justice. An important part of our work is contextualizing social justice within these research areas, how social justice relates to government policy and services, and how technologies are being used to mediate those relationships. From this foundation, we are assessing the potential of these technologies to transform relationships and redistribute power whereby citizens become more engaged in decision making and governments provide opportunities for greater input into the democratic process. While these potentials exist, we are focusing upon case studies that challenge the idea that these mediating technologies are tools that foster more democratic and decentralized modes of engagement for all members of society. In particular, we seek to evaluate if, how and when these mediating technologies entrench, alter or transform abilities and opportunities for social groups that have been marginalized and/or excluded.

In particular, we are concerned with the digital divide - a complex social issue characterized by gaps in information and communications technologies (ICTs) use, literacy, adoption and/or ownership. The mass adoption of the internet since the 1990s has fuelled discussion around how factors such as age, race and ethnicity, education, socioeconomic status, geography, culture, and international disparities frame access to ICTs. Inherent in the digital divide is the concept of digital inequality. This refers to the existing social inequalities that determine access and usage and can reproduce and even intensify social stratification in the digital sphere. While much of the existing research and debate around connectivity to information has been centred on the discourse of the divide, we propose that it must be viewed through a social justice lens to illuminate how ICT inequalities are reproductions of larger societal inequalities; groups that are disenfranchised by the divide are the same groups that have been historically disenfranchised by entrenched social, political and economic practices. Within our research, we have identified eight groups who have been marginalized and excluded from full access and participation in the digital realm, these include: low-socioeconomic status individuals, remote and inner-city groups, indigenous groups, recent migrants (focussing on language barriers), the homeless, people with disabilities, individuals with mental illnesses, and senior citizens. Our goal is to use a social justice lens to reveal how access to ICTs does not happen independently of the barriers disadvantaged groups face in their daily lives.

One example where we have applied this social justice framework in practice is through a partnership between the Centre for Social, Spatial, and Economic Justice at UBC Okanagan (CSSEJ) and the Okanagan Fruit Tree Project (OFTP), a non-profit organization that harvests unused fruit with volunteers to donate to local charitable organizations. Students helped create a geoweb based map that charts the fruit trees the OFTP have picked and others yet to be picked. The map contains multiple layers - some of which are private and others specifically intended to be a resource for the community; for example, one layer shows organizations that donate and distribute food. Our shared goal with this map is to compile information around food access in the community into a tool that is readily available to those who are food in-secure.
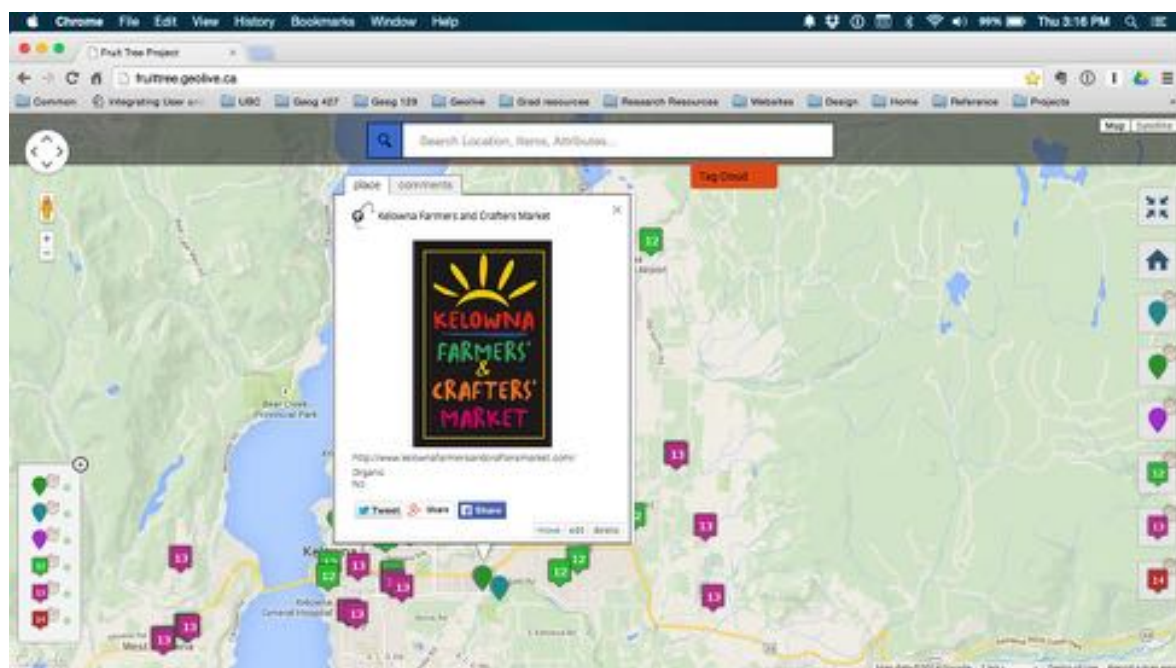
A second project that we are working on relates to open data and digital inequality. Open data is digital data that is made available to the public, free of charge, and without restrictions on its use. It is seen as a way to increase access to information, governmental transparency, and economic innovation. As such, open data is an important component in increasing civic participation because it can allow public access to information such as pertinent policies, urban planning projects, and the inner workings of government. Taking advantage of ICTs, many governments have adopted e-government websites as a way to more easily provide a variety of services to the public.

Although many governments are focussed on encouraging civic engagement through ICTs and open data, there remains a divide between those able and those unable to access and benefit from data. As the governments and large parts of society increasingly use digital technologies to mediate relationships, social injustice is further reproduced because of digital inequalities. Excluded groups demonstrate how spatial data and conversations that involve this data do not benefit everyone equally. Yet we recognize that there are exemplary examples where municipal governments and NGOs have used open data to overcome exclusion. We are working on this issue of exclusion through two distinct sub-projects. The first in collaboration with Geothink partner the City of Kelowna and the second more broadly with the entire Geothink network.

In the first sub-project we are collaborating with Geothink partner, the City of Kelowna, to build a City branded interactive map-based website and associated mobile applications that are designed to address specific development points (at various points in the application/development process) throughout the cityscape. The system will target sectors of the public that are usually excluded or absent from the planning process to comment on and add media (video, images and audio) related to a specific development and thus engage in an effective way with the City of Kelowna's planning department. The system will also allow users to comment on other users posts, thus generating a form of online dialogue.

Another goal is to better understand the relationship and tensions between excluded populations, digital inequalities, and social justice. This is done through our second sub-project in which we are developing an interactive mapping website that uses crowdsourcing to facilitate the sharing of examples where organizations and governments have directly engaged with excluded groups using ICTs and more specifically open data.

Our website has eight subsections, one for each of the aforementioned groups. Each subsection has two major components: an introduction to the group highlighting specific challenges the population has encountered when accessing open data, and an interactive map layer. Within the map layer we are gathering and presenting case studies from our research as well as compiling crowdsourced information from municipalities, excluded groups, and researchers from the Geothink network.
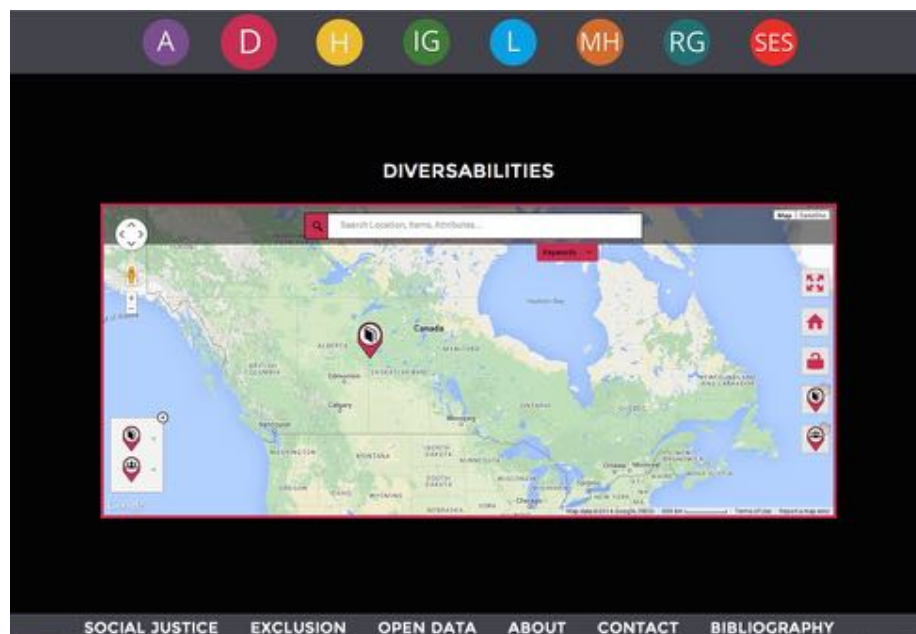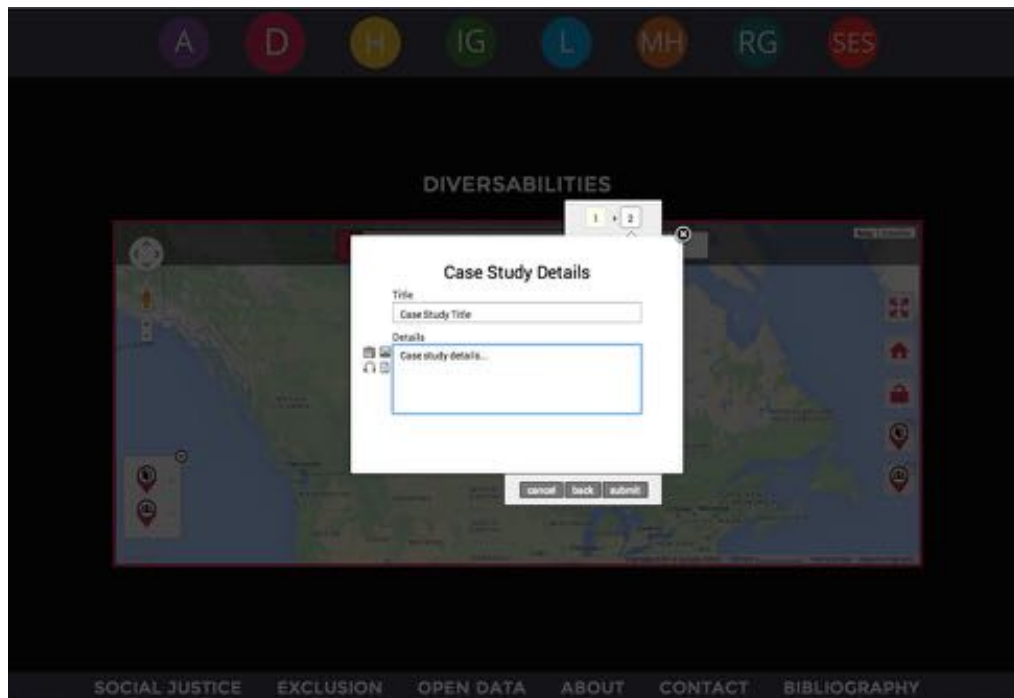
Ultimately, our goal in designing this website is to create a tool for municipalities and organizations to share their practices for promoting equitable access to services and information across the eight groups we've identified. In doing so, we hope to facilitate more socially just practices in the digital realm. For more information, please contact Dr. Jon Corbett (jon.corbett@ubc.ca).

Visit geolive.ca to experience the original geoweb upon which the current project was built.

CONTACT JON CORBETT

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R2T2 Undergraduate Research Projects

In this section we have two undergraduate projects that took place under the Rapid Response Think Tank (R2T2) scheme. Our R2T2 programme provides support to Geothink members in short, quick research tasks that can be completed within a relatively short timeframe. Members in need of help with a research task can contact us at geothinkca@gmail.com with proposed research tasks.

Gabriella Fanous
Undergraduate, McGill University

I am an undergraduate Majoring in Environment, with a Minor in Geographic Information Systems, working under the supervision of Dr. Renee Sieber for this project. My project aims to identify best practices for current and incipient open data implementation initiatives in the public sector, drawing on lessons learnt from GIS implementation efforts.

Here we define implementation as the set of activities necessary to put the innovation into practice and incorporate it into existing and developing operations. The introduction of GIS in governments began in the 1980s, facilitated by the availability and affordability of computer technologies and GIS software. It enabled the storage, retrieval, manipulation and display of geospatial data, within and across departments and agencies. In so doing, it exposed the handling of geospatial data to individuals outside the specific organizational unit. In much the same way, the digitization and online release of government data unveils to both the public and other government agencies the activities of a given department. Open data initiatives in governments face initial barriers and continual challenges that are technical, managerial and institutional in nature. An initial review of the literature suggests that the impediments to open data implementation parallel those of GIS implementation experienced a few decades earlier, but we have yet to see studies that have attempted to draw on those experiences to inform current open data initiatives.

This project positions itself as a bridge between GIS and open data implementation, identifying lessons learnt from GIS implementation and determining their relevance for open data implementation in public agencies. Realist reviews of the GIS and open data implementation literatures were conducted to assess which determinants of implementation are most relevant within a particular setting.

Realist syntheses are commonly used to evaluate the implementation of health and social care interventions. The context in which innovations such as GIS or open data are introduced is complex, dynamic and changing. Different outcomes can result in different settings due to contextual factors at the level of the individual and the institution. A realist review focuses on providing explanations for why interventions may or may not work. This approach is appropriate for evaluating implementation processes, experienced differently by all organizations.

The methodology employed was multifold. First, a preliminary review of both literatures was conducted. It clarified the scope of the review, identified pertinent keywords that would be used in a later search, and determined appropriate search databases. Scopus and Proquest databases were selected to systematically search the literature. Second, articles were appraised based how they defined relevant terms, specifically, "implementation" or related concepts (such as adoption, release, use), open data, and GIS. Third, data relating to context, determinants and outcome of the implementation process for open data and GIS, respectively, were extracted and tabulated. Determinants were thematically coded, accounting for both context and outcome.

The comparison between the determinants of GIS and open data implementation suggest that governments react in distinctive ways to the introduction of computation. A number of lessons relevant to open data implementation can be drawn from the study of GIS implementation:

1. The definition of the role and scope of the innovation (GIS or open data) is needed to better understand its intended use.

2. Technologies, like GIS and open data, are socially constructed. Consequently, the perception of the technology and the implementation process is specific and unique to an organizational setting.

3. The implementation of innovations requires effective and appropriate management strategies.

A number of factors emerge as decisive for open data implementation. They can be grouped into 5 categories: political and social context, institutional features, managerial issues, human factors, and technical considerations.

The broader social and political context of the open data initiatives affects the level of openness of the organization, thereby influencing the extent to which it is motivated to open up its data. Fear of criticism by the public and the media

make organizations, particularly local agencies, wary of publicizing their data. Moreover, the political setting influences the legal framework that facilitates or impedes the release of government data.

Institutional factors refer to the architecture of public agencies and how they relate to each other. Organizations that operate as independent bodies can more readily manage their own datasets, enabling them to release data more easily, if they deem appropriate to do so. Organizations whose work and data are related to other agencies or higher levels of government are more dependent on a larger scale adoption of open data in government.

The managerial strategy forms a bridge between the stated mandate of the organizations and the role of open data in fulfilling that mandate, and the reaction of employees to the open government data movement. It therefore has the potential to shape the response of employees to the open data innovation.

Human factors relate to how individuals within the organization understand the objective and importance of open government data. Individuals who see or anticipate benefits from open data are more likely to support its initiation in the organization compared to those that do not understand its value or foresee any benefits. Those who perceive data as power may be less willing to share it.

Technical considerations include the skills required to create open data and concerns over data quality and data accuracy. These issues are present to varying degrees in different organization and are major challenges of the open data agenda.

Government open data activities can be complex and dynamic and one should never forget the harder-to-see influence of institutions and those working within them. Understanding the numerous variables of the environments in which open data is being implemented should help in devising effective adoption strategies within government.

Brendan Buchanan Dee
Undergraduate, McGill University

I am an undergraduate student in the Department of Geography at McGill University, Majoring in Geography, and Minoring in Geographic Information Systems and Political Science. Over the past semester I collaborated with one of Geothink's partners, Open North. The focus of my research is *geospatial metadata* – a subcategory of 'data about data' pertaining to the unique geographic content and context of a dataset.

Geospatial metadata can be represented by elements such as 'coordinate system', 'location' (e.g. place names), 'spatial data quality' (e.g. positional accuracy, cloud cover, lineage,), and 'spatial resolution'. Thus, geospatial metadata are employed to describe and structure the unique geospatial attributes of a particular dataset. Used in conjunction with a data portal, metadata facilitate the discovery, access, retrieval and sharing of geospatial datasets between individuals, organizations, and research domains.

A critical issue with respect to geospatial metadata, and the discourse on metadata as a whole, is the essentiality of metadata. Simply put, what information must be included when describing a dataset? Due to the diverse manifestations of information, metadata standards have been developed in order to systematize the creation of metadata. The elements these standards include can be general (seeking to encompass a vast number of use cases), or specific (developed for in-depth domain coverage). The importance of metadata also varies between different user groups; geospatial datasets are a conundrum as both expert and non-expert users consume them. Generally, non-expert users consider the detail of domain-specific geospatial metadata standards extraneous. Conversely, experts insist on comprehensive metadata to enhance interoperability and discovery efforts, in addition to providing metadata consumers with the information needed to determine appropriateness, provenance, and licensing. Metadata standards can therefore be said to have affordances – that is, they provide certain functions

and utility.

The aim of the project was to assess how different metadata standards structure and describe geospatial datasets. Specifically, it explicates the advantages and disadvantages of metadata standards with respect to the affordances they provide. Understanding the affordances provisioned by standards will contribute to the improvement of geospatial metadata standard development, selection, and adoption. To simplify the analysis, affordances were aggregated into the following categories:

1. *Interoperability/Fitness-for-use*

2. *Provenance/Lineage*

3. *Accessibility*

4. *Discovery/Exploration*

5. *Analytics*

For this purpose, the metadata standards from the following organizations were examined: Dublin Core, Federal Geographic Data Committee, International Organization for Standardization,

Open Geospatial Consortium, and Socrata Open Portal. This selection includes those developed for general and specific uses so as to capture the diversity of metadata standards. A series of characteristic variables were constructed in conjunction with the aforementioned affordance categories. The standards were polled for the presence/absence of the respective elements and the results were displayed in matrix format (*see table below*). Based on the presence or absence of metadata elements, the standards were found to vary greatly in their functional affordances.

Among the organisations, standards developed specifically for geospatial datasets provided the most detailed abstractions. However, this came at the expense of simplicity. Generalist standards conveyed information about distribution, but ignored idiosyncratic attributes, thereby obscuring origin and use implications. One example of a generalist metadata standard is the Dublin Core. Dublin Core's emphasis on simplicity and universal applicability renders metadata for 'spatial data quality' non-essential. This absence generates a framework that obscures an idiosyncratic quality of a particular geospatial dataset. Additionally, it was found that the proprietary metadata standard is unique in offering analytic metadata concerning data portal distribution and user feedback. The Socrata schema is a service-based metadata standard constructed by Socrata Open Portal. For a price, Socrata Open Portal hosts and vends datasets from its clients to the public through their proprietary ecosystem of data management products. Clients receive analytic feedback from Socrata, including dynamic metadata such as 'user rating' and 'download count'.

The output of this project consisted of a written report that assessed the utility of five metadata standards as a function of their respective affordances. Further development in geospatial metadata research, particularly in the domain of affordances, will be useful in selecting appropriate standards. Civil servants are immediately affected by metadata standards as the adoption of a particular standard regulates practices and procedures in the custodianship of geospatial information. The selection of standards also impacts the accessibility and interoperability of an institution's holdings, and can thereby advance or impede open data initiatives.

Affordance	Element Variable	Metadata Standard					Remarks
		DCMI	CSDGM	ISO 19115	OGC	Socrata	
Interoperability/ Fitness for Use	Geospatial Element(s)	•	•	•	•	•	
	Temporal Element(s)	•	•	•	•		
	Spatial Reference System		•	•	•		
	Spatial Resolution		•	•	•		
	Bounding Box	•	•	•	•		
	Spatial Data Quality		•	•	•		
	Accuracy Report		•	•	•		ISO 19115: via relationship with ISO 19157
	Limitations		•	•	•		
	Ontology			•			
Provenance/ Lineage	Creator/Originator	•	•	•	•		
	Publication Details	•	•	•	•	•	
	Contact Details	•	•	•	•	•	ISO 19115: supports 1+ contacts
	Purpose/Rationale		•	•	•		
	Maintenance/Update Information		•	•		•	Socrata: via update statistics
Accessibility	Use Constraints/Rights	•	•	•	•	•	
	Ownership					•	
	Distribution		•	•		•	
	Security		•	•	•		
Discovery/ Exploration	Browse Graphic	•	•	•	•		Dublin Core: it is possible to refer the description element to an image
	Intended Use/Audience	•	•	•	•		
	Multi-language	•	•	•			OGC: request being processed
Analytics	User Rating					•	
	Total Times Rated					•	
	Number of Comments					•	
	Download Count					•	

Recent Publications

Quesnot, Teriitutea, and Stéphane Roche. "Measure of Landmark Semantic Salience through Geosocial Data Streams." ISPRS International Journal of Geo-Information 4.1 (2014): 1-31. http://www.mdpi.com/2220-9964/4/1/1/htm

Research in the area of spatial cognition demonstrated that references to landmarks are essential in the communication and the interpretation of wayfinding instructions for human being. In order to detect landmarks, a model for the assessment of their salience has been previously developed by Raubal and Winter. According to their model, landmark salience is divided into three categories: visual, structural, and semantic. Several solutions have been proposed to automatically detect landmarks on the basis of these categories. Due to a lack of relevant data, semantic salience has been frequently reduced to objects' historical and cultural significance. Social dimension (i.e., the way an object is practiced and recognized by a person or a group of people) is systematically excluded from the measure of landmark semantic salience even though it represents an important component. Since the advent of mobile Internet and smartphones, the production of geolocated content from social web platforms—also described as geosocial data—became commonplace. Actually, these data allow us to have a better understanding of the local geographic knowledge. Therefore, we argue that geosocial data, especially Social Location Sharing datasets, represent a reliable source of information to precisely measure landmark semantic salience in urban areas.

Fast, Victoria and Claus Rinner. A Systems Perspective on Volunteered Geographic Information. ISPRS International Journal of Geo-Information. 2014; 3(4):1278-1292. http://www.mdpi.com/2220-9964/3/4/1278

Volunteered geographic information (VGI) is geographic information collected by way of crowdsourcing. However, the distinction between VGI as an information product and the processes that create VGI is blurred. Clearly, the environment that influences the creation of VGI is different than the information product itself, yet most literature treats them as one and the same. Thus, this research is motivated by the need to formalize and standardize the systems that support the creation of VGI. To this end, we propose a conceptual framework for VGI systems, the main components of which—project, participants, and technical infrastructure—form an environment conducive to the creation of VGI. Drawing on examples from OpenStreetMap, Ushahidi, and RinkWatch, we illustrate the pragmatic relevance of these components. Applying a system perspective to VGI allows us to better understand the components and functionality needed to effectively create VGI.

For a list of our publications, please visit: geothink.ca/publications

Student Spotlight: Kristen Guth

Kristen is a Research Assistant for Professor Daren Brabham at the Annenberg School of Communication and Journalism of the University of Southern California. She is currently in her third year of doctoral study. Her research falls at the intersection of technology and organizational change. Kristen is most interested in understanding the mutual effects between technology (including the Internet) and organizations, encompassing the latter's structures, networks, cultures and performance. More importantly, she is interested in how this type of understanding can help shape the technology design process, strategic management and strategic communication.

Through Geothink, Kristen hopes to explore the implications of the consultative layer negotiated between technology vendors and government entities. Kristen is looking forward to exploring crowdsourcing with Prof. Brabham and the Geothink team.

Kristen received a B.A. from Wake Forest University in Winston-Salem, North Carolina and an M.A. from the University of Illinois at Urbana-Champaign, both in communication, and has researched with the Youth and Media Project at the Berkman Center for Internet and Society at Harvard University. Prior to her graduate studies, Kristen worked as a journalist for NBC in New York, a digital public relations professional for Edelman agency in Washington, DC, and a corporate public relations professional and legislative assistant for UPS. In her free time, Kristen also bakes delicious pies and plays touch football.

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Student Spotlight: Logan Cochrane

Logan is a PhD student at the University of British Columbia, Okanagan campus. He is a native of British Columbia, having grown up in the lower mainland. He completed his BA in Anthropology at the University of Victoria and MA in Sustainable Development at Staffordshire University (UK). Logan spent the past couple of years working as a consultant for a non-governmental organisation in Ethiopia, which works closely with government to ensure all required pharmaceutical products related to HIV testing and treatment are available throughout the country. Last year he also worked as a consultant in Afghanistan, designing a livelihood improvement project that was funded by the Swiss government.

Logan's research relates to the general theme of social justice, although in a different sphere. His doctoral research looks at food insecurity and government extension programs in rural Ethiopia. Although very different from Geothink's Canadian municipal perspective, many of the critical perspectives that relate to social justice do overlap. Logan is interested in how social justice relates to open data and new forms of mediating technologies; in particular, looking at the structural components of marginalisation and exclusion, and how these technologies and data are changing.

Logan is part of a group of students working under the guidance of Dr. Corbett at UBC on issues relating to social justice. Geothink provides opportunities for collaboration between a wide range of researchers and universities, the likes of which is uncommon. In line with this spirit of collaboration, one of the unique outputs they hope to develop is a geoweb platform for collecting, sharing and learning about municipalities overcoming challenges related to social justice. This platform will provide concrete and accessible examples for Geothink partners and others to learn from.

CONTACT LOGAN

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New Staff: Drew Bush

We have recently hired a new member of staff, Drew Bush, for the position of Digital Journalist. Drew will be responsible for media output such as blog posts, interviews, and video, and will help keep you informed of what is happening inside Geothink. He contributes to our social media output on Twitter and has been working on interviewing members of Geothink about their research, to communicate to the rest of the group. Expect to see more of Drew's work as we publicise more research this year.

Drew is in the fourth year of a Ph.D. in McGill University's Department of Geography and School of Environment. His research examines how students using Columbia University's Educational Global Climate Model (EdGCM) learn Earth science and build science process skills through an inquiry-based learning curriculum he designed. When not teaching, Drew conducts research as a guest student at the Woods Hole Oceanographic Institution in Woods Hole, MA and at NASA's Goddard Institute for Space Studies in New York, NY.

Before his doctoral work, Drew examined the relationship between public transportation, urban development and environmental degradation as journalist at *The Journal Newspapers* (now *The Washington Examiner*). Later, as a senior communications associate in the Washington, DC headquarters of The Wilderness Society, he helped coordinate national energy and climate change communications strategies. At Geothink, he's most excited about the potential for using social media and digital journalism to tell the stories of each partner's research and work.

In his free time, Drew has also served as graduate editor for McGill Geography's undergraduate journal, Field Notes, volunteered with Let's Talk Science and served as a mentor to undergraduates. In the summer months, he teaches about island and ocean ecosystems at the Lyman V. Rutledge Marine Laboratory on Star Island, NH, and how to be a climate modeler at McGill's Be A Computer Scientist camp.

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Geothink Partners and Collaborators

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Upcoming Events and a Call for Your Participation

For us to have the broadest impact with the Geothink Project, we would greatly appreciate your input. This can mean providing monthly contributions to our social media outlets, writing blog posts, research updates, and being involved in future events.

Also, please make sure to inform us of any changes in contact details.

Notices

Please email Jing (jing.teo@mcgill.ca) to notify us of any changes to contact details.

Events

AAG (Association of American Geographers) Conference

Location: Hyatt Regency, 151 East Wacker Dr., Chicago Illinois
Schedule: http://www.aag.org/cs/annualmeeting/schedule_and_program
Date: 21-25 April

Geothink Annual General Meeting

Location: Waterloo
Date: 18-19 June

Summer Institute

Location: Waterloo
Date: 15-17 June

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Or email us: geothink.ca@gmail.com