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Valerie Léveillé, Katherine Timms

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Through a Records Management Lens: Creating a Framework for Trust in Open Government and Open Government Information

Les objectifs visés par les systèmes de gestion documentaires : La mise en place d'un cadre de confiance et de la transparence de l'information dans un gouvernement ouvert

Valerie Léveillé

School of Library, Archival and Information Studies, University of British Columbia
valerieleve@gmail.com

Katherine Timms

Information Standards Specialist, Library and Archives Canada
katherine.timms@bac-lac.gc.ca

Abstract: Through an analysis of current business processes, workflows, and documentation that guide the creation, management, and control of open government information as well as the policies, procedures, and structures in place that help instruct these processes and establish open government initiatives, this article will offer a preliminary exploration of the possibility of establishing a universal framework around these initiatives that would help ensure that the information being distributed is accurate, authentic, and trustworthy. A preliminary investigation of open government initiatives in Canadian jurisdictions represents the first phase of research to situate and explore this discussion in context.

Keywords: open government, open data, open government data, open information, records management, business process

Résumé : En s'appuyant sur une analyse des processus d'affaires courants, des flux de travail et de la documentation qui guident la mise en place, la gestion et le contrôle de l'information dans un gouvernement ouvert, ainsi que les politiques, les procédures et les structures qui sont en place pour aider à mettre en marche ces processus et à établir des initiatives gouvernementales ouvertes, cet article offre une exploration préliminaire de la possibilité d'établir un cadre universel concernant ces initiatives, cadre qui aiderait à assurer que l'information distribuée est exacte, authentique et digne de confiance. Une enquête préliminaire d'initiatives de gouvernement ouvert dans les administrations canadiennes constitue la première phase de la recherche visant à situer et à explorer cette discussion dans son contexte.

Mots-clés : gouvernement ouvert, données ouvertes, données gouvernementales ouvertes, information ouverte, gestion documentaire, processus d'affaires

Introduction

Open government has become widespread within modern bureaucracies. The advent of modern technologies, social media platforms, and the like have played a significant role in creating a sense of accessibility between citizen and government, which in turn has led to an influx of public demand for access to government information. While, for some jurisdictions, open government is used as a means to respond to this influx, it is primarily representative of a shift towards greater government transparency and public accountability. By encouraging an open dialogue between their administration and its constituents, governments hope to meet the ever-increasing challenge of establishing trust between it and its citizens. However, this trust can arguably only be cultivated under strict conditions, which include the dissemination of complete, accurate, and reliable open government information that has been generated in a trusted records management environment.

The premise of this research is reflected in the objectives of the InterPARES Trust (ITrust) project, an international research collaboration that seeks to

generate theoretical and methodological frameworks to develop local, national and international policies, procedures, regulations, standards and legislation, in order to ensure public trust grounded on evidence of good governance, a strong digital economy, and a persistent digital memory (InterPARES Trust 2014).

As a product of this research, this article will explore concepts of trust in open government initiatives and the open government information (for example, government data and data sets, open information, metadata components, and so on) that support these initiatives by touching on the records management concerns that underlie them both. The first section of the article will begin by defining the concepts of open government and open government data as individual but complimentary entities and conclude by exploring examples of other types of open government initiatives, including those that are currently being adopted across various Canadian jurisdictions. The second section of this article will then refer to the analysis of business processes as an approach to exploring the impact that these initiatives are having on the creation, management, and control of government records. It will follow by offering guidance on how these challenges may be reconciled through the adoption of an enterprise-level perspective. The Canadian examples will be revisited at the end of this section, with some preliminary observations given on how they relate to the records management framework just explored.

This article offers an introductory exploration of the issues pertaining to the intersection of open government initiatives and records management requirements.¹ Outlined in the form of a literature review and preliminary analysis, it presents a summary of the issues and ideas that have been explored to date within the parameters of this research. It must be acknowledged, however, that while this article proposes one way of addressing these issues, it is most certainly not the only way that records professionals may be choosing to approach this matter. As such, the next phases of this research will not only serve as a means

of verifying the effectiveness of the approach suggested in this article but also explore additional strategies that are being adopted by those currently pursuing open government initiatives.

Open government, open government information, and the Canadian context

Open government and open government information have become increasingly important tools for achieving “democratic accountability and deliberation” in government (Janssen, Charalabidis, and Zuiderwijk 2012, 260). While there is a convergence between open government and open government data, the latter of which is one of several examples of what can constitute “open government information,” the two are distinct concepts with separate objectives and backgrounds. To properly understand the records management requirements that are attributable to these concepts, their underlying features and characteristics must be understood and properly contextualized. For this purpose, this section of the article will also explore various Canadian jurisdictions that currently support open government initiatives.

Open government

In its simplest form, open government means increasing public access to government information through modern digital technologies. It is often interpreted as a contemporary extension of e-government or government 2.0, with a focus shifting more towards the delivery of government information and services via innovative technological platforms rather than uniquely through web-based telecommunications technology. The overarching goal of open government is to create a sense of openness, sharing, and collaboration between different government departments and between government and the public (Francoli 2011, 152–53).

Beyond e-government, the fundamental principles that ground the concept of open government share strong ties with those that underpinned the early “right-to-know” or right to information movements that eventually led to the creation of access to information legislation. Prior to these specific efforts, similar beliefs contributed to the rise of related movements in support of freedom of expression and freedom of the press.² At the federal level, access-to-information (ATI) legislation was developed as early as 1966 in the United States. It was intended as a way of not only increasing access to information on government activities and procedures but also reducing corruption, malfeasance, and bribery inside government.³ Canada’s first Access to Information Act was later introduced in 1983.⁴ As a countermeasure to the adverse consequences that ATI-like legislation risked having on the privacy of the average citizen, Privacy Acts were introduced shortly thereafter as a means for protecting personal information that could be found in government records.⁵ The advent of the Internet, social media, and innovations in communication technologies have each had significant repercussions on amplifying demands for ATI, many of which government and legislation have had difficulty keeping up with. While it may not be

based on new ideas, open government is reshaping the way government now approaches ATI and, thus, its relationship with the public.

An open government strategy aims to increase government transparency by giving citizens access to both public sector information (that is, publicly funded information that should be publically available) and information that informs the public, to a reasonable degree, on government processes, activities, and procedures. Increased transparency should not only result in a surge of the amount of information available to citizens about their community, but this information should also empower citizens to hold their government to account (Francoli 2011, 154; O'Hara 2012, 226; Ubaldi 2013, 13). Accountability can only be truly achieved when, first, citizens are given free, unrestricted, and unbiased access to information that permits them to hold their government to account and, second, when that government is willing to accept being held accountable, taking responsibility for any failures, losses, or shortcomings that are brought to light as a result of the release of that information (Veljković, Bogdanović-Dinić, and Stoimenov 2014, 279). True accountability, in turn, encourages citizen engagement and participation, a third objective of open government. An open government initiative is unique in that it seeks to achieve true democratization of knowledge creation and dissemination as a way of encouraging effective public oversight of government activities by civil society. In this regard, it also aims to enable citizens to influence government service development and public policy drafting (Scassa 2014, 398). This action ultimately supports the long-term objective and benefit of open government: enhancing, building, and nurturing, if not, in some cases, renewing, a trust relationship between a government and its citizens.⁶

With conceptual roots in ATI legislation, open government has traditionally adopted a more reactive, rather than proactive, approach to information dissemination—that is, only once the information is requested will it then be released, providing that the information is eligible for disclosure and distribution within the limits of the law. However, this particular strategy has often made government a target of significant criticism from those who doubt the true intentions of open government strategies. Critics will regard such an approach as a tactic that helps government increase, rather than give up control over public information. They would argue that this results in the reinforcement of existing structures and demonstrates a further resistance to change toward a more democratically accountable model of government (Janssen, Charalabidis, and Zuiderwijk 2012, 266). This stance is slowly shifting, however, with governments now creating extensions of their open government initiatives to include different platforms and tools (for example, open data portals, forums for open dialogue)—to be explored in the next sections of this article—that allow for the proactive or routine distribution of specific types of government information. Ultimately, transparency and accountability can only truly be achieved when, first, the gap that exists between a proactive and a reactive approach to the release of information is narrowed and, second, when a governance model that supports more routine dissemination of information is adopted. Ideally, the concept of an

“open” government recognizes the public’s right to information that belongs in the public domain or that has been gathered as a result of public funds, and, as such, it supports the open and unrestricted distribution of this information and encourages its reuse by the public. In turn, this supports the objectives of open government: transparency, accountability, and citizen engagement.

Open government data

Open government is strictly a concept, an ideology. When put into practice, a government’s commitment to such a concept is usually reflected in the form of policy and action plans and set in motion via specific tools, platforms, or initiatives. While various governing bodies will approach this task differently depending on the availability of staff, time, and resources, open data and open data portals are nevertheless popular examples of tools commonly used to support the opening up of government information. To understand how these tools are used, one must first understand what they encompass.

There are varying definitions attributed to “open data.” Simply put, data, or “the smallest meaningful units of information,” become by definition “open” when they can be “freely used, re-used and redistributed by anyone, only subject to (at most) the requirements that users attribute the data and that they make their work available to be shared as well” (InterPARES 2 Project n.d.; Ubaldi 2013, 6). This definition is attributable to many different data types and is a concept that is reused and adopted across many different communities, both public and private, that support the free distribution of open information, which can include scientific data, environmental/meteorological data, mathematic data, or government data. The concept of open data falls under an umbrella of similar “open” movements, including open access, open source, and open hardware. These movements all have the common goal of generating open knowledge—that is, “any content, information or data that people are free to use, re-use and redistribute—without any legal, technological or social restriction” (Open Knowledge 2014).

There are four characteristics that are attributable to open data.⁷ First, users must be able to access the data easily and effortlessly in a machine-readable format and via a web-based interface and platform that will not impose any technical or educational barriers. Second, data must be distributed and made available in a format that will allow users to reuse it, including manipulate it or “mash” it up with other data sets. Third, open data must account for quantity. In order for it to carry meaning and be of value to its user community, the data must be distributed in large quantities, either in numbers (that is, large amounts of data on one topic), in time (data accumulated over an extended period), or in total amount or size. Lastly, open data must be absent of membership, bias, exclusivity, or special privilege. It must account for universal participation by excluding such restrictions or controls as unwarranted licenses, copyright restrictions, patents, trademarks, and, as much as possible, charges for data access and reuse.⁸ The concept of free distribution, from both a legal and technological standpoint, also compels a legal component to the definition of open data, thus

requiring distributing parties to apply an appropriate open license that will allow for free and fair distribution of the data. This article, however, will focus specifically on open government data, which distinguishes itself from other open data types as “any data or information produced or commissioned by public bodies” (Ubaldi 2013, 6), and, in this case, produced or commissioned by a government body.

Opening up government data is the practice of identifying government data and/or information that is public in nature and making this data available to the public so that it can be reused and redistributed for purposes other than those for which the information was originally compiled. Unlike ATI, publications of open government data, usually in the form of structured data sets, are normally done on a more proactive or routine basis and are released onto a web-based data portal that eases discovery and user interaction. These data types are varied and can include information on demographics, health, and safety, geographic and ecological issues, and/or financial details, among many other types. The make-up of the government data user community is equally as diverse—users stem from both public and private sectors, academia, and civic organizations and can consist of information technology (IT) professionals/developers, entrepreneurs, advocates, and individual citizens alike (Ubaldi 2013, 11). By processing, mashing, and distributing these data sets, these users play an integral role in generating value from this data.⁹ Whether this value translates into the development of new public policy, the creation of new products and services, or economic growth, organizations inevitably seek to generate a type of return on investment when opening up government information (Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions 2011; Janssen, Charalabidis, and Zuiderwijk 2012, 260). Above all, open government data are a tool used to help achieve the ultimate goal of any open government strategy: to establish a trust relationship between the government and citizens.

Beyond open data platforms: other types of open government initiatives

This article’s focus with regard to open data will expand beyond open government data and open data platforms. It will aim to encompass many forms of open government information, including open government data and datasets, which are important and valuable components of open government information, as well as open information (for example, statements of ministerial expenses, completed ATI requests), metadata components, and so on. Today, open government strategies, the open government information they distribute, and the different platforms through which this information is disseminated can take many forms:

- developing web-based applications that help improve the delivery of information and government services;
- modernizing ATI-like legislation;
- designating specific government information for routine release (for example, expense reports, awarded tenders or contracts, and so on) through an “open information” portal, including summaries of ATI requests once completed;

- creating and using social media-like platforms that enable and encourage an open dialogue between government and citizens; and
- adopting an “open by default” model for the release of government information and data sets moving forward (Scassa 2014, 399).

As part of their national action plan, for example, the US government has committed to the modernization of its government records and records management system and is currently working toward declassifying its national security information. The Swedish government is working to improve its Openaid.se platform and the full implementation of the International Aid Transparency Initiative standard.¹⁰ The British government, deemed by advocates as being a notable leader in the open government movement, will release an inventory list of all of their data sets, both published and unpublished, and has launched a public sector information (PSI) directive that will transpose the reuse of PSI into UK law (Open Government Partnership 2014a, 2014b, 2014c). The examples demonstrate that a successful open government initiative must contain several different strategies and that a government’s commitment to these should be consistently demonstrated and routinely assessed, evaluated, and updated as needed. The next section of the article will explore how several Canadian governments are approaching the open government challenge.

Open government initiatives in Canada

There are several government-lead open government initiatives currently underway in Canada at the federal, provincial/territorial and municipal levels.¹¹ These initiatives exist at different degrees of maturity in different jurisdictions. This section provides an overview of some of these initiatives based on readily available, publicly disclosed information sources.¹² This overview is intended to provide a high-level, bird’s-eye view of several Canadian open government initiatives, representing a starting point in the research of records management issues in these contexts. Some preliminary observations of records management issues based on the examples in this overview will be provided in second section of this article.

Federal level

Canada’s first Action Plan on Open Government describes commitments made by the federal government to support open government. The two foundational commitments were a directive on open government (published October 2014) and an open government license (Canada 2012). The directive provides guidance to departments with regard to making more information and data available online (Canada 2014b). The license serves as one universal license, with the intent to reduce administrative overhead and restrictions on reusing published government information and data (Canada 2014h).

Additional activities in this action plan are organized within three activity streams:

1. *Open information*

- Activities include enabling easier access to ATI request summaries; creating a virtual library of published government documents; removing restrictions on historical records held by Library and Archives Canada wherever possible; advancing the government-wide development and implementation of its electronic document and records management solution, GCDOCS; and consolidating the government's web presence.

2. *Open data*

- The open data portal is a central catalogue of government open data sets of all kinds, including geospatial and statistical data sets.¹³ Individual government departments and agencies remain responsible for hosting their own data sets, which are linked to the open data catalogue. The descriptions in the catalogue adhere to the open data portal metadata standard (Canada 2014c).¹⁴
- Additional online federal data resources include several geospatial sites such as Geogratis, GeoConnections Discovery Portal, and Atlas of Canada (Canada 2014e; Natural Resources Canada 2012, 2015).

3. *Open dialogue*

- Activities include a web 2.0 citizen engagement platform for use in public consultations and requirements for federal regulators to post their upcoming regulatory plans to give Canadians and businesses advance notice of upcoming changes.

Canada published a second action plan in the fall of 2014, which was informed through consultations with Canadians and built upon original commitments (Canada 2014a). In the international arena, Canada officially joined the Open Government Partnership (OGP) in March 2012. The OGP is an international initiative working to support commitments by governments to improve transparency, citizen engagement, and ATI.¹⁵ To participate, a country must devise a national action plan supporting open government principles and goals and be responsive to feedback from the OGP independent reporting mechanism, which carries out biannual reviews of the progress of participating OGP countries. Countries may also participate on OGP working groups, and Canada co-leads the Open Data Working Group. Canada also adopted the G8 Open Data Charter in 2013, which identifies five essential principles underpinning open data initiatives: data are open by default insofar as possible; data of high quality and quantity should be released; re-usable data should be released; data for improved governance should be released; and data for innovation should be released (Canada 2014d).

Provincial/territorial level

British Columbia

British Columbia's open government initiative is managed by the Ministry of Technology, Innovation and Citizen's Services. The Open Information and Open Data Policy provides direction and assigns responsibility for releasing

open government information under the control of government ministries (British Columbia, Office of the Chief Information Officer 2011). The open information component of this policy focuses on the proactive disclosure of responses to ATI requests under freedom of information legislation as well as designating other government information for routine release, while the open data component focuses on the means to assess, approve, and post open data for public use, adaptation, and distribution. The policy abides by the Freedom of Information and Protection of Privacy Act, and the release of data must be in accordance with the province's Open Government License (British Columbia 2014a).¹⁶ Tools supplementing the policy include an open data assessment form and the open data physical format dataset standard. There are two principal websites:

1. *Open Information*. This website is where information required by the Open Information and Open Data Policy is posted by the BC government ministries (British Columbia 2014b). It primarily consists of information release summaries and travel expenses for ministers and deputy ministers.
2. *DataBC*. DataBC comprises several components and services: a warehouse or central repository in which data sets hosted by DataBC are kept; a catalogue of metadata describing all data sets hosted by, or linked from, DataBC; several tools for web syndication, data integration, data visualization and analysis, and search; and the DataBC website, which is the main mechanism for delivering DataBC services (British Columbia 2014c). Contributing ministries have the option of hosting their data sets themselves or having DataBC host them on their behalf.

Data management concepts, governance, and operations are well developed in this context. Managing government data is seen as an enterprise-level effort. Open data are recognized to be a subset of enterprise data, which is data that can be shared within the government, which itself is a subset of all operational data (some of which cannot be shared outside of the creating ministry). DataBC's processes help determine which enterprise-level data sets may be candidates for release as open data, if they lack legal, security, and privacy concerns.¹⁷

In July 2013, the Office of the Information and Privacy Commissioner for British Columbia produced an investigation report entitled *Evaluating the Government of British Columbia's Open Government Initiative* (Denham 2013). In the report, the commissioner provided concrete recommendations for building on the foundational open government program to better meet its core objectives, namely increasing government transparency and accountability:

- expanding the scope of government information released, potentially to include calendars, contracts, audit reports, and so on, which would be supported through ministries establishing consistent categories of records for proactive disclosure;
- expanding on the existing DataBC program to include more outreach and data literacy activities and to provide access to data sets identified as high-value; and

- ensuring sustainability of the program through adopting access-by-design principles to make government information open by default¹⁸ and by modernizing the archives and records management statute.¹⁹

Alberta

Alberta's open government program was launched in 2012 as part of Service Alberta, the ministry responsible for helping deliver services to other government ministries and to Albertans. The following year, the government published an *Open Government Action Plan*, detailing how it was committed "to being more accountable and transparent to the citizens of Alberta" (Alberta, Open Government Office 2013, 4). The main components of its approach are identified as releasing more government information, improving interactions with citizens, and encouraging and facilitating greater public engagement with the government. The action plan identifies activities in relation to three themes:

1. *Enabling change.* It devises a strategic plan and vision; develops a governance framework, to be led by Service Alberta; devises a government of Alberta agreement confirming the commitment of different ministries to support the open government program; and develops a cultural change plan for public servants to clarify their roles and responsibilities to open government.
2. *Informing Albertans.* It launches open data and open information portals to increase public access, with the Alberta government library leading the latter; engages the development community in innovation competitions to work with government open data; and establishes a routine information disclosure program.
3. *Better conversations.* It develops a communication plan with the help of the Public Affairs Bureau and communications teams across the government of Alberta; develops a public education toolkit; and devises a citizen participation plan.

Since the release of this plan, Alberta has launched an open data portal, which consists of metadata descriptions of data sets contributed by Alberta ministries with links to external data sets (Alberta 2012a). Data are released in accordance with an open government license (Alberta 2012c). The *Open Data Set Publishing Guidelines* identifies a set of three documents geared toward assisting ministries with contributing to the portal, specifically: a value framework to help with the evaluation of data sets with an accompanying evaluation form; and an assessment checklist form which verifies that all release criteria have been satisfied and must be signed by the appropriate authority before posting the data set on the portal (Alberta, Open Government Program 2014).²⁰

Alberta has also developed an Open Data and Open Information Policy, the purpose of which is "to provide direction and assign responsibility for a single approach to providing Government of Alberta information and data for public use, adaptation and distribution under the Open Government Licence" (Alberta 2012b).²¹ The policy's guiding principles are open by design, innova-

tion from quality data, and improved governance. The policy also includes instructions pertaining to proactive disclosure of government information and considerations for balancing access and privacy in accordance with freedom of information legislation.²² Supplementing this policy are open data standards that specify: publication criteria and obligations by government ministries; required data characteristics; the mandatory usage of the Open Data Metadata Application Profile; allowable formats; and assessment metrics (Alberta n.d.).

Ontario

Ontario is actively developing its open government program. Its government has established an open government web presence and provides an open data service (Ontario 2014a, 2014b). The Ontario open data portal contains both descriptions of the data sets and the data sets themselves. The data sets originate from different government ministries and pertain to different subject areas, including environment, education, travel, taxes, business, arts, health, employment, and others.

Ontario appointed an open government engagement team, the mandate of which was to provide advice to the minister of government services on the development and implementation of an open government initiative in Ontario. Incorporating the results of public consultations, this team produced a report, *Open by Default: A New Way Forward for Ontario*, which summarized recommendations for future directions, after which the team disbanded at the end of March 2014 (Ontario, Open Government Engagement Team 2014). The recommendations of this report were organized in four topical areas:

1. *Working together*: to focus on engaging the public in government and supporting their participation;
2. *Opening up government information*: focusing on improving the freedom of information framework; publishing inventories of personal information collected by the government not to be released for privacy, security, or other legal reasons; proactively publishing government planning documents; and publishing the results of the legislative process in an open format;
3. *Making data a public asset*: focusing on implementing an open-by-default data policy; supporting by-design principles by ensuring that newly procured IT systems support open data; integrating Ontario's open data portal with the broader IT enterprise infrastructure to support more holistic data management; developing partnerships to foster innovative reuse of public data; and developing new data sets to support key social and economic needs at the local, regional and provincial level; and
4. *Implementation and sustainability*: focusing on assigning responsibility for the open government portfolio to a senior minister within Cabinet; adding two permanent groups to the open government secretariat, namely a public engagement unit and a digital centre of expertise; and developing metrics to assess government progress on its open government initiative.

Newfoundland and Labrador

Newfoundland and Labrador launched an open government initiative in March 2014. Its stated objectives are to “improve access to government information and data; enhance government’s overall engagement of citizens and stakeholders; and strengthen collaboration between and among all sectors including government” (Newfoundland and Labrador 2014f). The initiative is led by the Office of Public Engagement and is built on the following four pillars, for each of which a website was launched:

1. *Open information.* The proactive release of government information is provided, including responses to access to information requests, orders in council, ministerial expense claims, member accountability and disclosure reports, and awarded tenders. Additional information from various departments is available, organized by topic (Newfoundland and Labrador 2014g).
2. *Open data.* Tabular and spatial data sets are provided by government departments and agencies and are processed by the Newfoundland and Labrador Statistics Agency before publication on the website, accompanied by a metadata description. Some data visualization applications are also available (Newfoundland and Labrador 2014e).²³ The open government license is applied (Newfoundland and Labrador, 2014d).
3. *Dialogue.* This website contains materials pertaining to the public engagement plan, including results from consultations and feedback from presentations. The Office of Public Engagement is tasked with collaboratively building Newfoundland and Labrador’s first open government action plan, and this website is part of the collaboration mechanism (Newfoundland and Labrador 2014c).
4. *Collaboration.* This website provides details on collaborative arrangements between the government of Newfoundland and Labrador with other governments, organizations, and communities (Newfoundland and Labrador 2014a).

Other provincial/territorial jurisdictions

Open government initiatives in other provincial/territorial jurisdictions are arguably not as developed as those already discussed. For instance, no province-led initiatives in Saskatchewan have been initiated. Further, in many provinces, government data initiatives have focused solely on geospatial data.²⁴ Quebec has declared its intent to work toward becoming an open government (Québec 2014a), and additional plans were proposed in a report commissioned by the Quebec government, one of which was an open data portal (Gautrin 2012). The portal, since it was launched, contains both metadata about data sets as well as the data sets themselves (Quebec 2014b). The data sets are released in accordance with an open government license, which was recently replaced by a creative commons license adopted jointly by the cities of Quebec, Montreal, Gatineau, and Sherbrooke (Quebec 2014c, 2014d).

Municipal level

Many Canadian municipalities have developed open government initiatives—in particular, open data components.²⁵ The informal partnership formed in 2011 known as G4—comprised of Toronto, Ontario; Vancouver, British Columbia; Edmonton, Alberta; and Ottawa, Ontario—is working collaboratively to improve open data standards and practices (Giggey 2012). Further, the Ontario provincial government has formed a public sector open data working group comprised of representatives from various municipalities and other partners (for example, the MaRS Discovery District), tasked with developing common processes and formats.²⁶ It is beyond the scope of this article to address all municipal open government and open data initiatives, so the following three municipalities will serve as examples.

City of Toronto

Toronto issued its *Open Data Policy* in 2012, outlining the principles, roles, and responsibilities related to the city's open data program, which supports its commitment to open government and is focused on making data publicly available in reusable formats (Toronto, Corporate Information Management Services 2012). The program is implemented as a component of the city's enterprise information management initiative, codified in the *Information Management Framework* (Toronto, City Clerk's Office 2013). This framework embodies a standards-based approach to information management based on four principles: accountability, openness, lifecycle management, and trust and reliability. By aligning with the *Information Management Framework*, Toronto has situated open government data as one element within enterprise information management, thus taking a holistic or integrated approach.

The *Open Data Policy* also aligns with the access by design and privacy by design principles, developed by the Office of the Information and Privacy Commissioner of Ontario (2010, 2014). Data sets released comply with rights of privacy, security, and confidentiality as identified in the Municipal Freedom of Information and Protection of Privacy Act and other applicable legislation and are released in accordance with the Open Government License via Toronto's open data catalogue (Toronto 2013a, 2014b).²⁷

In the policy, executives are responsible for identifying data sets for release, along with related planning and assessment exercises, working with Toronto's Open Data Team on the data set publication process. Toronto's Open Government Committee is tasked with providing governance and oversight for the open data program. The Open Data Team includes staff from the City Clerk's office and the Information and Technology Division and is mandated "to assess, prioritize, release and monitor datasets in accordance with this [open data] policy" (Toronto, Corporate Information Management Services 2012).

Toronto's twenty-six strategic objectives for 2013–18 include Strategic Objective 13 on Open Government by Design, the focus of which is a shift in organizational culture to support more accountable, open and transparent government (Toronto 2013b, 2013c). Like the *Open Data Policy*, this strategic action is framed as being explicitly in alignment with the *Information Manage-*

ment Framework and by-design principles, specifying the need for integration of technology and information management at all levels. Training and awareness efforts are identified as an important and necessary part of fulfilling this objective, along with devising assessment mechanisms and metrics to evaluate progress. By situating open government as an information management initiative, information management is clearly recognized as the foundation and enabler of open government.

City of Vancouver

In 2009, Vancouver City Council passed a motion supporting the principles of open and accessible data, open standards, and open source software (Vancouver, Standing Committee on City Services & Budgets 2009). The city resolved to actively pursue an open data program, including developing plans to release archival data as open data. The city's open data website, launched in September 2009, includes both metadata descriptions of data sets as well as the data sets themselves (Vancouver 2014b). Also included is information about available data formats and the licenses under which the data sets are released.

Vancouver developed a *Digital Strategy* in 2013, which included not only mention of open government data but also e-government, citizen engagement, and digital infrastructure to support socio-economic development (Vancouver 2013). The high-priority initiatives identified in this strategy included expanding on the open data program, improving digital service delivery, and establishing digital services governance. These initiatives were all intended to support the four pillars and goals of the strategy: engagement and access; economy; infrastructure and assets; and organizational digital maturity. The strategy makes clear reference to its support of the "open government ecosystem" (Vancouver 2013, 3; Vancouver Chief Librarian 2013). This strategy is cited as a priority in Vancouver's 2014 *Corporate Business Plan* (Vancouver 2014a).

Vancouver released an online public engagement tool, "Talk Vancouver," in 2013 (Vancouver 2014c). The tool enables registered users, who must be residents of Vancouver over the age of fifteen, to participate in discussions concerning municipal affairs. It aligns with the open government objective of citizen participation and engagement in government.

City of Regina

Regina's open government initiative is based on the following three pillars:

1. *Open data.* Regina's open data catalogue includes both metadata about the data sets as well as the data sets themselves (Regina 2014b). Its technical platform, OGD DataLab, is an open-source open data catalogue that is targeted for Microsoft's Windows Azure cloud-computing platform, and it includes functionality supporting both human and machine interaction with the data (Regina 2014a). Use of the data is subject to the city's licensing terms (Regina 2015).

2. *Open Information.* This is an online repository of government documents (for example, reports, expenses, surveys, and so on) proactively disclosed by the city or requested under the Local Authority Freedom of Information and Protection of Privacy Act (Regina 2014d).²⁸ The stated intention is to maintain the information disclosed on the open information page for a minimum of two years post-release.
3. *Citizen interaction.* Regina's open government website also includes mention of applications built from the city's open data and an invitation to follow city communications on various social media platforms (for example, YouTube,TM Facebook,TM and TwitterTM) (Regina 2014c).

This open government initiative, launched in 2012, originated from an internal corporate information assessment that emphasized the need for external stakeholders to access city information. It is managed by a cross-organizational team within the city, including two open government committees, the Strategy Committee and the Operational Committee, which provide direction and governance for the program. The city has also worked in collaboration with open data citizen-lead groups, Open Data Saskatchewan and HackRegina (Currie 2013, 119–24).²⁹

Common components of open government initiatives in Canada

Based on this overview, the following common components are identifiable in these open government initiatives:

- *Open government plans.* Some jurisdictions have well-developed and comprehensive planning documents for open government initiatives. In others, commissioned or investigative reports have provided advice, feedback, and direction for further developing the initiatives.
- *Legislation, policy, procedures, and guidelines.* In addition to freedom of information and privacy legislation, some jurisdictions have comprehensive policy and procedural documents specific to open government (including open information and open data), while others do not or are still in the process of drafting them.
- *Open data portal or catalogue.* Many jurisdictions offer some kind of open government data service, for example, a metadata registry (catalogue) and/or a repository of data sets. The types of data sets offered vary per initiative; in some jurisdictions, only geospatial data are available.
- *Open information.* Some jurisdictions have websites dedicated to providing access to open information resources, separate from their open data portals.
- *Open dialogue or citizen engagement.* Some jurisdictions have specific program lines dedicated to open dialogue or citizen engagement. This may take the form of public consultations, websites intended to collate citizen input on issues, projects or initiatives, or other mechanisms.

While some jurisdictions perceive open government information services as components of their information management infrastructure and responsibilities, this is not yet a common approach. Issues with this and other records

management implications of open government initiatives will be explored in the following section.

Open government within a records management framework

Records management plays a deciding role in creating reliable and trustworthy open government information. When records are well managed, they serve as instruments of accountability and as authoritative and trusted sources of information about government activities (Thurston 2012b). Underpinning an open government initiative with an already strong and reliable records management framework is therefore likely to have a considerable impact on the success of the initiative. Since an open government initiative introduces new processes, procedures, records, and, thus, a new series of records management challenges for government, these must be identified and the proper controls must then be introduced, first, within the framework of the initiative and then in relation to the organization's goals and strategies. As this section of the article will explore, this can be accomplished by conducting a work process analysis of the initiative, which can then help inform the records management requirements for records creation, capture, and control.

Open government as a business process

As described in the International Standardization Organization's *Technical Report: Information and Documentation—Work Process Analysis for Records* (2008), a business process analysis is an efficient way of identifying the systematic work processes, transactions, and records that comprise a business process or, in this case, an open government initiative. Such an approach includes both an analysis of functions being performed in a business context (functional analysis) and an analysis of the constituent steps within the business process, in which records are generated at the transaction level (sequential analysis). The former includes an assessment of the broader context of the business process, which includes its mandate and its regulatory environment. A functional analysis helps identify reasons why or for what purpose the work supported by the process is undertaken. Thus, performing a functional analysis of an open government initiative would first place it within its respective organizational context (that is, the governing body and its jurisdiction) and then identify the ultimate goals of the initiative (that is, achieving transparency and accountability by opening up government information). This type of analysis helps inform higher-level information management and records control issues—for example, information classification and retention/disposition. In another instance, a sequential analysis focuses on how the work is undertaken, illuminating records creation requirements at the transaction level as well as the roles, responsibilities, and dependencies between related processes (for example, when the output of one process is required as input for another). Considering the roles of various participants as part of this analysis further helps demarcate the specific sequence of steps (for example, providing guidance; providing approval or authorization; undertaking processing; undertaking evaluation or audit; and so on). Understanding these roles not only highlights

what types of records are generated through the process but also who is responsible for them.

This article divides and summarizes an open government business process into three categories—that is, three stages of implementation: initiation; identification and distribution; and promotion and evaluation. Each stage consists of tasks and transactions, summarized as components, that are key to the initiative's success. Each work process produces a series of information objects (that is, records and documents) that must be considered both for their purpose as evidence supporting the workflow as well as for their value as attributes of accountability in relation to the open government initiative. Only then can records management requirements for records creation and control be properly informed.

Initiation

Policy

A government's commitment to transparency and accountability must be demonstrated, first and foremost, at an enterprise level. The objectives and principles underlying the open government initiative must be accurately reflected in an open government policy. In general, an open government policy should help guide decision-making and outline the desired outcomes, deliverables, and courses of actions. With regard to the publication of open government information, a policy can serve to expand on the types of government information that can and should be distributed under the policy's intent as well as guide the development and dissemination of these outputs (for example, by specifying in what format and through which platforms the information is distributed). In turn, this can increase data accessibility and encourage the information's reuse. While a commitment to open government comprises much more than a policy, it is nevertheless a key document that demonstrates a first step in guiding a new initiative's implementation and oversight. It should state the intentions, duties, and proper authorities that will be given to those designated as being responsible for the initiative as well as outline the metrics that will be used to evaluate the program's progress once implemented. Most importantly, a policy should be a statement of accountability; a government is accountable to its citizens, but it must also be accountable to itself.

An open government policy should be designed in line with an organization's existing policies, legislation, and regulations, specifically those supporting the organization's accountability framework and records management practices. If properly designed, an open government initiative will likely influence (and hopefully strengthen) a government's existing accountability structures and, within these, its records management policies. With regard to the latter, an open government policy should include components that address records management, if not at least a cross-reference to an existing records management policy. If neither is the case, guidance should at least be provided by those responsible for the policy's oversight on how the two policies could be brought

into alignment. It is important to define a clear relationship between open government and records management practices and, as a consequence, between the records, the open government initiative, and its processes. Citizens must be able to base their trust on a government's ability to comply with both old and new standards of practice. Compliance with the provisions outlined in these new policies should not be realized at the expense of existing official standards (McDonald 2012, 13). If such a policy is to carry the same weight and authority as other enterprise-wide policies generated by the organization, then its development would follow the same drafting, editing, review, and approval processes that were used for these other policies.

Action plans, guidelines, and standards of practice are examples of information objects that are likely to accompany the creation of an open government policy. These, along with other similar documentation, will help create consistency in government actions and uniformity in outcomes. Creating procedures on the release of open government data sets, for example, would help standardize the format in which these data are released, creating consistency in output and enabling seamless interoperability between various data sets. Standard templates, which would capture different types of contextual information in the form of metadata,³⁰ is one example of an information object that could be required as part of the release of this information. It would help to ensure not only that information is properly contextualized but also that data are traceable and linkable, which are "core elements for dataset authenticity and reliability" (Thurston 2012b). Above all, the planning, processes, procedures, and document trail that underlie the drafting of this policy and its supporting documentation are as important to the open government initiative as the policy itself: "Each public body should open up as much data about the preparation and execution of policy-making as possible, in an accessible and understandable way" (Zuiderwijk, Janssen, Choenni, Meijer 2014, 3).

Players

It is easy to state that a successful open government initiative requires a champion with the right attitude for the cause (and not those who implements a policy of openness simply because "everyone else is doing it"). While there often exists a significant gap between the ambitions of the politicians and the reality of the task at hand that must then be managed by the public servants, the two nevertheless play equally significant roles in the implementation and maintenance of a successful open government initiative. Widespread collaboration across government departments and within hierarchal ranks is not only important but also necessary. If government is going to establish an open dialogue with the public, it must first ensure that there is an open dialogue on such a topic within its own administration.

Assigning the responsibility of proper oversight and management of an open government program can present a significant challenge. The choice of the group or department that will oversee the implementation and oversight of the policy could have a significant impact on how new strategies are welcomed

and complied with within an organization. Creating general awareness and soliciting support for a new policy throughout government (for example, distribution of memos, employee training, and so on) are important steps in the process. The initiative's success depends, first and foremost, on an employee's ability to comply with and abide by the new framework (Gavelin, Burall, and Wilson 2009, 17). All relationships, both inside and outside of government, must therefore be considered when assigning responsibility and thus accountability.

The International Records Management Trust (IRMT) refers to the group or body designated with the responsibility to oversee the implementation of an open government policy as the "records authority."³¹ Aptly named, the records authority should emulate excellence in records management. They are expected to provide the public with evidence of government decisions and actions, information that must be pulled from official government records. This group should therefore be in a position to advise government on records management policy, set standards, define and apply quality control metrics, and enforce compliance (International Records Management Trust 2013, 2–12).

Government records and archives professionals are in a position to significantly contribute to the success of these initiatives. In this regard, the IRMT argue further in favour of the role of a national archives body³² as the unit within government that is (or should be) responsible for facilitating the creation, distribution, and preservation of authentic and reliable records. A national archives already has it within its mandate to protect "the documentary evidence that shows that a government is following the rule of law, [document] its actions in a transparent fashion, [maintain] evidence of its operations and so [remain] accountable to its citizens" (International Council on Archives 2005, 7; Thurston 2012a, 2). The National Archives and Records Administration (NARA) of the United States and the National Archives of the United Kingdom, for example, already share in the responsibility of their respective country's open government initiatives. NARA, has developed an independent open government plan,³³ which outlines their agency's unique responsibilities with regard to the country's open government initiative (US National Archives and Records Administration 2014). The National Archives oversee the development of the UK Government Licensing Framework, which includes an open government license (National Archives 2014, 2015). Unfortunately, not all government archives, especially lower-level jurisdictions, are in a position to adopt such a role (Thurston 2012b). However, records and archival units can still play a significant role within larger governing administrations by creating partnerships with ATI offices, regulatory bodies, and auditing authorities. Regardless of whether or not an archives is in a position of oversight or authority, the unit's knowledge and expertise can support open government objectives of transparency and accountability by providing the public with reliable evidence of government activities. In sum, the records authority should adopt a leadership role within government in ensuring that the information that is provided to the public is complete and reliable. In the same way, the records authority should be reliable and therefore

in a position to be trusted by both the government and the public to fulfil its responsibilities (International Records Management Trust 2013, 2–12).

Identification and distribution

Once a policy has been approved and roles and responsibilities assigned, the information that will be distributed in support of the policy must be identified. This next phase comprises two key components: records (the *what*) and technology (the *how*).

Records

Government records, created, maintained, and preserved as evidence of government activities, are the primary sources from which open government information must derive. The release of this information must begin by identifying what government information can and will be distributed.³⁴ Using the organization's classification scheme as a reference point, an inventory³⁵ or map of the organization's existing records can be created to help identify what information is eligible for publication, either in its current format (for example, government publications, internal communications, and so on) or following strict reformatting requirements (for example, parsing content from certain documents, anonymizing records, and so on).³⁶

The data and information that is selected for publication and distribution under a new initiative derives from original government source material that has been repurposed and given value within a new open government context. The value of this information thus depends on the reliability of the source material as well as the accuracy with which this is then communicated with users. Since this material was created as a result of separate business functions and processes, information concerning the work processes, the system and the environment that guided the creation, capture, and control of the source material must therefore be considered as relevant to the publication of the open government information—together, they provide a complete and accurate picture of the information's context and meaning and, therefore, a basis for trust in the information.

Once the records have been identified, the information that will be distributed as open government information is collected and prepared for release by data custodians, technicians, and the like. This preparation entails:

- *Information modification.* Personal and confidential information must be anonymized; open government information that has not been properly vetted for personal and confidential information risks exposing citizens and government clients to privacy breaches.
- *Information reconfiguration or reformatting.* This may be required for some of the selected source materials based on their intended purpose and the platform on which they will be distributed (for example, parsing various data to then distribute it as a structured data set).

- *Identification or creation of relevant contextual metadata.* This may include information describing the original records, including: details about custody/ownership; the production context; omitted information; records management specifications, including retention and classification; legal concerns; and so on. This metadata should be released alongside the open government information so as to provide context, enhance discovery and accessibility by improving searchability, and allow for seamless linking (that is, interoperability) between different data sets. Without context, the information risks being misused and misunderstood, its utility undermined, and its value compromised (Thurston 2012a, 5, 7).³⁷

Throughout these steps, documentation depicting how the information was identified, collected, and transformed should be amassed and provided alongside the final disseminated information. As this content provides context and allows for data traceability (that is, being able to trace the information back to the source material), it speaks to the accuracy and reliability of the final information product (Thurston 2012b). Final steps in the workflow include having the final products reviewed by authoritative bodies before being approved by designated employees, often executives, and then published via a web-based platform (for example, open data portal, open information website, and so on).

Technology

Each stage of the workflow outlined earlier requires the support and intervention of various technologies. While the identification, collection, and preparation of the open government information is likely to be achieved by information technicians using existing tools and platforms (for example, electronic document and records management systems; databases; search engines; and so on), the publication of the information may require the creation of new technologies, including websites, portals, and repositories.³⁸ These web-based technologies represent the front-end design of an open government initiative. The interface with which users will interact will effectively represent the face—albeit virtual—of the government’s commitment to transparency and accountability. Open government platforms must be designed with open data principles in mind: access to the open government information cannot be hindered or altogether prevented by the imposition of fees or control barriers (for example, copyright, unwarranted licences, and so on) and information discovery, download, viewing, and repurposing should be made to be seamless and effortless to the user. The quality of the technological platforms will have a direct impact on how users view the quality of the information and the quality of the open government initiative as a whole. Information or tools that are judged to be of poor quality (for example, poor searchability; challenging user interface; data sets are difficult to understand or distributed in non-machine-readable formats or “un-mashable” formats; and so on) may discourage user participation and the reuse of this information, thus jeopardizing the initiative.

While front-end accessibility is important for encouraging citizen engagement and information reuse, it cannot be to the detriment of other system features. Whether designing an open data portal, an open information database, or a service delivery application, records management standards and requirements must be accounted for in the systems' features and design (McDonald 2012, 18). Following by-design principles, records management controls should be embedded within the design of these technologies. These platforms must be able to manage the full lifecycle of the open government information they support (for example, retention, disposition, preservation, and access), as well as the information objects they produce (for example, usage statistics, user feedback, and so on). The necessary controls can be identified by the results of the work process analysis as well as by an assessment of existing technologies and infrastructures, and later adjusted as needed. In this regard, proper guidance by the records authority is important, but seamless collaboration between open government, information technology, and information management professionals is imperative not only for the design of the final tools and platforms but also for the compilation of information needed to identify the requirements. Meeting these requirements is essential to building a technical environment that enables a trusted records environment—if the environment can be trusted, so too can the information it manages and produces.

Promotion and evaluation

As value creation is strictly dependent on citizens' reuse of open government information, an open government policy should be designed with the future users of the information in mind. While the release of open government information sets the stage for enhanced transparency and accountability, the latter can only truly be achieved if citizens are made aware of the information's availability and of how it might be used and repurposed for their benefit. As the open government program matures, focus will shift from identifying government records for publication to creating an open dialogue with citizens, further enabling government to identify ways in which the initiative can be improved. Therefore, the strategies and systems that are adopted to support citizen engagement (for example, feedback forms, opportunities to request specific open government information, and so on) become constituent steps, final extensions, of the overall business process.

Citizen engagement and open dialogue

As previously mentioned, citizen engagement is a key pillar in achieving a successful open government initiative. Therefore, the effort of soliciting the public's participation in these types of projects must extend far beyond simply making information available for use. An open government initiative must be promoted and effectively communicated to the public through the use of promotional activities, programs, and tools. Creating incentives for users to make use of the information (for example, hack-a-thons) or lowering the threshold for new users, for example, are just some of the ways of how this can be achieved (Janssen, Charalabidis, and Zuiderwijk 2012, 265).

Communication is also an important component of citizen engagement. Open government information users must be able to effectively and efficiently relay their feedback, concerns, or requests back to those responsible for overseeing this component of the initiative. Common communication mechanisms include open dialogue or feedback forums and web platforms with social media functions, similar to those that may be used also to disseminate information about government activities. Non-web-based interaction could include public in-person consultations, from which feedback could be documented in other ways (for example, forms and audio recordings).

These promotional tactics and communication mechanisms as individual work processes and transactions produce a series of new information objects in the form of outputs (for example, media releases regarding government consultations or collaborations; media communications via social media platforms; and so on) and inputs (for example, completed feedback forms; requests for additional data sets; surveys; communications via social media platforms; and so on). These inputs, once submitted by users, are received and processed by information technicians and aggregated as reports or statistical analysis for reuse. They can be used to interpret patterns and trends in the public's use of the information, helping to inform the organization on how the open government program could improve and should evolve moving forward. This exercise could help government prioritize information releases, streamline internal procedures and activities, lighten workloads, and eliminate redundancies (Janssen, Charalabidis, and Zuiderwijk 2012, 260). By responding to these identified trends in a proactive and efficient manner, government could even influence a reduction in the volume (and therefore the cost) of ATI requests. As such, appropriate records control metrics must be put in place to manage the inputs as well as the outputs. Furthermore, having the means to attest to the veracity of the information that is received from citizens is another consideration that should be incorporated within the overall records management framework of an open government initiative. In the same way that steps must be taken to ensure the reliability and trustworthiness of information disseminated by the government, governments need some assurance that the feedback they receive is also trustworthy and reliable.

Programme evaluation

During the course of this research, there was no evidence of international standards in place for measuring the success of an open government initiative. For the time being, governments that fail to meet their open government goals may be subject to public scrutiny or criticism from advocacy groups such as the OGP, at most. However, that is not to say that internal metrics should not be devised as part of the overall performance and evaluation approach normally taken within an organization. Proper documentation of this evaluative process (for example, how assessment metrics are devised and applied) would be important components of the documentary trail that would also have to be preserved along with the records to which they are linked. Similar to other information

objects previously listed in this article, this information becomes a key piece of evidence of a transparent government and equally as important to a successful open government endeavour. Overall, these metrics would help ensure that the evaluation of an open government initiative would be done in a consistent way, allowing for ongoing tracking of program components over time.

Open government as a business process: a summary

In summarizing what has been highlighted above, a central task (or transaction or “process”) and, thus, a primary output of an open government initiative is the publication of open government information on a web-based platform. The constituent processes and transactions that support the initiation, realization, and eventual evaluation of this business process each form a part of the overall process and, as a result, generate additional information objects. The series of different information object types that have been identified throughout the work process analysis above can be summarized in six categories:

1. Information objects that are generated to initiate, frame, and underpin the functioning of the program (for example, action plans, policy instruments, procedures, guidelines, assessment forms, checklists, approval forms, open data licenses, and so on).
2. Information objects that serve as inputs within the release process (for example, candidate data sets, inventories or other information objects to be assessed for release).
3. Information objects or, in this case, the open government information that serve as outputs of the release process, to be hosted on open data/open information platforms (for example, access to information request summaries, expense reports, awarded tenders or contracts, government decisions, such as orders in council; various data sets, including geospatial, statistical, financial, and so on). Some of these outputs may be transformations of their original source material, if any anonymizing, severing, or other modification has taken place.
4. Web-based platforms (websites and portals that host and/or enable access to open information objects) that typically include metadata descriptions of released information objects along with links to locally hosted or externally hosted data sets or information objects. For data sets, some of the metadata may describe the structure of the data (for example, fields in tables) as well as the nature of the content.
5. Information inputs from citizens, which typically include feedback from the public on the open government initiative and may also comprise material generated as the result of public consultations (for example, completed feedback forms, audio recordings, etc.) or communications received through web platforms (for example, social media posts, requests for additional data sets, and so on).
6. Other government information objects (inputs and outputs) associated with the open government initiative, including reports, public presentations, or

other information generated to describe activities, progress made, and the results of consultations or other citizen engagement activities. This category also includes communications by the government regarding the initiative, including those made via social media and other platforms.

Adopting an enterprise-level lens when conducting a business process analysis of an open government initiative can help assess the potential business value of these types of information. Assessing their purpose and value within a particular business context will establish whether or not the resulting objects are records or whether they are supporting documents and, also, whether they have transitory, short-term, or enduring value. Decisions can then be made regarding the characteristics of the information identified:

- Has a new data set (record) effectively been created through the release process (that is, was it anonymized or otherwise transformed to accommodate its release)?
- Was any information severed from a document before releasing it? Were these changes disclosed upon release?
- Is there a requirement to keep the released information object in sync with its original and/or official version?
- If standard corporate records management controls are used to manage the original/official version of the information object in a corporate repository, what controls or curation activities are required for managing the released copy (which may be conceptualized as a service or access copy) in the online data or information portal?
- Are different records controls (for example, retention and disposition) required for managing the released versions?

These are all examples of questions that need to be addressed as part of incorporating records management requirements into a new open government initiative within an organization's existing structures and procedures. Understanding the records creation environment of a new business process at both the functional and transactional levels will help identify and map all of the information objects being produced as a result of various processes. Furthermore, it will help clarify and establish proper records control metrics that should be introduced as a way to manage this information.

The documentary trail produced as a result of these processes and transactions is comprised of records, documents, transitory information, and data alike, and it becomes a key piece of evidentiary documentation with regard to the open government initiative. This documentation serves as a reflection of the relationship between the records and the processes as well as the processes and their role within the organization's operations. However, to be considered "complete," this documentation must also account for information concerning the source material from which the open government information stems, including the policies, practices, and systems in which they were created, captured, and maintained. This allows users and government employees alike to accurately trace

open government information back to the original source material (Thurston 2012a, 6). A comprehensive documentary trail will define the overall workflow process that initiates, drafts, approves, and posts open government information, from original source to final product. It provides an authoritative, complete, and accurate source in ensuring the integrity and overall reliability of the records that will be distributed as open government information (McDonald 2012, 4). Ensuring the integrity and continued availability of this documentary trail therefore becomes a key records management concern that must be incorporated into the policies and practices of managing open government information. Users are more likely to consider the final product (that is, open government information) to be trustworthy if they are presented with the “big picture” (the contextual information) along with the smallest details (the data).

In sum, an effective enterprise records management framework should allow for the incorporation of the business processes and information objects that support open government initiatives. These new processes should be aligned with existing business structures, which in turn serve as reference points for identifying records management needs, implications, and possible configurations that will be needed to accommodate the distinct requirements of the new initiative. The new organizational records, created as part of a new open government business process, also need to be viewed within the broader organizational context with respect to the records management framework. As such, they should be considered as an extension of the lifecycle of the source material and therefore managed in a way that reflects existing records management practices within the organization.

Records management framework issues with open government initiatives in Canada: preliminary observations

As described in the first section of this article, open government initiatives within various Canadian jurisdictions exist at different stages of development. Preliminary observations of these organizations’ policies, action plans, and open government-oriented projects highlight that not all of them completely include the components of the enterprise-level records management framework just explored. For instance, only two of the seven jurisdictions self-describe as containing an aspect of enterprise information management:

1. With DataBC, data management is approached from an enterprise level, recognizing that open data are a subset extracted from a larger pool of operational data. Governance structures and work processes are well defined in its *Concept of Operations* document (British Columbia, Ministry of Labour, Citizens’ Services and Open Government 2012).
2. The city of Toronto’s open government initiative is conceived as part of its overall *Information Management Framework*, with by-design principles clearly situating open government operational lines as components of broader information management operations, which are themselves integrated with information technology.

With respect to policy and planning, several of the jurisdictions have specific open government policies (Government of Canada; British Columbia; Alberta; Toronto), while others have policies in development. The same situation exists in relation to action plans or statements of strategic objectives: the Government of Canada, Alberta, and Toronto have explicit planning documents devoted to open government initiatives, with other jurisdictions either in the process of developing them (for example, Newfoundland and Labrador) or having less-explicit components of other plans (for example, the city of Vancouver's *Digital Strategy*) referring in some way to open government objectives. Furthermore, only some jurisdictions (British Columbia; Alberta) have publicly provided detailed information about workflows through which government information is released, including documentary tools that demarcate each transaction in the process (for example, assessment forms, checklists, approval forms, and so on).

With respect to open government information, including documents, data, records, and metadata, most jurisdictions have begun by focusing on structured open government data and related portals, including many portals exclusively devoted to geospatial data sets. Further, some jurisdictions (Government of Canada; British Columbia; Newfoundland and Labrador; Regina) have developed or are developing "open information" portals for unstructured government information (for example, information release summaries; reports; expense claims). Also, only some jurisdictions have dedicated websites for open dialogue or citizen interaction (for example, Newfoundland and Labrador; Vancouver; Regina).

Toronto has developed assessment indicators specific to its open government initiative. The city's strategic action plan, which describes components of implementing "open government by design," identifies an assessment framework for each implementation step, including details about indicators, baselines, targets, and enablers (Toronto 2013b). As such, this planning document would be one of the tools by which to coordinate and undertake an evaluation of the progress of the initiative.

These observations emphasize that there are many possible approaches to designing and implementing an open government initiative, with some demonstrated consensus around particularly crucial components (for example, policy, planning, and web-based dissemination platforms for open government information). What could be surmised from this selection of examples are the following points:

- the need for a more comprehensive alignment of enterprise-level open government and records management initiatives within a jurisdiction;
- the need to develop more citizen engagement mechanisms as well as foster citizen-initiated engagement mechanisms (for example, the earlier-mentioned Open Data Saskatchewan) to support both the objectives and principles of open government as well as to obtain necessary feedback on current components to feed future program improvements; and
- the need to devise and disclose (aligning with the spirit of open government) plans, procedures, strategies, and specific assessment metrics for evaluating and tracking the progress of the initiative, demonstrating both a commitment

to the initiative as well as the means by which citizens have helped fuel and shape program evolution and improvement.

Next steps

The next phase of this project will seek to expand its analysis of open government initiatives within various Canadian jurisdictions by sharpening its focus on the issues that these groups may be facing with regard to the management of their new organizational records. The project team plans to begin conducting a series of interviews with some of the jurisdictions mentioned in this article to perform a more detailed analysis of the issues, strategies, and projects adopted by these organizations. In this regard, the team will also seek to understand how these jurisdictions may be addressing questions of records capture, retention and disposition, and preservation with regard to their respective open government initiatives. In the same way that it has been approached in this article, the next phase will seek to evaluate the applicability of conducting an enterprise-level analysis of organizational business processes (in this case, of those concerning open government initiatives) as a way to identify and manage the challenges that arise with regard to the creation, capture, and control of these new records. In line with ITrust's long-term objectives, this project aims to develop an enterprise-level framework that would help guide organizations in addressing similar issues.

Conclusion

Open government has become a key political strategy in establishing a trust relationship between a governing body and its citizens. As such, it is an objective that is no longer satisfied by the availability of an open data portal. Despite the various ways in which different government bodies may choose to showcase their support for this type of initiative, the objectives of open government remain the same for all levels of government: enhance transparency, create an environment for greater democratic accountability, and encourage citizen engagement and participation. As this article has explored, a successful open government initiative must be supported by strong policies and key internal players as well as by the dissemination of accurate data and information, stemming from reliable government source records and distributed through innovated platforms that encourage data use and citizen engagement. Such an initiative relies heavily not only on the information it chooses to distribute but also on the nature of that information, including the source material and work processes that were key in that information's creation and eventual release. A reliable enterprise-level recordkeeping framework that fosters an environment of accountability as well as the creation, capture, and control of complete, accurate, and reliable records, therefore, centres at the heart of a successful open government initiative and thus a trust relationship between government and citizens.

Open government may not be a new concept, but it is a changing one. A combination of modern technologies, social media outlets and whistleblower-like tendencies have not only had a significant impact on the sometimes unintended ways in which government information is distributed into the public

sphere, but it has also shaped the way both government and the public have approached questions of transparency and accountability. With the spotlight shining brighter than ever before, governments are under increasing public pressure to demonstrate their commitment to a more open form of governance. While standardized metrics for measuring the success or failure of these initiatives may not yet exist, public response and feedback can shed a significant amount of light on how these initiatives are currently being received.

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Notes

1. Archival aspects and concerns within a broader records management framework, while important, have not been explicitly explored within the scope of this particular article. The project team hopes to include this lens in our future studies.
2. Some jurisdictions pursued freedom of press movements much earlier. For example, Sweden introduced its Freedom of the Press Act in 1766.
3. The United States introduced their Freedom of Information Act in 1966 following the end of the Cold War. It was employed as a countermeasure to the tactics of secrecy and information restrictions that were often employed prior as a way to protect the country from foreign spies (Yu and Robinson 2012, 184–85).
4. Access to Information Act, RSC 1985, c A-1.
5. Privacy Act, RSC 1985, c P-21.
6. “Trust” and, thus, a “trust relationship” between government and citizens is, in and of itself, a complex concept. It is outside the scope of this article to explore the underlying issues of what may or may not be required to establish a “trust relationship” between governments and citizens. However, this article, recognizing that “open information” is only a subset of government information, does not advocate “complete access to information” as a “be all, end all” solution to establishing trust in government but, rather, an aspect to consider in this endeavour.
7. This list of characteristics and thus the definition of open data provided in this article has been made based on the author’s (Léveillé) interpretation of a number of different sources (Janssen, Charalabidis, and Zuiderwijk 2012; Open Knowledge Foundation 2011, 2012; Thurston 2012b; James 2013; McDonald and Léveillé 2014; Ubaldi 2013; Zuiderwijk et al. 2014).

8. While “universal participation” is the ultimate goal, there is always a risk that opening up government information may “further contribute to the digital divide,” as only certain groups may be able to learn how to use and fully benefit from data. (Janssen, Charalabidis, and Zuiderwijk 2012, 263).
9. It is important to note that the benefits of using open data, including the value of the data itself, are subject to change over time. While governments may not always be able to anticipate these changes, they may be required to adapt quickly in order to keep the public engaged (Janssen, Charalabidis, and Zuiderwijk 2012, 260).
10. The International Aid Transparency Initiative is a “voluntary, multi-stakeholder initiative that seeks to improve the transparency of aid, development and humanitarian resources in order to increase their effectiveness in tackling poverty” (International Aid Transparency Initiative 2014).
11. The analysis presented in this portion of the article was drafted as a result of a literature review of the resources that have been made publicly available online under the assumption that these resources would provide a fair representation of the open government initiatives currently underway within these individual Canadian jurisdictions. These examples and the analysis presented as a result thus offer an initial starting point for the complete-picture analysis of the Canadian landscape with regard to open government initiatives—to be accomplished as a future objective of this research—as it is acknowledged that there may exist certain limitations to a literature review (for example, not all pertinent resources may be available online; many of these documents do not present feedback or results with regards to the perceived level of success of an initiative; and so on) Addressing citizen-lead open government or open data initiatives is beyond the scope of this article.
12. Generally, jurisdictions with more mature programs have been covered in more detail in this overview. A potential exception to this is the selection of municipal examples, which were chosen more arbitrarily but with the goal to demonstrate different approaches.
13. Previously available at data.gc.ca, open data sets are now accessible, along with open information resources, on one common portal at <http://open.canada.ca/en> (Canada 2014g).
14. While the FAQs note the use of the Open Data Portal Metadata Standard, it does not clarify that departments individually host their own data. Still, this fact is evident when checking any URL on the site to download individual datasets.
15. While there are many other notable open government and open data initiatives underway in other countries, it is beyond the scope of this article to discuss them in any detail.
16. Freedom of Information and Protection of Privacy Act, RSO 1990, c F-31.
17. Section 5.3 of DataBC’s *Concept of Operations* document provides detailed workflow diagrams demonstrating various steps in the process toward releasing datasets including assessment, analysis, notification, prioritization, publication, hosting, validation, and so on (British Columbia, Ministry of Labour, Citizens’ Services and Open Government 2012, 33–38).
18. Access by design (AbD) and privacy by design (PbD) are approaches to enabling access or protecting privacy by embedding mechanisms into design specifications of technologies, business practices and physical infrastructures. Both are based on foundational sets of principles. In relation to open government, by accommodating AbD and/or PbD into information systems at the outset, the resulting systems inherently could support open information and open data requirements (Information and Privacy Commissioner of Ontario 2010, 2014).

19. The need for legislative reform to support modern records and archives management was further addressed in *A Failure to Archive: Recommendations to Modernize Government Information Management*, also produced by Elizabeth Denham (2014) in the Office of the Information and Privacy Commissioner for British Columbia.
20. For more information, see Open Data Program, Data Value Framework (Alberta 2013b); Dataset Evaluation Form (Alberta 2013a); and Open Data Assessment Checklist (Alberta, Open Government Program 2014).
21. The Alberta "Open Government Program—frequently asked questions" document states that Alberta is one of the first sub-national jurisdictions to develop a policy consistent with the G8 Open Data Charter (Alberta n.d., 1).
22. See also Freedom of Information and Protection of Privacy Act, RSA 2000, c F-25.
23. Pre-dating the current open government initiative, the Community Accounts website has been providing public access to different sources of socio-economic government data along with explanatory reference material and supporting tools since 1996 (Newfoundland and Labrador 2014b).
24. See *Manitoba Land Initiative* (Manitoba 2014); GeoNOVA, *Geographic Gateway to Nova Scotia* (Nova Scotia 2014); *GIS Data Layers* (Prince Edward Island 2014); *Geomatics Yukon* (Yukon 2011); *Centre for Geomatics* (Northwest Territories 2014a); *Geoscience Office – Research, Analysis, Information* (Northwest Territories 2014b); *Canada-Nunavut Geoscience Office* (Nunavut 2014).
25. Several lists of municipal initiatives have been compiled and are available at *Open Data in Canada* (Canada 2014f) and at *Open Data* (Datalibre.ca 2014). Further, Liam James Currie (2013) completed a Master's thesis entitled "The Role of Canadian Municipal Open Data Initiatives: A Multi-city Evaluation," which examines existing municipal open data initiatives to assess the role they play in relation to open government, including a detailed assessment of the type of data released and challenges facing the municipal programs. This thesis includes detailed case studies of ten Canadian municipalities: Toronto, Ontario; Edmonton, Alberta; Ottawa, Ontario; Montreal, Quebec; District of North Vancouver, British Columbia; Mississauga, Ontario; Regina, Saskatchewan; Guelph, Ontario; Fredericton, New Brunswick; and Hamilton, Ontario.
26. Little information is available on this working group, though it is referenced on some web resources (Toronto 2014a; Regional Municipality of York 2013; MARS Discovery District 2014).
27. The catalogue includes both metadata descriptions of the datasets as well as the datasets themselves. Municipal Freedom of Information and Protection of Privacy Act, RSO 1990, c M-56.
28. Local Authority Freedom of Information and Protection of Privacy Act, SS 1990, c L-27.1.
29. See also OpenDataSK.ca (2014). HackRegina is an annual hackathon event held in Regina, Saskatchewan. The fifth hackathon was in spring 2014 (McCallum 2014).
30. The United States' open data portal (data.gov) uses a standardized metadata template (Thurston 2012b).
31. In drafting their tool for measuring *Open Government and Trustworthy Records*, the International Records Management Trust (IRMT) (2013, 2) outline a series of benchmarks for implementing a successful open government initiative, including the ideal role that should be played by the records authority. The IRMT define this role in the following way: "A records authority (a national records/ archives body or state/ local body with equivalent authority) is empowered to advise government

on policy, set standards and define quality controls for the management of public records in all formats.”

32. The IRMT's *Open Government and Trustworthy Records: Institutional/ Regulatory Framework and Capacity Benchmarking Tool* (2013) only explores the role of the national archives in their framework. Unfortunately, the tool does not explore alternative options for provincial/state or municipal governments.
33. On 30 May 2014, National Archives and Records Administration (2014) published its third *Open Government Plan*.
34. From a general perspective, this may be outlined in the policy (for example, categories of information types for potential release). Further, government information requests are never static in nature and the choice to distribute what information and when is likely to be subject to frequent change.
35. Mapping the information sources of an organization has been a strategy adopted by the UK government as well as by the Girona City Council when implementing its open data project (Open Government Partnership 2014b; Casselas 2013, 2).
36. The inventory not only becomes a by-product of the activity but also a useful management tool for government (that is, it could help prioritize future open government information releases and streamline workflows) and a significant piece of documentation that can be used to further support government transparency.
37. While the importance of metadata is not disputed, the current problem lies in that there is currently no consistency in different metadata models and/or formats that are used across different open data types. Inputting metadata can be a time-consuming endeavour and perhaps overlooked in part by organizations lacking the necessary staff and resources to accomplish the task. Furthermore, there is also a risk of metadata containing assumptions for the use of the data and pointing to certain choices and interpretations to be made, which could create biases that would otherwise exclude certain ways in which the data could be reused (Zuiderwijk, Jeffrey, and Janssen 2012, 232).
38. It should be acknowledged that the introduction of new technological platforms could also result in the creation of new partnerships for government, for example, outsourcing the design, hosting and/or the management of these tools to third-party companies, which could present equal benefits and risks for organizations. It is beyond the scope of this article to explore this dimension.

References

- Alberta. n.d. *Open Data Standards*. Edmonton, AB. <http://data.alberta.ca/sites/default/files/Open%20Data%20Standards.pdf>.
- . 2012a. *Alberta Open Data*. <http://data.alberta.ca/>.
- . 2012b. *Open Information and Open Data Policy*. <http://data.alberta.ca/content/government-alberta-open-information-and-open-data-policy>.
- . 2012c. *Open Government Licence: Alberta*. <http://data.alberta.ca/licence>.
- . 2013a. *Dataset Evaluation Form*. Edmonton, AB. <http://data.alberta.ca/sites/default/files/02%20Dataset%20Evaluation%20Form.pdf>.
- . 2013b. *Open Data Program, Data Value Framework*. Edmonton, AB. <http://data.alberta.ca/sites/default/files/01%20Open%20Data%20Value%20Framework.pdf>.
- . 2014. *Open Data Dataset Publishing Guidelines*. Edmonton, AB. <http://data.alberta.ca/sites/>
- Alberta, Open Government Office. 2013. *Open Government Action Plan*. Edmonton, AB. <http://data.alberta.ca/sites/default/files/Alberta%20Open%20Government%20Action%20Plan%20v5.7.pdf>.

- Alberta, Open Government Program. 2014. *Open Data Assessment Checklist*. Edmonton, AB. <http://data.alberta.ca/sites/default/files/ADMINSA0040.pdf>.
- British Columbia. 2014a. *Open Government License: British Columbia*. <http://www.data.gov.bc.ca/local/dbc/docs/license/OGL-vbc2.0.pdf>.
- . 2014b. *Open Information*. <http://www.openinfo.gov.bc.ca/ibc/index.page>.
- . 2014c. *DataBC*. <http://www.data.gov.bc.ca>.
- British Columbia, Ministry of Labour, Citizens' Services and Open Government. 2012. *DataBC: Concept of Operations*, vol. 1. Victoria, BC. http://www.data.gov.bc.ca/local/dbc/docs/databc/DataBC_Concept_of_Operations_-_V1.0.pdf.
- British Columbia, Office of the Chief Information Officer, Knowledge and Information Services Branch, Ministry of Labour, Citizens' Services and Open Government. 2011. *Open Information and Open Data Policy*, version 1.0. Victoria, BC. http://www.cio.gov.bc.ca/local/cio/kis/pdfs/open_data.pdf.
- Canada. 2012. *Canada's Action Plan on Open Government 2012–2014*. <http://open.canada.ca/en/canadas-action-plan-open-government>.
- . 2014a. *Canada's Action Plan on Open Government 2014–2016*. <http://open.canada.ca/en/content/canadas-action-plan-open-government-2014-16>.
- . 2014b. *Directive on Open Government*. <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28108>.
- . 2014c. *Frequently Asked Questions*. <http://open.canada.ca/en/frequently-asked-questions>.
- . 2014d. *G8 Open Data Charter: Canada's Action Plan*. <http://open.canada.ca/en/g8-open-data-charter-canadas-action-plan>.
- . 2014e. *GeoConnections: Discovery Portal*. <http://geodiscover.cgdi.ca/web/guest/home>.
- . 2014f. *Open Data in Canada*. <http://open.canada.ca/en/maps/open-data-canada>.
- . 2014g. *Open Government*. <http://open.canada.ca/en>.
- . 2014h. *Open Government License: Canada*. <http://open.canada.ca/en/open-government-licence-canada>.
- Casselas, L.-E. 2013. *Mapping, Selecting and Opening Data: The Records Management Contribution to the Open Data Project in the City Council of Girona*. Paper delivered at the ICA Annual Conference, Brussels, Belgium, 23–24 November. <http://www.ica.org/?lid=14819&bid=1134>.
- Currie, Liam James. 2013. "The Role of Canadian Municipal Open Data Initiatives: A Multi-City Evaluation." MA thesis, Queen's University. http://qspace.library.queensu.ca/bitstream/1974/8159/1/Currie_Liam_J_201308_MA.pdf.
- Datalibre.ca. 2014. *Open Data*. <http://datalibre.ca/links-resources/>.
- Denham, Elizabeth. 2013. *Evaluating the Government of British Columbia's Open Government Initiative*, Investigation Report F13–03: Information and Privacy Commissioner for British Columbia. Victoria, BC. <https://www.oipc.bc.ca/investigation-reports/1553>.
- . 2014. *A Failure to Archive: Recommendations to Modernize Government Information Management*, Special Report: Information and Privacy Commissioner for British Columbia. Victoria, BC. <https://www.oipc.bc.ca/special-reports/1664>.
- European Commission. 2011. *Open Data: An Engine for Innovation, Growth and Transparent Governance* Europa.eu Digital Agenda for Europe COM(2011) 822 final. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0882:FIN:EN:PDF>

- Francoli, Mary. 2011. "What Makes Government 'Open'?" *eJournal of eDemocracy and Open Government* 3 (2): 152–65. <http://www.jedem.org/article/view/65/85>.
- Gautrin, Henri-François. 2012. *Gouverner ensemble: Comment le Web 2.0 améliorera-t-il les services aux citoyens?* Québec, QC. <http://www.mce.gouv.qc.ca/publications/rapport-gautrin-web-2-2012-03-06.pdf>.
- Gavelin, Karin, Simon Burall, and Richard Wilson. 2009. *Open Government: Beyond Static Measure*, A paper produced by Involve for the OECD. <http://www.oecd.org/gov/46560184.pdf>.
- Giggey, Robert. 2012. *The G4: Setting the City Data Free*, Canadian Government Executive 17 (8). <http://www.canadiangovernmentexecutive.ca/category/item/152-the-g4-setting-city-data-free.html>.
- International Council on Archives. Committee on Current Records in an Electronic Format. 2005. *Electronic Records: A Workbook for Archivists*, ICA Study 16. Paris, France. <http://www.ica.org/download.php?id=1612>.
- Information and Privacy Commissioner of Ontario. 2010. *Access by Design: The Seven Fundamental Principles*. https://www.ipc.on.ca/images/Resources/accessbydesign_7fundamentalprinciples.pdf.
- . 2014. Introduction to PbD [Privacy by Design]. <http://www.ipc.on.ca/english/privacy/introduction-to-pbd/>.
- International Aid Transparency Initiative. 2014. *About IATI*. <http://www.aidtransparency.net/about>.
- International Records Management Trust. 2013. *Open Government and Trustworthy Records Institutional/Regulatory Framework and Capacity Benchmarking Tool*. <http://www.irmt.org/portfolio/open-government-trustworthy-records/attachment/benchmarks-for-open-government-and-trustworthy-records-final-2>.
- InterPARES 2 Project. n.d. *Data: Terminology Database*. http://www.interpares.org/ip2/ip2_terminology_db.cfm
- InterPARES Trust. 2014. *Home*. <https://interparestrust.org/>.
- International Standardization Organization (ISO). 2008. *Technical Report: Information and Documentation – Work Process Analysis for Records*, ISO/TR 26122:2008(E). Switzerland: ISO.
- James, L. 2013. *Defining Open Data: Open Knowledge Foundation Blog*. <http://blog.okfn.org/2013/10/03/defining-open-data/>.
- Janssen, Marijn, Yannis Charalabidis, and Anneke Zuiderwijk. 2012. "Benefits, Adoption Barriers and Myths of Open Data and Open Government." *Information Systems Management* 29 (4): 258–68. <http://dx.doi.org/10.1080/10580530.2012.716740>.
- Manitoba. 2014. *Manitoba Land Initiative*. <http://mli2.gov.mb.ca/>.
- MARS Discovery District. 2014. *What We Do – Open Data*. <http://www.marsdd.com/systems-change/data-catalyst/what-we-do/>.
- McCallum, Chad. 2014. *HackREGINA Spring 2014 Winners! HackDays [blog]*. <http://hackdays.ca/>.
- McDonald, John. 2012. "Managing Electronic Records: The Importance of Standards." Paper delivered at the SARBICA Conference on Electronic Records, Bangkok, Thailand, June.
- McDonald, John, and Valerie Léveillé. 2014. "Whither the Retention Schedule in the Era of Big Data and Open Data?" *Records Management Journal* 24 (2): 99–121. <http://dx.doi.org/10.1108/RMJ-01-2014-0010>.
- National Archives. 2014. *Open Government License for Public Sector Information*. <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/2/>.

- . 2015. *Licensing for Re-use*. <http://www.nationalarchives.gov.uk/information-management/re-using-public-sector-information/licensing-for-re-use/>.
- National Archives and Records Administration. 2014. *Open Government Plan: 2014–2016*. <http://www.archives.gov/open/open-government-plan-3.0.pdf>.
- Natural Resources Canada. 2012. *The Atlas of Canada*. <http://atlas.nrcan.gc.ca/site/english/index.html>.
- . 2015. *Free Data: GeoGratis*. <https://www.nrcan.gc.ca/earth-sciences/geography/topographic-information/free-data-geogratis/11042>.
- Newfoundland and Labrador. 2014a. *Collaboration*. <http://open.gov.nl.ca/collaboration/default.html>.
- . 2014b. *Community Accounts – Data, Information, Knowledge*. <http://nl.communityaccounts.ca/default.asp>.
- . 2014c. *Dialogue*. <http://open.gov.nl.ca/dialogue/default.html>.
- . 2014d. *License*. <http://opendata.gov.nl.ca/public/opendata/page/?page-id=licence>.
- . 2014e. *Open Data*. <http://opendata.gov.nl.ca/>.
- . 2014f. *Open Government*. <http://open.gov.nl.ca/what.html>.
- . 2014g. *Open Information*. <http://open.gov.nl.ca/information/default.html>.
- Northwest Territories. 2014a. *Centre for Geomatics*. <http://www.geomatics.gov.nt.ca/>.
- . 2014b. *Geoscience Office: Research, Analysis, Information*. <http://www.nwtgeoscience.ca/>.
- Nova Scotia. 2014. *GeoNOVA, Geographic Gateway to Nova Scotia*. <http://www.novascotia.ca/geonova/home/default.asp>.
- Nunavut. 2014. *Canada-Nunavut Geoscience Office*. <http://cngo.ca/>.
- O’Hara, Kieron. 2012. “Transparency, Open Data and Trust in Government: Shaping the Infosphere.” *WebSci ’12 Proceedings of the 4th Annual ACM Web Science Conference*, 223–32. <http://dx.doi.org/10.1145/2380718.2380747>.
- Ontario. 2014a. *Open Data*. <http://www.ontario.ca/government/ontario-open-data>.
- . 2014b. *Open Government*. <http://www.ontario.ca/government/open-government>.
- Ontario, Open Government Engagement Team. 2014. *Open by Default—A New Way Forward for Ontario*. Toronto, ON. <https://dr6j45jk9xcmk.cloudfront.net/documents/2428/open-by-default-2.pdf>.
- OpenDataSK. 2014. *OpenDataSK.ca*. <http://opendatask.ca/>.
- Open Government Partnership. 2014a. *Sweden*. <http://www.opengovpartnership.org/country/sweden>.
- . 2014b. *United Kingdom*. <http://www.opengovpartnership.org/country/united-kingdom>.
- . 2014c. *United States*. <http://www.opengovpartnership.org/country/united-states>.
- Open Knowledge. 2014. *What Is Open?* <https://okfn.org/opendata/>.
- Open Knowledge Foundation. 2011. *Open Definition*. <http://opendefinition.org/od/>.
- . 2012. *Open Data Handbook*, release 1.0.0. <http://opendatahandbook.org/pdf/OpenDataHandbook.pdf>.
- Prince Edward Island. 2014. *GIS Data Layers*. <http://www.gov.pe.ca/gis/>.
- Quebec. 2014a. *Déclaration du gouvernement du Québec*. <http://www.défis.gouv.qc.ca/?node=/declaration>.
- . 2014b. *Données.gouv.qc.ca BETA*. <http://www.défis.gouv.qc.ca/>.
- . 2014c. *Données ouvertes: Le gouvernement du Québec et les Villes de Québec, Montréal, Gatineau et Sherbrooke adoptent une licence commune d’utilisation*. <http://www.fil-information.gouv.qc.ca/Pages/Article.aspx?aiguillage=ajd&idMenuItem=1&idArticle=2202195608>.

- . 2014d. *Licence*. <http://www.defis.gouv.qc.ca/?node=/licence>.
- Regina. 2014a. *About OGD/ DataLab*. <http://openregina.cloudapp.net/Home/About>.
- . 2014b. *City of Regina Datasets*. <http://openregina.cloudapp.net/>.
- . 2014c. *Open Government*. <http://www.regina.ca/residents/open-government/>.
- . 2014d. *Open Info*. <https://www.regina.ca/residents/open-government/open-information/>.
- . 2015. *Open Government Licence – City of Regina*. <https://www.regina.ca/residents/open-government/open-government-licence/>.
- Regional Municipality of York. Committee of the Whole, Planning and Economic Development. 2013. *Open Data for York Region—Moving Forward*. Regional Municipality of York, ON. <http://archives.york.ca/councilcommitteearchives/pdf/sep%2012%20ped%20open.pdf>.
- Scassa, Teresa. 2014. "Privacy and Open Government." *Future Internet* 6 (2): 397–413. <http://dx.doi.org/10.3390/fi6020397>.
- Thurston, Anne. 2012a. "Public Records: Evidence for Openness." Paper delivered at the Institute of Commonwealth Studies Secrecy and Disclosure: Freedom of Information and the Commonwealth Conference, London, England, 14 June. http://blogs.estadiao.com.br/publicos/files/2012/08/Public-Records-as-Evidence-for-Openness-FINAL.doc_.pdf
- . Anne. 2012b. "Trustworthy Records and Open Data." *Journal of Community Informatics* 8 (2). <http://ci-journal.net/index.php/ciej/article/view/951/952>.
- Toronto. 2013a. *Open Government Licence: Toronto*. <http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=4a37e03bb8d1e310VgnVCM10000071d60f89RCRD&applinstanceName=default>.
- . 2013b. *Strategic Action no. 13: Open Government by Design*. Toronto, ON. http://www1.toronto.ca/City%20Of%20Toronto/City%20Clerks/Corporate%20Information%20Management%20Services/Teaser/Strat%20Action%2013%20Open%20Gov%20by%20Design%20Implementation%20Steps%20FINALN_1.pdf.
- . 2013c. *Strategic Actions, 2013–2018*. Toronto, ON. http://www1.toronto.ca/City%20Of%20Toronto/City%20Manager%27s%20Office/Files/StratActionsBklt_Tags.pdf.
- . 2014a. *Open Data*. <http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=9e56e03bb8d1e310VgnVCM10000071d60f89RCRD>.
- . 2014b. *Open Data – Data Catalogue*. <http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=1a66e03bb8d1e310VgnVCM10000071d60f89RCRD>.
- Toronto, City Clerk's Office. 2013. *Information Management Framework*. Toronto, ON. <https://www1.toronto.ca/City%20Of%20Toronto/City%20Clerks/Corporate%20Information%20Management%20Services/Files/pdf/1/IMFrameworkToronto.pdf>.
- Toronto, Corporate Information Management Services. 2012. *Open Data Policy*. <http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=7e27e03bb8d1e310VgnVCM10000071d60f89RCRD>.
- Ubaldi, Barbara. 2013. *Open Government Data: Towards Empirical Analysis of Open Government Data Initiatives*. OECD Working Papers on Public Governance no. 22. OECD Publishing. doi: 10.1787/5k46bj4f03s7-en.
- US National Archives and Records Administration. 2014. *Open Government at the National Archives*. <http://www.archives.gov/open/>.
- Vancouver. 2013. *Digital Strategy*. Vancouver, BC. http://vancouver.ca/files/cov/City_of_Vancouver_Digital_Strategy.pdf.
- . 2014a. *Corporate Business Plan*. Vancouver, BC. <http://vancouver.ca/files/cov/corporate-business-plan.pdf>.

- . 2014b. *Open Data Catalogue*. <http://vancouver.ca/your-government/open-data-catalogue.aspx>.
- . 2014c. *Talk Vancouver*. <https://www.talkvancouver.com/Portal/default.aspx>.
- Vancouver Chief Librarian. 2013. *Digital Strategy*, RR2 Administrative Report. Vancouver, BC. <http://former.vancouver.ca/ctyclerk/cclerk/20130409/documents/rr2.pdf>.
- Vancouver, Standing Committee on City Services & Budgets. 2009. *Item No. 5 – Open Data, Open Standards, Open source*, Vancouver, BC. <http://former.vancouver.ca/ctyclerk/cclerk/20090521/documents/csb5.pdf>.
- Veljković, Nataša, Sanja Bogdanović-Dinić, and Leonid Stoimenov. 2014. "Benchmarking Open Government: An Open Data Perspective." *Government Information Quarterly* 31 (2): 278–90. <http://dx.doi.org/10.1016/j.giq.2013.10.011>.
- Yu, Harlan, and David G. Robinson. 2012. "The New Ambiguity of 'Open Government'." *UCLA Law Review Disclosure* 59: 178–208. doi: 10.2139/ssrn.2012489.
- Yukon. 2011. *Geomatics Yukon*. <http://www.geomaticsyukon.ca/>.
- Zuiderwijk, Anneke, and Marijn Janssen. 2014. "Open Data Policies, Their Implementation and Impact: A Framework for Comparison." *Government Information Quarterly* 31 (1): 17–29. <http://dx.doi.org/10.1016/j.giq.2013.04.003>.
- Zuiderwijk, Anneke, Marijn Janssen, Sunil Choenni, and Ronald Meijer. 2014. "Design Principles for Improving the Process of Publishing Open Data." *Transforming Government: People, Process and Policy* 8 (2): 185–204. <http://dx.doi.org/10.1108/TG-07-2013-0024>.
- Zuiderwijk, Anneke, Keith Jeffery, and Marijn Janssen. 2012. "The Potential of Metadata for Linked Open Data and its Value for Users and Publishers." *eJournal of Democracy and Open Government* 4 (2): 222–44.