Municipal Open Government Data in Winnipeg

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Introduction

Mayor of Winnipeg Brian Bowman was elected in October 2014 on a platform that included a promise to institute a comprehensive open government data plan. However, Bowman has yet to expand on or amend the Open Data Plan passed by the previous administration, or to attend to the city's nascent open-data portal, data.winnipeg.ca. This report outlines best practices for municipal open government data and the current state of open government data in Winnipeg. It concludes with some key recommendations for Mayor Bowman on how best to design and implement an updated open government data program to meet his stated goals.

Theoretical Background: Open Government Data

To determine an appropriate framework for open government data in Winnipeg, it is vital to understand general best practices in this area. Open government data is broadly defined as "any data and information produced or commissioned by public bodies…that can be freely used, re-used and distributed by anyone, only subject to (at the most) the requirement that users attribute the data and that they make their work available to be shared" (Ubaldi, 2013, p. 7). There have been many attempts to break this definition into workable principles. For example, the Open Government Data Principles are that the data is: complete; primary (collected at the source); timely; accessible; machine readable; non-discriminatory (not requiring registration); non-proprietary; and license-free (cited in Ubaldi, 2013). Vivek Kundra identified ten principles for improving government transparency via open government data; in addition to the concepts incorporated in the Open Government Data Principles, Kundra proposed creating automated data transfer processes; creating reusable, shared platforms for

data storage and dissemination; validating data at the point of entry; using unified data standards; reusing existing datasets; adhering to standards of security and personal privacy; and incorporating feedback from end-users (cited in Ubaldi, 2013).

From the core principles of open government data, Roy (2014) derives a framework incorporating public value management and media engagement in order to promote data usage and citizen involvement. Currie (2013) suggests another framework: an iterative approach based on a clear open data policy and a philosophy of public engagement, incorporating high-quality data (possibly from sources beyond the municipal government itself) and a good interface targeted primarily at developers. This last component is disputed, as there is a conflict between a technical interface and one more accessible to the general public; Currie suggests that developers can best assist in translating the data into a more comprehensible form. However, I prefer Roy's approach of media engagement to facilitate citizen involvement: while data journalism is underrepresented in the case-based literature, it has the potential to greatly improve the accessibility of the data for the average member of the public.

The UK Public Data Principles expand on these basic frameworks by adding some key guidelines for government agencies, suggesting that government policies must be driven by the needs and desires of end-users; that data should be released through a single online portal; that data from different departments should use the same format and definitions; and that governments should be proactive in encouraging the reuse of data, by the provision of data inventories, documentation, and other supporting materials (cited in Ubaldi, 2013). Along the same lines, the Open Government Declaration (2011) presents a manifesto "to promote transparency, fight corruption, empower citizens, and harness the power of new technologies

to make government more effective and accountable": it commits signatories to increasing availability of government information, empowering citizens, adopting professional standards of ethics, and promoting access to modern technology. Finally, van der Graaf (2014) argues that city administrators should work to facilitate citizen involvement via open data toolkits that allow for coproduction of mobile services.

In a municipal open government data framework, collaboration is a key component. Roy (2014) argues that the development of a Canada-wide, federated architecture for open data dissemination would reduce the burden on individual municipalities. This is an avenue for long-term development, as it would require extensive discussion and negotiation with other potential participants and stakeholders. However, he also argues against collaboration between different levels of government, based on the "adversarial" relationships between governments and the "excessive partnership" that contributes to "corroding democratic legitimacy" (p. 425). While Currie (2013) is not as negative, he does note that municipal governments are easier to engage with and have greater capacity to understand the local environment than higher levels of government, and thus are better placed to engage with the citizenry.

We can also discuss collaboration in the context of non-governmental groups, whether businesses or non-profit organizations. Ubaldi (2013) notes the increasing importance of these so-called "private actors" in creating value from open government data. Currie (2013) also discusses the involvement of private and commercial organizations in developing applications from open government data; he suggests that while there is some concern about privatization for monetization, there is also great potential for private actors to make data more accessible to the general public.

State of the Art: Municipal Open Government Data

While these principles and guidelines provide strong practice-based guidelines outlining the ideals of open government data, it is perhaps even more valuable to consider how they are put into practice, particularly in other Canadian municipalities. Roy (2014) conducted a review of policies related to open government data in Canada. He highlights Nanaimo, BC as an early example, noting its use of open-source platforms, open licensing, and free tools for data visualization. He also profiles Edmonton's app-creation competition, the first in Canada and an example of reuse of data by the public; however, he also notes that Edmonton's online portal privileges the traditional municipal passive communications approach over the more interactive open-government model. Roy's views on the political context of open government data in Edmonton are also interesting: he notes that open-data proponents in the city's administration are "younger and more technology-savvy" (p. 420), leading to a perception of the open-data portal as an experimental activity not warranting extensive promotion among average citizens. Currie (2013) concurs with this finding, pointing to a generational divide as an impediment to open-data projects. He also points out another staffing issue in some cities: staff may be brought on only for the implementation of a data portal rather than permanently, reducing the potential for follow-up and management.

In his thesis, Currie (2013) compared seven Canadian municipal data portals: Toronto, Edmonton, Ottawa, Montreal, North Vancouver, Regina, and Mississauga. He generally praised the size and visibility of these portals, the presence of key advocates, system design, and public engagement. More specifically, Currie notes Toronto's inclusion of "non-politically neutral datasets", such as those related to city finances (p. 91), its cooperation with city universities,

and its engagement with social media. He describes Edmonton's use of the Socrata platform as an efficiency measure, reducing the amount of local effort needed to develop or maintain the municipal portal; he also praises the nascent citizen dashboard, but notes a lack of interaction between developers and community members despite the high profile of the city CIO as an open-data spokesperson. In contrast, Ottawa's initiative was community-driven from its inception, with citizen-led hackathons and strong engagement between the city and local open-data advocates. Similarly, Montreal's data portal was developed on the basis of demonstrated public demand, and continues to be highly focused on applications developed by citizens or local organizations; however, Currie points out that Montreal faces unique challenges due to the complexity of its government, which complicates the acquisition of useful and complete datasets. Currie reports that North Vancouver was initially engaged in providing data for a fee, but moved to an open approach to improve efficiency, drawing on the experience in its GIS department to produce a usable and well-designed portal. The North Vancouver portal is highly focused on rich geospatial data, with a detailed interactive mapping function. However, Currie suggests that this particular portal is not well promoted, with little community engagement. Mississauga's approach is unique in that it almost exclusively uploads historic documents in PDF form (digitized from city records), to respond to the city's most commonly received requests; despite its narrow scope, the site is well used, with about one million downloads over three years. Finally, Regina's approach to open government data is to incorporate it into a wider open strategy devoted to transparency and public accountability, to use a cross-departmental team rather than a single department to manage the portal, and to engage with emerging community groups throughout the process.

Currie also considered three cities with what he deemed to be unsuccessful data portals: Fredericton, Guelph, and Hamilton. Problems identified included lack of data, lack of updates, degeneration (particularly dead links), and poor or nonexistent policies. Indeed, Guelph has neither a policy nor any sort of licensing for data provided its portal, part of a pilot project that appears to have gone nowhere; it has only a few static datasets and no community engagement. Fredericton also has no formal open-data policy, and no funding for open government data; though the program has support from within the government and the community, it has faced a significant setback in the restructuring of the municipality's administration, which resulted in the program being put on hold. Hamilton too has no formal policy and limited terms of use for materials on its website, which provides only transit data despite community advocacy for a far more extensive release. A community member that Currie interviewed cited risk aversion, lack of dedicated resource, and lack of internal support for open data as reasons for the poor state of the program. Currie also noted that all three sites were lacking in terms of reusability of data, and even the better portals often published data in non-open formats due to the resources required to convert them.

On the basis of his city-by-city evaluation, Currie (2013) identified several key trends in open government data initiatives, which will be helpful in developing recommendations for Winnipeg. First, cities generally began by releasing the easiest datasets: geospatial data already in a usable formal and unlikely to create controversy. Subsequent uploads were more varied and depended on the department(s) involved. Many reported difficulty in determining which data might be considered of value by the citizenry; citizen requests had a minimal impact. However, Currie's respondents had clear wish lists for data uploads: statistical and financial

data, particularly socioeconomic and health-related, were primary requests, while secondary requests included longitudinal data. Open-data policies established a mandate for data provision and standards across departments, increasing the timeliness of uploads and simplifying data management; while not all cities had a policy in place from program inception, creating one is nevertheless an important milestone and driver for development. A philosophy of open government, public engagement, and collaboration is also seen as central to a successful program, though a business-case approach was also helpful in encouraging internal support.

Currie (2013) also identified a number of common challenges to the establishment of open government data programs in Canada. The first and most pressing was a lack of resources. While many cities have limited staffing or budget allocated to open government data, this approach has the potential to limit the quality of the product, the level of engagement with the community, or other aspects of the program. A second challenge is technical: the use of older systems, lack of technical expertise among staff members, or difficulty implementing the desired formats or standards. This problem could likely be mitigated by addressing resource shortages. However, cultural barriers are far more difficulty to address: Currie's respondents reported a sense of data ownership among governments that limited their willingness to freely distribute it, as well as a concern that members of the public would misuse or misinterpret certain datasets. A related issue is the persistence of data sales, which are seen to conflict with the ideals of the open-data approach, or other practices or policies limiting data release. Finally, Currie notes a lack of interest or engagement by members of the municipal government, particularly those who might be less familiar with open data and data reuse.

Turning to other critiques of open government data in Canada, Wolfe-Wylie (2014) focused on Toronto and Langley, BC. He argues that Langley's approach is superior: the city uses Socrata to manage its data portal, producing output that is well managed and adaptable despite the smaller size of its holdings. Toronto, on the other hand, releases far more data but is much harder for developers to use in applications. Wolfe-Wylie concludes that a combined approach – a greater number of datasets on a well-managed platform – would provide the best possible outcome. On the international level, van der Graaf (2014) presented analyses of open data portals in Ghent and Athens; she found that both facilitated development of data-based applications by end-users, even those who did not have programming or design expertise. This approach improves data accessibility and reusability for the general public.

Practical considerations also play an important and often overlooked role in open government data. As Ubaldi (2013) notes, many governments "adopt strategies that look for 'quick wins'… over time, however, the availability of relevant open government data diminishes in terms of content and adequacy of format" (p. 31). Furthermore, as pointed out by Roy (2014), many citizens lack either the resources or the knowledge to make effective use of open government data. In addition to van der Graaf's approach described above, Currie (2013) identifies Edmonton's use of the Socrata platform as a means of making datasets more accessible to the average member of the public. Currie's overview of Canadian municipal open data portals also provides essential insights into other practicalities of their operation. Interestingly, two of the positive examples he identifies – Toronto and North Vancouver – reported no dedicated budget or staffing devoted to open data, although Toronto had a committee of representatives from various sectors. Other cities profiled had some project

funding and a small staff, but none had extensive resource support. However, most had the political support of the city's Chief Information Officer. As Winnipeg does not have an analogous position, it relies more heavily on Mayor Bowman's direct and continued interest in the project – which is perhaps why there has been little development on this front.

Winnipeg

Having considered the state of open government data in other municipalities, let us now turn to Winnipeg. There are four main sources to consider in our evaluation: the city's Open Data Plan, its Open Data Portal (and the portal's predecessor, NOW Winnipeg), provincial and federal initiatives involving the city, and Mayor Bowman's platform for open data.

The city's current Open Data Plan (Alternate Service Delivery Committee, 2013) endorses the broad principles of "open and accessible data" and "open standards", though it does not link these to any clear definition of how these should be interpreted. The plan is also vague on financial support for the project and on staffing: it falls under the aegis of the Public Service department, but it describes only a "reallocation of existing resources" (p. 3) rather than specific staffing details, and the financial impact statement included as an appendix is mostly blank – it mentions only a direct cost of $2500 for the first year of the program, but does not explain what this expenditure is for. It also provides for some undefined datasets to continue to be sold rather than made freely available. The plan proposes the creation of a new Open Data Catalogue comprising 69 initial datasets (covering such topics as census data, traffic, residential inventory, and recreation) in machine-readable format; the technical details it includes appear to now be outdated (for example, the use of Azure as a platform). These offerings were in principle to be in standard and open formats, but the list of proscribed

formats included in the plan is more varied. The plan goes on to discuss the data portal itself, including future development of data visualization and engagement tools, as well as administrative and communication strategies; these strategies, if they were made, are not publicly available. Finally, the plan mentions a digitization strategy for archival data, which again is not public.

The portal discussed in the Open Data Plan, data.winnipeg.ca, has evolved considerably from what was described. It now has 155 uploads, including datasets, documents, APIs, and other media. The data is published under an open government licensed modified from the federal version. The portal uses Socrata as its platform (rather than Azure, as was mentioned in the Plan), which provides means of filtering, visualizing and exporting results; it also includes an option for users to suggest additions (although there is a backlog of several months). Search results can be filtered or sorted by categories and tags, although the tagging is somewhat inconsistent. While a few datasets, notably one concerning reported potholes, have been adapted by community members or journalists to create useful applications, many are either not particularly useful (eg. lists of meetings) or are already available in more detail elsewhere (eg. census data).

This portal supplanted the earlier Neighbourhoods of Winnipeg (NOW) portal, an RDF-based, Drupal-managed site that focused on data and media related to different neighbourhoods – schools, census data, bus routes, and assessment and zoning information, among others – and that featured ontology-driven visualizations (Bergman, 2013). The NOW site still exists (and in some areas offers more valuable and more usable data than the current portal), but is no longer being actively maintained.

In addition to Winnipeg's own open-data portal, the city is included in provincial and federal initiatives. The Canadian government has an established open government site (open.canada. ca) which includes a data portal. The provincial government has a more limited "data warehouse" under the aegis of the Manitoba Land Initiative (mli2.gov.mb.ca), a project of the conservation department dealing with GIS data and maps. Winnipeg does not currently collaborate with either on the matter of open government data, although it includes some datasets from the Canadian portal – census data – in its own portal.

Mayor of Winnipeg Brian Bowman was elected on a campaign platform that included a promise to institute a comprehensive open-data policy. He suggested, among other things, making much of the workings of the government (like council votes and financial details) available and accessible online by default, under a free license and in a machine-readable standard format. His stated motives for supporting open initiatives include increased transparency, citizen empowerment, and commercial benefit (Bowman, 2014). In many ways, Bowman's approach is quite similar to that of Regina as described by Currie (2013): he sees an open data initiative as a component of a drive for greater public accountability. However, Mayor Bowman has yet to act on this aspect of his political vision, leaving the Open Data Plan and the data portal as they were before his election.

Recommendations

In light of the above background, I suggest implementing the following recommendations for open government data in Winnipeg:

1. Incorporate this initiative into a wider open strategy, consistent with the Regina example (Currie, 2013) and Mayor Bowman's campaign platform. This will provide for a unified

philosophy towards openness and public accountability. It will also require a cultural shift among members of the administration, to discard previous practices in favour of a new commitment to transparency.

2. Publish a clear and public policy on open government data. This policy should include a definition of terms, and ideally refer to one of the existing sets of open data principles as its basis. It should define what data is shared and what is not and include a strong mandate to default to sharing, particularly for data types that Currie (2013) identifies as being of great interest to the public: statistical and financial data, particularly socioeconomic and health-related. Ideally the policy would also set standards across departments to simplify data management, as suggested by Currie (2013). Any and all related policy documents (such as a digitization strategy) should also be public, linked to this main policy, and readily findable.

3. At least one permanent staff member should be assigned to this initiative. In addition to providing technical knowledge, this person could act as an advocate for open data within the administration, reducing the project's reliance and demands on the mayor himself for solvency.

4. Permanent funding should be allocated to the project, to allow for its continued management and to provide for engagement efforts (described below).

5. All data being made available to the public should be freely available, eliminating the paid model that persists for some classes of data. As Currie (2013) noted with regards to North Vancouver, this approach simplifies the data-provision system and improves efficiency. It also has the potential to address the sense of data ownership by removing incentive to keep data out of the portal.

6. Data.winnipeg.ca and the NOW portal should be merged, providing a consistent, single-stop-shop for Winnipeg's open government data. All of the RDF-enriched data from the NOW portal should be maintained during the transfer, if possible, and the RDF ontology should be incorporated into the existing and future contents of data.winnipeg.ca, to promote link stability (via URIs) and reusability.

7. The data portal should continue with Socrata: it is a reusable shared platform (Ubaldi, 2013) with well managed output (Wolfe-Wylie, 2014) that is accessible to the general public but also provides support for developers (Currie, 2013).

8. Data should be submitted to the portal as soon as possible after creation and should be validated at entry. It should be in a standard open format that allows for machine readability. If possible, the city IT department should establish a streamlined means of data transfer to ensure timeliness. All datasets should be accompanied by documentation, which reduces the potential for misuse and better informs reusers as to its status and provenance.

9. The city will promote use of the data portal by making the data catalogue open and readily searchable, adding a dashboard to facilitate navigation, engaging on social media, and running events like app-creation contests.

10. The city will prioritize multiple levels of engagement. First, it will engage with the general public, by responding to suggestions promptly – even where a suggestion is not feasible – and by soliciting feedback and participation. It will engage with members of the media, offering them datasets of value for their stories (even non-politically-neutral datasets) in order to improve transparency and provide mediated information access to those citizens lacking the means to engage directly with the data. It will invite businesses and non-profits to work with

the data to create applications as another means to add value to datasets. Keeping in mind the misgivings expressed by Roy (2014), it will engage with other levels of government by reusing and improving upon existing datasets, as it is already doing with census data. Finally, it will engage with local academic institutions, schools, and libraries: working with data is an educational opportunity for students and can provide research value, while getting staff at the public library's information services department involved would allow them to facilitate access for the public and give informed feedback on such aspects as usability and findability of materials.

These recommendations form a framework to align Winnipeg's open government data with the principles of the open-data movement and the practicalities of its implementation. While this list is necessarily not comprehensive, I feel it offers the best path for development consistent with the stated goals of Mayor Bowman and the needs and circumstances of the citizens of Winnipeg.

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