



STAFF REPORT ACTION REQUIRED

Open Data in the City

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| Date: | February 5, 2016 |
| To: | Government Management Committee |
| From: | City Clerk Chief Information Officer, Information & Technology Division |
| Wards: | All |
| Reference Number: | |

SUMMARY

The City of Toronto is one of the Canadian pioneers of municipal Open Data. Since 2009 the City of Toronto partnered with Vancouver, Edmonton and Ottawa in developing a framework for open data across Canada. This engagement has led to shared experiences through the Public Sector Open Data community of practice (comprising the Province of Ontario and Ontario Municipalities), the adoption of a Canada-wide Open Government licence and development of the City's Open Data Policy as part of its Information Management Framework.

Now, with over 200 datasets representing 560 data files published, the engagement of 41 Divisions, City Agencies and Commissions contributing data, and increasing engagement with developers, academia and the general public, the City's Open Data initiative has maintained a respected place among Canadian municipalities.

In a recent ranking of Canadian Municipalities on Open Data, the [Canadian Open Cities Index](https://www.publicsectordigest.com/articles/view/1547) (<https://www.publicsectordigest.com/articles/view/1547>) ranked Toronto in second place overall, with a strong showing in the implementation category. Despite these achievements, the number of datasets published annually has reached a plateau, and there remain challenges to growing the number of datasets annually. Additionally, there is no common standard measurement for how the total number of datasets is counted. For example, if there are five years of data in one dataset, Toronto counts this as one dataset, while New York City would count it as five.

This report provides an overview of Open Data and the City's Open Data initiative; outlines the key priorities for the immediate future; and provides approaches to meeting these priorities.

RECOMMENDATIONS

The City Clerk and the Chief Information Officer recommend:

1. That this report be received for information.

Financial Impact

This report has no financial impact.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting on January 4, 2016 Government Management Committee requested the City Clerk and the Chief Information Officer to report to the Government Management Committee on February 22, 2016 on the City's Open Data Program, including: achievements to date; public engagement activities undertaken; barriers to achieving the Mayor's pledge to double the number of open data sets, particularly barriers relating to technology, resources and organizational culture; and opportunities and directions for open data initiatives in 2016 and beyond.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.GM9.13>

ISSUE BACKGROUND

Open Data is raw data, in "machine-readable" format, freely available under the City's [Open Government licence](#) (<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=4a37e03bb8d1e310VgnVCM10000071d60f89RCRD>) for anyone to use, copy, modify, publish, translate, adapt, distribute or otherwise use the information in any medium, mode or format for any lawful purpose. It is currently used primarily by developers because it is published in machine-readable format without context. Open Data is a core component of opening up City information to be a more Open Government. It provides the City, developers, students, academics, media and the public with the opportunity to use and re-use City data to create an interconnected city, where everyone is given opportunity to access information, participate in decision making and create solutions based on accurate, timely and freely accessible data.

The City's Open Data Program

The City's Open Data initiative is a collaboration between the Information and Technology Division (I&T), the City Clerk's Office, City Divisions and some City agencies.

Organizationally, the [Open Government Committee](#), (<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=c10e0744ee0e1410VgnVCM10000071d60f89RCRD>) chaired by the City Clerk, provides strategic direction for Open Data. A working team of staff from I&T and the City Clerk's Office manages the day to day activities.

Publishing Datasets

Open Data, like other information management initiatives, requires a full information lifecycle management approach. The Open Data team work with Divisions to identify what datasets might be available to publish on the [Open Data website](#) (<http://www1.toronto.ca/open>). Many of the suggestions for datasets come from the open data community through social media. Datasets are then extracted from systems or created as part of business operations; they must be checked for data quality (is it accurate and current?), authority (does the City have the authority to publish the data or does it belong to a third party?), metadata (is the content searchable?), completeness, and privacy compliance (is there personal information that must be protected?). Once published, the data must be refreshed according to an established schedule, and amended, corrected or changed due to changes in the nature of the business; datasets may also need to be retired depending on their lifecycle. This lifecycle management requires both processes and resources to ensure relevance and currency of the data.

Benefits of Open Data

City divisions as well as the public benefit when data is published to the city's Open Data site. When Divisions can access data made available by other Divisions, it promotes collaboration and information sharing with a public benefit. For example, Economic Development and Culture Division manages the Winterlicious & Summerlicious program. Using Toronto Public Health's inspections data, participating restaurants in Winterlicious & Summerlicious are screened to ensure that they are compliant with Public Health standards.

[Wellbeing Toronto](#), (<http://www.toronto.ca/wellbeing/>) a highly respected initiative of the Social Development, Finance and Administration Division has created a map visualization tool that helps evaluate community well-being across Toronto's [neighbourhoods](#) (http://www.toronto.ca/demographics/profiles_map_and_index.htm) on a number of factors, such as crime, transportation or housing. The app allows decision-makers to support neighbourhood level planning; residents to better understand the communities they live, work, and play in; and businesses to learn more about their customers, or planning their business.

[Map Your Property \(http://mapyourproperty.com/\)](http://mapyourproperty.com/) is an innovative application developed by an entrepreneur to provide mapping and land development application tools to real estate professionals and developers. The tool uses data from the Province of Ontario and 10 municipalities to create a data-rich platform for property development. By freely sharing data to be used in conjunction with other municipalities, Toronto contributes to this innovative solution.

Open Data also enhances civic engagement through the use and re-use of City data, and through the numerous opportunities that developers, students, media and the general public have in engaging with City data to be informed, imagine possibilities and build innovative solutions for service delivery. One example was the public survey on whether the City should establish a casino in Toronto. Once the survey results of over 17,000 responses were posted as open data, within a few hours the Martin Prosperity Institute at the University of Toronto's Rotman School of Management, created an interactive visualization heat map of the way City residents responded to the survey questions.

The possibilities for the use of Open Data are endless as demonstrated in Toronto as well as other jurisdictions such as Edmonton, New York, San Francisco and Boston. Some of these jurisdictions use industry-standard technology to allow residents to filter data by category, create customized views, and access services such as rental housing through interactive use of the data.

While the Open Data initiative will take time to reach maturity, and full benefits will not accrue in the short term, it is safe to conclude that the three outcomes of meaningful data, cited by the [Canadian Open Cities Index \(https://www.publicsectordigest.com/articles/view/1547\)](https://www.publicsectordigest.com/articles/view/1547) are consistent with the City's experience so far: breaking down of silos, emergence of new information brokerage firms and markets, and production of new products and services. Here is a list of who's using City Data.

<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=7e57e03bb8d1e310VgnVCM10000071d60f89RCRD>

Community Outreach and Engagement

Public engagement is a cornerstone of Open Government and Open Data. Since 2009, the Open Data Team has had over 100 outreach activities including direct outreach to media, academic community, developer community, social advocacy groups, other governments and professional communities of practice.

Highlights include hosting three major conferences, involvement in annual Open Data Day events, participation at numerous local "hack-a-thons" where City of Toronto data was used by local developers and ongoing liaison with open data initiatives in Canada and North America.

Despite its pioneering effort in Open Data in Canada, the City's Open Data initiative can be more effective by focusing on the key priorities outlined below.

KEY PRIORITIES

Key Priority 1: Build an information sharing culture

Well managed and accessible public information and data results in better decision-making, trust in government and greater citizen engagement. Information is more empowering and useful when it is shared – citizens use high value data and data products to access services, businesses use data to be innovative and governments use data to make better decisions and understand and benefit from other governments' programs and services. The development of data analytics that would allow City Divisions to collaborate and share information is a pressing priority.

The CIO and City Clerk will continue to lead the City in an information sharing culture, utilizing existing frameworks, policies and tools to engage city leadership, divisional staff and the public in a collaborative partnership to create, share and use data in innovative ways. There should be a concerted effort to use the data we are producing to create value for the public.

Key Priority 2: Open By Design

Open Data is part of an information ecosystem. At its higher level of maturity Open Data requires that technology systems build in data reporting, extraction and manipulation requirements at the design stage, not as an afterthought.

The CIO and City Clerk will continue to work towards developing policies and project approval processes that will require new technology projects to build Open Data requirements at the very beginning of the project development phase, and will continue to be monitored at various stages, including architectural review and gating.

The [Open Data Directive](https://www.ontario.ca/page/ontarios-open-data-directive#section-3) (<https://www.ontario.ca/page/ontarios-open-data-directive#section-3>) developed by the Province of Ontario provides some guidance for this approach. The directive requires all projects, platforms, applications and solutions to embed open data requirements as part of the project approval process.

Key Priority 3: Invest in technology and tools

The jurisdictions with the greatest benefit of Open Data are those that invest in technology and tools which allow for a broader and more enriched user experience.

The CIO and City Clerk will continue to work collaboratively to evaluate and implement technology solutions that are necessary to grow the open data initiative. This will require developing a capital budget submission, business case and seeking approval through the budget process.

Key Priority 4: Broaden awareness and engage the public

The City Clerk's Office has integrated Open Data Training and Awareness in its training program. An introductory video on Open Data is available for all staff to access. There is a need, however, to broaden the awareness of how Divisions can engage with Open Data and realize its strategic value to the City, to themselves and to each other.

The recent [Open Government surveys](http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=1c2f5b58844d0510VgnVCM10000071d60f89RCRD&vgnextchannel=4550b9ca56ccf410VgnVCM10000071d60f89RCRD&vgnextrefresh=1) (<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=1c2f5b58844d0510VgnVCM10000071d60f89RCRD&vgnextchannel=4550b9ca56ccf410VgnVCM10000071d60f89RCRD&vgnextrefresh=1>) of City staff and residents underscore this need. When asked what can the City continue to do in order to be more open, the top answers were (1) provide more information online on City services and programs, including more mapping tools and *more open data mandatory training for staff*; (2) be transparent in decision-making processes and business processes; and (3) *educate, train and bring awareness to the concept of open government and associated policies for internal staff*. [our emphasis]

The CIO and City Clerk will continue to work with Divisions to promote a greater understanding of Open Data and its strategic value and benefits to the City. They will develop plans to assist Divisions in building their capacity to engage more fully in the Open Data initiative by prioritizing the release of datasets, and for those Divisions that already have initiatives with Open Data, by ensuring that the processes in place for collaboration are enhanced.

The CIO and City Clerk will also explore additional opportunities to collaborate with City agencies and boards, some of whom, like the Toronto Transit Commission, have already contributed datasets to the Open Data catalogue.

The City's open data team has developed a strong relationship with stakeholders, including public sector partners, the developer community, non-profit organizations, academia and the public. Community engagement is a cornerstone of open data. Engagement mechanisms include the Open Data mailbox, social media interactions and initiatives such as the open data "book of the month club", hack-a-thons and City sponsored events such as Traffic Jam.

Public engagement will continue to be a key priority, building on the strong foundations already established and working towards broadening the current opportunities for engagement with universities, civil society groups, non-profits and other educational institutions.

CHALLENGES TO GROWING THE OPEN DATA INITIATIVE

Despite the early successes, a number of challenges remain, that unless addressed, pose a risk to the growth of the initiative. These include:

Resources

- Like other municipalities there are limited resources, within I&T and the City Clerk's Office (3.5 Full Time equivalents) to fully engage and grow all aspects of Open Data. Divisions have no full time resources devoted to open data and have to divert resources rather than focus on their service delivery priorities.

Communications

- Since datasets are the engines of applications, external developers depend on the City and its data stewards to ensure that data is current and accurate. While the Open Data process does not guarantee the accuracy and completeness of the data, the City has an obligation to maintain datasets according to the refresh schedules. App developers will not trust the accuracy of datasets if not maintained, and will either not use City data, or their service will be based on inaccurate data. There is no formal mechanism, except Twitter and the Open Data mailbox, to communicate with users, making it difficult to notify a specific app developer that the underlying data to their app has changed. This challenge could be met by developing a more formal process such as registering users who depend on the City's datasets for their web or mobile apps; however, due to the free and open nature of the Open Government License, developers are not obligated to tell the City how the data is being used.

Technology tools

- Enhanced technology and tools would allow for a more enriched user experience and provide City staff and other users the ability to engage with data in more useful ways. A future capital project in a publishing platform is required for the kind of user engagement that Ottawa, Edmonton, New York or San Francisco provide. Without this platform, open data use will be primarily restricted to tech-savvy developers, disenfranchising the wider public to use the data in any meaningful way.

Training and awareness

- As demonstrated by the Open Government City staff and residents surveys, one of the greatest barriers to open government is lack of awareness among city staff about the strategic value of open data. Divisional staff must be afforded the opportunity to understand the Open Data initiative, its key requirements and the value that it can bring to their own Divisions. All levels of City leadership will need to make Open Data awareness a priority in their work plans, and work collaboratively with the City Clerk's Office and the Chief Information Officer to build divisional capacity in Open Data.

CONCLUSION

"...government has a multi-part role to play — becoming a provider of open data; a catalyst to the users, coders and developers; a user of its own data; and policymaker, keeping risks in check while ensuring that all levels of society and business have an opportunity to use open data..." - <http://www.govtech.com/data/How-Government-Can-Unlock-Economic-Benefits-from-Open-Data-Part-I.html>

Open Data has been rapidly embraced throughout the world, boosted by ubiquitous technology and communications that showcase how Open Data can enhance service delivery. There is an opportunity to leverage this momentum to create a cultural shift within the City itself.

Open Data is also a cornerstone for "Smart Cities" - cities which use information and communication technologies to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to improve contact between citizens and government.

The CIO, the City Clerk and the cross-corporate senior management Open Government Committee are committed to the principles of Open Government and have made the Open Data initiative a priority. Strategic focus, clarity of corporate objectives, enhanced awareness, technology and resources are key to achieving these Open Data objectives.

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