Smart city safeguards

Lab process helps Canadian municipalities ideate, prototype, and test data governance frameworks

by Sanchita Rajvanshi and Zoya Sodhi

Smart cities promise municipalities the ability to better understand and act upon urban challenges, from enhancing service delivery to increasing economic growth. Central to the smart cities promise is data – vast amounts of data generated through different sources – that municipalities seek to harness for value.

However, if municipalities have learned anything from Toronto's high-profile experience with Google's sister company Sidewalk Labs, it is that smart city initiatives require data governance safeguards. Why? So that service delivery, economic growth, and innovation don't come at the expense of privacy and public trust.

With massive amounts of data comes great responsibility. Municipalities that are struggling with the newness of data governance challenges like privacy and security in the absence of existing policies and processes can benefit from lab processes that can help them ideate, prototype, and test new data governance frameworks.

Future Cities Canada Data Governance Lab

In 2019, two organizations (Evergreen and MaRS Solutions lab) teamed up to develop recommendations that would help inform a comprehensive data governance framework within the smart cities context. This led to the launch of the Future Cities Canada Data Governance Lab that convened city stakeholders to advance critical conversations, built pathways for exploring data governance challenges, and developed use cases to demonstrate the value of utilizing data while managing its risks.

The lab worked with three lead municipalities – the cities of Calgary, London, and Mississauga – to understand the unique challenges and opportunities data presents and how to strategically use and manage data to realize their smart city aspirations. A five-phased learning process was employed to understand the needs of cities, explore current policies and practices, and build prototypes to test new interventions.

The first phase of the lab process, "Selection," focused on the research and outreach to cities and communities across Canada to understand their appetite and willingness to lead and advance conversations around data governance in their smart city initiatives. This led to the development of key partnerships with Calgary, Mississauga, and London.

The second phase, "Discovery," led to working with different stakeholders, including data experts, strategists, procurement specialists, and other city practitioners, to identify the opportunities and use cases for each city that could create valuable impact and align with their overall smart city strategy. Through facilitated workshops and tools, such as design thinking, the next two phases helped cities develop low-risk solutions, as well as test and run prototypes for their specific use cases. The final phase captured learnings, impacts, and milestones during the entire design process.

Three Cities, Three Prototypes

Each municipality took a distinct path to explore new models and activities to further smart city data governance in their communities.

1. City of Calgary, building smart infrastructure

The City of Calgary has been investing in building smart infrastructure for many years and delivering a wide variety of programs ranging from smart water detection, noise monitoring, real-time snow and ice removal monitoring, and automated traffic monitoring.

Through the Data Governance Lab, they sought to understand and test how data is collected, managed, stored, and disposed by new camera technology across the city. Their objective was to enable the creation of more high-value data that could be used across the organization, instead of being limited to business units, and to maximize data privacy and security while also generating new uses for data.

This prompted a design process engaging different city teams to convene and have candid conversations around data, technology, and how it is managed within the city. It also led to deeper discussions around new data governance principles and processes, aligning both business and organizational ambitions.

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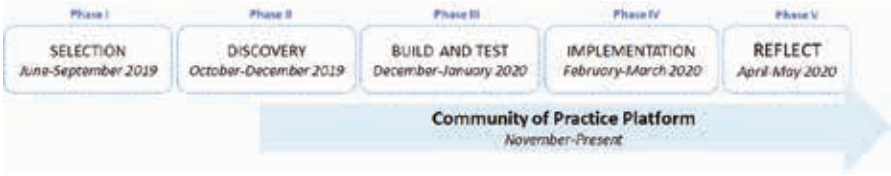

2. City of London, leveraging technology

The City of London is in the process of implementing smart city projects in various capacities with traffic and roadways, high-speed fibre optic networks, wastewater, and parks and recreation. Their prototype focused on defining data governance to help standardize practices in an effort to fully leverage the use of technology.

Through engagement from the Homeless Prevention, Municipal Innovation Exchange (MIX), Open Data teams, as well as supporting departments of Records, Information Security, and Innovation teams, the Data Governance Lab was able to capture risks and challenges being faced across the various smart city initiatives and guide the project teams toward data governance considerations and best practices. Through this work, they were able to create more collaborative processes between project and back-end teams to better tackle data and technology challenges at the project onset.

3. City of Mississauga, modernizing IT lifecycles

The City of Mississauga operationalized their newly developed data principles, co-developed with its residents, to modernize their IT lifecycle process (defined as the internal process of IT-related projects that go through the steps of discovery, business case development, procurement, implementation, and destruction).

The team developed a concept prototype of a data report and created an educational program to build capacity on data-related risks, best practices, and resources that are available to the organization more broadly. Much of this effort was led by the city's smart cities team and provided an approach that focused on data value creation and community engagement to inform its smart city initiatives.

Foundations for Smart City Safeguards

Despite each city's distinct projects, common themes emerged from the Data Governance Lab process:

1. Strategic alignment is critical – Ensuring cross-departmental agreement that spans the entire organization or municipality is instrumental for a successful data strategy. Throughout the process, the lab engaged with a variety of stakeholders, a process that is critical to collaboratively building robust and transparent data governance policies and practices.

2. Small steps lead to effective frameworks – As demonstrated with the Data Governance Lab prototypes, coordinated, small steps can create great value. It is important to build a case for a data governance framework first and then create a strategy for a larger framework, taking the broader organizational smart city vision into consideration.

3. Community of Practice platform – To facilitate cross-learning and the exchange of innovative ideas, the Data Governance Lab developed a "Community of Practice" that brought together data experts, practitioners, and strategists from across the three cities to advance the dialogue on smart city data governance. It provided an opportunity for participating cities to share lessons learned, best practices, and engage in an open conversation around data and connected technology.

4. Clarity is key – When it comes to data ownership and responsibility and the abundance of data collected across the city, it is imperative to identify the right owners of the generated data. This can help cities avoid friction amongst teams.

5. The search for data – The ability to find and access data in the city varies. Open data portals give teams quick and easy access to valuable data that has already been collected.

6. Experiment with new data capture techniques – There can be different ways of collecting, managing, and storing data based on the types of data collected and its associated risks and privacy concerns. Through controlled tests, the cities can explore methods like masking, at source or post collection, or through creative capture methods such as using thermal imaging to anonymize in the process of data collection.

What's Next

The lab work illustrates an urgent need for public sector leaders, industry experts, and policymakers to establish standards, frameworks, and models that empower cities and communities to manage the availability, usability, integrity, and security of residents' data. The lab process provided a learning and experimental approach that helped each city develop novel data governance practices for smart city initiatives.

Evergreen will continue to build on the lessons of the Future Cities Canada Data Governance Lab to engage other municipalities and explore new data governance frameworks for their smart city initiatives. **MW**

The Future Cities Canada Data Governance Lab is led by Evergreen in partnership with MaRS Solutions Lab.

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