



Compute Ontario

Smart Cities Data Governance

The Public Sector Chief Information Officer Council (PSCIOC) &
Public Sector Service Delivery Council (PSSDC)

February 25, 2020

Compute Ontario: Vision & Tactics

- Drive advanced computing to accelerate research and enhance competitiveness in the global marketplace, for a more prosperous Ontario
- Serving as a hub among universities, colleges, not-for-profits, businesses and all levels of government to align goals across stakeholders, improve access to supercomputing, and grow Ontario's capacity and community of experts focused on leveraging data science and analytics to solve complex issues

Compute Ontario Smart Cities Data Governance Project

Compute Ontario

Smart Cities Data Governance Project

- Provide policymakers, industry, the general public, and government with a vision for advancing smart city initiatives in an evolving data environment
- Brought together a diverse group of stakeholders to provide insights on *different data governance models* to ensure that data collection and its use, deliver social and economic benefits while protecting privacy
 - *Formed an advisory committee of diverse experts (winter 2019)*
 - *Facilitated a design thinking **data governance lab** with 125 attendees (spring 2019)*
 - *Prototyped three use cases which examined the governance of health data, personal mobility data, and open architecture*
 - *Produced four-part report detailing use cases, exploring Ontario's smart city ecosystem and summarizing findings*
 - *Engaged and listened to stakeholders by delivering **data trust workshop series** in three cities (fall 2019)*

Data Governance Lab

March 2019

Data Governance Lab

- Held in collaboration with others at Catalyst 137 in Kitchener, Ontario
- Convened 125+ stakeholders representing government, research, industry, not-for-profits and citizens to learn from thought leaders and share their perspectives on the application of data governance models in an Ontario context

Governance Lab Report

- Identified perceived roles of smart city collaborators
- Underscored themes around:
 - *Informed Citizens*
 - *Open Cities*
 - *Trusted Data Stewards*



Data Trust Workshop Series

Fall 2019

Data Trust Workshop Series

Socializing the concepts of data trusts



Guelph
November 28, 2019
The Arboretum Conference
Centre, University of Guelph

Ottawa
December 4, 2019
Desmarais Hall,
University of Ottawa

Toronto
November 21, 2019
Chestnut Conference Centre,
University of Toronto

Convening through Play

An interactive board game activity on data trusts

The Game

- Simplified immersion into a city's mobility ecosystem generates complexity through social dynamics and external disruptions that create challenging experiences for each participant to experience and reflect on post-game
- Players each assume one of six key stakeholder identities with their own unique sets of values, history, and resources
- Players strive to achieve their data wants, either through self-directed methods, collaboration, or by creating shared value in a data trust.



What We Achieved...



Created a participative forum with strong engagement and perspectives from participants

- Over 100 participants engaged to socialize, educate and raise awareness on the topic of data trusts
- Major concerns included: loss of autonomy/privacy with sharing data, creating a more competitive environment for local business owners



Deep insights into a novel topic that will enable smart cities in the future

- Immersive experience driving elevated conversations around data trusts and their applicability across various sectors
- Expert discussions and participation adding to the insights and socialization of data trusts



Promoted knowledge translation across various sectors with an interdisciplinary approach

- Educated and informed stakeholders utilizing latest thinking from the Compute Ontario initiative and panel discussions from subject matter experts across various sectors
- Identified and discussed limitations and opportunities specific to each workshop region

Summary

Socialization is needed to drive clarity and direction to further data trusts

- Data trusts can play a pivotal role in establishing acceptable data uses, common standards, and principles while providing a watchful eye for potential harm from the misuses of data.
- Need to continue exploring and discovering ways to create adaptable, protective and collaborative data governance models for data sharing.
- Furthering these conversations and engaging a breadth of stakeholders will promote a more competitive and robust ecosystem in pursuit of driving social value, transparency and smarter cities.
- Engagement with subject matter experts and other stakeholders will reconcile the concept of the data trust with the complexities that exist in diverse sectors in order to drive maximum value in those ecosystems.
- We look forward to continuing the conversation and creating a movement to build and test concepts of data trusts.

Feedback from Participants

“A great way to explain the basic concept of a data trust - it brought out insights that I can bring back to my colleagues at the hospital.”

Toronto Participant

“The game is interesting and fun!”

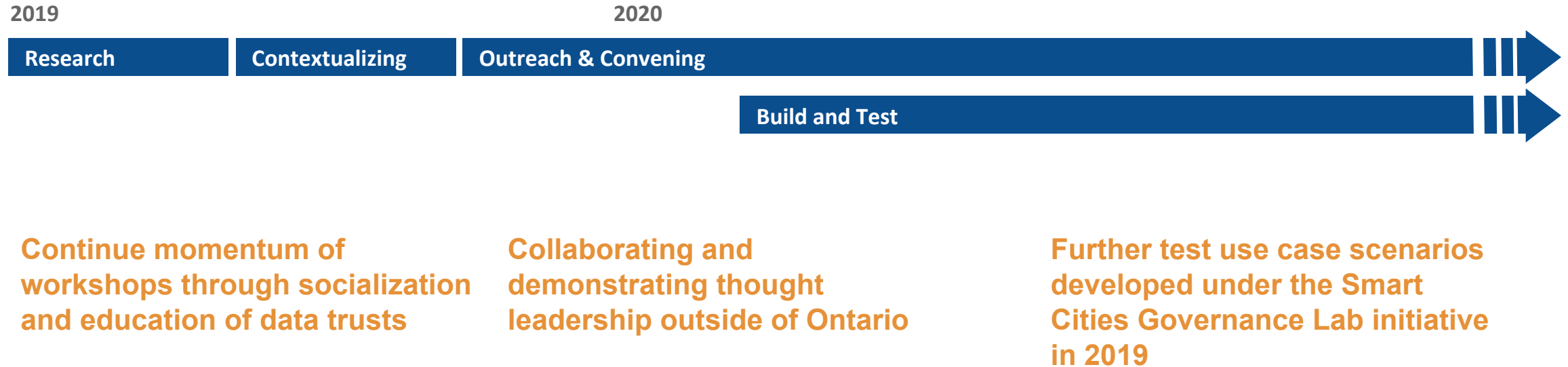
“Enjoyed the dialogue at the table with other participants.”

Guelph Participant

“The event attracted a very literate data management group of people -- this is great. This was evident in the sophisticated questions to the panel discussion ... Full marks for innovation!”

Ottawa Participant

What's Next?

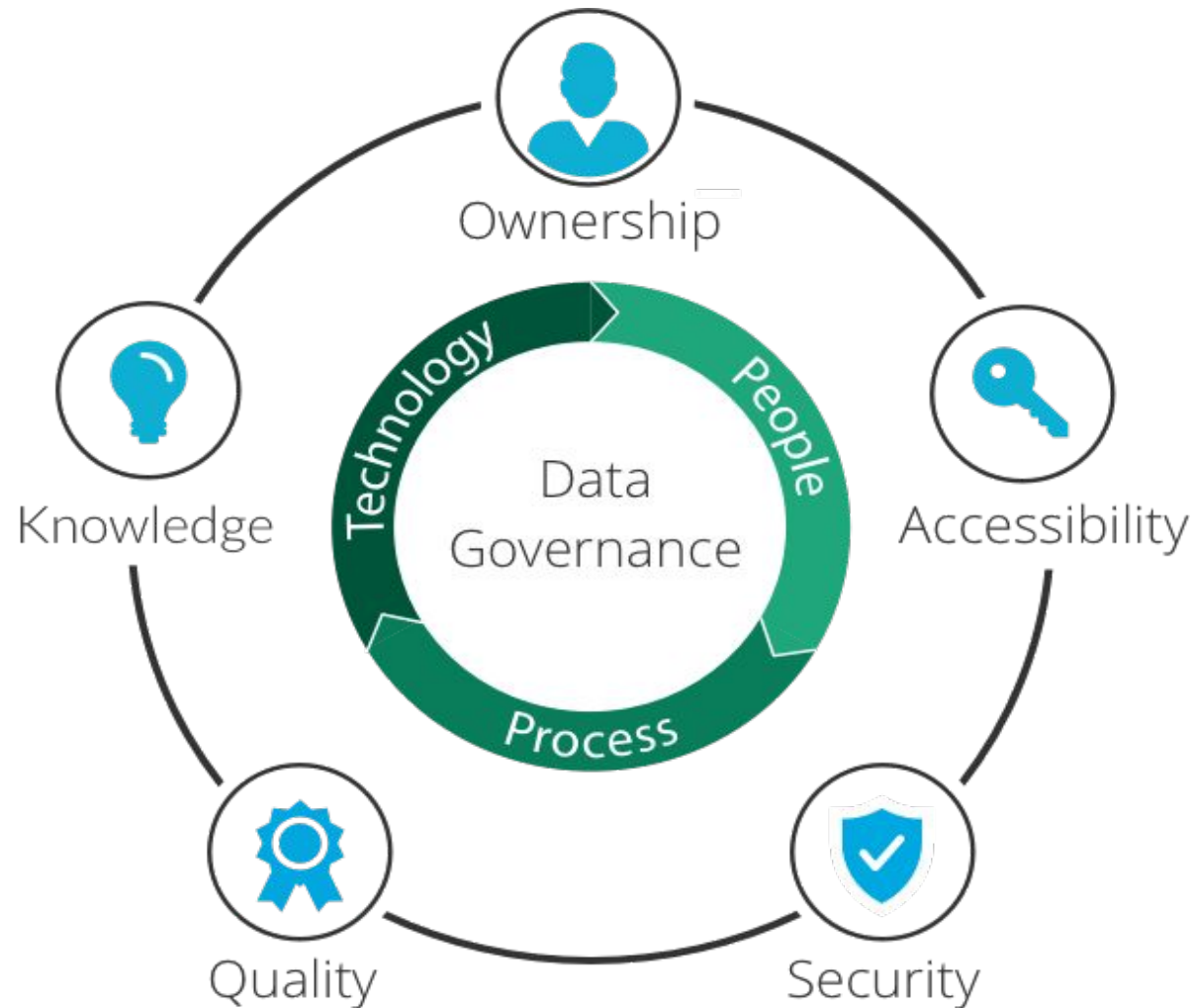


How can we *all* work together, within and between provinces, to advance smart cities in order to maximize opportunities and minimize risk?

Research & Reports

Oct 2018 – Jan 2020

What is Data Governance?



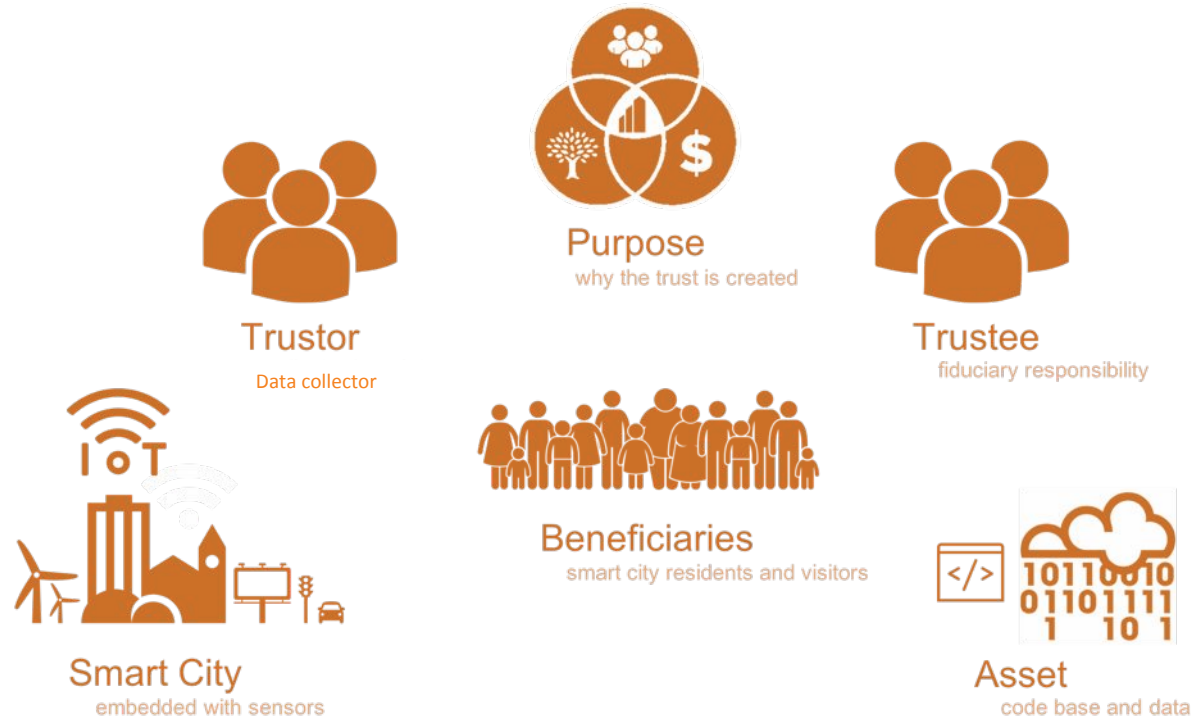
Data Governance Models

- Data governance can be viewed as a continuum increasing in complexity, legality and regulation

	Principles	Data Commons	Data Collaborative	Data Trust
Features	A decentralized data governance model where stakeholders of the city voluntarily adhere to common principles that outline the rules of participation in the ecosystem, and common data sharing and use.	A data governance model where data is collectively owned and managed by a community of users. Citizens have access to view and use the data that is collected in this model, often through an interactive data dashboard on a web portal.	A form of collaboration beyond the public-private partnership model, where participants from different sectors, in particular companies, exchange their data to create public value.	A legal entity that manages the collection and use of data. It is a centralized mechanism that enables users to access or use data in a secure and transparent way, with pre-existing legal conditions that were defined prior to creating the trust.
Examples	Pittsburgh Principles A principles-based governance model defining expectations and policies for autonomous vehicle (AV) testing. Principles include transparent communication with annual reports between industry and government, and engaging industry leaders with community stakeholders to work together to facilitate the development and deployment of AV.	DECODE Barcelona A smart city using IoT technology and a data commons governance model that aims to collect citizen data and keep it in the hands of citizens. Innovators, startups, NGOs, cooperatives and local communities can take advantage of this data to build apps and services to respond to community needs.	Global Fishing Watch A website that promotes ocean sustainability through greater transparency. They use technology to visualize, track, and share data about shipping vessels in real-time and for free. This model uses shared data from Google, Oceania and Sky Truth to stop illegal fishing.	Silicon Valley Regional Data Trust A data trust that gathers youth data from a variety of health agencies, education institutions and youth services to improve outcomes for at risk youth. The trust is used to ensure this data is only accessed by partnered organizations, and that it is kept safe and secure.

Data Trusts

An entity established with a fiduciary responsibility and technical capacity to manage data usage rights and other digital assets on behalf of beneficiaries



A data trust provides one promising approach to responsibly share smart city data. A data trust could:



Steward a city's digital assets and data in the best interests of residents and visitors



Empower residents and strengthen democratic decision-making processes related to digital governance



Actively protect against data breaches and misuses; assure individual and group privacy; advance equitable distribution of value; and promote regional economic competitiveness

Summary of Use Cases

	ICES - Health Data Governance (Data Safe Haven)	MaRS – Mobility Data Governance (Non-Legal Data Trust)	Miovision – Open Architecture Prototype (Data Mart)
Goal	provide groups outside of the research community with access to quality health data and analytics	use multi-sector mobility data to better understand, and manage traffic flow and with citizen-centric approach	promote more equitable access to data (for generators and users), opportunities for monetization, maintain security and privacy
Public Engagement	Public advisory council to provide guidance to ICES on what matters most to Ontarians in relation to their research and analysis	Citizen deliberation is key element including citizen assembly or jury to approve and co-design the trust. Option for dynamic consent platform, where citizens decide how they share data	Citizens act as generators of data
Legal Structure	legal data safe haven developed as a charitable trust based on promoting or advancing health and health care	not-for-profit legal structure provides benefits of a legal trust, while limiting liability and offering increased flexibility to adapt the purpose over time	limited partnership which allows multiple public and private sector actors to contribute source code, capital and other assets and operate the data collective like a corporation.

Project Report: Lessons Learned

- Governance is not monolithic
- All stakeholders hold unique roles
- Education and consultation are integral
- Focus on near-term and long-term action
- Modernize policy and law
- Ontario's smart cities ecosystem is fragmented

Project Report: Recommendations

- **Consider regulatory amendments to the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA)** to allow the use of provincial health data for municipal system planning and evaluation;
- Implement and **evaluate at least one of the prototypes** as a first step towards understanding the real-world benefits of complex data governance models;
- **Improve awareness of local and national initiatives** (e.g. Open Cities Network, Future Cities Canada, Intelligent Communities Forum)
- **Designate a not-for-profit organization as a dedicated overseer** to take a lead role in addressing challenges around data governance for smart cities.

Project Reports

<https://computeontario.ca/publications/reports/>



Thank You!

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