

# Data Trust Workshop Series

Exploring data trusts through an interactive experience



# Executive Summary

Through November and December 2019, Compute Ontario, ICES, and the MaRS Discovery District co-hosted a series of immersive workshops on the topic of data trusts, convening over 100 participants from three cities across the province.

Participants had the opportunity to learn about key aspects of establishing and enabling data trusts, including the spectrum of data trust models that can possibly coexist as well as the importance of process, policy, and relationships concerning data governance. The workshops also engaged local experts from each of the three cities to help identify and discuss limitations, opportunities, and recommendations when it comes to implementing data trusts with appropriate data governance models.

As a part of the interactive component of the workshops, participants engaged in a data trust board game activity that provided the opportunity to explore this data-driven world, both trading access to data sets and participating in the data trust, while managing their scarce resources and relationships with other players.

In addition to an excellent opportunity to network and further the conversation on data trusts, these workshops promoted knowledge translation across various sectors with an interdisciplinary approach, allowing for new connections and potential collaborations amongst individuals who attended from government, academia, private, and public sectors.

## Acknowledgements

We would like to take the opportunity to acknowledge the hard work and dedication from the teams at Compute Ontario, ICES, and MaRS that organized the workshops and programming for the Data Trust Workshop Series. An additional appreciation to the Chestnut Conference Centre at the University of Toronto, the Arboretum at the University of Guelph, and the Telfer School of Management at the University of Ottawa for hosting the workshops for us.

## Authors

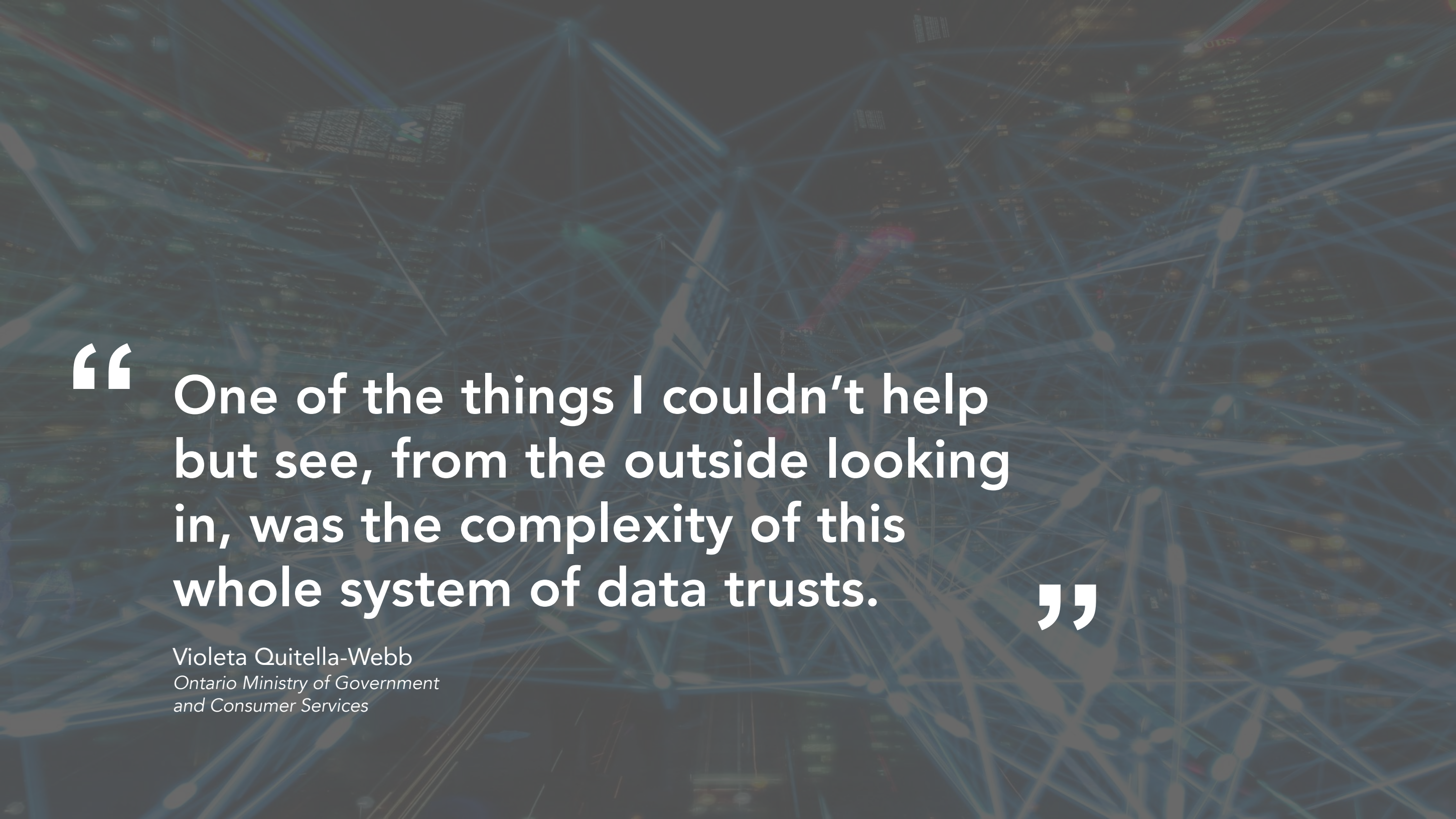


Chris Makris  
*Senior Associate, Smart Cities*  
**MaRS Discovery District**



Richa Chaudhary  
*Senior Manager, Corporate Projects*  
*Educational Events, **Compute Ontario***  
*Corporate Project Manager, **ICES***





“ One of the things I couldn't help but see, from the outside looking in, was the complexity of this whole system of data trusts. ”

Violeta Quitella-Webb  
Ontario Ministry of Government  
and Consumer Services

# Table of Contents

<b>The Data Trust Concept</b>	<b>7</b>	Smart Cities and Data Governance The Data Trust Concept Data Trust Research Process Data Trust Use Case Overview
<b>The Workshop Series</b>	<b>13</b>	Socializing the Use Cases What we Achieved Convening Through Play
<b>The Learnings</b>	<b>18</b>	Toronto: Focus on Research Guelph: Agriculture Ottawa: Regulation and Policy
<b>The Next Steps</b>	<b>29</b>	Socializing Data Trusts and Building a Path Forward
<b>The Appendices</b>	<b>34</b>	Summary of Data Trust Use Cases MaRS Data Trust Game Data Trust Game Narratives





# The Data Trust Concept

# Smart Cities and Data Governance

Smart cities promise more responsive public services and greater transparency but place greater demand on our traditional ways of governing data. With the rapid deployment of technology across our cities, data is collected in unprecedented amounts and breadth causing us to think differently and holistically around how we manage the use and sharing of data, both internally and externally.

Many definitions of data governance exist, and all are relevant in the conversation of governing data. Data governance, at a high level, is **decision making about data-related issues that impact questions of the common good, business value and civil rights.**<sup>1</sup>

Data governance is involved at strategic, tactical, and operational levels in both private and public sector organizations, typically within one organization, and seeks to manage data, reduce costs and complexity while realizing new sources of value. In the public sector, their complexities around data governance include creating sustainable business models, the role of civic engagement, transparency, accountability, data ownership, data sharing and interoperability of data sets, and privacy. Adding to these complexities, citizens have growing expectations towards public services and their involvement and participation in how their city operates, expecting a higher quality of service from their governments than from the private sector.<sup>2</sup>

These factors place strain on traditional models of data governance, which are in need of greater strategic alignment, internal and external collaboration opportunities, and citizen involvement. Data trusts offer a new approach to data governance for purposes of data sharing, bringing together key stakeholders towards a common purpose, managing the uses of data, and driving new opportunities for the public good.

<sup>1</sup> Data governance & infrastructures for cities Guadalajara Meeting October 3/4, 2017

<sup>2</sup> “Digital government: Good enough for government is not good enough”, Accenture, 2016

# The Data Trust Concept

Cities are becoming smarter and more responsive to the needs of their residents and visitors. There is a potential for everyone to benefit from better services and improved quality of life through smart city initiatives. The addition of a digital layer will allow for collecting and sharing data to inform policy and better decision making to ultimately address citizens needs while protecting their privacy.

**Data trusts *can* serve as platforms or mechanisms to steward data, grant access permissions, and set standards around acceptable use, collection and sharing of data, thereby fostering greater collaboration, competition, and transparency amongst key stakeholders.**

Considering the diverse nature of the current ecosystem, a spectrum of data trust models could co-exist and could range from data sharing agreements to open-access models. The core characteristics of all data trusts, however, should include:

- Structure or model where data can be stored and accessed according to a data governance framework that is appropriate for the data trust model in place
- Individuals who control and manage the data and have a fiduciary responsibility toward data stewardship
- Individuals who access and use the data according to the rules and regulations of the data governance framework
- Interest in sharing data for social and economic benefit while respecting the privacy and security of that data

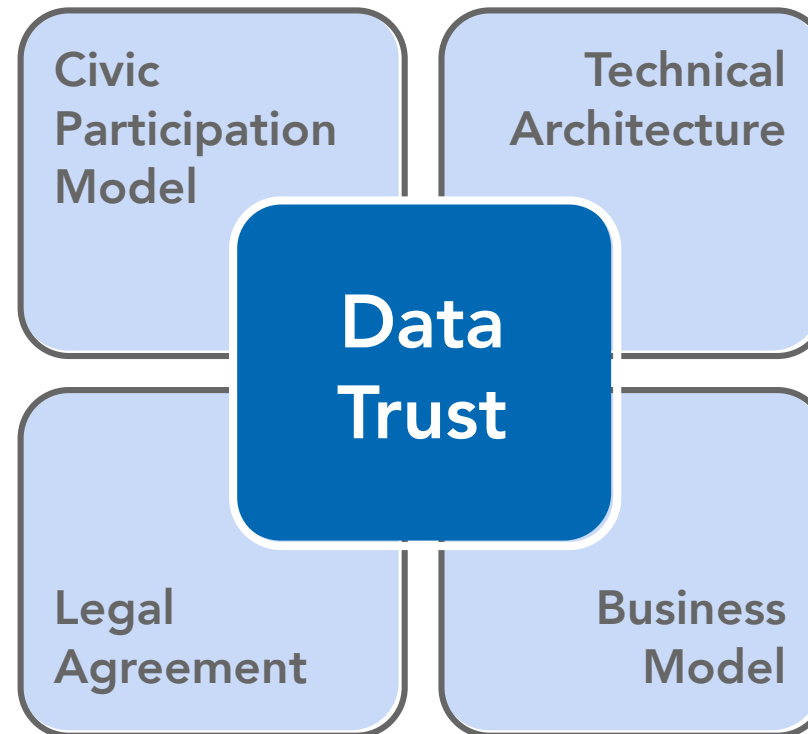
***The “data trust concept” is more about the data governance framework that defines data access and sharing***

# Elements of a Data Trust

Four themes emerged through research outlining the foundational components of a data trust. The components include civic participation, technical architecture, legal agreements, and business models that form the pillars needed to act harmoniously to create a sustainable governance model. How these components are structured will allow for various degrees of flexibility, control, and speed.

Citizen participation is a fundamental piece of the governance model, as citizens are the key constituents of any smart city initiative. This model will outline how to best engage citizens through the design, build, and ongoing operations of the Trust.

The legal component of a governance model must align with current legislation, regulations, standards, and social norms. Legal agreements will be foundational in the structure and operations of the data trust entity.



The technical architecture of a governance model will explain how it will work, as well as the critical components to ensure trusted secure collection, storage, use, and oversight of the digital assets under the model.

The business model will allow for the sustainability of the governance model, which will address key concerns around financial health, ownership, and general management of the governance structure.



# Our Research Process

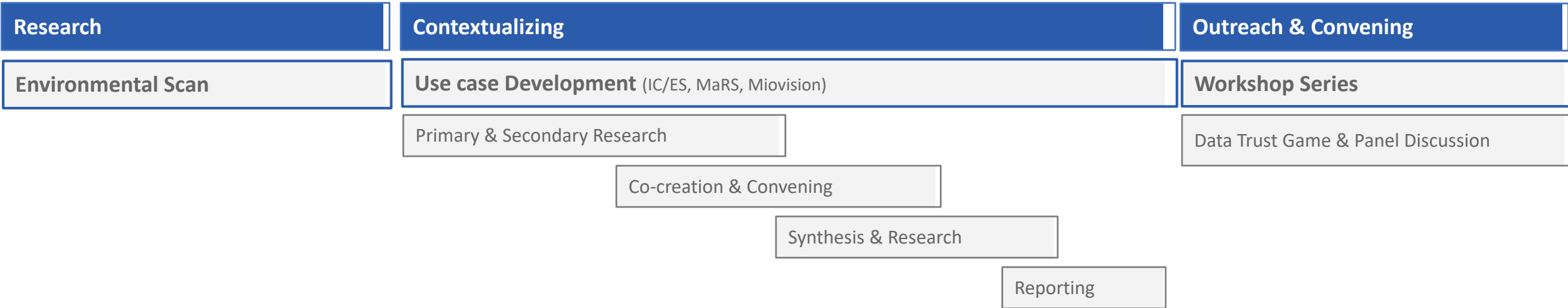
Use case development by the partnering organizations, ICES, MaRS, and Miovision, went through an extensive design and research process to discover potential environments and ecosystems to contextualize the data trust model that could co-exist.

## Primary Research

Each use case conducted primary research techniques, such as interviews, observations, and immersive game experiences, to uncover opportunities and barriers in regulation, technology, markets, and economic sustainability of data trusts. Gaining deeper insights from subject matter experts, industry stakeholders, and citizens allowed the partner organizations to gain an understanding of the values, challenges, and opportunities that exist in their context.

## Co-creation & Convening

Workshops were a primary source to convene stakeholders to build and react to data trusts concepts in pursuit to validate the latest thinking within each use case area. This allowed the partner organizations to take insights from the research and co-develop data trust prototypes that will be tested.



# Developing Use Cases

Through the last phase of work in exploring data governance models through the MEDJCT initiative, we sought to further contextualize what the most appropriate data governance framework would look like across health, mobility and IoT device ecosystems. ICES, MaRS, and Miovision dove deep into these areas to find data trust models most viable in the context of health and mobility, and open architecture for IoT devices. The use cases highlight the opportunities, barriers, and success factors, as well as important legal and policy considerations that will need to be addressed moving forward.

Linked to each use case are the reports generated by each organization for greater context.

## Health Data Trust

### ICES

Explored the creation of a health data trust model that would allow a broader group of users to de-identified data for non-research purposes while maintaining strong privacy and security protections, under the umbrella of a data governance framework. Much of the research process involved the review of current legislative barriers, the concept of operating as a “data safe haven” and reviewing the construct of research ethics boards and social licenses.

## Civic Digital Trust in Mobility

### MaRS

Discovered a data trust concept that would create valuable insight into the flow of vehicles, mass transit, and people in an urban environment, while establishing meaningful civic participation in the design, build, and maintenance phases of the data trust. The Trust would operate as a non-profit organization through an endowment to remain impartial to external interests, adhering to the purpose established at inception.

## Open Architecture Platform

### Miovision

Explored a platform to facilitate equitable access to data and sharing between data stewards, generators and users through a software protocol and distributed ledger technology. The platform would operate as a limited partnership run by a not-for-profit entity allowing multiple public and private sector actors to contribute source code, capital, and other assets.



# The Workshop Series



# Socializing the Concepts

With this workshop series, we looked to engage with a diverse set of city stakeholders from a wide range of disciplines to facilitate discussions around data trusts, their applicability in various domains, and the challenges that exist as we look to build and create data trust prototypes in the future. The locations of the workshop series looked to engage with stakeholders across the province to spark conversations as well as engage and educate those who engage with data.

The following were the locations and venues of the workshop series held across Ontario. Toronto saw great participation and focused on data privacy and current concerns. Guelph had a strong agriculture influence, discussing the challenges of data trusts for local food producers and geographic purposes. Lastly, Ottawa focused on the legal and regulatory challenges in sharing data between the government and the public. Strong participation with over 100 participants with continued follow-on enthusiasm and interest was observed.



# What we Achieved



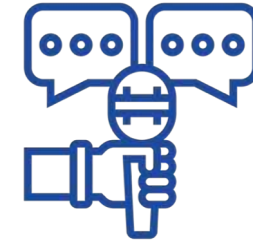
**Created a participative forum with strong engagement and perspectives from participants**

- 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

# Convening Through Play

## An interactive board game activity on data trusts

Using interactive game-play with the Data Trust game, we convened over 100 participants from a diverse set of organizations, sectors, and expertise to create discussions around the concerns and opportunities data trusts pose for our cities.

### The Game

The Data Trust game, centred in the mobility ecosystem, brings together six key stakeholder groups each with their own unique sets of values, history, and resources. The participants aim to embody these core values through their interactions in-game as they strive to achieve their data wants, either through self-directed methods, collaboration, or by creating shared value in a data trust.

This simplified immersion into a city's mobility ecosystem with a data trust generates complexity through social dynamics and external disruptions that create challenging experiences for each participant to experience and reflect on post-game.







It's not about privacy, tech, or  
who is first.

Anything can happen. It's all  
about relationships, partnerships,  
and collective social capital.

Toronto Participant





# The Learnings

# Insight Overview

## Toronto

### Defining the model and considering the risks

**Public interest and participation:** High-level of communication and transparency for greater public awareness; low barriers to participation.

**Growing needs to share data:** Concrete governance frameworks and access models that work for risk owners and the beneficiaries who access and use the data.

**Risk considerations:** Individual data sharing agreements are still preferred because of low risk levels; need to clearly identify the risks, risk owners and shared liability.

**Economic purpose:** Public-private partnerships are needed for financial sustainability of data trusts and the required governance frameworks to operationalize them.

## Guelph

### How to modernize the agri-food industry

**Agriculture is a complex industry:** All data is proprietary; costs to clean and analyze unstructured should be shared; value of municipal data assets and how these can be monetized must be determined at the outset.

**Define the data governance framework:** Data ownership, stewardship, consent for use and purpose of use must be defined at the outset; inherent fear of new regulations and loss of autonomy for dairy/crop/horticulture producers.

**Communication and transparency is key:** Explain the benefits to society; rural area communication is already a challenge; drive economic value through “public data for public good.”

**Consider technology early on:** A transformative technology strategy must be mapped with municipalities including ROI; consider newer concepts like “data lake” and “data warehousing.”

## Ottawa

### Tackle communication barriers between the public and government

**Legislation vs. technology:** Legislation is slow compared to technological advancement; federal/provincial/ municipal privacy legislations are not cohesive; going digital at the federal level is a major challenge; cybersecurity needs to be considered with security safeguards and real-time monitoring in place.

**Value proposition of data:** Value, quality and interest in data needs to be known upfront; purpose of the Trust needs to be clearly identified; data management and sharing is expensive - costs would impact sustainability.

**Public trust and social license:** Engage the public to solicit citizen engagement; high-value data is linked to individuals - what are the risks and trade-offs?; government would be a key stakeholder.

**Legal framework for data governance and sharing is vital:** A “data trust” does not imply anything, it is more about data sharing and data access.



# Toronto Session

Our opening session in Toronto had six Data Trust games played with 36 participants from many sectors including academia, privacy, health, and the private sector. The gameplay demonstrated the passion to support civic society, having the citizen character win all games that were played.

## What we heard:

1. A clear understanding of the governance of the data trust is foundational to recruit and generate interest. Key actors will need assurances around the rules, data uses, assessments, and enforcement mechanisms to feel comfortable to participate.
2. A 'feel out' process with the data trust should be expected, which may result in underutilization of the Trust and/or less than maximum value captured from the Trust.
3. A little bit of altruism is needed for taking part in a data trust, as you're depending on the goodwill of other players and expectations of reciprocity.



# Toronto Panel Discussion

## Panelists:

- J. Charles Victor, *Senior Director, ICES*
- Colette Lacroix, *Industry Executive, IBM*
- Violeta Quintanilla-Webb, *Director, Ontario Ministry of Government and Consumer Services*

The focus of the discussion in Toronto revolved around the sustainability of a data trust. Critical to the sustainability of the trust is creating a viable business case for public, private, and society partnerships to interact and share data. With citizens, it is imperative to create meaningful consent and engagement models to communicate a strong and relevant purpose for the collection and uses of citizen data, utilizing easy to understand, and concise consent. With technology moving so quickly, organizations need to refocus on developing solutions with a strong and clear purpose. This will enable better use, sharing, and management of data while creating trust through clear communication of the organization's intent for the data. Furthermore, having a transparent understanding of the potential costs and benefits of the use of data would facilitate greater discussions around what we deem appropriate, as a proper valuation of its effects of the individual and society could be managed.

## Opportunities

- ★ Identifying and reconnecting to purpose to create meaningful engagements with citizens and to also make stronger business cases for public initiatives
- ★ Creating greater transparency and dialogue
- ★ A need for collaboration to increase social value

## Barriers

- Perception and ambiguity of the data trust concept; Who owns and manages the Trust? Where does it reside?
- Creating valuable data to entice participation from large corporates



# Guelph Session

The Guelph session was a more intimate discussion with strong representation from the local agriculture and research communities, with many influential participants from local universities and innovation programs, to public sector organizations. Through gameplay, data trusts were viewed as a mechanism to provide great public benefit, with stakeholders rallying around common good and benefit.

## What we heard:

1. Initial collaboration and value generation should be present to build sustainable value, ecosystem, and trust among the members. Planning and collaboration from the founding public sector actors alleviated general concerns and heightened the trust among players.
2. The inertia of joining the Trust from key stakeholders, such as the large corporations and other private organizations, will limit meaningful participation. How the private sector manages its data and how its used still provides a competitive advantage that they are hesitant in relinquishing.
3. Key stakeholders include large companies and citizens. The public sector seems to find value in the Trust but will need large companies to drive innovation and contribute data, along with citizens to provide social license and preferences in the types of products, services and the uses of their data.



# Guelph Panel Discussion

## Panelists:

- Barbara Swartzentruber, *Executive Director, City of Guelph*
- Nicole Rabe, *Land Resource Specialist, OMAFRA*
- Karen Hand, *Data Director, Food for Thought CFREF Project*

The agriculture sector is strong in Guelph with experts pushing the industry forward using new technologies, methods, and data to learn and create meaningful outcomes. Data trusts are recognized as a potential tool to start formalizing common data standards and collaborative relationships for the siloed and unstructured data that exists among various businesses, researchers, and communities. Upfront work will need to be done to adequately address concerns around the strategic mission and purpose of the data trust. This alignment around purpose will help formulate a robust sustainability plan through creating value, driving participation, and building relationships with key stakeholders in the trust. In the agriculture sector, a data trust model will need to be built with flexibility and agility to adapt to new trends, be able to test new methods, and responsively address new opportunities and methodologies in this field. The panelists recognized the costs, such as data cleaning and standardization, may hinder collective participation, which in turn can diminish the value of the data trust.

## Opportunities

- ★ Create standards and ontology for data for easier collaboration across adjacent agriculture communities and sectors
- ★ Strong engagement with citizens, local communities and other key stakeholders

## Barriers

- Many actors with differing motivations that may limit a unified strategy
- Unclear what good governance looks like in agriculture
- Costs and uncertainties around the value to be extracted from the data trust

# Ottawa Session

Our third session in the nation's capital hosted 35 participants and four games played. The gameplay saw an elevated conversation around the feasibility of the data trust and desired participation, by raising concerns around the mechanics and structure in order to encourage fair competition, public benefit, and proper enforcement.

## What we heard:

1. Fear of missing out was evident by those members not in a data trust which were led by those that could convey the value and purpose of the Trust. These events could sway many stakeholders to enter into the Trust, even for the large corporates who remained on the periphery while value continued to grow within the Trust before they joined.
2. Actors entering the data trust later (when it's well-established) should have more asked of them though higher barriers of entry. When many sources of data are available and the risk of entry is reduced, participants feel comfortable in raising the entry requirements for organizations to contribute.
3. If a leader can get people to agree on a plan, a common-good outcome such as a data trust will appear much faster than if it is uncoordinated or assembled piecemeal by various groups.
4. Although it may be more efficient and effective to participate in a data trust, there are alternative ways to achieve stakeholders' data wants that better align with their values.



# Ottawa Panel Discussion

## Panelists:

- Rosario Cartagena, *Chief Privacy and Legal Officer, ICES*
- Teresa Scassa, *Canada Research Chair in Information Law & Policy, University of Ottawa*

Data trusts will be complex entities balancing multiple priorities, stakeholders, values and interests. Inherent to the value of data sharing and by extension to a data trust, the value of the data is realized when it is linked to individuals (whether identifiable or de-identified), their patterns and how they interact with the city. The need to create effective and meaningful engagement with citizens is extremely important to communicate the potential risks, opportunities, and the tradeoffs that will impact them and their communities. This engagement will enable the data trust and lawmakers to better understand what citizens are comfortable in sharing, informing acceptable data sharing in the data trust.

Furthermore, the legal infrastructure needs to be carefully considered as who establishes the data trust, where it resides, and the surrounding frameworks and regulations will impact how effective and viable the data trust will be. The type of entity established will impact the regulatory environment it will reside under. Public sector entities may have the social license and social purpose to carry out the duties of the data trust but will be subject to much leaner laws and enforcement than a private sector actor.

## Opportunities

- ★ Creating communication channels to meaningfully engage people interacting with the city
- ★ Various data trust models and structures can be designed and tested for greatest social benefit


## Barriers

- Myriad of policies and regulations to navigate, creating trade-offs in how the Trust will be structured, its priorities, and effectiveness
- Balancing the pace of technological change, fostering innovation and social benefit









*I feel like everyone could benefit  
from joining the data trust and I  
want to enable that.*

Ottawa Participant

# Summary

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

Regardless of the industry or city, we need to further explore and discover ways to create adaptable, protective and collaborative data governance models for data sharing. Data trusts can play a pivotal role in establishing a rallying purpose around acceptable data uses, common standards, and principles while providing a watchful eye for potential harm from the misuses of data. 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. Through engagement with subject matter experts and other stakeholders, we can reconcile the concept of the trust with the complexities that exist in the sectors we participate in to drive maximum value in those ecosystems.

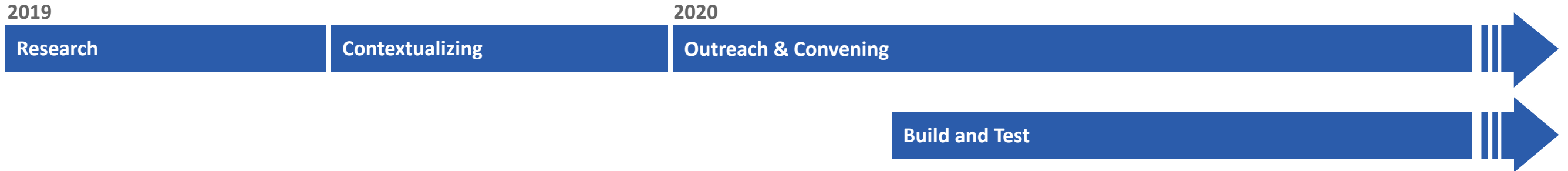
We are excited to continue to explore, learn, and socialize the concept of data trusts as we continue to apply the concept of a data trust in multiple sectors. We look forward to continuing the conversation and creating a movement to build and test concepts of a data trust.





**What's Next?**

# What's Next?



## Continue momentum of workshops through socialization and education of data trusts

- Further socialization of data trusts lead by Compute Ontario Workshop for Joint Councils meeting in Toronto on Feb 25, 2020 with representation from Public Sector Chief Information
  - Officer Council (PSCIOC) and the Public Sector Service Delivery Council (PSSDC)
  - Annual gathering of all provincial Chief Information Officers (CIOs)

## Collaborating and demonstrating thought leadership outside of Ontario

- Identify and explore potential collaboration opportunities with other provinces
- Share learnings and illustrate thought leadership through use cases
- Consider scale and application of one of the test case scenarios as a part of these discussions

## Further test use case scenarios developed under the 2019 Smart Cities Governance Lab initiative

- Implement one or more use case scenarios according to MEDJCT priorities
- Viability assessment of use cases with Innovation, Science and Economic Development (ISED) Canada in relation to the new Digital Research Infrastructure (DRI) organization that is currently being formed



# The Feedback



# 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!”***

Guelph Participant

***“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





# 87%

of respondents increased their  
understanding of data trusts and  
developed empathy for the  
various stakeholders groups



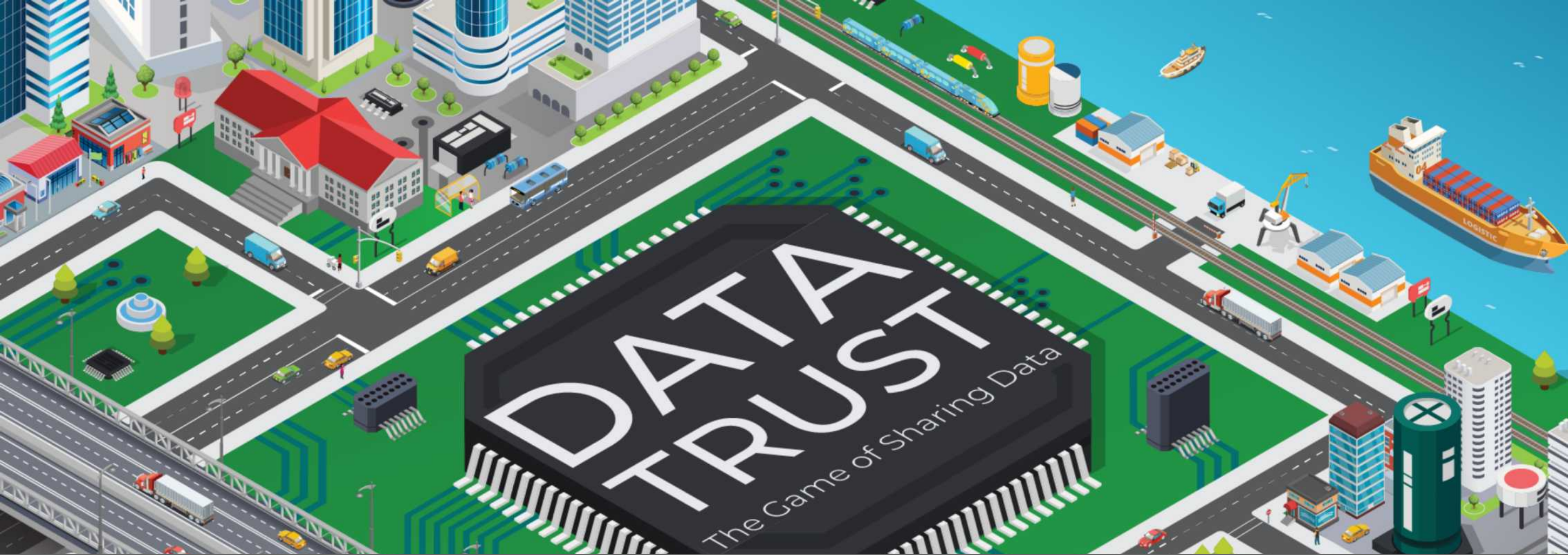


# The Appendices



# 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	To provide groups outside of the research community with access to quality health data and analytics	To use multi-sector mobility data in a smart city to better understand, manage, model and regulate traffic flow and associated infrastructure, all under a citizen-centric approach	To promote more equitable access to data (for generators, processors and users), and opportunities for monetization, while maintaining citizen-centricity with security and privacy
Potential Users	Ontario researchers from academia and not-for-profit organizations and other health system stakeholders	Public transit operators, government and public entities, private organizations, startups, academia and civil society	Data generators, processors, aggregators and consumers from both the public and private sector
Data Type	Population level, longitudinal health data	Multi-sector mobility data	Transportation data
Organizational Structure	Independent publicly funded research and data organization, a 'prescribed entity' under PHIPA (Personal Health Information Protection Act)	Not-for-profit innovation hub and registered charity that helps innovators create a better world	Private company that aims to transform the way traffic is managed through AI. The goal is to improve the transportation experience for drivers, cyclists and pedestrians
Citizen 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 an element of the not-for-profit entity designed to operate the Trust, including a citizen assembly or jury to approve and co-design the Trust. Civic participation may also take place in a dynamic consent platform, where citizens decide how they share data and what it can be used for	Citizens act as generators of data
Legal Structure	A legal data safe haven developed as a charitable trust based on promoting or advancing health and health care	A not-for-profit legal structure can provide the benefits of a legal trust, while limiting liability and offering increased flexibility to adapt the purpose over time	A limited partnership which allows multiple public and private sector actors to contribute source code, capital and other assets and to operate the data collective like a corporation.



# The Data Trust Game



# Data Trust Game: Research Dashboard

**40**

reports reviewed

**12**

public agencies

**5**

workshops

**12**

interviewees

**3**

academic institutions

**12**

board game usability tests

**130**

workshop participants

**11**

private companies

**300+**

collective hours spent  
reviewing documents and  
processing findings

**30**

organizations total

**4**

civil society organizations



# The World

The year is 2022...

"Smart cities are on the rise, promising economic development and improved social outcomes. However, there is a void in governance over the growing network of connected technologies and databases; current models cannot be applied to this new 'digital layer'. Traditionally, "bilateral agreements" have been the predominant tool used to navigate this space.

Recently, a data trust has been developed as a new mechanism to govern the digital layer of cities and it is focused on the mobility sector to help improve many of the challenges our city is facing! The hope of the data trust is to foster a robust sharing platform all while safeguarding and overseeing the use of our smart city data to better social and economic outcomes for the local community."



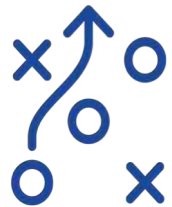
<https://www.greenbiz.com/article/3-ways-iot-already-making-cities-smarter>

# The Rules



## Objective

To achieve all your wanted data sets while embodying your player's core values. The game finishes once; everyone is in the data trust, all have achieved all their wants or time runs out.



## How to Win

Most points wins!! Get points by sharing and obtaining data from other stakeholders. Do this through trades, purchases, and participation into the data trust to earn jewels. Use your resources efficiently to maximize your points.



## Scoring

Each player has different points for each resource. Money and Social Capital are between 1-5 points (based on player). Jewels are worth 15 points.

## Resources

Each player has different starting resources:



### Social Capital

Factor that may enable or inhibit certain actions in the game

One token = 1 SC



### Money

Monetary asset that allows you to make moves and purchase data.

One token = \$5



### Jewels

Given once a new data set has been created or accessed.

One token = \$10 if traded into the bank

# The Moves

Each Stakeholder will have three moves to obtain data sets, methods to influence other players in taking an action, and taking a chance on obtaining social capital or money. The complexity of the game results in the interactions with other players; the relationships they build and foster as well as the ones they neglect while making these moves.

## Obtain a Data Set

Go it Alone



Make a Deal



Join the Trust



## Influence Others

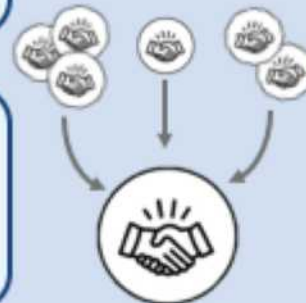
Gain Social Capital



Persuade



Form a Collective

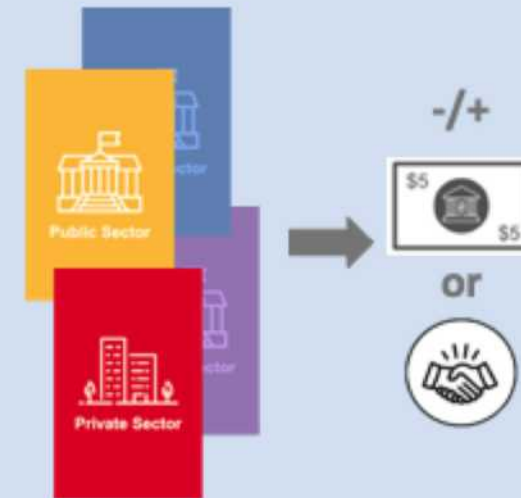


Force



## Take a Chance

Pull a Chance Card





# The Players



**Cyrus Civil**  
Civil Society

A civil society organization, acting as the public voice of citizens. Civil Society is now a producer of crucial data and thus demand a seat at the table.



**Camilla Corporate**  
Private Sector

A large multinational corporation. Camilla is interested in running mobility services to gain profit, exposure, and access to user data for new insights.



**Sunji Startup**  
Private Sector

A pro-social start-up keen on making a positive impact, while also ensuring you take home a profit. Sunji wants to win society over through accessible and environmentally conscious services.



**Mark Municipal**  
Public Sector

A prominent city in Canada. Mark looks to use smart infrastructure to find creative ways to address mobility problems such as first and last mile connections. It is essential that they cost effective and improve societal outcomes.



**Peter Public**  
Public Sector

A public transit commission. Peter is interested in smart city infrastructure to increase your service breadth and frequency, reduce costs, and ensure efficient use of assets.



**Aaliyah Academia**  
Academia

A world-class academic institution, known globally for your smart city research. Aaliyah looks to better societal outcomes, convene stakeholders and stay a thought leader through knowledge generation.







# Selected Game Narratives

# Game Narrative 1

In round 1, Sunji Startup opened the game by proposing a deal with Mark Municipal. Mark push back however and demanded Sunji to subsidize the cost of the deal, which Sunji obliged. Aaliyah Academia lost some social capital early by taking a chance card and ending up in a scandal.

Sunji continued to push deals and began negotiations with Cyrus Civil, but was spurned by an idealistic Cyrus. Mark began developing a plan to put together a data trust, and gave Peter Public \$5 so she could establish a data trust on her next turn- *"I feel like everyone could benefit from joining the data trust and I want to enable that."* It replicated a real-life scenario where Mark had accepted Peter's proposal to establish a data trust and Mark passing them funding.

Mark continued his precedent of doing hard bargains on a deal with Camilla corporate- *"I can get that data from someone else, so you should subsidize me."* On round three, Peter Public becomes the first to collect all their 'wants' as Sunji joins their data trust.

External event! 10 social capital now required to enter the Trust, immediately throwing off Aaliyah and Mark's plans to join the Trust on turn 4. Aaliyah's social capital loss early in the game came back to bite her here. *"I'd love to join the Trust, but I don't have the social capital requirement!"* – Mark. With a still weak data trust, Sunji goes it alone to collect his last dataset.

By round 7 all players have their wants as academia finally gains the required social capital and enters the Trust. Finally, in round 8, the corporate slowpoke joins the Trust to end the final turn.



# Game Narrative 2

Aaliyah Academia very quickly started the data trust during the first round. Other stakeholders, the public sector players, in particular, questioned the decision as being risky. Academia addressed their concerns as wanting to start the data trust to be able to set the governance structure. Sunji Start-up also quickly followed suit to join the Trust during the first round. This spurred a lot of interest in the ecosystem. However, the “pro-social disruptor” slowed down the momentum as each stakeholder required 10 social capital tokens to join the data trust. Both Mark Municipal and Peter Public eventually joined the data trust during the middle rounds.

Despite the increased interest, Cyrus Civil remained wary throughout all the rounds. Cyrus attempted to broker deals with Academia a few times but was turned down to encourage additional stakeholders to join the data trust. Cyrus ultimately was not convinced by the other stakeholders in the data trust and acquired all of their data wants on their own to maintain security.

Similarly, Camila Corporate acquired all of their data wants on their own. However, this was because stakeholders were less inclined to partner with a corporate organization, and it was more economical for them to pay than to broker a deal. They were also hesitant to share all of their data sets in the Trust.

Given that a number of stakeholders decided against joining the Trust, both Aaliyah and Sunji had to find other ways to acquire outstanding data wants. Their successful acquisitions did, however, provide value to other stakeholders in the Trust who were missing the same data sets.

All stakeholders were able to achieve all their data wants by round 7.

# Game Narrative 3

Participants were all quite risk-averse during the first two rounds, mainly pulling chance cards and identifying who would be appropriate partners to collaborate with. They engaged in more bilateral trades during the second and third rounds. Aaliyah Academia was the most aggressive with partnerships, recognizing the cost of acquiring data sets on their own or joining the data trust.

Aaliyah Academia and Cyrus Civil partnered early on to give the two of them an early movers' advantage to most quickly acquire all their data wants and focus on gaining social capital. They brokered a deal early on to enable Cyrus Civil to initiate the data trust. They believed that this would give them a larger role in governance to be able to address privacy concerns. Cyrus Civil also leveraged the "Transparency" disruptor card as the first stakeholder to join the data trust to receive 6 extra social capital tokens.

Although Camilla Corporate was interested in collaborating with other stakeholders, they ultimately decided to acquire most data sets alone given the higher dollar cost of working with others. As a result, they were the last to join the data trust at the end of the sixth round to avoid incurring additional costs from not being in the data trust.

Both Mark Municipal and Peter Public joined the data trust during the middle of the game. Their hesitation stemmed from concerns around risk, security, and liability. Not knowing the parameters of the Trust (e.g., legal, technology, etc.), they held off on joining the Trust because they owned personally identifiable information and were wary of security breaches. Although all parties joined the data trust and achieved all their data wants, Camila Corporate was still hesitant and had negative relationships with other stakeholders due to their lack of collaboration leading up to their participation in the Trust.