

The MaRS logo is a blue circle with the text "MaRS" in white, positioned in the upper right corner of the slide. The background of the slide features a low-angle shot of a modern glass skyscraper on the right and a classical stone building on the left, with a large orange circle overlapping the center.

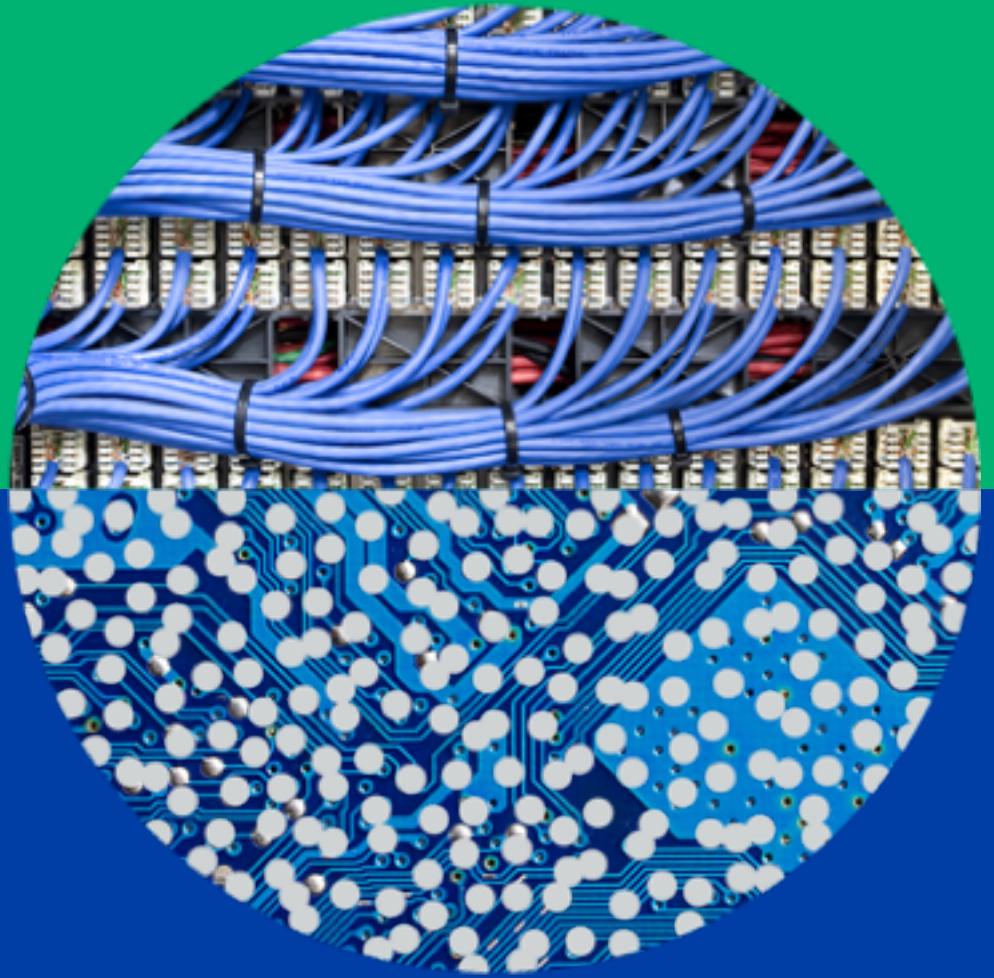
MaRS

Smart Cities Overview

FOLA Plenary

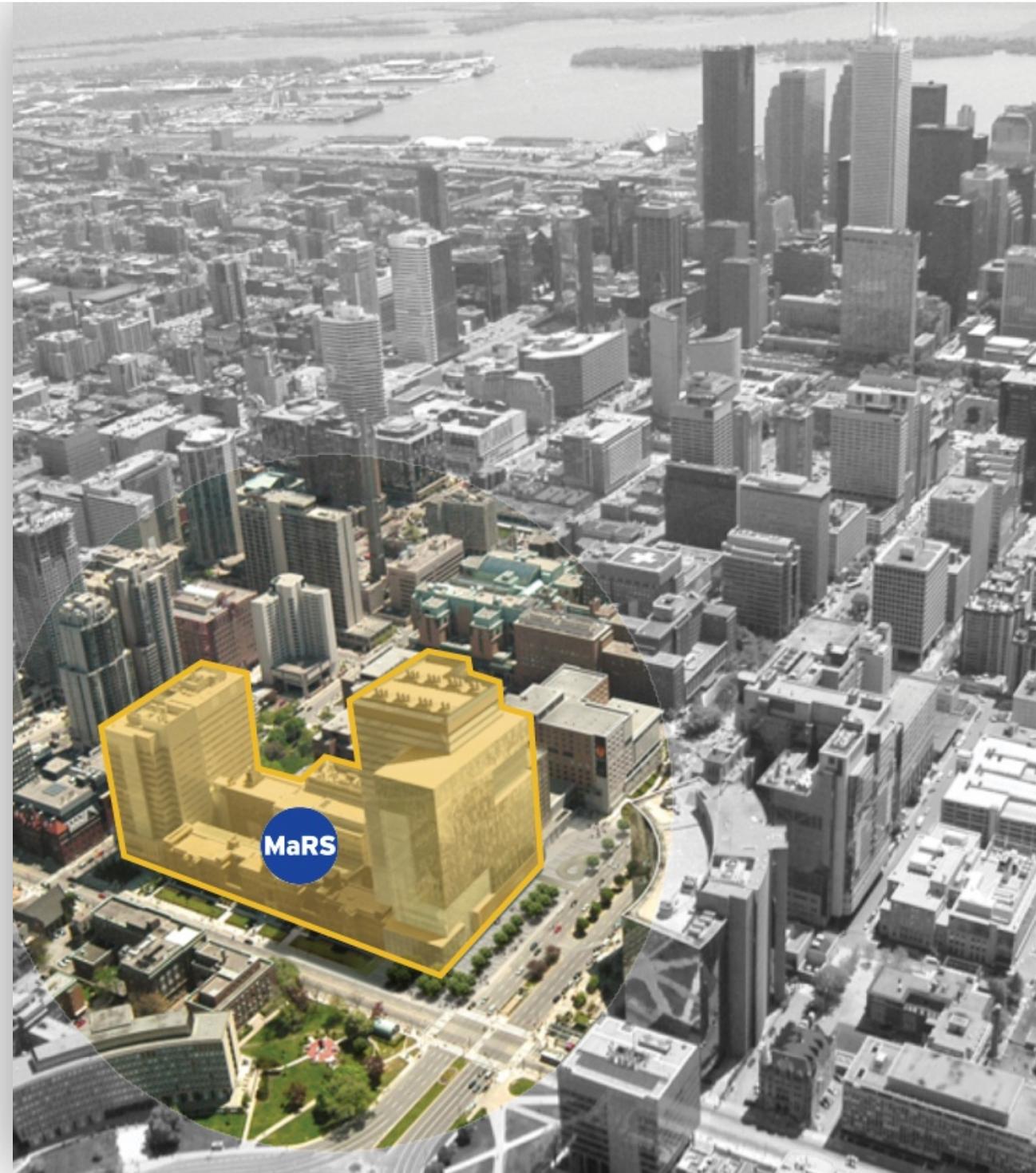
Presented By: Sasha Sud
Director, Smart Cities

MaRS Overview

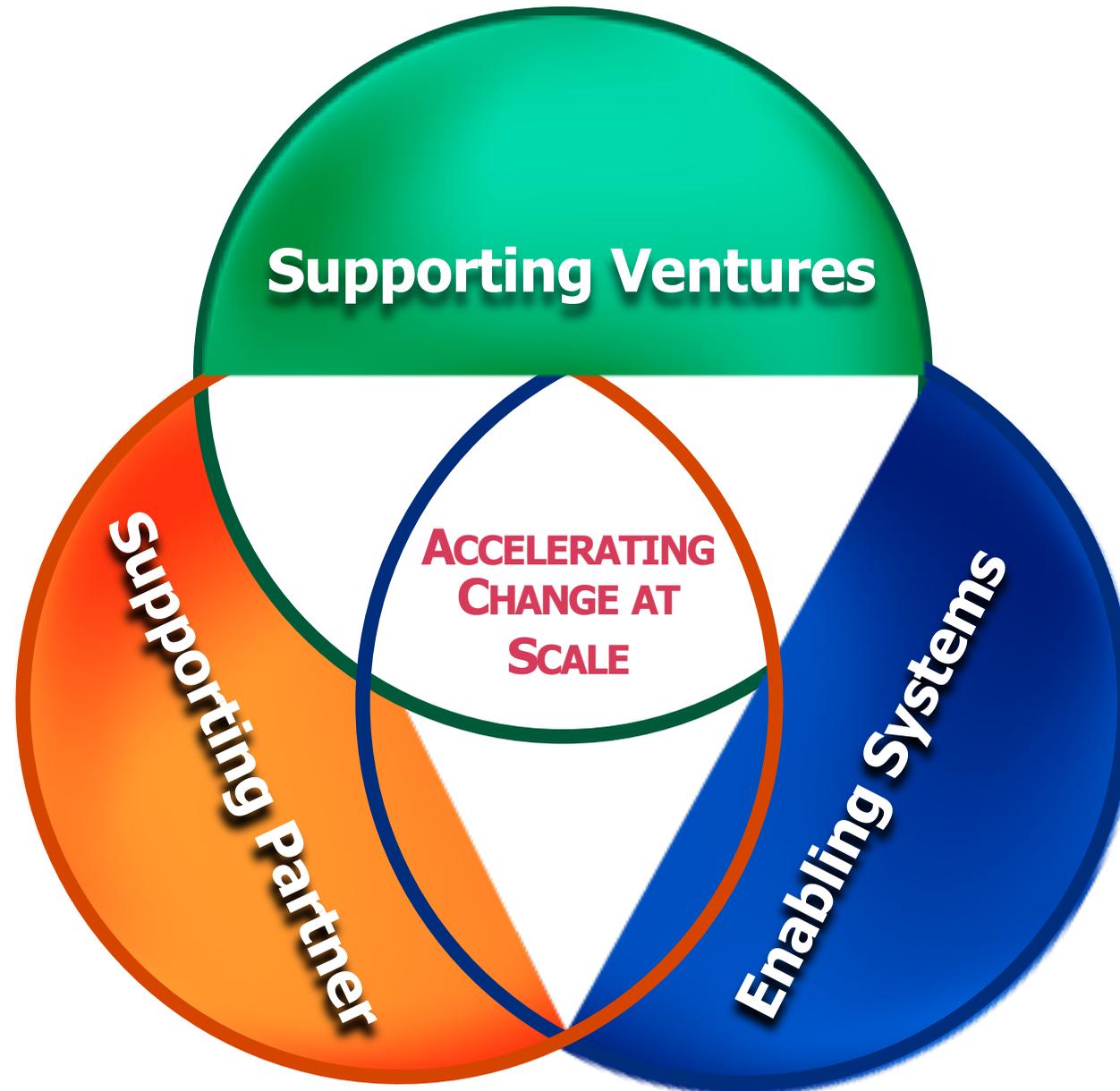


MaRS is North America's **largest urban innovation hub**

- 1.5 million sq. ft. of research labs and tech offices in downtown Toronto
- 1,400 high-growth ventures supported
- 150 tenants, including Facebook, PayPal, JLABS, Airbnb, Samsung, Merck and Autodesk
- Adding another 400,000 sq. ft. by 2021 on the Toronto waterfront in partnership with the University of Toronto



The MaRS Formula: A Hub for Canada's Convergent Innovation

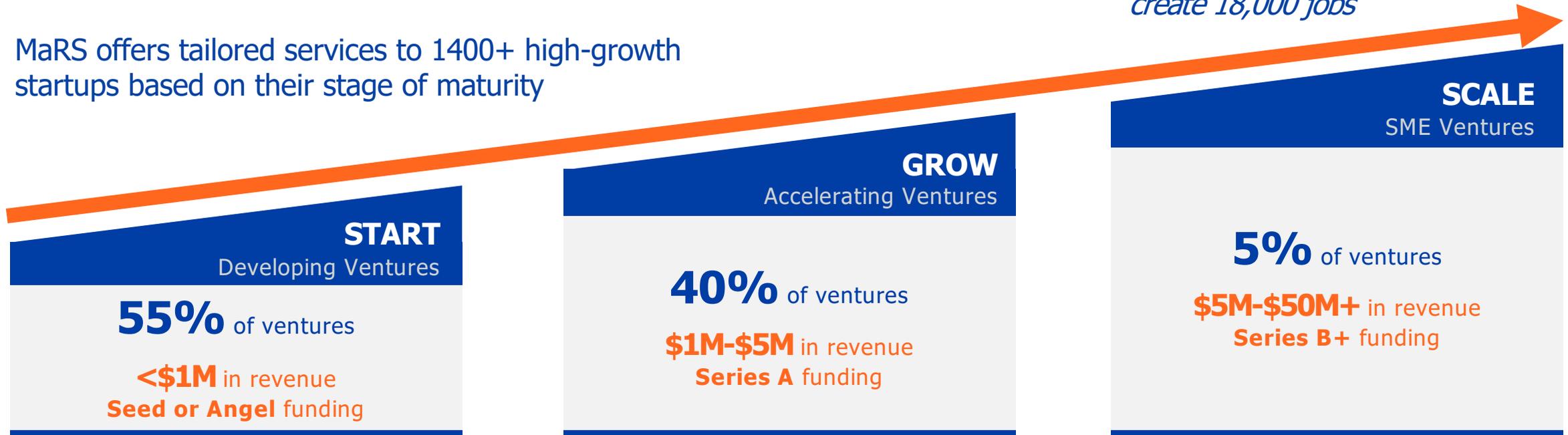


Supporting Ventures

How MaRS helps companies succeed

Scale Up Platform by FedDev
Help 30 Ontario companies reach \$100M revenue by 2024 and create 18,000 jobs

MaRS offers tailored services to 1400+ high-growth startups based on their stage of maturity



Health



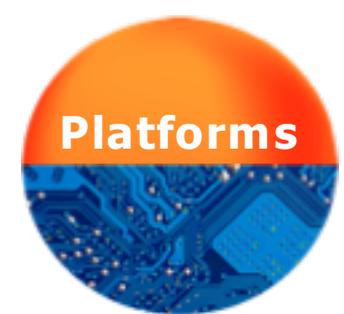
Cleantech



Fintech



Enterprise



Platforms

Supporting Partners: Our Partners



Enabling Systems

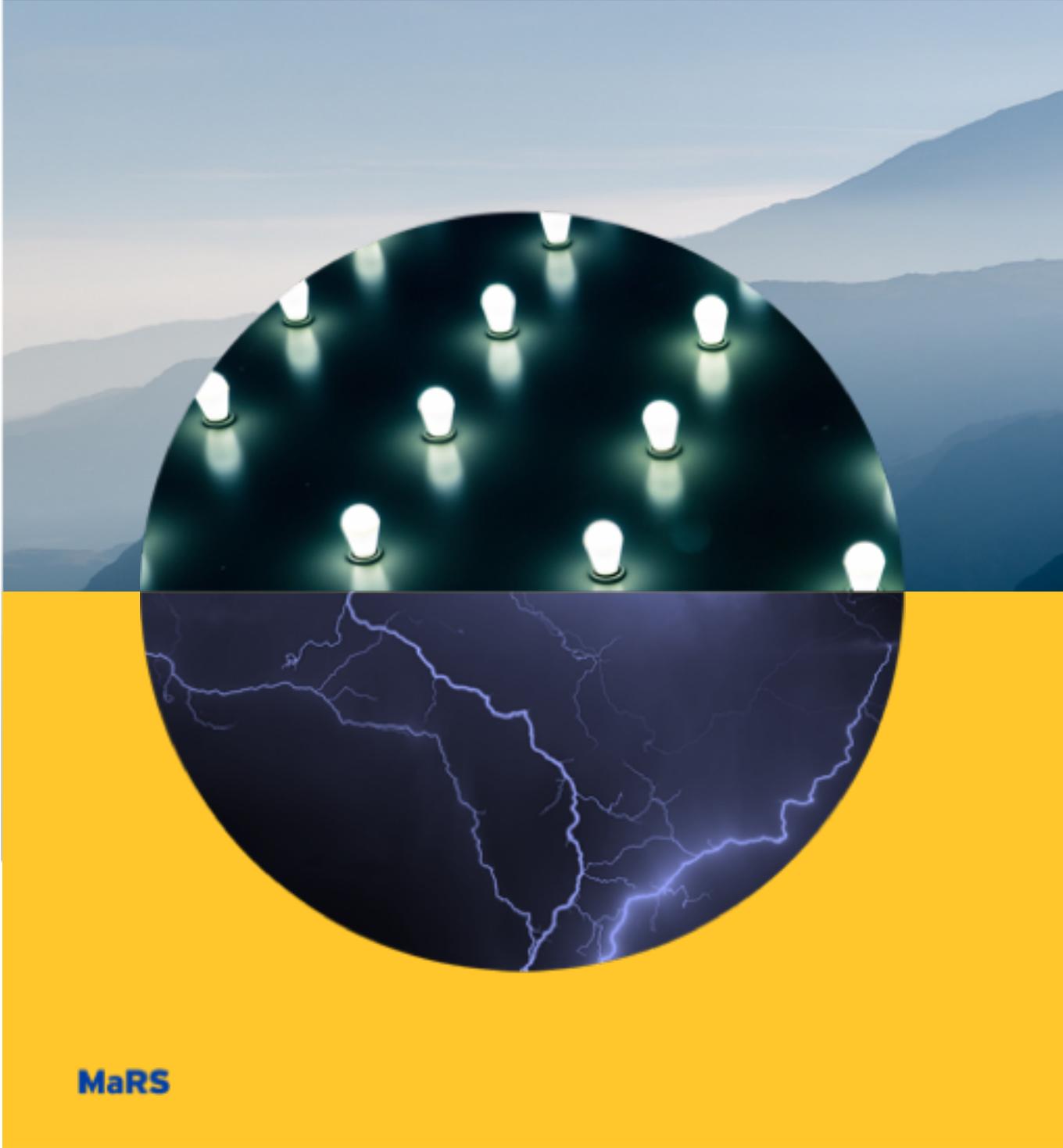
We help innovators **make a better world** by convening, experimenting with, and mobilizing systems toward positive impact.

As a knowledgeable, neutral third party, MaRS Solutions Lab works with partners and participants across the system through these approaches:

- 1) Help stakeholders **understand problems and opportunities** from multiple perspectives.
- 2) Build new shared **understanding among diverse stakeholders** to unlock opportunity.
- 3) Experiment with **new business models, technologies, regulations** to determine what works.
- 4) Help partners implement and scale the most **promising solutions capable of transforming policy, markets and culture.**

The Urban Context

MaRS



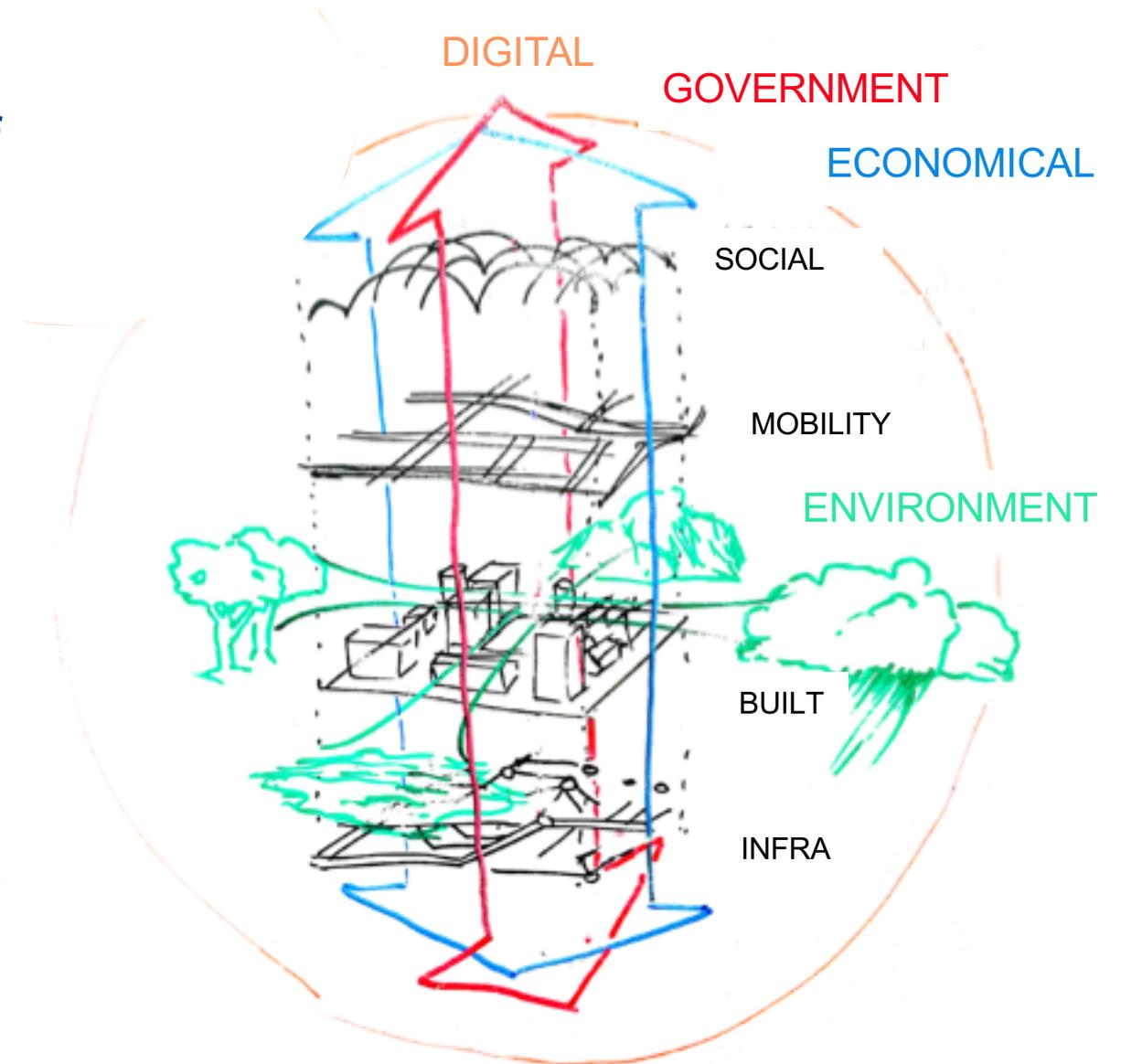
MaRS

The Urban Context

Rapid population growth and rapid rate of technological change is causing HUGE challenges.

CITIES:

- 55% of World population
- 80% of the population in Canada.
- 2% of Earth's surface
- Produce 70% of the world's GHG emissions
- Consume 2/3 of energy worldwide.

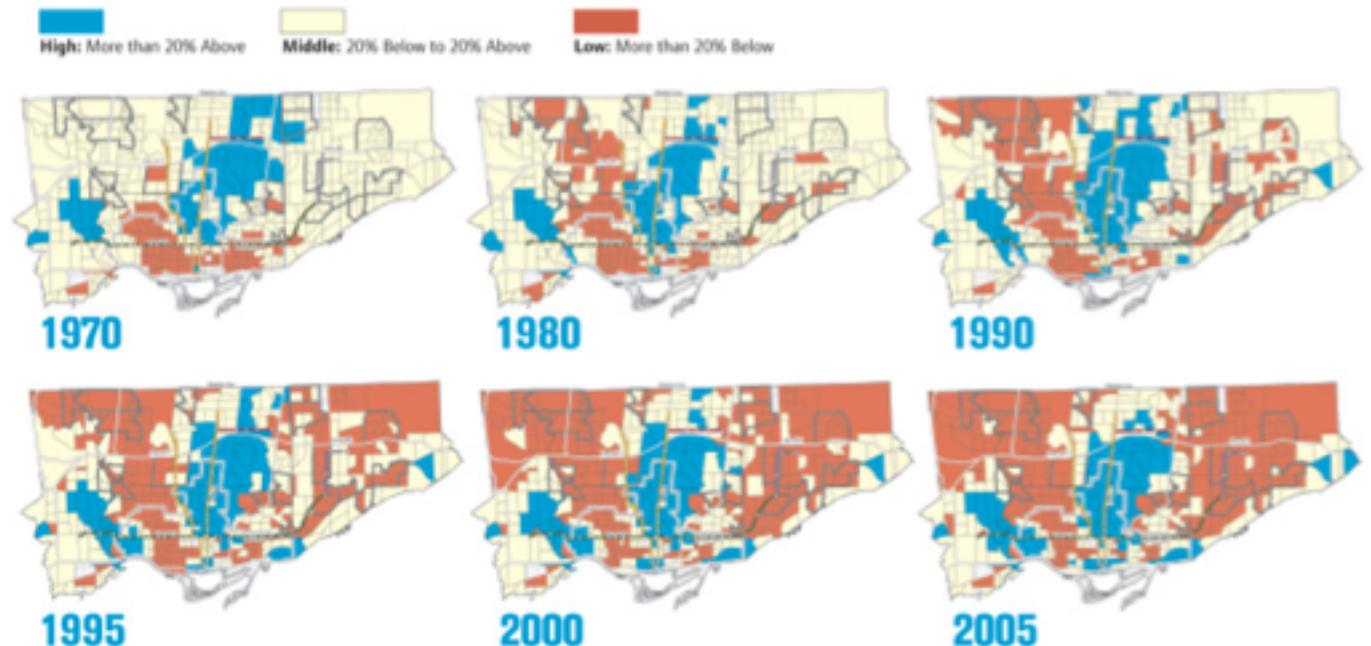


Urban challenges are people every day...

These challenges affect people

- **Transportation:** People accessing jobs, students selecting courses based on bus schedules
- **Health:** Asthma in young children
- **Climate:** Frequent flooding and fires
- **Social:** Seniors being socially isolated
- **Affordability:** Young people and families having to choose to pay rent OR pay for childcare OR pay for food

AVERAGE INDIVIDUAL INCOME, CITY OF TORONTO, RELATIVE TO THE TORONTO CMA, 1970-2005



Census Tract Average Individual Income, Relative to the Toronto CMA Average, 1970-2005

| Number (#) and Percentage (%) of Census Tracts in Three Income Groups by Year | 1970 | | 1980 | | 1990 | | 1995 | | 2000 | | 2005 | |
|---|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| | # | % | # | % | # | % | # | % | # | % | # | % |
| High Income: More than 20% Above | 77 | 15% | 69 | 13% | 86 | 17% | 88 | 17% | 93 | 18% | 94 | 18% |
| Middle Income: 20% Below to 20% Above | 341 | 66% | 311 | 61% | 264 | 51% | 190 | 37% | 165 | 32% | 149 | 29% |
| Low Income: More than 20% Below | 97 | 19% | 134 | 26% | 164 | 32% | 236 | 46% | 257 | 50% | 271 | 53% |

NOTES: 1. Based on census tract boundaries 2001 held constant over time; 2. Table counts exclude census tracts with no income published for 1970; 3. Table counts include census tracts with income published in 1970 but unpublished in one or more years after 1970.

How **we see** Smart Cities

Through engaging with key stakeholders and civic society

Being more responsive, proactive, efficient and cost effective

*Smart cities **engage** communities and leverage technology in **innovative** ways to address growing urban **challenges** and generating **positive** outcomes for society.*

Innovative partnerships, business models, technologies and innovative procurement processes

Driving better Economic, Social and Environmental outcomes

THE DAILY NEWS

THE WORLD'S FAVOURITE NEWSPAPER - Since 1879

NEVER PAY SHIPPING!

AV DATA SHARING BRING INCONCEIVABLE EFFICIENCIES



In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed.

At vim odio lorem omnes, pri.

COMMUTE TIMES HALVED: AI, AV DATA SHARING & ANALYTICS DRIVE THE CHANGE

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo.

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo.

THE DAILY NEWS

THE WORLD'S FAVOURITE NEWSPAPER - Since 1879

MICRO-TARGETING ADS SURGE AFTER AV DATA BREACH



In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed. Lorem volumus blandit cu has. Sit cu alia porro fuisset.

HACKERS HOLD CITY HOSTAGE – CONTROL AND WEAPONIZE AVS

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed.

At pri id iuvaret partiendo. Vivendo menandri et sed.



Key Considerations

The digitization of everything..

How do we

- Collect Data
- Access Data
- Share Data

Smart City Data approaches

- Data Trusts
- Data exchanges
- Smart Consent



CONTRIBUTORS OPINION

Toronto held its own and Big Tech blinked on Quayside development

By Alex Ryan Contributor
Thu., Oct. 31, 2019 | 4 min. read

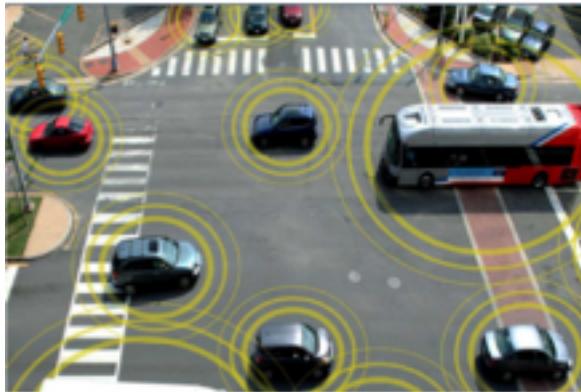
A photograph of the Toronto skyline, featuring the CN Tower and various skyscrapers. The image is taken from a low angle, looking across the city towards the horizon. The sky is blue with some light clouds. There is a small blue information icon in the top right corner of the image.

THE DAILY NEWS

THE WORLD'S FAVOURITE NEWSPAPER - Since 1879

VISION ZERO, NOW A REALITY

PLANNED AV PILOTS & REGULATIONS GUIDE THE WAY



In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed. Lorem volumus blandit cu has. Sit cu alia porro fuisset.

Ea pro natum invidunt repudiandae, his et facilisis vituperatoribus.

PERSONAL AUTO INSURANCE PREMIUMS DECREASE AGAIN, 10 YEARS IN A ROW

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo.

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo.

THE DAILY NEWS

THE WORLD'S FAVOURITE NEWSPAPER - Since 1879

LOOSE REGULATIONS, LOST LIVES

100 ACCIDENTS IN FIRST SNOW STORM: AVS DON'T DELIVER



In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed. Lorem volumus blandit cu has. Sit cu alia porro fuisset.

AV BAN BRINGS CITIES TO A STAND-STILL

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed.

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuvaret partiendo. Vivendo menandri et sed.

Key Considerations

How can we generate better outcomes/solutions in this fast paced environment?

- Regulatory Sandboxes
- Smart Contracts
- Machine Readable Regulation
- Rules as Code



Smart contracts – simple to complex



Source: Thomson Reuters 2016, Cost of compliance survey

Source: [pricewaterhousecoopers](http://www.pwc.com/us/en/issues-and-trends/technology/2015/12/12-15-15-smart-contracts.html)

THE DAILY NEWS

THE WORLD'S FAVOURITE NEWSPAPER - Since 1879

FATHER TUCKS DAUGHTER IN BED FOR FIRST TIME

AVS REDUCE COMMUTE TIME BY 1/2



In libris graecis appetere mea. At vim odio lorem omnes, pri id iuaret partiendo. Vivendo menandri et sed. Lorem volumus blandit cu has. Sit cu alia porro fuisset.

At vim odio lorem omnes, pri id iuaret partiendo

AV SHARING INCENTIVES MAKES GRIDLOCKED CITY PROSPER AGAIN

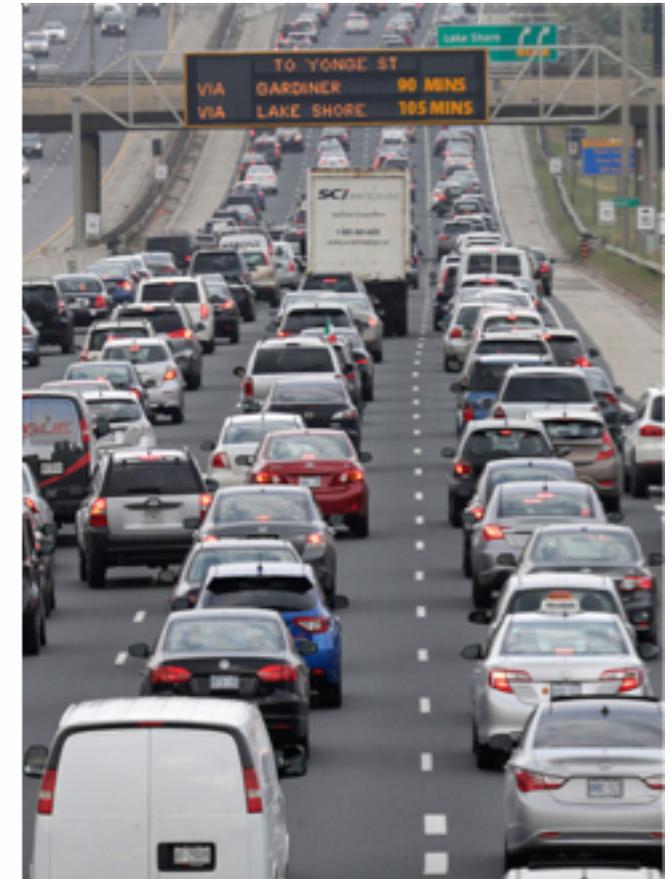
Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuaret partiendo.

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuaret partiendo.

THE DAILY NEWS

THE WORLD'S FAVOURITE NEWSPAPER - Since 1879

ROAD RAGE INCIDENTS SPIKE AS INCREASING & CAUTIOUS AVS GRIND DAILY COMMUTES TO A HALT



AV BAN BRINGS CITY TO FULL STOP

Lorem Ipsum In libris graecis appetere mea. At vim odio lorem omnes, pri id iuaret partiendo. Vivendo menandri et sed.

Key Considerations

- How do you manage liability with the introduction of AV fleets that offer Mobility-as-a-Service solutions?
- How do you manage, regulate insurance in that context?
- How do you govern ethics around an AV or machine making decisions about saving some lives (passengers) while endangering others (pedestrians)?



Toronto held its own and Big Tech blinked on Quayside development

By Alex Ryan Contributor
Thu., Oct. 31, 2019 | 4 min. read



Sidewalk Labs & Toronto

- Real estate
- Data Privacy
- Intellectual Property
- Fairer Deal
- Canadian Participation

MaRS - Faurecia Partnership

Faurecia and MaRS have been partners since 2017

Faurecia is a global leader in automotive technology that provides innovative solutions to automotive challenges within its four strategic businesses: Faurecia **Seating**, Faurecia **Interiors**, Faurecia Clarion **Electronics** and Faurecia **Clean Mobility**.



300 sites and 34 research and development centers in 37 countries



122,000+ employees



1 in 3 cars globally have technology produced by Faurecia



6.216B market cap



MaRS - Faurecia Partnership

Convening select stakeholders within and beyond the mobility ecosystem to identify key opportunities.

1. Health Data Acquisition & Sharing
2. Urban and Rural Health MaaS
3. Aging and Mobility



Digital Wellness Program

Challenge Statement

Faurecia is seeking to

improve wellness outcomes

for individuals through the creation of
data-enabled products and services

that can originate from, and/or, be fully deployed
within the **vehicle interior of the future**



Data Trusts: *Enabling Smart City Data Management*

Summary. Smart neighbourhoods like Quayside on Toronto's Waterfront have the potential to radically improve quality of life for residents through the collection, sharing and use of public realm data, but also raise important privacy, security and equity concerns. Waterfront Toronto asked MaRS Solutions Lab to explore the potential of a civic digital trust to responsibly share smart city data.

Approach.

1. Global scan
 - Documenting global case studies
 - Surveying business, legal, and technical models
2. Primary Research
 - 12 subject matter expert interviews
 - Workshop – 37 experts from 26 public and private organizations, and advocacy groups
3. Gitbook
 - Living document for expert feedback
 - 22 contributors

Outcomes. Created a Data Trust Primer to inform both private and public entities and civil society. The Primer overviewed and contextualized the following areas:

- The need for better data governance within a smart city
- What a data trust is and its potential forms
- Use cases to contextualize a data trust in various scenarios
- Call to action around stakeholder engagement, prototyping, and alternative models



APPENDIX

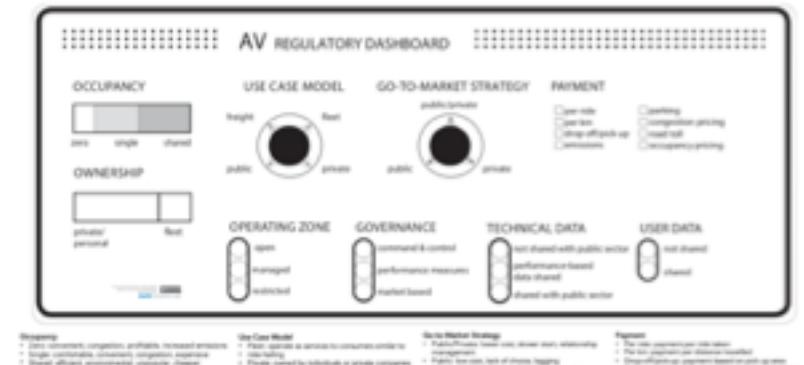
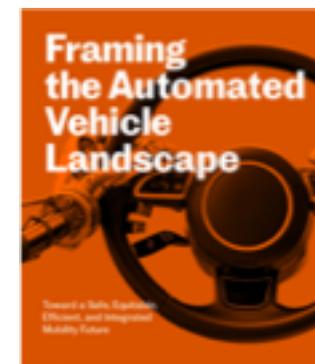
Autonomous Vehicles: *Enabling AVs in Toronto - Sidewalk Labs*

Summary. MaRS Solutions Lab and MaRS Smart Cities with support from Sidewalk Labs set out to address the question of how we might create market and policy conditions that enable automated vehicles to support safe, equitable, and efficient transportation models for Toronto and Ontario?

Approach. Over a six-week period spanning November to December 2018 our team performed research and convened stakeholders to deliberate on automated vehicle (AV) deployment in Toronto, with a focus on safety and microeconomic considerations.

1. **Secondary Research:** Rapid research and horizon scan to provide an overview of the future of AV deployment timelines and understand the current landscape.
2. **Primary Research:** Interviews with 13 national and international AV experts to inform workshop design and report development.
3. **Co-Design Workshop:** Developed and delivered a co-design workshop with 26 participants from public, private, academic, and civil society organizations to test regulatory levers and explore future scenarios.

Outcomes. Developed a publicly available report that summarizes our high-level insights and nine recommendations for automated vehicle deployment. We are focused on scoping considerations for a deeper collaborative process, in which companies, government, civil society, and citizens can co-design and deploy (1) regulatory interventions to manage AV deployment, and (2) use cases for emerging transportation technologies that solve for both social need and commercial viability.



Civic Capital Lab: *New Investment Models for Cities*

Summary. The lab is tackling emerging challenges faced in cities through new forms of financing to create equitable and regenerative forms of urban development. This includes both financing a new class of solutions and finding a new innovative way of financing itself.

Approach. In the next two 90-day sprints, the Civic Capital Lab will engage with each of these communities of investors, developers, government and innovators, to share the work done to date and listen to their point of view and culminate this engagement with a launch event in Fall 2019.

Outcomes.

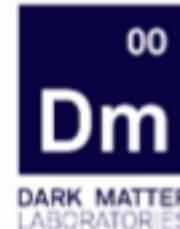
- Inform different audiences on the value proposition of social finance
- Build a parade of champions and participants: Catalyze interest from targeted interest groups to participate in the civic capital lab's experiments as a participant, funder or champion
- Build momentum for the social change being targeted through the civic capital lab toward the work being carried out

Partners

La fondation
McConnell
Foundation



M/S
Maison
de l'innovation
sociale



**COMMUNITY
FOUNDATIONS
OF CANADA**
all for community

