Catalyzing Innovation in the Mobility Sector

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MaRS

Overview

- Unprecedented Urban Growth being experience today

  *For example: GTA's population projected to grow by **42.3 % or 2.9 million people by 2041** (Ontario Min. of Finance 2016)*

- More than **one-third of all Canadians**, 35.5 %, live in the three largest census **metropolitan areas of Toronto, Montreal and Vancouver** *(2016, Stats Canada)*.

- This Growth is driving transportation challenges around

  A. **Congestion:** quality of like & economic cost

  B. **GHG emissions:** largest & fastest growing source of emissions

  C. **Transportation Access and Equity:** congestion, time and cost disproportionately impact vulnerable populations

Impacting people unfairly

MaRS stakeholder engagement and user research is showing that transportation and congestion is unfairly impacting:

o Mothers who don't see their children before they go to bed

o Students decide their future by selecting courses and even schools based on when and where they have transportation options available

o Patients whose quality of health care and even lives depend on their access to transportation options

o Youth and low income workers whose ability to work is determined by the availability of affordable and reliable options to get to work

Innovative Mobility Solutions

- Convergence in IT, GPS, mobile, communications and transportation technologies is driving huge investments in the development of innovative mobility products and services. We have:

  - MaaS solutions: Car pooling/sharing, Ride hailing/sharing

  - Multi-modal solns/platforms: almost everyone is building a multi-modal mobility platform (bike sharing, ride sharing, transit companies – regional, municipal etc.)

  - AVs/CVs

All of these technologies are **looking to generate evidence** for why they are useful/what value they add – to consumer, to society, to the economy.
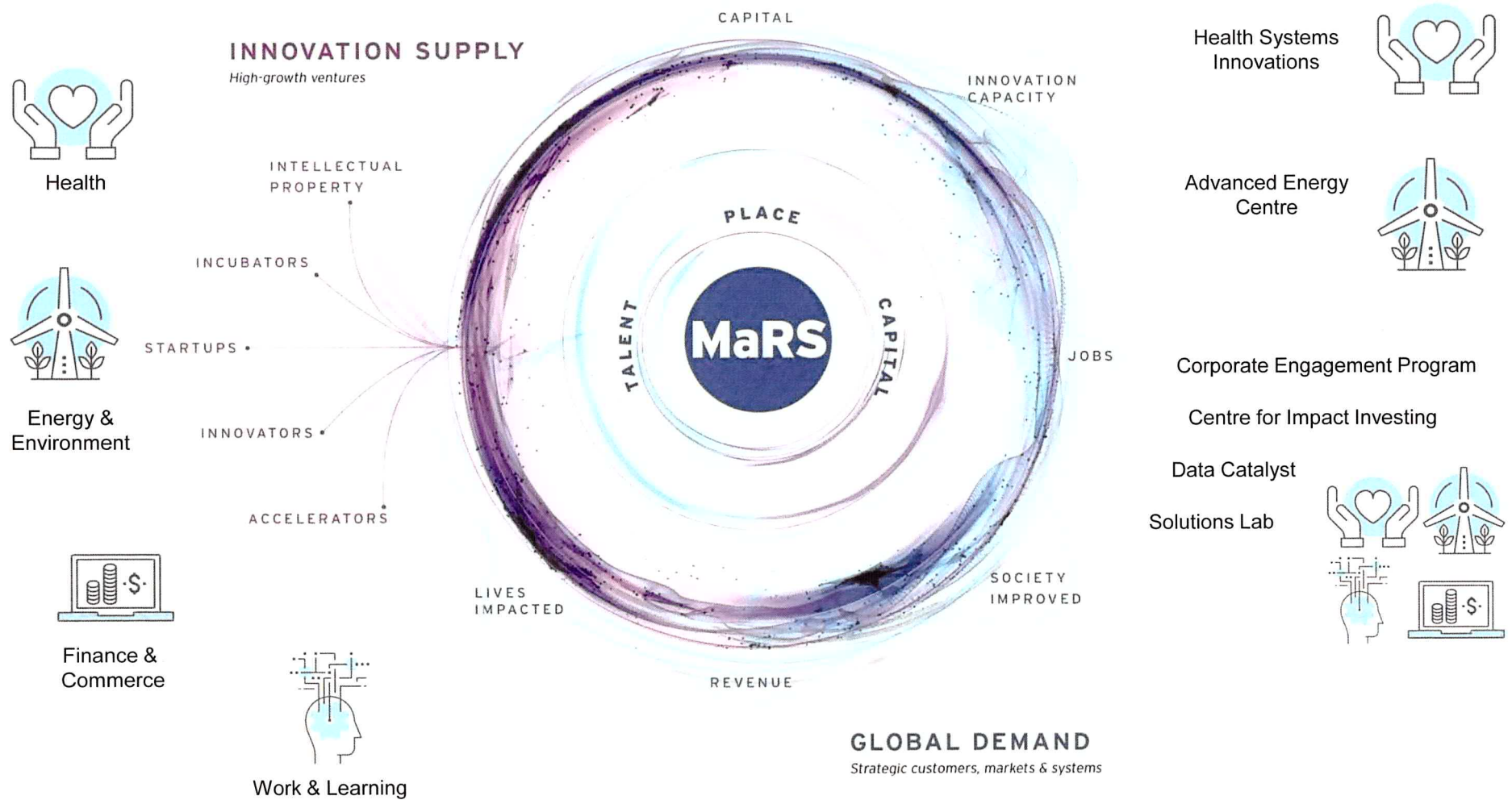
For that they need: datasets & models, early adopters, enabling policy environments and the creation of new market and business models.
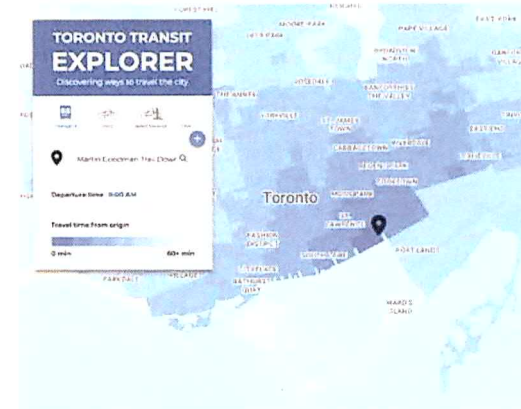
Challenges in Canada Today

A. **Multiple levels of govt:** Fragmented market, complex regulations and limited partnerships, Province, Regional Planning Agencies, Regional transportation agencies, municipal companies & shareholders etc.

B. **Policy makers - lack of clear policy direction due to absence of information & evidence** around **impact** of new mobility solns:
   i. Safety
   ii. Transit
   iii. Congestion
   iv. Access and Equity

C. **Limited coordinated design and delivery projects that result in**
   - models for shared public – private operations
   - Conversion into scalable & sustainable business models
   - Sending clear market signal on pathways to adoption

D. **Challenges** in accessing **critical existing mobility/urban data-sets** to develop and deploy new and existing public and pvt mobility solutions

BRIDGING THE GAP BETWEEN INVENTION AND ADOPTION

Health

Energy & Environment

Finance & Commerce

Work & Learning

INNOVATION SUPPLY
High-growth ventures

INTELLECTUAL PROPERTY

INCUBATORS

STARTUPS

INNOVATORS

ACCELERATORS

CAPITAL

INNOVATION CAPACITY

PLACE

TALENT   MaRS   CAPITAL

JOBS

LIVES IMPACTED

SOCIETY IMPROVED

REVENUE

GLOBAL DEMAND
Strategic customers, markets & systems

Health Systems Innovations

Advanced Energy Centre

Corporate Engagement Program

Centre for Impact Investing

Data Catalyst

Solutions Lab

Our work to date

I. **Helped legalize Uber and Airbnb** by supporting the City of Toronto and Ontario to **develop regulation** for the Sharing Economy

II. Produced a report for the Greater Toronto Hamilton Area and the Greater Montreal Area on the **potential of Shared Mobility to reduce GHGs**

III. **Defined <u>regional mobility challenges</u>** by convening **130+ key transportation stakeholders** industry, govt/agencies and key user groups at the Urban Mobility Design Camp

IV. Researched and **<u>defined key commuter needs</u>** with a design firm to unearth **<u>key variables that impact user decisions</u>** around mobility
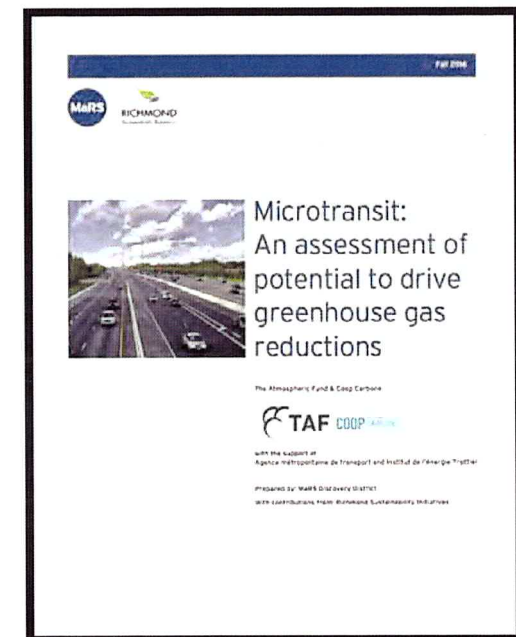
MaRS RICHMOND

Microtransit:
An assessment of
potential to drive
greenhouse gas
reductions

The Atmospheric Fund & Coop Carbone

TAF COOP

with the support of
Agence métropolitaine de transport and Institut de l'énergie Trottier

Prepared by: MaRS Discovery District
with contributions from Richmond Sustainability Initiatives

Mobility behavioral insights

Our work to date

V. Developed a methodology for **designing, selecting, testing, evaluating and scaling** innovative mobility deployments with a focus on developing a **sustainable business model.**

    a. Challenge definition

    b. Technology review

    c. Pilot Selection & Data collection frameworks

    d. Pilot evaluation frameworks

    e. Business Case development approach *(to be completed)*

    f. Market capacity development to scale *(to be completed)*

VI. Secured funding under Ontario's Autonomous Vehicle Innovation Network (AVIN) program to be Toronto's Regional Technology Development Site: focused on supporting ventures that use Artificial Intelligence and Machine Learning for AV & CV's.

VII. Developing a **Urban Mobility Knowledge Hub** (prototype under development)

THE HUB

ACCESSIBLE DATA

Accessible Datasets & Models:

Open & Managed Access

EXPERIMENTATION

Procurement Portal

Policy Database

Opportunity Mapping Tool

Benefits Calculator

PILOTS

City of Vaughan

Canadian Red Cross

COLLABORATION

Members Network

Procurement by Co-design

Provide tools for pilot design, implementation and evaluation frameworks

Knowledge dissemination: best practices