A CALL FOR COLLABORATIVE ACTION

Dr. Judy Farvolden
University of Toronto
Transportation Research Institute
The Future of Smart Cities
Municipalika, Navi Mumbai, May 19, 2017
Outline

• The Smart Cities Working Group mandate.

• The collaborative process used to generate the report.

• Stakeholder engagement and consultation.

• Alignment with other Smarter Toronto initiatives.

• Key findings and main recommendations.

• Next steps.
Toronto’s Smart Cities Working Group

To catalyze the collaborative development of a vision of how Toronto can best respond to the opportunities and challenges of the digital era.
Making Toronto a place where business and culture thrive

- Collaborating for Competitiveness
- Workforce Development Strategy
- Toronto Strong Neighbourhoods Strategy 2020
- A Start-up Ecosystem Strategy

Economic Development & Culture Division
Annual Report 2016
SCWG First-Year Deliverables
May 2016-April 2017

An MOU between the TRBOT and ED&C formalized the workings of the group.

SC SUMMIT – MAY
- 225 attendees
- 3 panel discussions
- 9 breakout sessions
- Final Report issued September — breakout commentaries and strategic 5C’s September

ASSET MAP- NOV
- Inventory of top smart accomplishments, vendors, issues/opportunities
- Validate Summit Findings

BENCHMARKING - NOV
- World Council on City Data (WCCD) to provide observations on 5 Indicators -
- Benchmark CoT against international peers
- SCWG observations of utility of report as a smart indicator

FINAL REPORT AND RECOMMENDATIONS MID- JANUARY
- Smart Outreach (Transform TO, TO CORE, Procurement roundtables, etc.)
- Integrate findings from all 3 deliverables
- Draft report—engagement plan for City and stakeholders
“I will champion this initiative for all these reasons:

• “Not implementing Smart City technology is costing the City $600,000 annually.
• “There is an opportunity to be a showcase, a testbed and a magnet for innovation and applications.
• “The City has to live up to the expectations of those here and those to come.”

“The challenge for us it to make our city a beacon of innovation and to have a lack of fear.”

Mayor John Tory,
May 10, 2017, Smart Cities Summit
Toronto’s Smart Cities Working Group

- Raise awareness of local and international Smart Cities developments
- Catalyze the development of a vision and roadmap of what “Smarter” could mean for Toronto
- Establish a “Community of Interest” and a collaborative forum to leverage local Smart Cities expertise
Collaboration and Engagement

City of Toronto, Toronto Public Library
City of Toronto, Office of the CIO
City of Toronto, Economic Development & Culture
Ryerson University
OCAD-U
University of Toronto
Hatch
KPMG
IBI Group
CGI
Deloitte
Envirionics Analytics
Accenture
Arup

i-CANADA Alliance
Ontario Centres of Excellence
MaRS
Government of Ontario
Waterfront Toronto
Bell Mobility
TELUS
Rogers Communications
Oracle
Sieens
Cisco
IBM
Cisco

Framework for a Smarter Toronto: A Call for Collaborative Action
SCWG Definition of a Smarter Toronto

*Uses technology to optimize resources and enhance quality and performance of urban services*

*to*

*increase economic competitiveness and engage its citizens more effectively*

*Develops and implements innovative policies and technologies*

*to*

*ensure that these benefits are realized in a manner unique and consistent with its core values of economic, social, cultural and environmental vitality*
KEY FINDINGS
THE BOARD’S SMART CITIES SUMMIT HIGHLIGHTS
TORONTO’S SMART CITIES BENCHMARKING & SMART ACCOMPLISHMENTS SURVEY FINDINGS

• Investigation of other Smarter Toronto work
• Positioned for the Canadian Smart Cities Challenge
• Alignment with City of Toronto mandate and strategic plans
• The City is moving in the right direction and has tremendous assets.
• Initiatives are not well connected or communicated.
• Exploit alignment among governments.
• Leverage the strong public-private-academic sector collaboration.

May 2016, 225 participants from government, industry, academia and NGOs
Recommendations

• Raise **awareness** of assets and accomplishments
• Articulate a public **vision**
• Encourage more effective **collaboration**
• Evolve **procurement** to support innovation
• Foster **digital inclusion**
• Develop strategies to build and attract local **talent**
• Provide direction and **leadership**.
We should have one.
THE DUBAI DECLARATION 2017
A Commitment to City Data as the Universal Language
Driving forward three critically important agendas for 2030:

- INCLUSIVE CITIES
- SMART NATIONS
- A SUSTAINABLE PLANET
What it raised was important questions

• What explains the performance differences?
• What is Toronto doing to close the gaps?
• Are these the right metrics for measuring smart city performance?
Smart Accomplishments Survey

- Environment & Energy
- Transportation
- Solid Waste
- Water
- Public Health

Could have been others.

- The heads of the five divisions and their teams were
  - Informed of the project and its progress
  - Consulted for their opinions.

- They
  - Provided examples of their Smart Accomplishments.
  - Indicated their ambitions to do more.
Solutions to Common Challenges

• **Digital transformation of ‘classic’ public services**
  – Ensure the interoperability of systems and platforms.
  – Invest for the long term for operational efficiency.
  – Develop talent management strategies.

• **Shared and accessible data**
  – Open and standardized data originating from IoT
  – Safeguard from cyber attacks and protect personal privacy.

• **Flexible procurement**
  – More nimble RFP process.
  – Conduct pilot studies to foster innovation.
Toronto is already a smart city

“Toronto was selected because it performed impressively against a set of diverse criteria and focused its academic, creative and private sectors, as well as its City Council leadership on the work and continued success of the entire community.”
• Largest free library system in the world
• Digital innovation hubs
• Online courses
  – Technology & job skills
  – Language learning (71)
  – Personal & Professional Development
  – Test preparation & practice
  – Homework help
Toronto grants Uber first-ever Canadian licence to operate

A group of taxi drivers says it will demonstrate starting around 7 a.m. Wednesday at the city's licensing office at the East York Civic Centre.

- Lessons learned – be prepared
  - Municipal preparedness for autonomous vehicles
  - Big Data Team
  - Adaptive traffic signals pilot program
  - Unmanned Aerial Vehicle pilot
Municipal preparedness for AV

• 2015
  – Driving Changes: Automated Vehicles in Toronto – a discussion paper
  – Facilitated four workshops with City Staff
    • IT & Data
    • Economic Impact and Development
    • Built Environment
    • Mobility, Safety and Equity
  – Simulating Autonomous Vehicles: A discussion paper and research proposal, Eric Miller

• 2017
  – City of Toronto has taken a leadership position
  – Collaborating with U of T on major AV research project
Big Data Team

Comprehensive arterial network data

- Identify incidents to improve response time and public safety
- Make investment decisions based on evidence to
- Provide real-time traveller information on open data

FOR BIG CITIES CONFERENCE
JUNE 12 - 15 / TORONTO, CA
Adaptive Signals Pilot Program

- State objectives and desired outcomes
- Select three technologies for 30-intersection pilot projects
- Evaluate and compare objectively
- Select one for expansion to 500 intersections
Canadian Smart Cities Challenge

- $300 million over 11 years, 5 rounds of $60M
- Outcome and challenge-based initiatives
- Social Return on Investment
- 5 finalists in each category will receive $250K to develop proposals, in each round
Eligible Project Musts

• Create long-term economic growth, build inclusive communities, support a low carbon, green economy

• Have a range of measurable impacts on mobility, health, livability, engagement, youth employment

• Be interesting applications of new technology

• Create partnerships with private sector, NGO, academia, etc.
Toronto ranks highly

Achievements:
How Toronto ranks against other cities

#3 of 30:
Toronto is the third best city to live and work
PwC Cities of Opportunity
(Version 7)

#3 of 10:
Toronto is the third best tech hub to live and work in
Expert Market: World’s Best Tech Hubs

#3 of 24:
Toronto ranks third in labour attractiveness and fifth overall out of 24 cities
Toronto Region Board of Trade’s Scorecard on Prosperity Report

#4 of 140:
Toronto ranks as one of the top five most livable cities in the world
Economist Intelligence Unit
- Livability Survey

#4 of 29:
Toronto ranks fourth in the world in terms of global competitiveness
KPMG Competitive Alternatives

#8 of 500:
Toronto ranks eighth among the world’s most innovative cities
Innovation Cities Index 2016-2017
But also faces challenges

**POPULATION GROWTH**

**SOCIAL NEEDS**

**TRAFFIC CONGESTION**

**SHOCKS AND STRESSES**
- Aging Infrastructure
- Blizzard
- Economic Inequality
- Heat Wave
- Infrastructure Failure
- Lack of Affordable Housing
- Overtaxed/Underdeveloped/Unreliable Transportation System
- Rainfall Flooding
a desirable place to live, prosper and visit
“Citizens, Businesses & Visitors expect Simple, Easy, Integrated Accessible Service Offerings”

City’s Strategic Themes

- Building
- Growth
- Environment
- Support
- Prosperity
- Finance

eCity

“Your local government anytime, anywhere”

strategic goals

1. Improve access to government services
   - Improve channel choices
   - Improve channel usability

2. Improve decision making support
   - Improve information quality
   - Improve analytical capability

3. Improve workforce capabilities
   - Improve learning opportunities
   - Increase use of IT to accomplish work

4. Improve business processes
   - Increase use of common business systems
   - Simplifying info sharing
   - Increase process automation
   - Increase process integration
Alignment with other Initiatives

Chief Transformation Officer

Civic Innovation Office

Chief Resilience Officer
Toronto City Council Mission Statement

...finding creative ways of responding to issues of importance to the City.

The creative approach being adopted by cities globally is a “Smarter City” strategy.
Framework for a Smarter Toronto:

A CALL FOR COLLABORATIVE ACTION

• Summarized the findings of the summit, the survey and benchmarking study
• Highlighted global best practices
• Showcased Toronto's smart initiatives.
Recommendations & Actions

THE 5 Cs OF ACTION

**CONNECT**
- Toronto residents and businesses to ensure digital inclusion for all; better access to smart city solutions with modernized procurement policies; external funding opportunities to advance solutions.

**CO-CREATE**
- Smart solutions by enhancing partnerships between government, industry, universities and incubators to validate and apply innovative civic technology to urban challenges.

**COMMUNICATE**
- A cohesive smarter Toronto narrative to attract investment and talent, stimulate the export of smart city capabilities and strengthen the local ecosystem; sustain momentum with stakeholder education and participation in realizing the smarter Toronto vision.

**CATALYZE**
- Data governance and analytics vision that builds upon the City’s Open Data initiative while developing big data analytics capabilities across City divisions.

**COLLABORATE**
- With stakeholders to create a government-wide smarter Toronto vision and strategy aligned with related City initiatives focused on specific needs, with clear, defined targets and outcomes.

Led by Smart Cities Working Group in Partnership with the City of Toronto
From eCity to Smarter City

City of Toronto Strategic Goals

Clean, Green & Sustainable
Caring & Friendly
Dynamic City
Invests in Quality of Life

Evolution to ‘smarter city’

Modern & Effective Government
- Government Service Modernization
- Citizen Empowerment
- Employee Productivity

Leader & Achieve Broader City Goals
- Smart Resources
- Urban Analytics
- Sharing Economy
“I will champion this for all these reasons:”

• Not implementing Smart City technology is costing the City $600,000 annually.

• There is an opportunity to be a showcase, a testbed and a magnet for innovation and applications.

• The City Government has to live up to the expectations of those here and those to come.

The challenge for us it to make our city a beacon of innovation and to have a lack of fear.

Mayor John Tory, May 10, 2017, Smart Cities Summit
Uber opening Toronto research hub for driverless car technology

A University of Toronto computer science professor will lead Uber's new research hub devoted to driverless car technology. Uber was drawn to Toronto because the city has been "at the forefront" of artificial intelligence research.
The City’s Next Steps

• The City Manager and Deputy City Managers will plan next steps.
• The City will begin to create a governance structure.
• The City will continue to collaborate with the SCWG and TRBOT on actions coming from the report and moving forward.
A CALL FOR COLLABORATIVE ACTION
