

Webinar 1: Situating Canadian Cities in an International Smart City Ecosystem

Presented by: Jean-Noë Landry (Open North) & Dr Tracey P. Lauriault (Carleton University) & Rachel Bloom (Open North)

Content Contributors: David Fewer CIPPIC, Mark Fox U. of Toronto, Stephen Letts (RA Carleton U.)

Partner Cities: City of Edmonton, City of Guelph, Ville de Montréal & City of Ottawa

Project Name: Open Smart Cities in Canada

Date: August 30, 2017

Welcome

- Jean-Noe Landry, Executive Director, Open North

Webinar includes results from:

- Gap Analysis & E-scan
- Semi-structured interviews w/ four cities
- Assessment report

Objective of the Webinar

- Present our Research to date
- Share Preliminary Observations

Webinar Presenters:

- Rachel Bloom, Open North
- Dr Tracey P. Lauriault, School of Journalism and Communication, Carleton University

Open North

- Founded in 2011, OpenNorth is Canada's leading not-for-profit organization specialized in open data and civic technology.
- Focus: inclusive, innovative, and dynamic open data ecosystems
- Expertise:
 - open smart and resilient cities
 - data standards and life cycle management
 - open data policy, licenses, and governance
 - data user needs identification and stakeholder engagement
 - strategy and planning
- Approach: global/local, multi-stakeholder, inter-jurisdictional, capacity building, maturity modeling, applied research
- Networks: Open Data Charter, Open Government Partnership, International Open Data Conference, Global Initiative on Fiscal Transparency, Open Contracting Partnership, Canadian Multi-stakeholder Forum

Open Smart Cities in Canada Project

Funded by: GeoConnections

Lead by: Open North

Project core team:

- Rachel Bloom & Jean-Noe Landry, Open North
- Dr Tracey P. Lauriault & Stephen Letts (RA), Carleton University
- David Fewer, Canadian Internet Policy and Public Interest Clinic (CIPPIC)
- Dr Mark Fox, University of Toronto

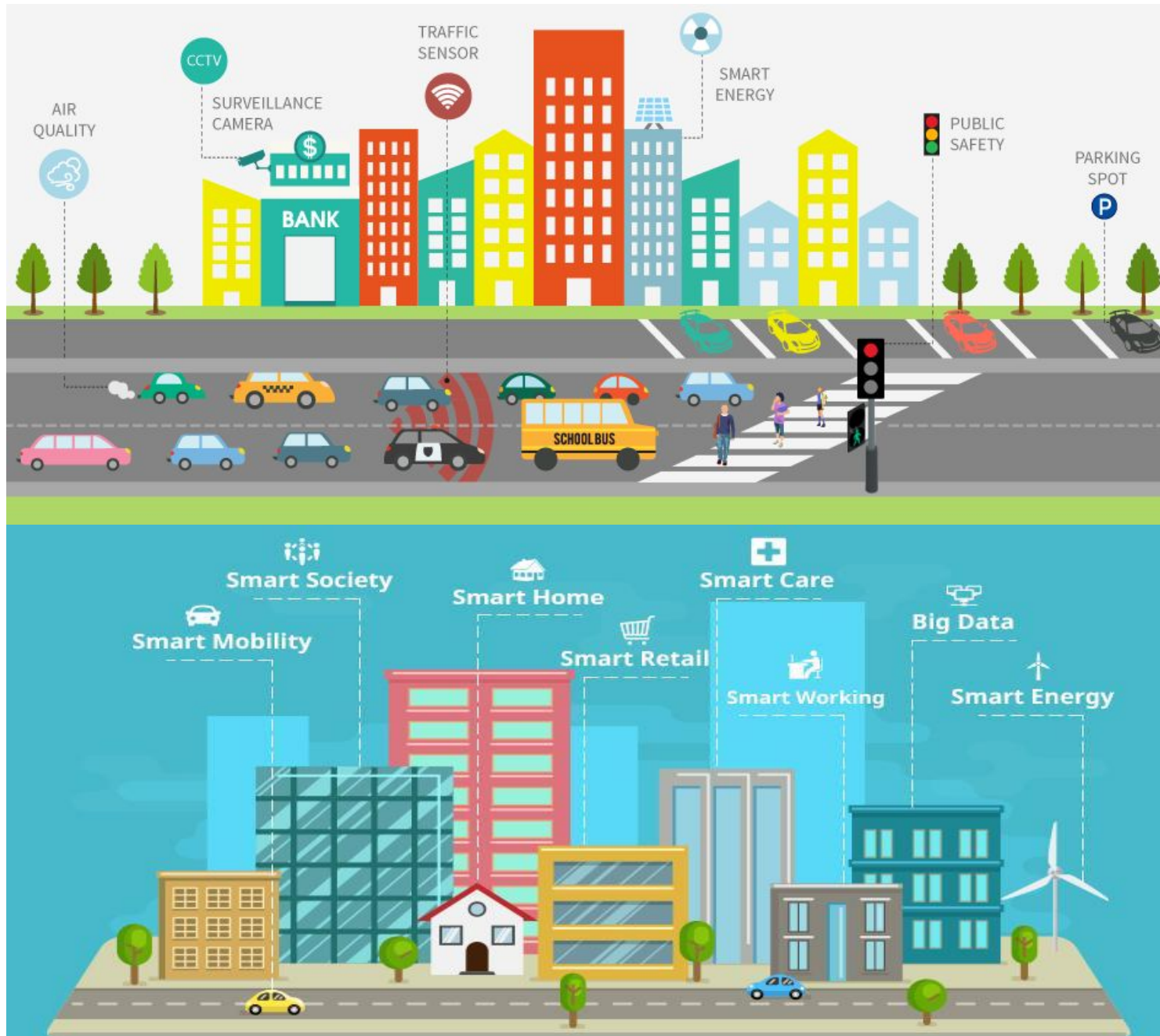
Project collaborators:

- Expert Smart City representatives from the Cities of:
 1. Edmonton
 2. Guelph
 3. Montréal
 4. Ottawa
- Future collaborators include experts from provinces of:
 1. Ontario
 2. British Columbia

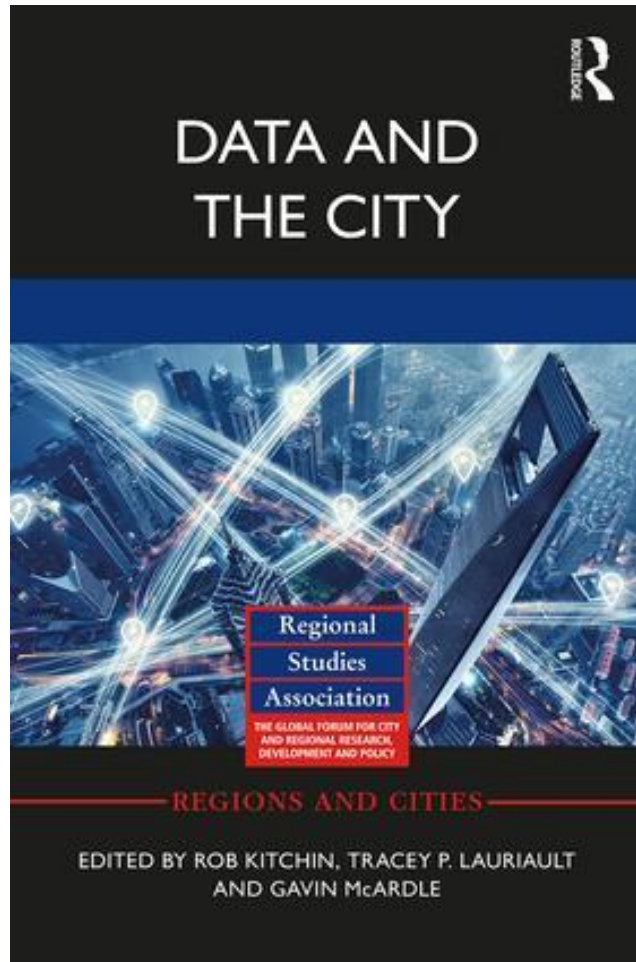
Outline

1. Introduction
2. Smart City Actors
3. Smart City Components
4. Four Canadian Cities
5. Overall Observations
6. Next Steps
7. What is an Open Smart City & Q & A

1. Introduction



Data-Driven, Networked Urbanism



The following terms describe cities that are “*instrumented and networked, their systems interlinked and integrated, and vast troves of big urban data are being generated and used to manage and control urban life in real-time*” (Rob Kitchin, 2018)

- Smart cities,
- intelligent cities,
- sustainable cities,
- responsive cities
- sentient cities,
- sharing cities
- cities as a platform,
- innovative cities,
- programmable cities,
- connected cities, and
- hackable cities



OpenNorth

Openness

- Collaborative way to critically improve the well-being, health and the quality of life of urban, rural and remote inhabitants & habitats, now and in the future.
- Participatory culture between government, civil society, the private sector, the media and academia to sustainably, environmentally, safely, fairly, justly and equally manage people and territory.
- Doing so in a culture of openness which includes:
 - Spirit of co-governance with shared rights and responsibility
 - Meaningful engagement & the mechanisms to do so
 - Shared data, information & knowledge
 - Technologies that are shareable, appropriate, agile, and open
 - With accountable and transparent institutions
 - In an environment of debate
 - And beyond mere instrumentation

Smart City Challenge



Government of Canada | Gouvernement du Canada | Canada.ca | Services | Departments | Français

Infrastructure Canada

Canada

The Minister | Investing in Canada Plan | Portfolio | Bridges | Investments Map

Home » Investing in Canada Plan » Smart Cities Challenge - Get Ready!

Smart Cities Challenge - Get Ready!

SMART CITIES CHALLENGE

#smartcitiesCanada

Welcome to Canada's Smart Cities Challenge

Canada's Smart Cities Challenge is coming soon! Now is the chance for communities to come up with their best ideas.

A smart city uses technology and data to improve livability and opportunities for the city and its people.

Smart cities have the potential to improve every aspect of community life – how people move around, how they live and play, how they earn a living, how they learn and are empowered to participate in society, how they interact with the natural environment, and how they create safe and secure public spaces.

In the lead-up to the launch of Smart Cities Challenge, people across the country are invited to take part in a conversation. What is the top priority for improving your city, town or community? How can smart technology and practices create real impact?

The Smart Cities Challenge will allow municipalities, regional governments, and Indigenous communities to bring these ideas forward, and the best ones will win!

Prizes

Each round will include:

- one large prize of \$50 million;
- two prizes of \$10 million for mid-sized communities;
- one prize of \$5 million for a small community; and
- one prize of \$5 million available for an Indigenous community.

Specifics around the eligibility size thresholds will be made available at a later date.

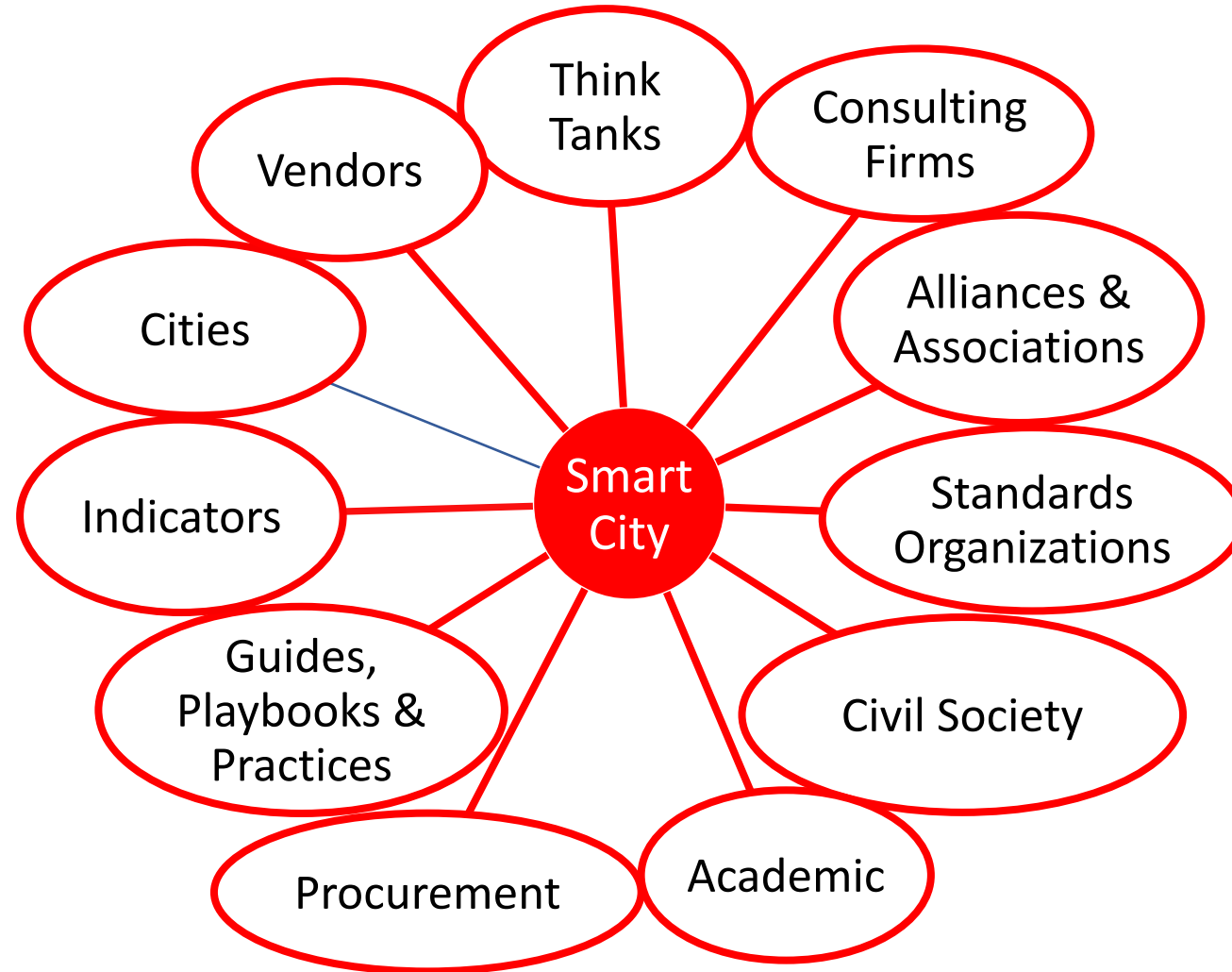
- Municipalities, regional governments, and Indigenous communities
- Three rounds are planned, with the first set to launch in Fall 2017
- Community not-for-profit, private sector company, or expert
- Budget 2017 announced a \$300 million Smart Cities Challenge

Methodology

- A socio-technological assemblage approach was used to critically examine the context and the content of the 'smart city' (*Kitchin, 2012*)
- The assumptions are:
 - that 'smart city' is part of socio-technical discourse situated within data-driven, networked urbanism, that is shaped, defined and influenced by actors
 - There is no such thing as one 'smart city' but instead there are many smart cities that differ by the context of where they are being operationalized and by 'smart city' actors
- An E-Scan of the literature produced by key 'smart city' actors was conducted to define what an 'open smart city' might look like, how it takes shape & to identify gaps.

2. Smart City Actors

Smart City Actors



Smart City Vendors

The screenshot displays the Siemens website's 'Company' page, specifically the 'Intelligent Infrastructure' section. The header includes the Siemens logo with the tagline 'Ingenuity for life', navigation links for 'Products & Services', 'Market-specific Solutions', and 'Company', and a search bar. The main banner features a large image of a city skyline at night with a blue overlay containing the text 'Intelligent Infrastructure' and 'How urbanization shapes the planet'. Below this, a paragraph states: 'Each week, cities are growing by 1.5 million inhabitants. By 2050, more than two thirds of the global population will be city dwellers, up from just one third in 1950. As cities grow, the way we build and manage urban infrastructure has never been more critical to global economic and social development.' A yellow button prompts users to 'Download free white paper: Distributed Energy Systems'. The lower section shows three featured topics: 'City Performance Tool', 'Resilient cities', and 'Financing tomorrow's infrastructure', each with a brief description and a right-pointing arrow. The Siemens logo and navigation elements are repeated at the bottom of the page.

SIEMENS
Ingenuity for life

Contact Global | English

Products & Services Market-specific Solutions Company

Search for...

Company > Topic Areas > Intelligent Infrastructure

Intelligent Infrastructure

How urbanization shapes the planet

Each week, cities are growing by 1.5 million inhabitants. By 2050, more than two thirds of the global population will be city dwellers, up from just one third in 1950. As cities grow, the way we build and manage urban infrastructure has never been more critical to global economic and social development.

Download free white paper: Distributed Energy Systems

SIEMENS

You are here: Making cities fit for the future

Download free white paper: Distributed Energy Systems

City Performance Tool

Creating a functioning infrastructure is much more than spending enormous amounts of money. What are the most efficient infrastructure investments to create the best possible output?

Resilient cities

How can we build cities that remain liveable even under the circumstances of ever more frequent weather-related catastrophes in combination with population growth and urbanization in general?

Financing tomorrow's infrastructure

Improving mobility and energy efficiency are key to developing global cities. Siemens combines engineering and financing expertise to bring much-needed infrastructure progress to life.

- › Amazon Web Services (AWS)
- › AT&T Connected Cities Solutions
- › CISCO Smart Connected Cities
- › Ericsson Smart Sustainable Cities
- › GE Intelligent Environment
- › Hitachi Safer, Greener & Vibrant Cities
- › Huawei Smart City
- › IBM Smarter Planet
- › Intel Smart Cities IoT
- › Microsoft
- › Oracle
- › Siemens

Think Tanks

- Wilson Centre Urban Sustainability Lab
- ITU-T Smart Sustainable Cities
- Institute of Electrical and Electronic (IEEE) Smart Cities
- Intel Collaborative Research Institute (ICRI) Urban IoT
- EY Center for Smart City Innovation
- Aspen Institute

W | Wilson Center



#ICT4SDG



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Consulting Firms

 **accenture**

CATAPULT
Future Cities

F R O S T & S U L L I V A N

BCG
THE BOSTON CONSULTING GROUP

Deloitte.

Gartner®

 **JUNIPER**
RESEARCH

KPMG

**Machina
Research**

McKinsey & Company

Prior & Prior Associates Ltd

NAVIGANT


pwc

nesta 

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Alliances & Associations

- Alberta Smart City Alliance
- ICanada150
- Intelligent Communities Forum (ICF)
- Municipal Information System Association (MISA)
- Secure Smart and Resilient Cities Alliance
- Smart City Consortium
- Smart Cities Council
- TM Forum
- World Council on City Data
- World Smart City Forum



Standards Organizations

International:

- International Standards Organization (**ISO**)
- International Electrotechnical Commission (**IEC**)
- International Telecommunication Union (**ITU**)
- Institute of Electrical and Electronics Engineers (**IEEE**)
- Advancing Open Standards for the Information Society (**OASIS**)
- Open Geospatial Consortium (**OGC**)
- Research Data Alliance (**RDA**)
- World Wide Web (**W3C**)

National and Regional:

- British Standards Institute (**BSI**)
- National Institute of Standards and Technology (**NIST**)
- CEN-CENELEC-ETSI
- Infrastructure for Spatial Information in Europe (**INSPIRE**)

Produce:

- Vocabularies
- Ontologies
- Guidelines
- (Interoperability) Frameworks
- Performance-based standards
- Technical specifications



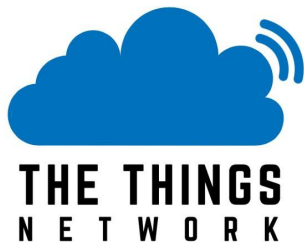
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Ad-Hoc Specifications/Standards

Publishers for Open Government Data

- **DERI & W3C: Data Catalogue Vocabulary (DCAT)** Sometimes labeled as data specifications, schemas, vocabularies, and APIs
- **Socrata & CKAN: Portals**
- **IAITI: IATI Standard** Apply to metadata and domain-specific open government data
- **Open Contracting Partnership: Open Contracting Data Standard**
- **Google and TriMet: General Transit Feed Specification (GTFS)** Enable interoperability, portability, and comparability of data
- Open 511, Open 311
- And more...

Civil Society Actors



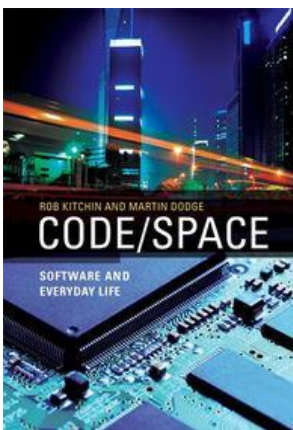
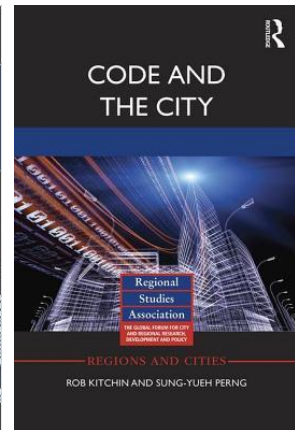
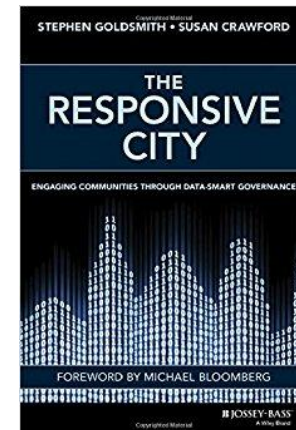
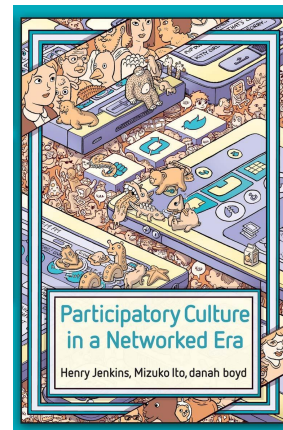
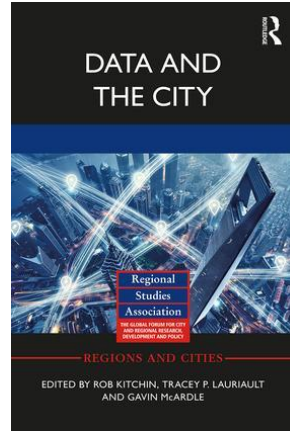
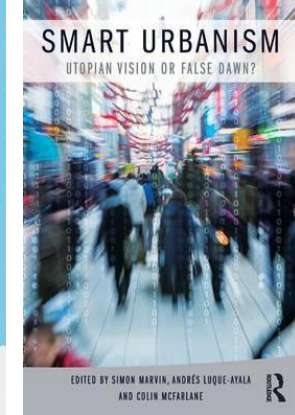
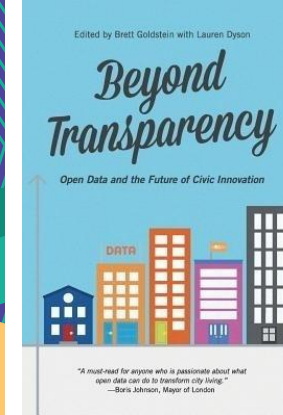
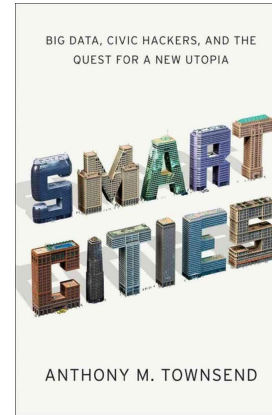
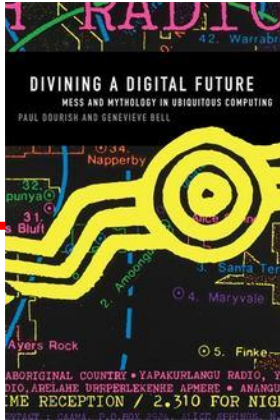
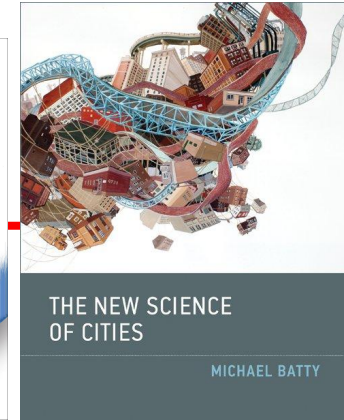
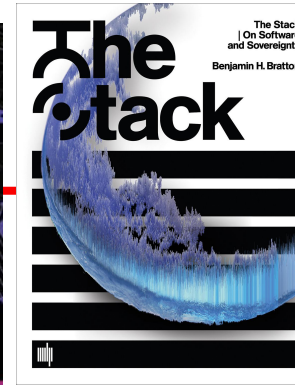
- The Things Network
- Smart Grid Canada
- Smart Citizen project is born w/in the Fab Lab Barcelona
- Smart City Hack
- Smart Cities for All
- Sensorup
- SCC Compassionate Cities
- OpenNorth
- Open Cities Project EU
- Open and Agile Smart Cities Initiative (OASC)
- Institute for the Future (IFTF)
- Je Fais Montreal
- Fab City
- CODE



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Academia / Scholarly

- Virt-EU Project
- Programmable City
- Project Move project and Citadel Toolkit
- MIT Senseable Laboratory
- Innovation Lab
- Hackable City Project
- Centre for Technology, Law and Policy & CIPPIC
- Centre of Advance Spatial Analysis (CASA)



Smart City Procurement/Economy



Guidance
Open Source Procurement Toolkit

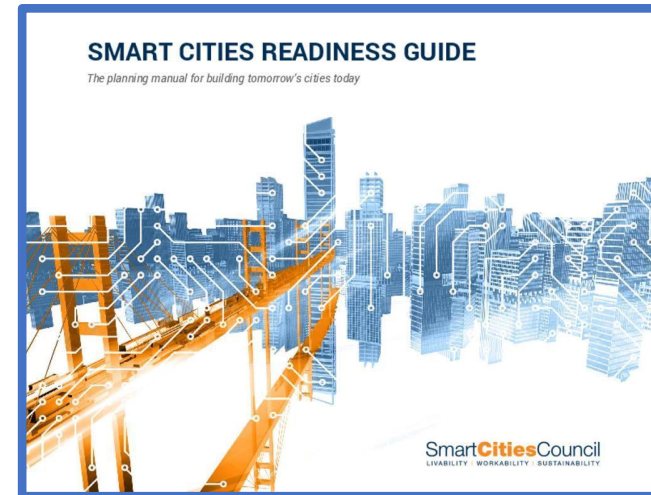


- Invest Ottawa
- Capital Intelligent MTL
- InnoCité MTL
- Guelph Civic Accelerator
- UK Open Source Procurement Toolkit
- Smart Districts & Economic clusters
- Venture Capital

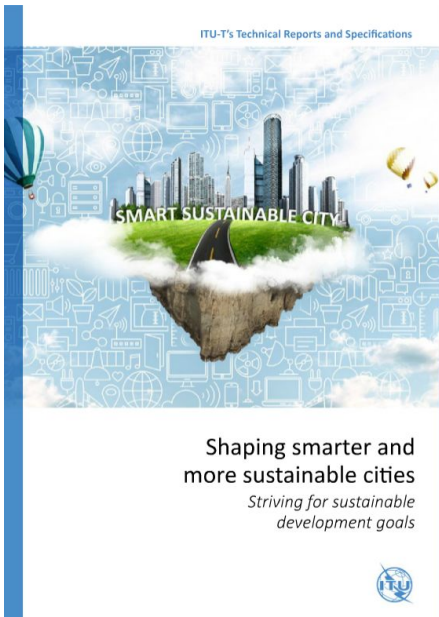


Readiness Guides, Playbooks & Best Practices

- Smart Cities Council's Smart City Readiness Guide and Open Data Guide
- TM Forum's Smart City Maturity and Benchmark Model
- Alberta Smart City Alliance's best practices research
- Machina Research's Smart City Playbook



Indicators & Awards



SMART21
Communities of
2017



IOT ANALYTICS
MARKET INSIGHTS FOR THE INTERNET OF THINGS

- Intelligent Community Indicators
- ITU KPIs
- The UNECE–ITU Smart Sustainable Cities Indicators
- European Smart City Indicators
- IoT Analytics City Ranking
- Public Sector Digest
- IBM Award Smarter City Challenge
- ICF Intelligent Communities
- WeGO Smart Sustainable City Awards



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3. Smart City Components

Smart City Components

- Smart Infrastructure
- Smart Buildings
- Smart Mobility
- Smart Technology
- Smart Energy
- Smart Citizens
- Smart Governance
- Smart Education
- Smart Economy

Smart City Like Concepts:

- Safe City
- Healthy City
- Accessible City
- Resilient City
- Open Smart City
- Sharing Cities



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Smart Infrastructure

Definition:

- ISO/TS 37151:2015: “community infrastructure with enhanced technological performance that is designed, operated and maintained to contribute to sustainable development and resilience of the community”

Elements:

- Telecom & Broadband, cellular networks, cloud computing, super & grid computing, smart utilities & metering, wireless, smart transport networks & logistics, control rooms, alternative energy, IoT enabled bridges, etc.



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Smart Buildings



Le laboratoire numerique urbain (Montreal)

Definitions:

- Intel: “Design of new buildings that have network sensors and controls, wireless communication devices and intelligence tools (and other IoT applications), while engineers and technicians convert existing buildings to accommodate technology”

Elements:

- Automated infrastructure, Network sensors and controls, wireless communication devices and IoT, high speed internet, etc.
- Climate, heat, electricity & lighting controls, lighting
- Security
- Green & Sustainable

Smart Mobility

Definitions:

- Siemens: “Allows seamless, efficient and flexible travel across various modes”
- Deloitte: “moving travelers from point A to point B as quickly and efficiently as possible”

Elements:

- Ridesharing, bicycle commuting, carsharing, on-demand ride services (Lyft or Uber), eCars, autonomous cars, walkability indexes, 511, transportation analytics, smart transit, etc.



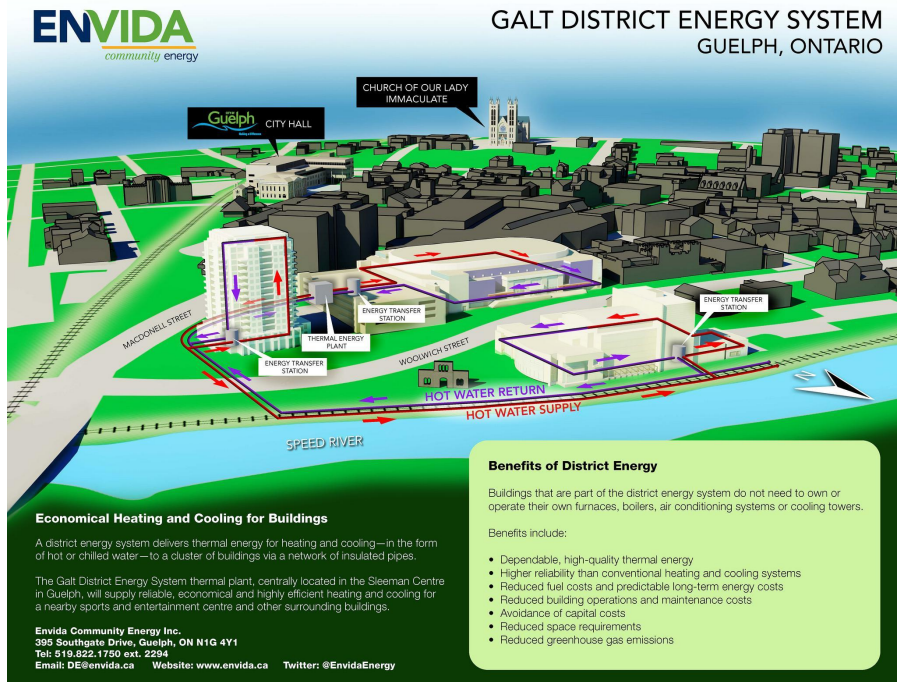
Definition:

- ## Elements:

- Platforms and apps, Virtual reality, sensors, meters, batteries, AI & machine learning, robotics, prediction, etc.



Smart Energy



- Deloitte: “enables optimal uses of energy resources while reducing redundant investments in infrastructure”
- IEC shares a similar description. According to the IEC, smart energy typically involves ensuring a “continuous supply of affordable, sustainable, quality power and energy”

Elements:

- Advanced meter infrastructure (AMI), distribution grid management, high-voltage transmission systems, demand response for the intelligent and integrated transmission and distribution of power



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Smart Citizens

Definition:

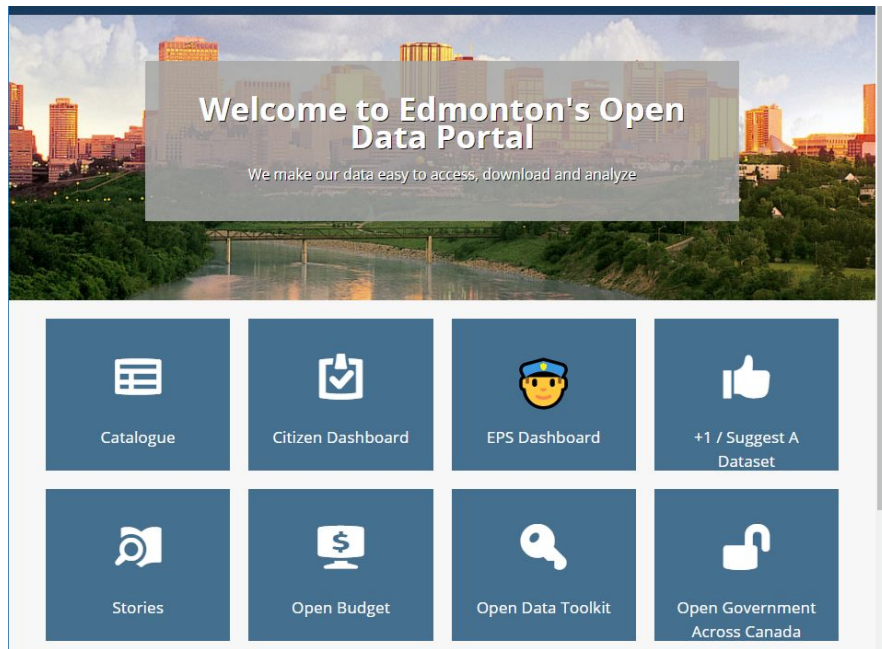
- PwC LLP: Education and training are essential areas to ensure citizens have the necessary knowledge to use technologies and adapt to the ever-expanding field of IoT technologies and services
- Frost & Sullivan: ‘digizens’ “possess interest in embracing smart and green solutions in daily activities. More citizen proactivity is expected in adopting smart concepts and smart products, including lifestyle choices”.

Elements:

- Engagement models, technological citizenship, participatory government, crowdsourcing & citizen science, civic technology, and etc.



Smart Governance



Snapshot of Edmonton Open Data Portal

Definition:

- Deloitte: Vital importance of effective communication practices between government entities and citizens
- Scholl & Scholl: Smart governance utilizes technologies that “foster smart, open, and agile governmental institutions as well as stakeholder participation and collaboration on all levels and in all branches of the governing process”

Elements:

- Online citizen engagement platforms, open data, e-government, open government, transparency, participatory culture, horizontal structures, agile, etc.

Smart Education

Definition:

- IEEE: Is ensuring future workers are receiving the necessary knowledge and training required for emerging jobs or careers.
- IBI Group: Training or educational criteria for students to ensure they receive the necessary knowledge to operate and deploy smart solutions or analyze urban data

Elements:

- University training, Coder Dojo, Research & Development, talent, flexible work arrangements, IoT, data science, citizen science, etc.

COLLABORATIVE SPECIALIZATION IN DATA SCIENCE

Join our hub of data science experts and share the future.

Carleton's Collaborative Specialization in Data Science is geared at graduate students and high-tech professionals who are interested in understanding how to analyze and use 'big data' sets collected by governments, NGOs and industry for purposes ranging from generating personal recommendations for online shopping to improving the efficiency of health care delivery or predicting national security threats.

Students will earn their degree from a participating master's program with a specialization in Data Science for an MBA concentration in Business Analytics through research or coursework that addresses a data science challenge.

More than 130 researchers are working on 'big data' projects at Carleton ranging from artificial intelligence and sensor data analytics to improve health care delivery.

Depending on availability, students may also gain real-world experience through internships.

PARTICIPATING PROGRAMS

Biology, Biomedical Engineering, Business, Cognitive Science, Communication, Computer Science, Economics, Electrical and Computer Engineering, Geography, Health Sciences.

CAREER OPTIONS

Over the next five years in North America, it is predicted that there will be more than four million jobs involving data science. Working with its partners and Ottawa's tech sector, Carleton is poised to become a national hub for data science research and training, educating a highly skilled workforce for local, national and international communities, and creating the next generation of IT leaders.

APPLICATION DEADLINE

The deadline dates for applications vary according to the deadline of each participating program. Those wishing to apply for the specialization in Data Science must indicate their intent when applying to their participating program (home degree).

ADMISSION REQUIREMENTS

Applicants must be admitted to one of the participating master's programs. Requirements vary according to which program a student chooses.



carleton.ca/datascience

CONTACT INFO

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Smart Economy



Definition:

- Deloitte: “sees government regulatory machinery becoming nimble and responsive. While advances in technology help smart cities can streamline government procedures like permitting and licensing providing a seamless experience to businesses.”

Elements:

- Procurement, Economic Districts, Incubators, Innovation Centres / Hubs / Labs, Accelerators, Venture Capital, payment systems, etc.

4. Four Canadian Cities

Edmonton, Guelph, Montréal and Ottawa



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Methodology

- E-Scan of four cities public smart city documentation
- Development of semi-structured interview instrument
- City officials generously participated in 90 min phone interviews
- Interviews were recorded & transcribed
- City officials responded to follow-up questions & will validated a final draft
- The following was collected:
 - visions and strategies
 - reasons for deploying smart city initiatives
 - beneficiaries
 - governance models
 - deployment strategies
 - citizen engagement
 - “openness” and open data
 - access to smart city data
 - smart city business models
 - procurement
 - challenges & benefits.



City of Edmonton



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Edmonton - Smart City Initiative

City of Edmonton Smart City Components



GOAL ONE

Resiliency

A municipality that is resilient is adaptive, well-planned and flexible – one that can withstand external shocks such as economic crises, epidemics, congestions, transport breakdowns, and environmental pollutions.

GOAL TWO

Livability

A municipality that is livable is one in which citizens are healthy, engaged with their community and actively minimize their environmental footprint.

GOAL THREE

Workability

A municipality that is workable is one that connects its citizens through advanced transportation and mobility, broadband connectivity, educational institutions and smart infrastructure.

City of Edmonton Definition:

- The smart city is “about creating and nurturing a resilient, livable, and workable city through the use of technology, data and social innovation”

(Source: From Smart City to Intelligent Community, 2017)

Edmonton – Smart City Components

Goals	Components	Current Initiatives
Resiliency	Open City	Open Data, Citizen Dashboard, Open Analytics, The Metro Edmonton Open Data Group
	Citizens	Online Engagement, The Edmonton Insight Community, Indigenous Inclusion, Youth Council, Council Initiative on Public Engagement , Idea generator, Edmonton Service Centre
	Economy	Edmonton Economic Development, TEC Edmonton, Startup Edmonton, Alberta Innovates, eHub, Edmonton International Airport, Alberta Women Entrepreneurs, Edmonton Research Park
Livability	Health	End Poverty Edmonton Strategy, Health City Initiative
	Community	Make Something Edmonton, CITYlab, Edmonton’s Infill Roadmap, Edmonton Arts Council, BetaCityYEG, Fresh
	Environment	Energy transition Strategy Blatchford, Enerkem Facility, Touch the Water Promenade, Edmonton Waste Management Centre
Workability	Mobility	Smart Bus, Autonomous Vehicles, Centre for Smart Transportation, Intelligent Transportation, Smart Fare system
	Education	Open Science, Edmonton Public Library Digital Literacy, University partnerships, R&D
	Infrastructure	Open City Wifi, EPCOR, Vision Zero initiative, Soofa Benches installations, Telus PureFibre, Epark, Civic Smart Card

Edmonton - Geospatial Data

- Spatial Analytics of Excellence (SAE)
- Spatial Land Inventory Management system (SLIM)
- Oracle Spatial
- One City Data Hub – data store
- Considering OGC Standards
- 80% of open data have a spatial element
- Open mapping & visualization
- Socrata Open Data API
- Spatial data preservation...

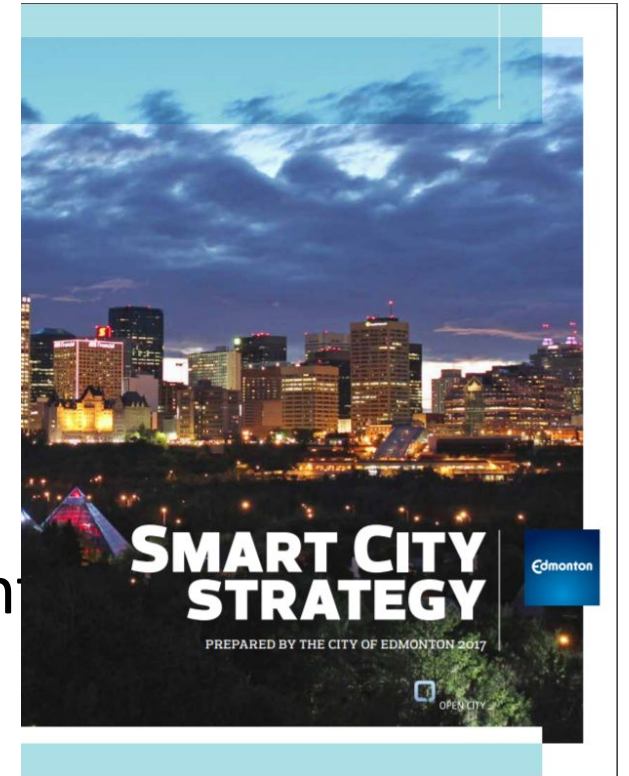
Edmonton - Summary

Strengths

- Strategy
- Governance
- Pre-existing initiatives
- Integration with urban plan
- Dedicated unit & personnel
- Open Data & Government
- Spatial Centre of Excellence
- Archiving

For consideration

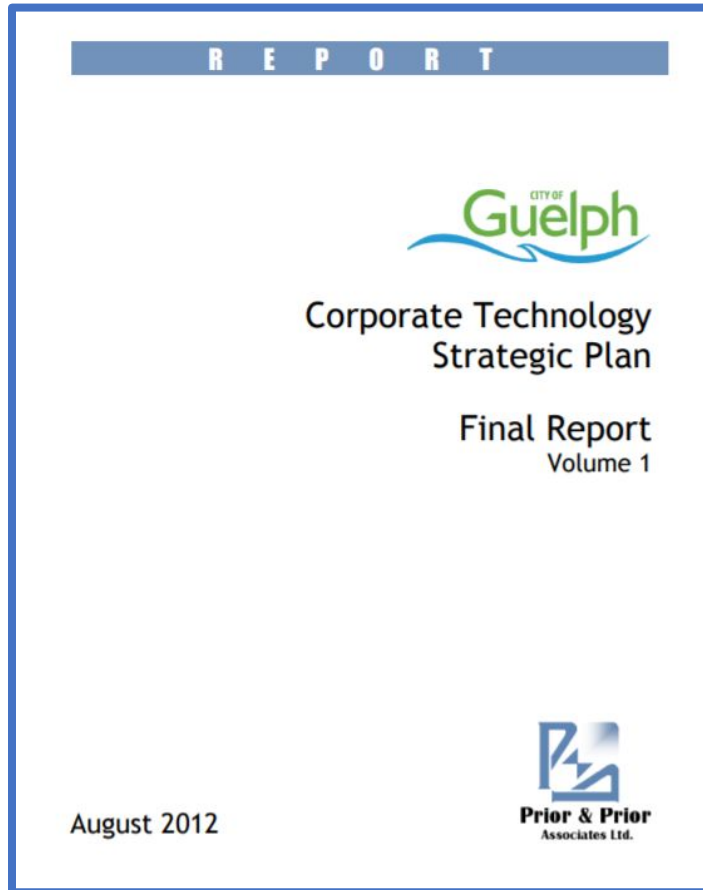
- Privacy, security, standards, interoperability and engagement policies
- Civil society and civic technology engagement
- Open smart city



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City of Guelph

Guelph - Initiative



- No official strategy yet

- **City of Guelph Definition:**

“The vision of a modern City is one that offers services to customers when and where they want them. A Smart City is one that uses technology to achieve this goal, using technology at every appropriate opportunity to streamline processes and simplify access to city services. This is a city that has all the information it needs, available and accessible, to support effective decision-making” – Guelph Corporate Technology Strategic Plan



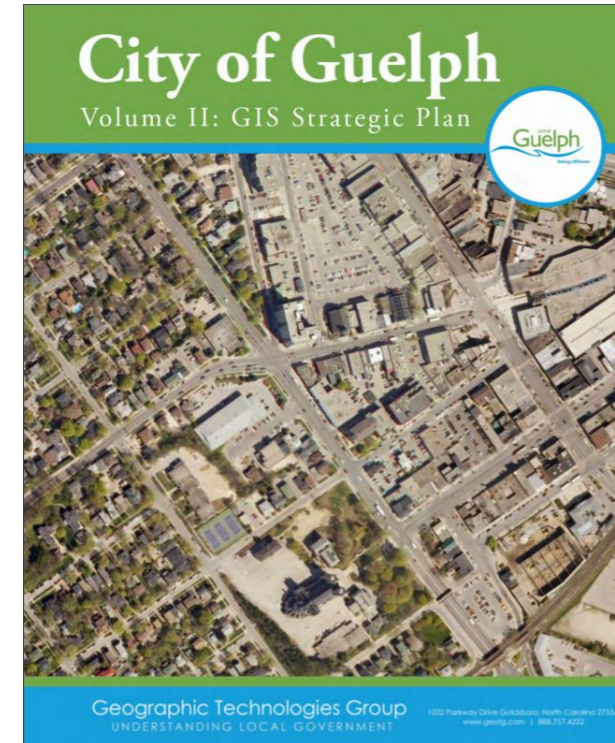
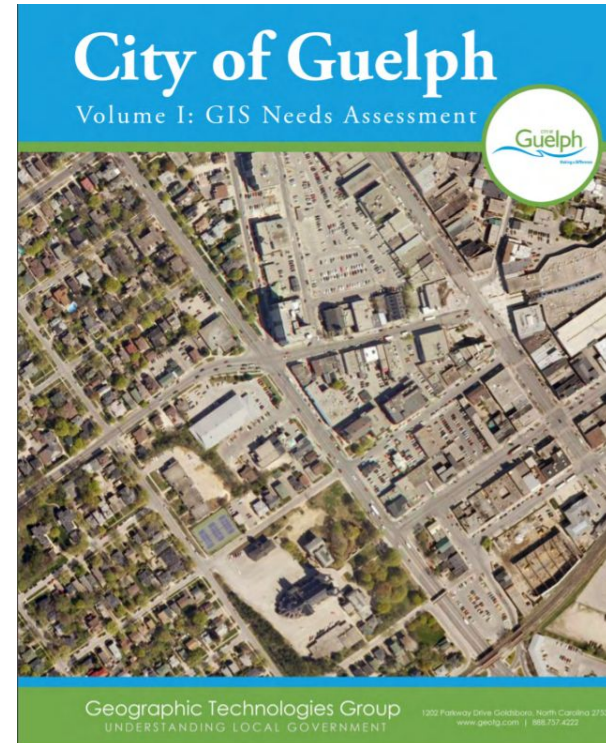
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Guelph – Smart City Components

Smart City Programs/Component	Current Initiatives
Utilities – Energy & Water	Grid Smart City Cooperative, District Energy Strategic Plan, Water/energy rebate programs
Business	Civic Accelerator program, Guelph Innovation District (GID), Online payment system for taxes and fines, Flexible Procurement via Guelph Lab’s Procurement Lab project
Openness	MyGuelph, Open Data Guelph, open government, Open Government Action plan, Open Source Strategy, Open Budget Simulator
Geospatial	Corporate GIS Strategic Plan , Guelph Map App: 311GIS
Indicators	Guelph Community Well Being Indicators, Service Modernization Program (in development), Performance dashboards, Citizen Relationship Management technology solution, MyGuelph
Corporate Technology Strategic Plan	ICT strategy, includes a smart City vision, roadmap, and proposed governance structure
Environment	Sort Right
Transportation	NextBus and GTFS transit data

Guelph - Geospatial

- Comprehensive Corporate GIS Strategic Plan
- GIS subcommittee planned to be part of the IT Governance Committee
- Data standards for open geospatial data
- GeoNode and GeoCMS package, ArcGIS online
- Location identifiers for datasets
- Data standards such as GTFS



Guelph - Summary

A short video about the Civic Accelerator



Strengths

- Smart city procurement
- GIS strategy/need assessment
- Data IP
- Sustainability projects
- Open source strategy

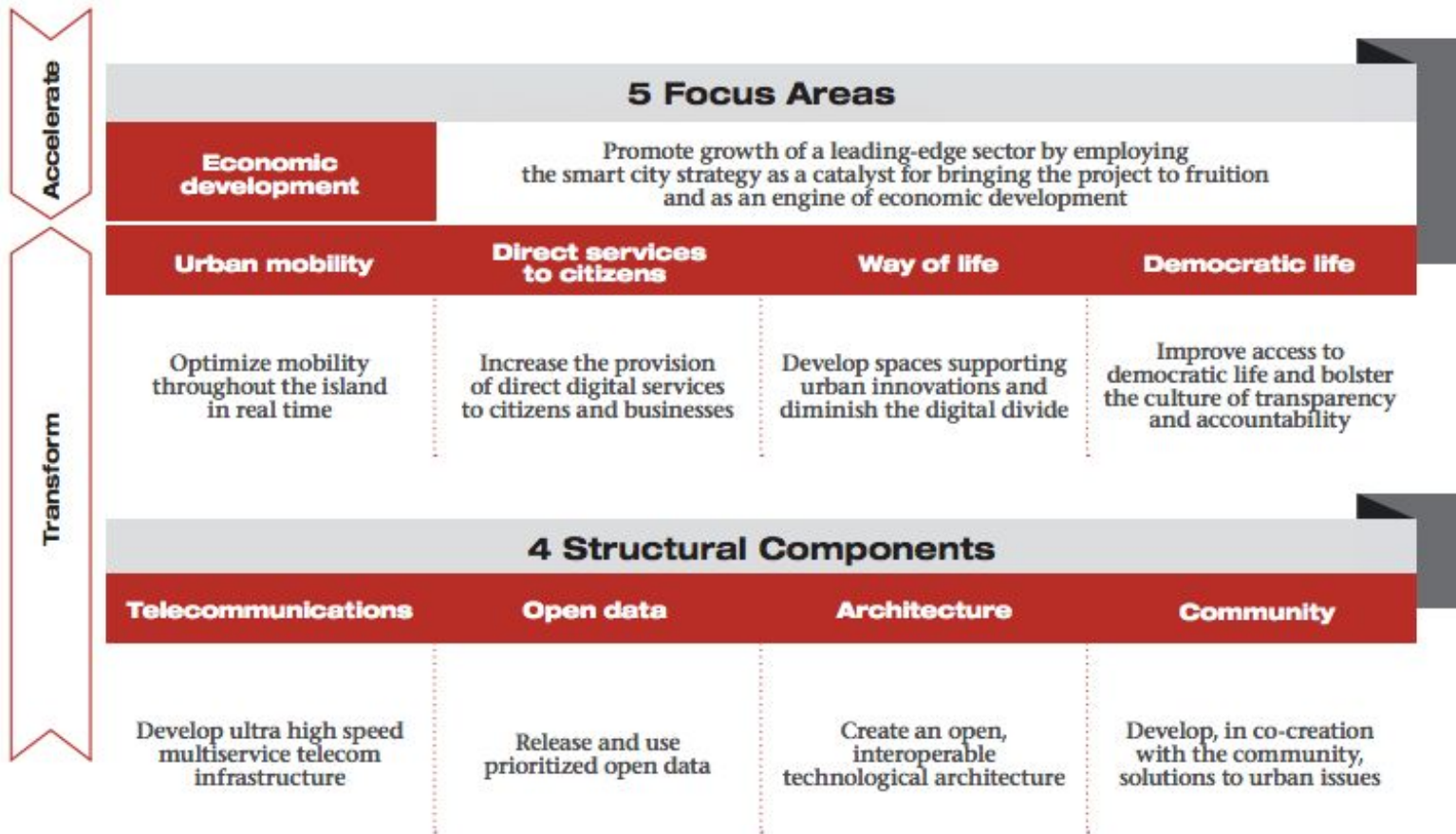
For consideration

- Smart City strategy
- Governance structure
- Smart City standards
- Privacy and security regarding IoT
- Accessibility

Ville de Montréal

Montréal – Initiative, Strategy & Action Plan

Summary of Montreal Smart City Policy Guidelines



City of Montreal Definition:

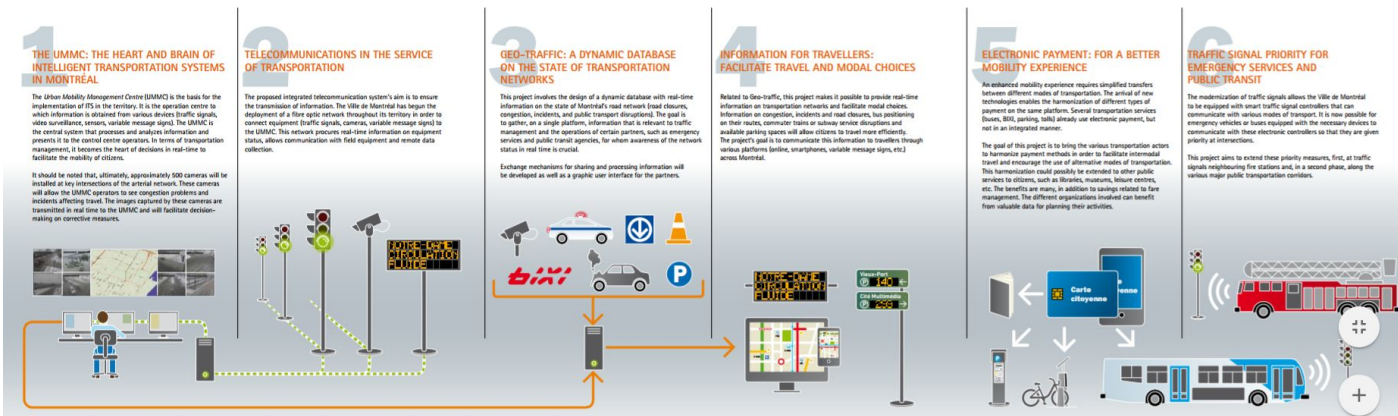
“A smart and digital city means better services for citizens, a universally higher standard of living and harnessing of our metropolis’s resources to ensure its development is in line with the population’s needs” – Vice Chair of the Executive Committee, responsible for the smart city, Harout Chitilian

Montréal – Smart City Components

Smart City Program/Components	Current Initiatives
Public Wifi	Deployment in indoor municipal facilities, deployment in urban areas, deployment in commercial corridors, deployment in target neighborhoods, mobile hot spots, WiFi locator app
Ultra high-speed multiservice network	New telecom policy, one-stop-shop – urban telecommunications, deployment of fibre to the home (FTTH)
Smart city economic cluster	MTL innovation challenges, employee innovation challenges, Smart City accelerator, Smart City investment fund, living labs in libraries and other venues, digital workshops and fab labs in libraries, modification of procurement rules, innovation PME program – Smart City initiative, Montreal open data portal
Smart mobility	Groupe d'action Mobilite Montreal 2.0 in real time, inventory of mobility data in real time, collection of incomplete and missing data, iBUS, GeoTraffic, Open Montreal 511 API, smart taxi, integrated travel corridor management (CGMU), traffic light synchronization, smart parking
Participatory democracy	Reformulation of open data policy, Montreal's open data portal, automated data retrieval, application program interfaces (API), view of contract data visualization, budget data visualization, public safety data visualization, online right of initiative (e-petition)
Digital public services	Pedestrian information terminals, digital citizenship and literacy initiatives, online/mobile payment functionalities, digital citizen identity, online OPUS recharge, info-snow application, info-towing application, municipal court online

Montréal - Geospatial

- Partnership with WAZE
- Revising GIS strategy to maximize data with spatial attributes
- Geo-visualization of crime data, road incident data and traffic data (Open511)
- Looking in to requiring disclosure of geospatial information in building permit contracts related to traffic disruptions and road closures
- CGMU (Urban mobility management centre)



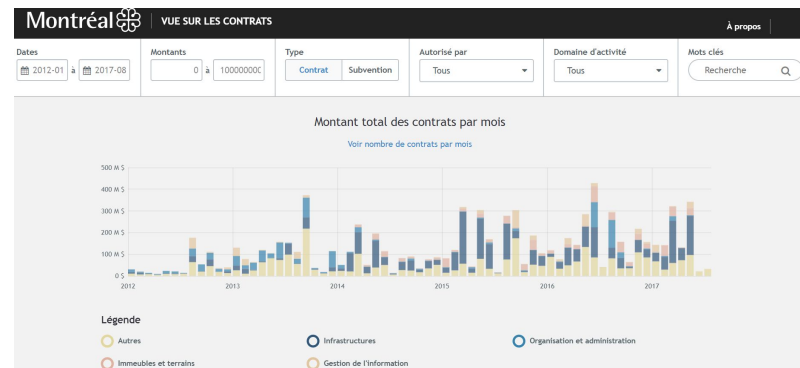
Montréal - Summary

Strengths

- Citizen engagement from the beginning
- Consideration of open standards
- Open data visualizations
- Smart city procurement initiative in a local context

For consideration

- Continued citizen engagement for monitoring of projects
- Performance indicators
- Governance
- Privacy, interoperability, cyber-security for IoT



City of Ottawa

Ottawa - Initiative

- Ottawa demonstrates smart city components
- No official strategy yet
- A smart city initiative (in the form of a framework) is being developed and will be proposed to the Finance and Economic Development Committee as it rises to City Council
- Still formulating an official Smart City definition for the City



Ottawa – Smart City Components

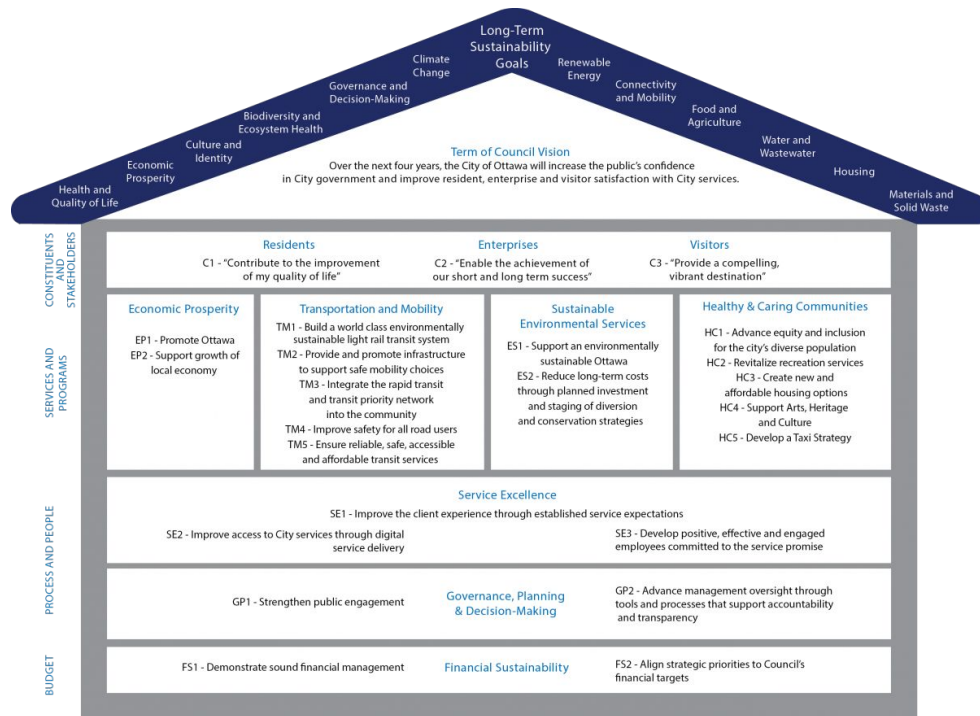
Smart City Programs/Components	Current Initiatives
Transit	OC Transpo CCTV real-time data system and emergency services management control room, OttawaNav
Hydro Ottawa	Hydro Ottawa's smart meter system, Hydro Ottawa's installation of 285 KM of dark fibre for their smart grid initiative
Transportation / Services	Salt truck management system
Open Data	Open Data Catalogue
Business	Innovation Centre at Bayview Yards
Lighting	LED street lights conversion program
Innovation Pilot Program	Smart city pilot projects, Smart City accelerator

Ottawa - Geospatial

- Geocoded building permit data, traffic activity, and transportation models
- Autonomous vehicle projects that broadcasts GPS location with high accuracy
- Geo-visualizations of data related to operations by Emergency Services, Hydro Ottawa, and OC Transpo
- Open data maps and map-based applications



Ottawa - Summary



Strengths

- Innovative partnerships
- Broadband
- Center for R&D & high tech
- Deployment of sensors and GPS systems

For consideration

- Smart City definition
- Governance structure
- Openness
- Citizen engagement strategy for smart city technologies
- Privacy, interoperability, cyber-security for IoT

Corporate planning and performance management

Four Canadian Smart Cities

- Smart cities are a work in progress
- Smart cities are defined, governed and operationalized differently in each city
- Smart cities are being integrated into urban plans & strategies
- Cities have economic incentives for smart city initiatives
- Standards are considered important, and there is awareness, but have not yet been officially adopted
- Only Guelph has a security & physical location security subcommittee
- Privacy is considered for data but not at the sensor or meter level
- Spatial Data & GIS/Geomatics are important, Guelph and Edmonton have specific strategies but generally distant from smart city & open data initiatives
- Data analytics units are emerging in Edmonton & Montreal
- Data ownership & licencing is sometimes negotiated at procurement
- Utility partnerships in Guelph, Edmonton, & Ottawa
- Montreal has meaningful public engagement at the moment with an multi-sector advisory committee
- Civic technology groups are not obvious actors
- Open is conflated with smart cities
- Open data & open government are assumed to be smart city
- Most have environmental initiatives

5. Overall Observations

Observations

- Data-Driven Networked Urbanism
- Smart cities & IoT are often synonymous, and platforms are promoted
- Sometimes indistinguishable from digital strategies
- Many actors, mostly private sector
- Very little civil society actors with influence
- Strong academic critical literature but not reflected in reports, benchmarks, etc.
- Many frameworks, benchmarks, indicators, but most are not peer reviewed or have empirical grounding
- Open standards are generally adopted, there are many smart city standards but these are not necessarily adopted
- Openness is conflated
- Need for more privacy, security, transparency, and openness guidelines for smart cities
- Little discussion about surveillance
- Most data have a spatial component but very little discussion about spatial data
- Many positive promises of well-being, citizen empowerment, sustainability, efficiency and data-informed decision making and etc.

Will smart cities improve the quality of life of people, will they improve the environment and will they be citizen led?



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Take-aways

- Smart cities are new & emerging, do citizens know what is coming, and will they be the drivers?
- Need to identify issues to be resolved with technology instead of technology looking for issues
- More data does not mean better governance
- Very few overarching socio-technical and ethical considerations
- Requirement for technological citizenship
- Is this an innovation bias or is it a smart city that is best for the City and its residents?

6. Next Steps

Next Steps

- International Best Practices
- Ontario Case Study Report
- Principles & Guidelines for Open Smart Cities

7. What is an Open Smart City?

Q & A

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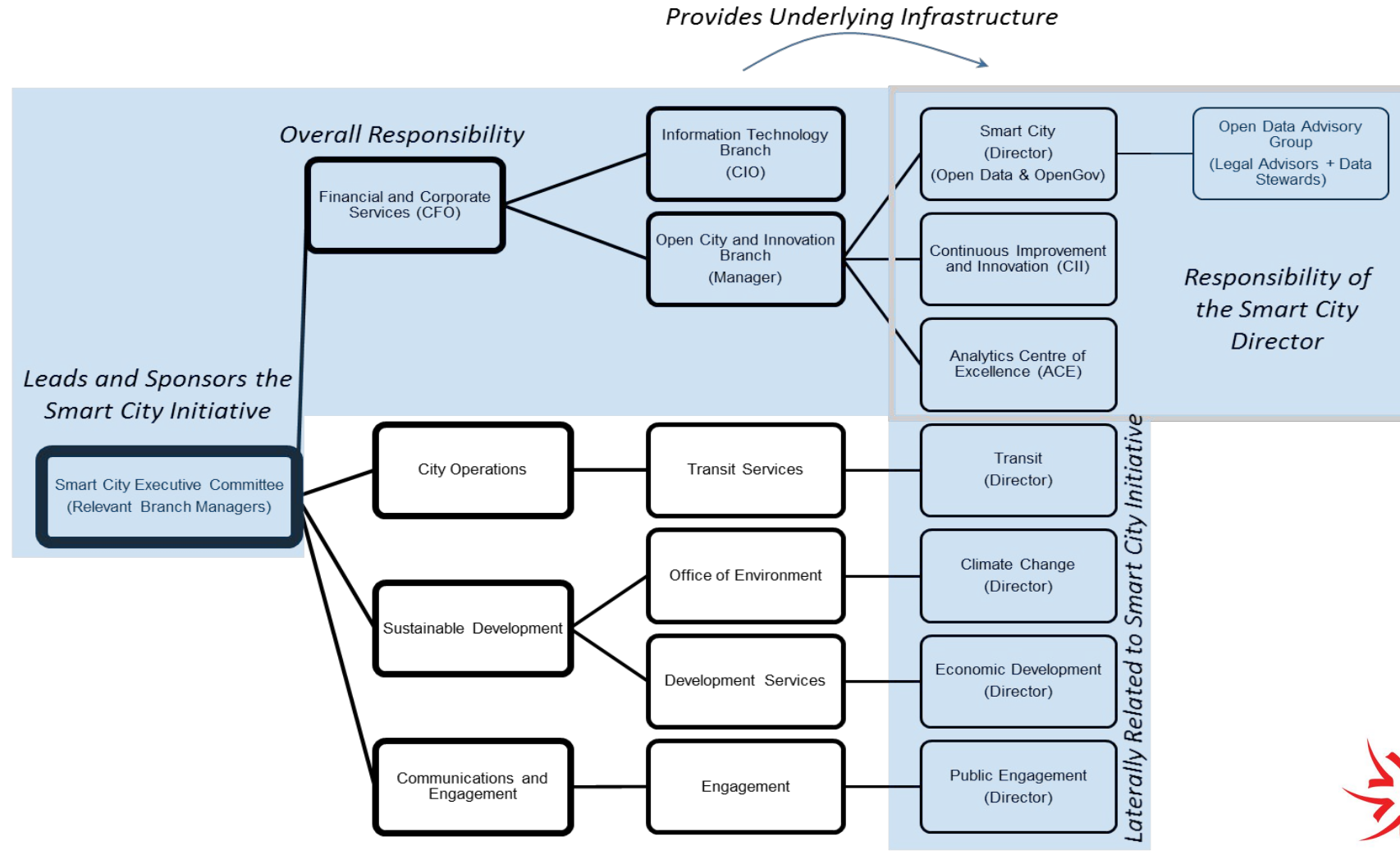
APPENDIX

City of Edmonton



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Edmonton – Governance Structure

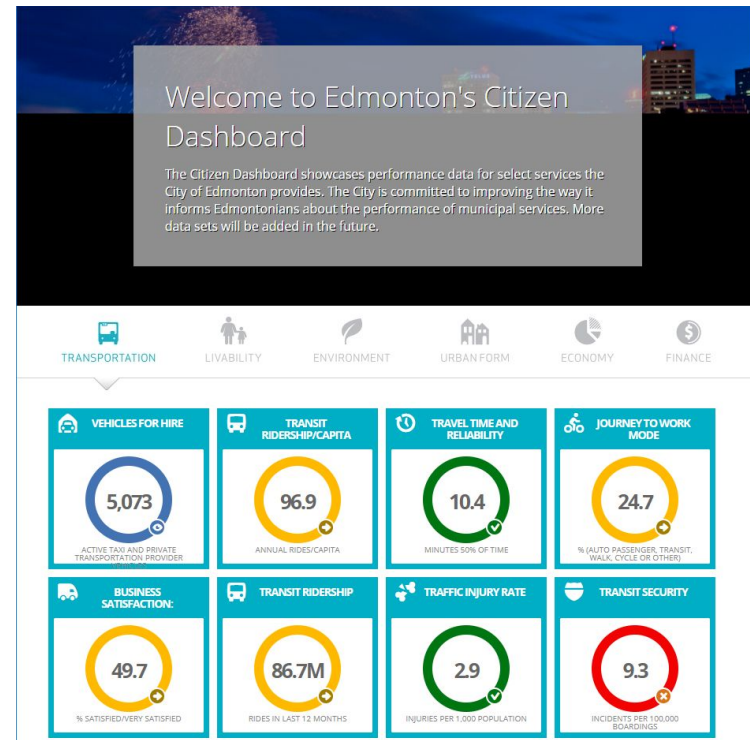


Edmonton - Procurement

- Potential changes to the procurement process
- Dedicated procurement officer
- Pilot projects to test smart city technologies
- Partnership with local companies
- Standards to be taken into consideration but not yet defined
- Business units and the IT Department will have a dedicated smart city budget

Edmonton - Openness

- Open data, open engagement, open information, and open access are considered to be part of the Smart City
- Initiatives include:
 - Open Data Strategy
 - Open City Policy
 - Open Data Portal
 - Open License
 - Citizen Dashboard
 - Analytics Centre of Excellence (ACE)
 - Crime Mapping
 - Citizen Engagement



Snapshot of Edmonton's Citizen Dashboard

City of Guelph

Guelph - Governance

- No official governance structure yet
- Plans for the IT Governance Committee to govern the smart city initiative, they will report to the City's Executive Team
- Plan for IT Governance Committee to include the following subcommittees:
 - Digital
 - Security and physical location security
 - Innovation/service evolution
 - GIS
 - Some citizen involvement

Guelph - Procurement

- Civic Accelerator Program
- Citizen suggestions ☐ RFP requirements
- Open Source Procurement Strategy
 - Identified best practice: UK Open Source Procurement Toolkit

Guelph - Openness

- Definition: *Government communicates in a non-selective way what it is doing*
- Open data, open engagement with citizens , access to information, and open governance
- Initiatives
 - Open Government Framework
 - Accountability and performance management framework
 - Open Data Guelph
 - MyGuelph
 - Citizen Relationship Management system
 - Open license

Ville de Montréal

Montréal - Governance

Role of BVIN Presented in the Strategy



- BVIN sits underneath City's General Manager
- BVIN pilots and governs projects, but departments actualize projects in the Montreal Smart and Digital City Action Plan

Montréal - Procurement

- Capital Intelligent MTL
- InnoCité MTL
- Vue sur les contrats data visualization

Montréal - Openness

- Open data, open standards, digital literacy, citizen engagement, transparency, government accountability are considered part of openness
- Initiatives
 - Je Vois/Je Fais MTL
 - Open data portal and catalogue
 - Open data visualizations (Vue sur le contrats) and APIs
 - Open standards/ open architectures
 - Open license
 - Feedback/survey to citizens

City of Ottawa



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Ottawa - Governance

- No formal governance structure yet
- Ottawa's Smart City Sponsor Group makes decisions about the future framework and reports to the Finance and Economic Development Committee (a cross departmental committee on City Council)
- Ottawa's Smart City initiative is being led by a planning and economic development group and an overall City operations group that was appointed by the Finance and Economic Development Committee
- Service Ottawa is working on a digital strategy

Ottawa - Procurement

- No strategy in place yet for procuring smart city technologies
- Innovation Pilot Program
- Ottawa Hub

Ottawa - Openness

- Definition: *Being transparent, being accessible, and providing the ability for people to understand the efficiencies and the effectiveness of the program and the services that are being delivered.*
- Elements
 - Open data
 - Access to data
 - Citizen engagement
- Expect openness to be a part of their Smart City Framework
- Citizen engagement at this point is ad-hoc for smart city projects – however, the City is working on an overarching framework for public engagement