

MONTRÉAL **SMART** **AND** **DIGITAL** **CITY**

2014-2017 Montréal Strategy

Montréal 

MESSAGE FROM THE MAYOR



A SMART AND DIGITAL CITY BUILT BY CITIZENS, FOR CITIZENS

In March 2014, Montréal created the Bureau de la ville intelligente et numérique, to become a world leader among smart and digital cities. The Bureau's mission is to devise a Montréal strategy around four axes: Collecting, Communicating, Coordinating and Collaborating.

A new milestone was achieved last fall with a consultation process that brought together Montrealers who discussed and shared ideas on their needs and expectations.

Montréal, Smart and Digital City is an ambitious project that builds on our collective intelligence to forge a distinctive Montréal-based model. The institutional and private sectors have joined with city workers and Montréal citizens in an ongoing dialogue, playing active roles in formulating this strategy. *Montréal, Smart and Intelligent City*, will be built by citizens, for citizens.

Mayor of Montréal,

A handwritten signature in black ink, appearing to read 'Denis Coderre', written over a white background.

Denis Coderre

MESSAGE FROM THE VICE CHAIR OF THE EXECUTIVE COMMITTEE



Ultimately, 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. Montréal will be a city that listens to its constituents who will be agents of change.

Vice Chair of the Executive Committee, responsible for the smart city,

Harout Chitilian



This document is intended for Montréal citizens and other stakeholders (civil society organizations, businesses, universities, government agencies and other institutions) interested in the smart city concept. It summarizes the city administration's research and consultation efforts, while proposing broad project guidelines and their objectives.

1.1 - VISION OF MONTRÉAL

- By 2017, Montréal will be the world's leading smart city¹.
- As part of this process, the city and community intend to invest in innovative, growth-generating projects.
- Montréal seeks to devise and develop an outstanding quality of life and a prosperous economy with and for citizens through collaborative innovation, state-of-the-art technologies and a bold approach, backed by Montréal's trademark creativity.

1.2 - RESEARCH AND CONSULTATION

- Four surveys and 7,601 respondents.
- Analysis of over 1 million requests by Montrealers through the 311 service.
- Reviews of best practices (some 100 studies).
- Examination of case studies to identify best practices employed in major cities around the globe (New York, Eindhoven, Barcelona, Columbus, Arlington, Toronto and Lyon).
- Co-design² of public policies (190 experts).
- Town hall meetings and suggestions from citizens (203 participants).
- Examination of technological projects underway in Montréal.
- Collection of ideas sent by citizens (357 in late 2014) through the suggestion box on the Web site of the Bureau de la ville intelligente et numérique de Montréal and from the **jevoismtl.com** initiative.

1.3 - FOCUS AREAS FOR 2014-2017

- Urban mobility.
- Direct services to citizens.
- Way of life.
- Democratic life.
- Economic development.

¹Intelligent Community of the Year Award, Intelligent Community Forum.

²Process of developing a typically innovative product or service in conjunction with its final user. Source: Adapted from wikipedia.org.

1.4- POLICY GUIDELINES

1. Develop multiservice ultra-high speed telecom infrastructure.
2. Release and use prioritized open data.
3. Create an open, interoperable technological architecture.
4. Develop solutions to urban issues in co-creation with the community.
5. Optimize mobility of people across the island in real time.
6. Expand the provision of direct digital services to citizens and businesses.
7. Develop areas supporting urban innovations and diminish the digital divide.
8. Improve access to democratic life and bolster the culture of transparency and accountability.
9. Promote a leading-edge sector's growth by employing the smart city strategy as a tool for implementing the project and as an engine of economic development.

Each guideline includes one or more goals, each of which will be associated with quantifiable activities.

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3.1 - MONTRÉAL'S ROLE AS A SMART CITY

The smart city concept has been gaining ground around the world since the mid-2000s. A growing number of cities are gradually adopting it, because of the advantages it offers. But the concept is often misunderstood or seen only in terms of its technological aspects.

The smart city concept (and related Smart Cities movement) has taken off due to political initiatives³ in the United States, Europe and Oceania aimed at overcoming various urban challenges:

- **Governance issues:** How can different stakeholders' activities be coordinated in municipal operations, since structures are complex, public budgets are diminishing, confidence in institutions is down and service recipients feel marginalized?
- **Physical issues:** All cities must cope, to different extents, with issues of transportation, scarcity of natural resources, waste management, pollution, public health, congestion and aging infrastructure.
- **Social issues:** Major cities must also contend with a complex socio-political complex, social polarization and a vast number of players that can react and mobilize immediately.

The scale of the challenges is forcing cities to rethink their strategies and to innovate in order to maintain service levels, in particular:

- outsourcing services using outcomes based contracts;
- integration of back office and increasingly front line services;
- online service delivery;
- releasing data so new services can develop and citizens can make informed decisions (providing real-time information on traffic to assist citizens in planning journeys);
- reducing demand for services, for example, promoting independent living allows older people to live much longer in their own communities with less statutory support⁴.

³See: ofti.org/le-gouvernement-ouvert/ (video).

⁴UK Department for Business Innovation and Skills (2013). Smart Cities Background Paper, pp. 5-6.

As we recently saw, Montréal ranks⁵ among the world's top 21 smart cities. Figure 1 illustrates Montréal's numerous resources in this field.

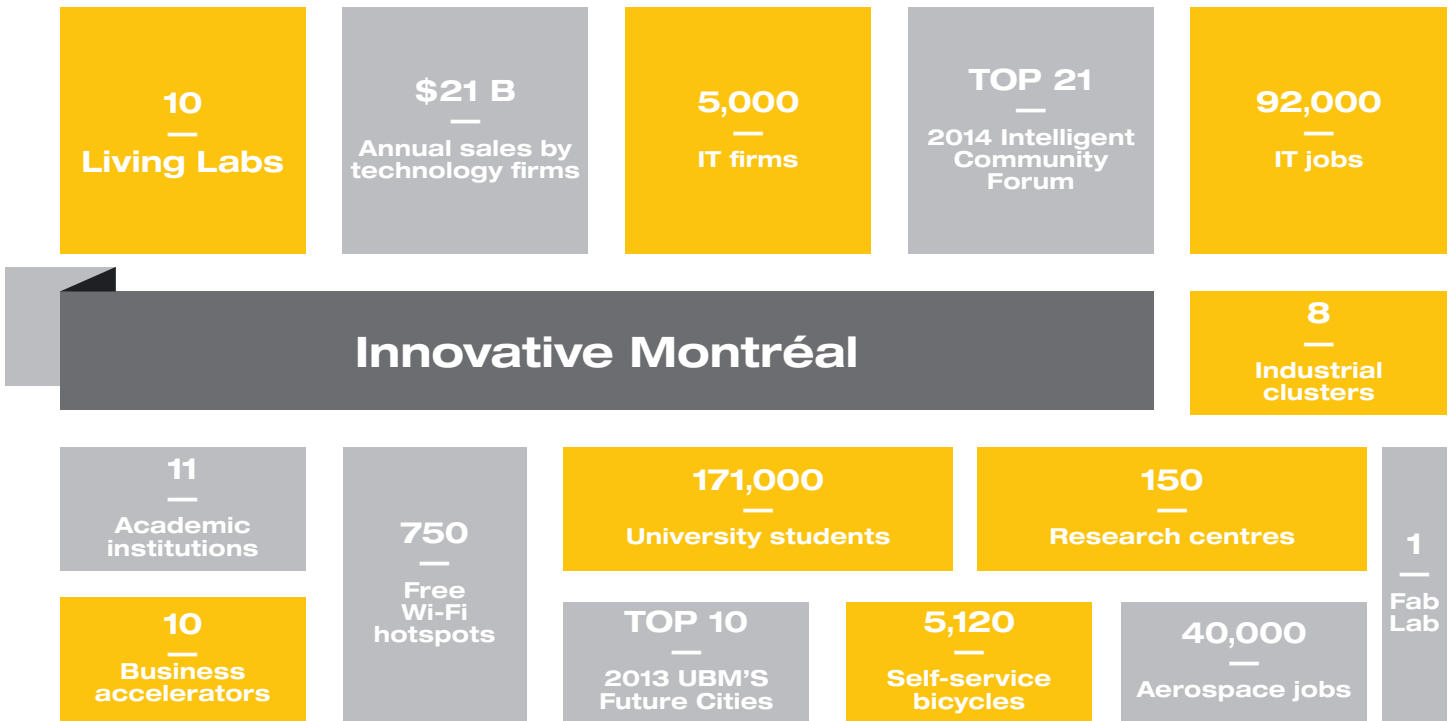


FIGURE 1: MONTRÉAL'S INNOVATION RESOURCES

Montréal has multiple innovation resources and stakeholder cooperation is essential in forging a common vision of a smart city. Montréal intends to take this opportunity to become a model in the field.

The city administration is well situated to play a leadership role in coordinating the efforts to create a smart city by various private, public and community partners.

To become a genuine smart city, though, Montréal must not only promote this concept but integrate its activities (public policies, laws, by-laws, etc.) within a culture of co-creation⁶ and co development⁷ (electric service delivery⁸, for example).

⁵See: www.lapresse.ca/actualites/montreal/201310/22/01-4702471-montreal-parmi-les-21-villes-intelligentes-de-lannee.php

⁶For a business, co-creation means developing products/services sustainably, in conjunction with clients. Source: Adapted from wikipedia.org.

⁷There are two type of co-development: horizontal (within several administrations of the same type) and vertical (between stakeholders - citizens to programmers).

⁸Delivery over the Internet of secure and non-secure government services to users. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

3.2 DIFFERENT SMART CITY CONCEPTS

The smart city concept has greatly evolved in the past few years, with a number of conflicting definitions:

1. 1. IT-based model (computers, detectors⁹, networks, etc.):

“The use of Smart Computing technologies to make the critical infrastructure components and services of a city--which include city administration, education, healthcare, public safety, real estate, transportation, and utilities--more intelligent, interconnected, and efficient¹⁰”

2. 2. Concept built around the use of big data:¹¹

“A Smart City looks at all the exchanges of information that flow between its many different subsystems. It then analyzes this flow of information, as well as of services, and acts upon it in order to make its wider ecosystem more resource-efficient and sustainable¹²”

3. 3. An organic factor incorporating different aspects of city living:

“A smart city is one where there is the effective integration of physical, digital and human systems in the built environment to deliver a sustainable, prosperous and inclusive future for its citizens.” February 2014, UK Department for Business, Innovation & Skills (BIS) Smart City Framework Report

“Smart cities should be regarded as systems of people interacting with and using flows of energy, materials, services and financing to catalyse sustainable economic development, resilience, and high quality of life; these flows and interactions become smart through making strategic use of information and communication infrastructure and services in a process of transparent urban planning and management that is responsive to the social and economic needs of society.”

European Innovation Partnership on Smart cities and Communities - Strategic Implementation Plan. 2013.

This final definition is the one most common today. Technologies are now regarded as “force multipliers” for achieving targeted results.

⁹A technological device designed to detect the presence of a particular object or substance and to emit a signal in response. Used in alarms, fire prevention systems and satellites, for example. Source: Adapted from www.linternaute.com/dictionnaire/fr/definition/senseur/

¹⁰Forester’s White Paper, Washburn et al. (2010).

¹¹All data continuously generated in real time from sources of different kinds, exhibiting exponential growth. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

¹²Velosa III et al. (2010).

BY AND FOR CITIZENS

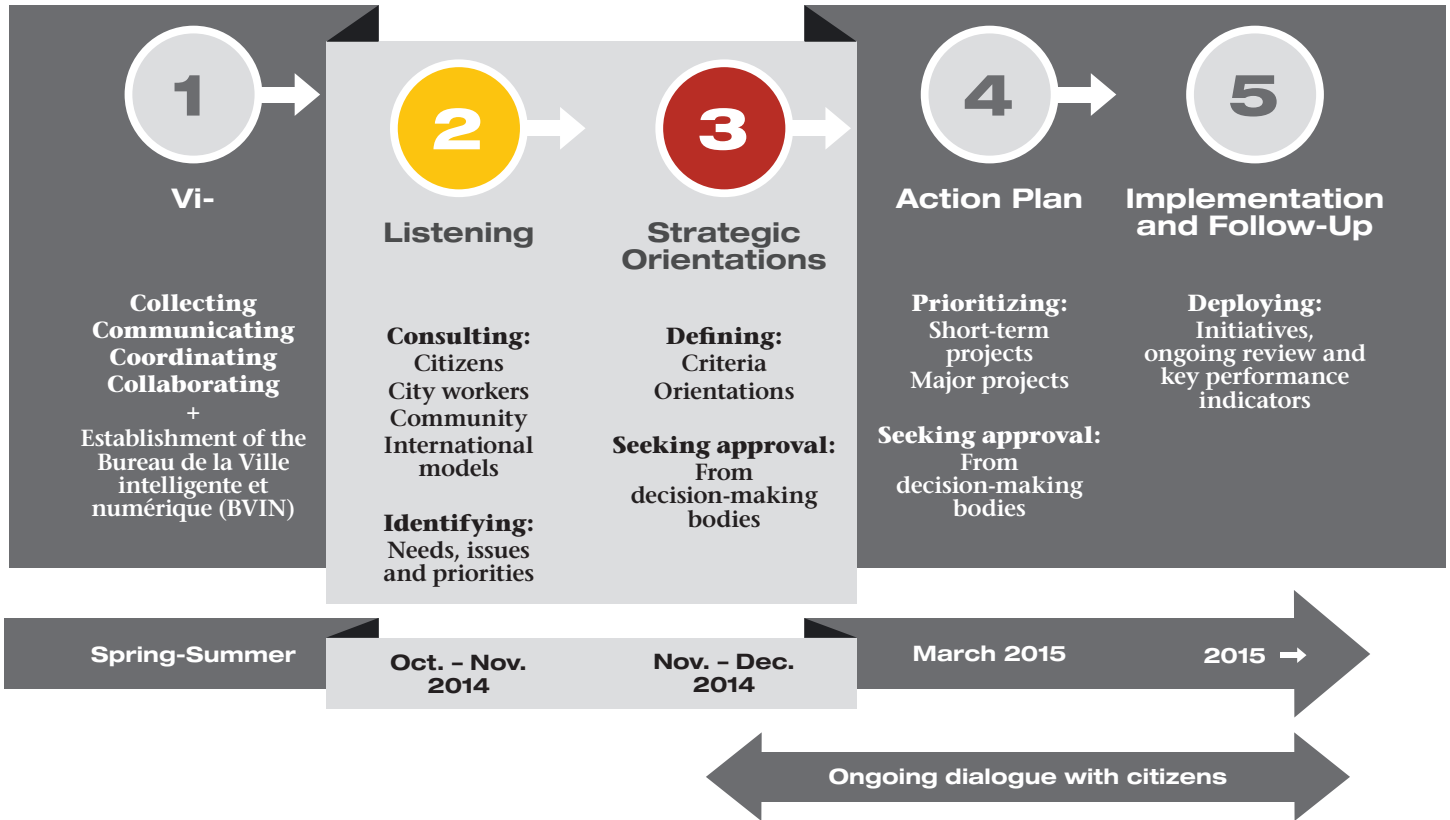


FIGURE 2: MONTRÉAL'S INITIATIVE

4.1 THE VISION

When Montréal's new administration took office in the fall of 2013, it expressed its intention to become an internationally recognized leader among smart and digital cities. The document *Montréal, ville intelligente et numérique*¹³ describes the four focus areas defined by Montréal's elected officials: collection, communication, collaboration and coordination. As part of this process, the *Bureau de la ville intelligente et numérique* (BVIN) was set up in 2014 and tasked with:

¹³ville.montreal.qc.ca/pls/portal/docs/PAGE/PRT_VDM_FR/MEDIA/DOCUMENTS/PRESENTATIONMONTREALVILLEINTELLIGENTE.PDF

1. Defining Montréal's smart city strategy.
2. Designating strategic initiatives and formulating funding/partnership programs to support project implementation..

4.1.1 - COLLECTION

Transparent management and open government:

- Releasing bulk data and developing applications so users can display and use such information.
- Collecting and analyzing telemetry data¹⁴ to boost control over and optimize the use of public resources.

4.1.2 - COMMUNICATION

Information access and distribution systems

- Developing a Web platform and mobile apps for distributing information to citizens in real-time.
- Deploying wired and Wi-Fi¹⁵ broadband¹⁶ networks.
- Creating local new technology learning and creation centres.

4.1.3 - COORDINATION

Digital public services

- Developing smart transport, infrastructure, security, energy, water and environmental management systems.
- Providing digital, while preserving conventional, access to public services (311, permit issuance, etc.).

4.1.4 - COLLABORATION

Supporting industry, to stimulate innovation and creativity.

- Helping private and institutional stakeholders set up networks of technology incubators¹⁷ and accelerators.¹⁸
- Addressing the needs of technology start-ups.
- Encouraging use of the public space for testing innovative solutions to municipal issues.

¹⁴Use of acoustic, optical and radio signals to measure the distance between an observer and distant location. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

¹⁵Wi-Fi uses microwaves to connect different computer devices to a network and permit data transmission between them. Source: Adapted from wikipedia.org.

¹⁶A technology transmitting more than 1,544 megabits/second (Mbit/s). Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

¹⁷Generally, an NPO provides services similar to those of an accelerator, but tends to spend more time on participating businesses. An incubator provides a broader range of services in terms of facilities and coaching services. Incubators are often sponsored by universities, colleges and economic development agencies. Source: Adapted from the Canada National Research Council.

¹⁸Generally, a for-profit business operated by venture capital investors to generate returns on investments in client firms. Accelerators provide a range of services to businesses at the start of their growth, including financial support, advice on business, office space, development and additional services provided through partner organizations. Source: Adapted from the Canada National Research Council.

4.2 LISTENING

In October and November 2014, the BVIN conducted extensive desk research and public consultations among stakeholders to produce a clear pictures of needs and issues, as well as to define Montréal's smart city priorities.

This phase:

- Produced a strategic reference framework.
- Pinpointed best practices.
- Highlighted and prioritized citizen concerns.
- Classified focus areas.
- Validated a project assessment and selection matrix.

The BVIN used different means to find out what municipal stakeholders want:

- Four surveys.
- Study of Montrealers' 311 requests.¹⁹
- Review of case studies in major international cities to define best practices.
- Co-design of public politics, town hall meetings and suggestions from citizens.
- Analysis of projects now underway in Montréal.
- Compilation of suggestions from citizens.

¹⁹ 311 is used in many US and Canadian cities as a single, easy telephone access point for citizens seeking non-urgent municipal services.

4.2.1 - SURVEYS CONDUCTED BY MONTRÉAL

The city conducted several phone and Web surveys in 2012, 2013 and 2014 on the use of services by citizens.

SOM survey	November 14-21, 2012
SOM survey	November 25-29 2013
Web survey	October 31-November 12, 2014
Phone survey	November 10-14, 2014

TABLE 1: SURVEYS CONDUCTED BY MONTRÉAL

A total of 7,601 citizens responded.

Results show that citizens' key concerns pertain to urban mobility and road work.

PRIORITIES INDICATED BY MONTREALERS (WEB SURVEY)

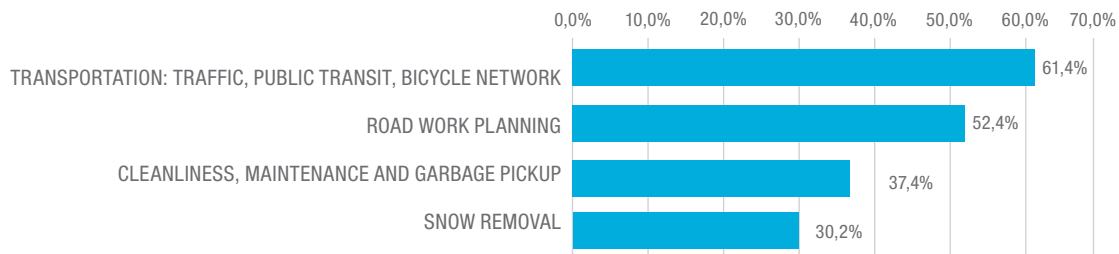


FIGURE 3: PRIORITIES INDICATED BY MONTREALERS (WEB SURVEY²⁰)

Web survey results were then confirmed by a phone survey,²¹ as illustrated in Figure 4:

PRIORITIES INDICATED BY MONTREALERS (PHONE SURVEY - 2014)

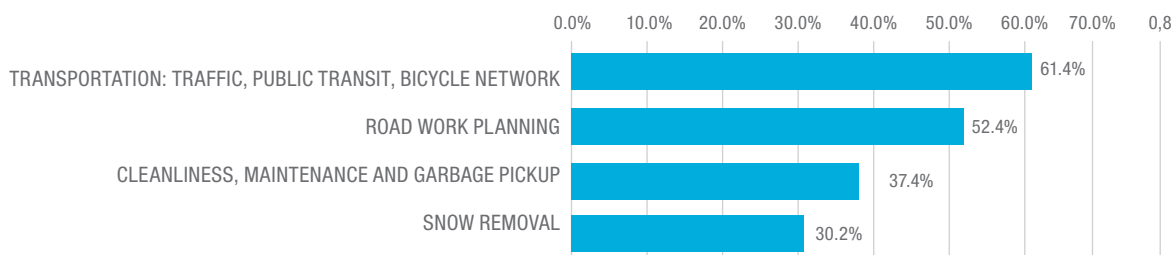


FIGURE 4: PRIORITIES INDICATED BY MONTREALERS (PHONE SURVEY)

²⁰October 31-November 12, 2014.

²¹November 10-14, 2014.

In late 2013, a SOM survey²² showed that citizen priorities for the new Administration were:

1. Public transit (52%).
2. Water mains and sewage line (52%).
3. Better expenditure management (51%).
4. Water main and sewage line management (49%).
5. Greater transparency and good governance (48%).

4.2.2 - ANALYSIS OF MONTREALERS' REQUESTS TO THE 311 SERVICE

In 2013, citizens made over 1 million calls to the city's 311 line.

FAMILY	NUMBER OF REQUESTS	PERCENTAGE
Different kinds of pickups	92,170	37,2 %
Roads	73 290	29,6 %
Trees, parks and environment	24 893	10 %

TABLE 2: MAIN CATEGORIES OF 311 LINE REQUESTS (2013)

TOPIC	NUMBER OF REQUESTS
Tree branch (ash borer) pickups	25 276
Bulky refuse pickups	12 785
Garbage pickups	12 456
Streetlights	12 153
Illegal waste dumping	11 921

TABLE 3: GROWING NUMBER OF 311 CALLS ON THESE TOPICS (2013)

4.2.3 - REVIEW OF CASE STUDIES IN MAJOR INTERNATIONAL CITIES TO IDENTIFY BEST PRACTICES

The smart city concept is evolving, as noted above. Furthermore, a review of worldwide initiatives in this area quickly demonstrates that each has a local character, specific to its community's situation, concerns and political priorities.

The BVIN conducted in-depth studies of different smart cities throughout the world.

²²November 25-29, 2013. See: donnees.ville.montreal.qc.ca/dataset/sondage-satisfaction-citoyens-2013/resource/2a41a407-26cc-4b9e-acac-9a083f33c76d

ARLINGTON (US): EMERGENCY COMMUNICATIONS CENTRE

Focus area: direct services to citizens

Arlington maintains a very informative Web site²³ that centralizes all emergency municipal information. A Twitter feed and Facebook page supplement it. This is a fairly simple and inexpensive example of a digital service that provides excellent benefits to the public.

The screenshot shows the Arlington Virginia Emergency website. The header is blue with the Arlington logo and 'arlingtonva.us' on the left, and navigation links for 'County Home', 'Jobs', 'Payments', 'Services A-Z', and 'en Español' on the right. Below the header is a search bar and a navigation menu with links for 'Weather', 'Closings & Delays', 'Make a Plan', 'Stay Informed', 'Get Involved', and 'En Español'. The main content area is divided into several sections: 'Keep Informed On the Go: Arlington Alert' with a 'Sign Up for Arlington Alerts' button; 'Plan and Prepare Via Smartphone' featuring the 'Arlington Prepares App' and a description of its use; 'Active Shooter Preparedness' with a 'Learn What to Do' button; and 'Video: Don't Get Caught In the Dark' with a video player showing 'The Wilsons #1: Arlington Virginia Preparedness PSA'. On the right side, there is a 'Reporting Problems & Contacts' section with various links for reporting emergencies, weather hotlines, street and road issues, and utility outages.

²³<http://emergency.arlingtonva.us/>

Focus area: way of life

The 22@Barcelona²⁴ Innovation District Project is seeking to revitalize 200 hectares of industrial land and attract knowledge-economy businesses. A real driving force of economic development, this project may generate some €180 million in public investment. All municipal infrastructure will be redesigned and redeployed, putting 22@Barcelona on technology's leading edge. One factor that drew the BVIN's attention was the idea of providing organizations with public spaces to conduct tests and using the city as an urban laboratory.²⁵

The screenshot shows the website for Ajuntament de Barcelona, specifically the 22@Barcelona section. The navigation bar includes 'Ajuntament de Barcelona', a search bar, and language options (Català, Castellano, English). The main header features the '22 Barcelona' logo and a navigation menu with categories like 'Presentation', 'Urban Innovation', 'Economic Innovation', 'Social Innovation', 'Current affairs', 'Public contracting', and 'Join'. The main content area is titled 'Economic innovation' and 'Major pilot projects'. It includes a sidebar with a list of categories such as 'Talent concentration', 'Cluster', 'Innovative culture', 'Technological centres', 'International platform', 'Business plots', 'Space for professionals', and 'Services for companies'. The main text describes the project's start in 2008 and lists three pilot projects: 12 outdoor public street lighting points, 2 charging points for electric cars, and a pilot program to read utility meters telematically. There are also images of a street light and utility meters, and a 'Search for business plots' sidebar.

²⁴<http://www.22barcelona.com/content/blogcategory/49/280/lang.en/>

²⁵<http://www.22barcelona.com/content/view/698/897/lang.en/>

Focus area: economic development

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Creating new products, jobs, and wealth.

- \$12.3M** invested directly in technology startups.
- \$260M** in revenue generated by funded and incubated companies.
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We invest these dollars in the next generation of startups, perpetuating the innovation economy. The average salary of these businesses is \$64,000.

TechColumbus business founders further contribute to the entrepreneurial community by sharing their experience and lessons learned with fellow entrepreneurs.

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²⁶www.techcolumbus.org

Focus area: way of life, economic development

Brainport Health Innovation is a platform for Dutch and international healthcare partners, government agencies and research institutions to share knowledge and develop joint healthcare/technology initiatives.



PROJECTS

Brainport Health Innovation is active in various fields and constantly develops new projects.

Remote services

Which eHealth services must become available starting in the Eindhoven region? This is the subject of the Remote Services project being undertaken by Brainport Health Innovation. An open and inexpensive provision should offer all residents with an internet connection in their homes access to all eHealth services.

Sub-projects will have to provide greater insight into viable and affordable connection to Remote Services. End user demand is key to the structure and execution of the sub-projects. Using eHealth services can promote the independence of older people, the chronically ill and handicapped people in need of care. Also, eHealth applications can help cater for personnel shortages, reduce the costs of healthcare and support volunteer aid workers. Themes like safety and loneliness are focal points, too, in this project since these are often reasons why people tend to give up their independence.

Living Lab eHealth

The Living Lab eHealth is an open laboratory where ageing people are able to physically test new services in an approachable way. With insight into user needs, the Living Lab explores the possibilities of eHealth applications and can showcase this insight and the possibilities to the administrators. It is an open innovation platform where care providers and technology companies can also perform real-life testing.

Common Infrastructure / Broadband

An open, common internet-based network is needed in order to give patients greater control and choice in how they organise their care. This network must be both approachable and give all parties access to these clients. Further standardisation is required in the technology used by the (health)care providers to ensure that customers and markets are not screened off. To this end, Brainport is bringing together all the parties involved to encourage the creation of a

²⁷www.brainporthealthinnovation.eu

Focus area: way of life, economic development

Design Connection Brainport is an Eindhoven-based design consortium belonging to Brainport Health Innovation.



About Brainport Facts & figures Language search in Brainport.nl Search

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Design

Design has been in the DNA of the Eindhoven region for decades. Thanks to its industrial and technological background, Eindhoven has developed into a city of innovation and creativity, a fact that is acknowledged by the numerous innovative products invented, developed and manufactured in Brainport.

[→ Read more](#) [Share](#)

From electronics to photonics

November 17th, 2014

Why light is the key enabler for so many emerging technologies. It's no accident that 2015 has been declared International Year of Light by the United Nations. On November 25th, the Campus is holding the next of its popular Campus Technology Seminars (CTS), designed to give participants a comprehensive briefing from practitioners working at the "cutting edge".

[→ Read more](#) [Share](#)

Opening of Van Gogh-Van Roosegaarde Bicycle Path

November 13th, 2014

Yesterday was the opening of the Van Gogh-Van Roosegaarde cycle path in Eindhoven. It is the first light-emitting cycle trail in the world.

[→ Read more](#) [Share](#)

UP: Successful 13th DDW

October 27th, 2014

GLOW 2014 'City in Motion'

October 29th, 2014

Eindhoven is preparing for the light art festival GLOW. The theme for the ninth edition this year is 'City in Motion'. Fifty international artists will transform Eindhoven city centre into a dynamic light landscape with light installations, sculptures, projections and performances at locations all over the city.

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Capital D

Dutch Design Awards

Glow

Vlisco honours Crown Prince Willem-Alexander

²⁸www.brainport.nl/en/design

Focus area: urban mobility

Optimod'Lyon²⁹ is an integrated platform for innovation in multimodal urban transportation.³⁰

OPTIMOD'LYON

SMART MOBILITY

Road network, public transport, local trains, car-sharing, carpooling, and also Vélo'v (Lyon bike sharing service, first one set up in France),... the agglomeration of Lyon has a important panel of transport and services organised in a meshed network helping connections. However, the diffusion of information on travel conditions is today disorganised. The challenge is to centralise all mobility data within a single data centre, producing integrated user information, in real time, about all modes of transport.

AN INFORMATION PLATFORM

> CENTRALISING ALL MOBILITY DATA



COLLECTING DATA IN A REAL TIME COLLECTER

- Transmission of data by networks and services operators
- Recovery of «road traffic» data via fixed and mobile sensors

THE PARTNERS

GRAND LYON / GEOLOC SYSTEMS /
CETE DE METZ / AUTOROUTES TRAFIC /
PARKEON / VILLE DE LYON



CONSOLIDATING & PROCESSING THE DATA COLLECTED

- Consolidation of data about all transport modes in Grand Lyon's mobility data centre: real time and fixed data

THE PARTNERS

GRAND LYON / CITYWAY /
LET-UNIVERSITÉ LYON 2

**BROADCASTING
RELIABLE
REAL-TIME
INFORMATION**

²⁹www.optimodlyon.fr

³⁰Movement of passengers or freight involving different successive modes of transportation. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

Lyon plans to offer three new services based on centrally collected and managed mobility information.

THREE MAJOR SERVICES

> ORGANISING TRAVEL FOR PASSENGERS, TRAVELLERS AND FREIGHT PROFESSIONALS



1 HOUR TRAFFIC PREDICTION

- Optimising the operation of urban networks via Grand Lyon's CRITER system (management of 1,500 traffic lights), anticipating the congestion rather than acting after it occurs
- Informing the user about probable traffic conditions encountered in the next 60 minutes

THE PARTNERS

PHENIX ISI / IBM / GRAND LYON



AN URBAN NAVIGATOR ON MOBILE PHONE

- Having at anytime real time and all-mode information so as to optimise the journey accounting for events
- Combining all modes of transport and services to organise the journey
- Having the benefit of all GPS functionalities
- Having a voice interface for the route calculator

THE PARTNERS

CITYWAY / GRAND LYON /
ORANGE BUSINESS SERVICES

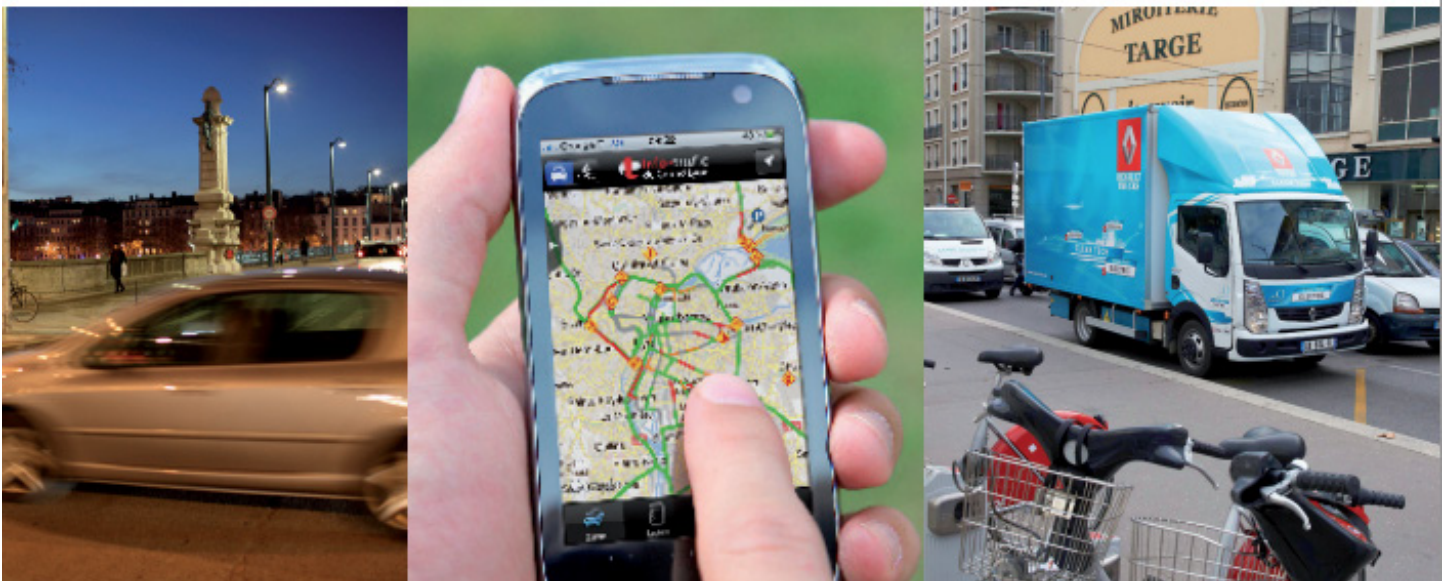


A NAVIGATOR FOR URBAN FREIGHT AND AN OPTIMISATION TOOL FOR DELIVERY ROUTES IN THE CITY

- Informing drivers on traffic conditions via a mobile application including the geometry of roads, height of bridges, availability of delivery areas, historic traffic data, in real time and in prediction at 1 hour
- Improving the management of deliveries with an online route optimisation tool

THE PARTNERS

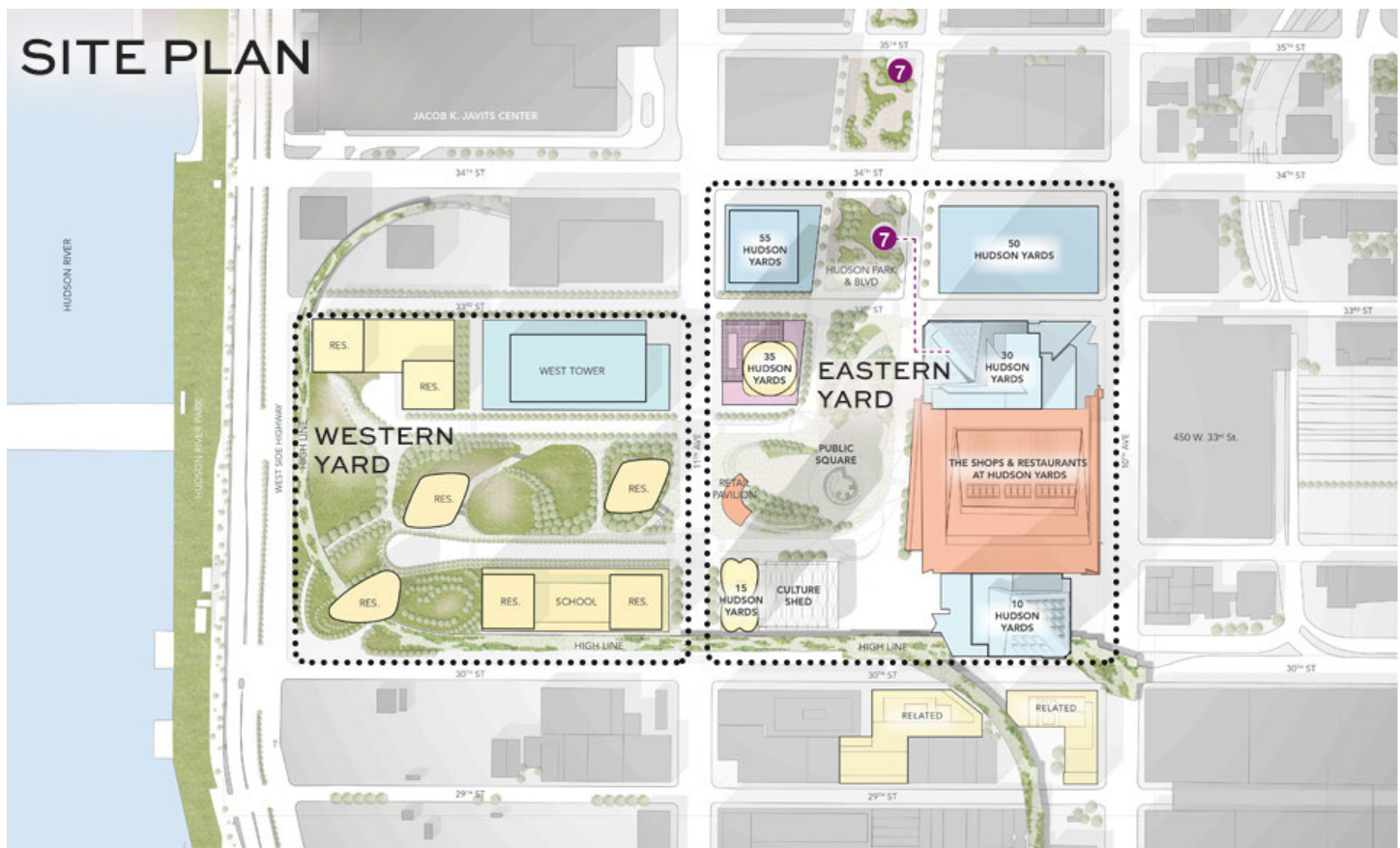
RENAULT TRUCKS / IBM /
LIRIS-INSA / GRAND LYON



NEW YORK (US): HUDSON YARDS PROJECT

Focus area: way of life

A bit like Montréal's Blue Bonnets development, New York's Hudson Yards³¹ involves rebuilding a neighbourhood from scratch. This is the United States' biggest private real-estate project. Twenty-four million visitors per year are expected at the site. It will have 17 million square feet of commercial and residential space and 5 office towers, plus 100 shops, restaurants, some 5,000 residences, cultural spaces, parks, one public school and a large hotel. A subway line extension is even planned to provide better transit to the area.



³¹www.hudsonyardsnewyork.com

Focus area: direct services to citizens

City 24/7³² provides one-stop access to all of New York’s digital services. In addition to delivering 311 service, City 24/7 integrates information from government programs, local businesses and citizens. It can be downloaded as a smartphone or tablet app and used on the go.

The screenshot shows the NYC 311 website interface. At the top, there is a blue banner with the text "Visiting NYC? Find events, attractions, deals, and more at nycgo.com". Below this is the NYC 311 logo and the text "The Official Website of the City of New York". The main navigation bar includes "NYC Resources", "311", "Office of the Mayor", "Events", "Connect", and "Jobs". A search bar is located on the right side of the navigation bar.

The main content area is yellow and features the heading "How can we help you?". Below this heading is a search bar labeled "311 Search". The content is organized into two columns: "START HERE:" and "TOP REQUESTS:".

START HERE:

- Make a Complaint
- Check Status
- Make a Payment
- My Neighborhood
- Download 311 App

TOP REQUESTS:

IDNYC Municipal ID Card	Pay a Parking Ticket	Property Record Information
Affordable Housing Information	NYC Jobs	Alternate Side Parking or Street Cleaning Information
Civil Service Exam Information	Public Assistance or Welfare Information	Food Stamp Information
Birth Certificate	Benefit Card Assistance	Noise from Neighbor
About 311	Text 311-692	Download the 311 app

The footer contains several widgets:

- TODAY:** JAN 22, with a notice about alternate side parking and meters in effect.
- Service Status:** Last updated: 1/22/2015 2:58:46 PM. Shows planned work for Subway (lines 1, 2, 3, 4, 5, 6, 7).
- Upcoming Holidays:** 02/12/2015 Lincoln's Birthday, 02/16/2015 Presidents Day, 02/18/2015 Ash Wednesday.
- Notify NYC:** GET MOBILE ALERTS. Alert issued 1/22/15 at 12:15 PM. The NYS Division of Criminal Justice Services has...

³²<http://www1.nyc.gov/311/index.page>

NEW YORK (US): LED STREET LIGHTS

Focus area: sustainable development

In 2009, New York City decided to switch some 300,000 street lights to LED³³ technology. Doing so should generate huge energy savings.



With the installation of these and future energy-efficient lighting solutions, the New York City Department of Transportation is becoming an international leader in green lighting

Looking Ahead

Over the next year, the New York City Department of Transportation will be participating in the United States Department of Energy Gateway Program, installing, and evaluating LED luminaires. Upon successful completion of the program, data collected from New York City's LED installations will be used to help other cities looking to convert to LED fixtures.

With the installation of these and future energy-efficient lighting solutions, the NYCDOT is becoming an international leader in green lighting. In this decade alone, NYCDOT has cut its carbon footprint by thousands of tons and saved millions of dollars through its energy-saving initiatives. These numbers will increase as the LED program expands and more lights are converted to energy-efficient luminaires. NYCDOT will continue its research to identify the latest in energy-efficient technology to ensure New York City is lit by the greenest, most cost-effective lighting possible.

³³<http://www.nyc.gov/html/dot/downloads/pdf/sustainablestreetlighting.pdf>

TORONTO (CANADA): WATERFRONT, REDEVELOPMENT OF LAKE ONTARIO'S SHORELINE

Structural component: Developing the urban, multiservice ultra-high speed telecom network

Waterfront Toronto³⁴ involves the complete revitalization of a vast district along Lake Ontario. This outstanding initiative has turned what was a garbage and industrial waste dump for over a century into one of the Toronto area's most stylish neighbourhoods.

The BVIN was interested in the initiative's digital aspect – a core component of a strategy that won Toronto the 2014 Intelligent Community of the Year Award.

This new community offers ultra-high-speed Internet, with no bandwidth limits.³⁵ Since all sites connected to fibre optics, the project also guarantees every occupant (people and businesses) the fastest speeds on the market. This project will permit development of leading-edge digital services that can be tested in this state-of-the-art environment, giving the industry an opportunity to acquire a strategic edge over the competition. Public Wi-Fi will, of course, be available throughout the site.



³⁴http://www.waterfronttoronto.ca/our_waterfront_vision/innovation/_intelligent_communities

³⁵A minimum speed of 500 Mb/s is offered. Basic (high speed) service is generally about 7 Mb/s.



WATERFRONToronto

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our future is green

Innovation

economic growth

design excellence

parks and public spaces

Homepage > Our Waterfront Vision > Innovation > Intelligent Communities

intelligent communities



Home to Canada's first open-access, ultra-high-speed broadband community network, Toronto's new waterfront communities will be among the most connected in the world.

With affordable and unlimited access to Internet speeds exponentially faster than typical North American residential networks, the emerging waterfront neighbourhoods will revolutionize how residents and businesses receive telecommunications services to promote economic growth and development and foster innovation and creativity.

Wired with fibre-optic technology, every home and business in the new communities will be equipped to become first adopters of the web-based technologies and applications of the future. The cutting-edge network will enable the

To be built and operated by Toronto-based telecommunications firm Beanfield Metroconnect in partnership with Waterfront Toronto, the state-of-the-art network will deliver Internet connections starting at 500 megabits per second for residential customers and up to 10 gigabits per second for commercial customers – all at an extraordinarily competitive cost. To date, broadband of this quality has not been available for residential users in Toronto, and commercial access is significantly less affordable in Toronto than in other leading world cities.

As an open-access network, residents and businesses will have the ability to choose from a variety of content and service providers for Internet, IPTV (Internet Protocol Television), VOIP (Voice Over Internet Protocol), safety and

what makes an intelligent community so smart?

Västerås, Sweden built an open-access fibre-optic network in 2000. Within just two years, more than 600 new companies set up shop in this lakeside city west of Stockholm. Today, Västerås has earned accolades for its innovation, economic development and telecommunications.

By building an intelligent community on its waterfront, Toronto will be among only a handful of global cities well-acquainted with the value of an open-access ultra-advanced communications network.

The importance of this infrastructure cannot be overstated. It connects residences, workplaces and public

4.2.4 STRATEGIC FRAMEWORK STUDIED

A review of worldwide smart city initiatives has served in defining a strategic framework to guide Montréal's project.

Summary of Main Strategic Frameworks Studied

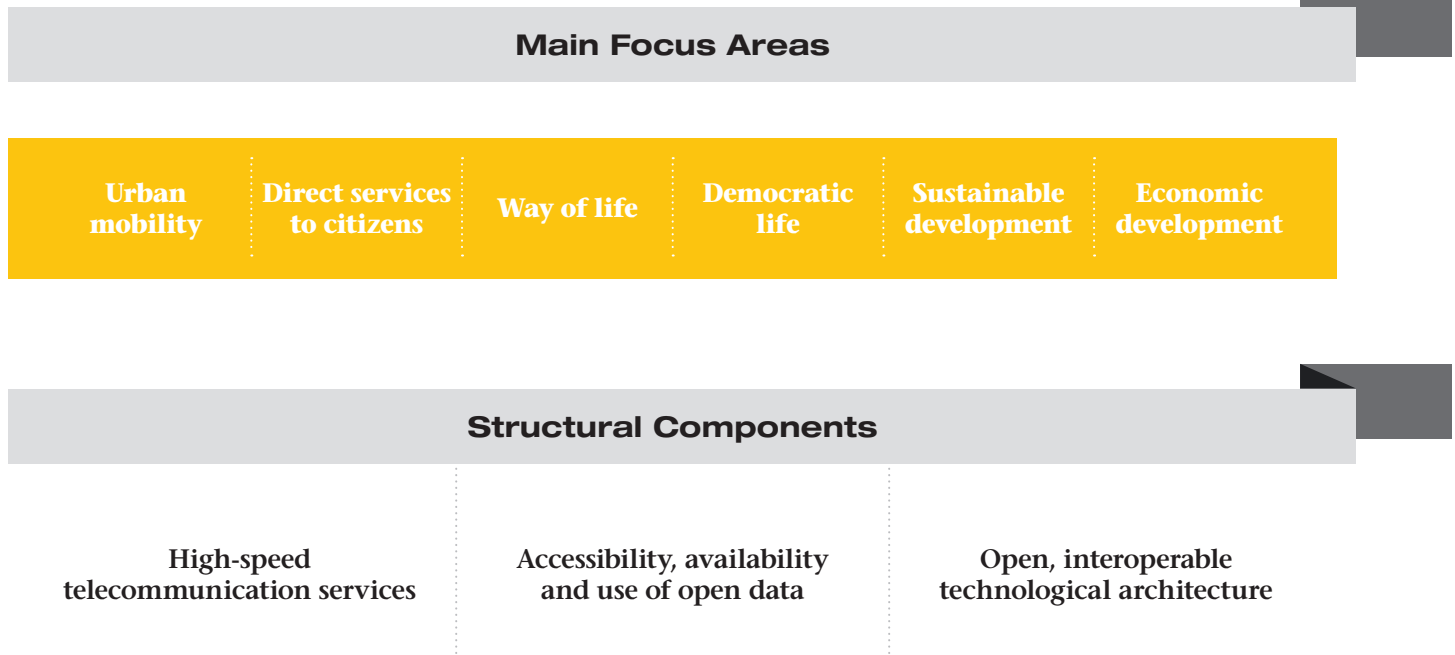


FIGURE 5: SUMMARY OF MAIN STRATEGIC FRAMEWORKS EVALUATED

4.2.5 - PUBLIC CONSULTATIONS

The city conducted several public consultations (203 participants) and co-design activities (190 experts) from October to November 2014 to determine citizens' priorities for a smart city. They were:

- Co-design public policy workshop³⁶ (October 5, 2014).
- Town hall meeting³⁷ (Boisé library, Saint-Laurent, November 2, 2014).
- Town hall meeting³⁸ (Mile End Library, Plateau-Mont-Royal, November 8, 2014).
- Town hall meeting³⁹ (Maison culturelle et communautaire de Montréal-Nord, November 9, 2014).
- Town hall meeting⁴⁰ (Frontenac library, Ville-Marie, November 15, 2014).
- Town hall meeting⁴¹ (Marc-Favreau library. Rosemont - La Petite-Patrie, November 16, 2014).

³⁶ejcmtl.ca/le-codesign-resultats/

³⁷villeintelligente.montreal.ca/assets/doc/Synth%C3%A8se_causerie_1.pdf

³⁸villeintelligente.montreal.ca/assets/doc/Synth%C3%A8se_causerie_2.pdf

³⁹villeintelligente.montreal.ca/assets/doc/Synth%C3%A8se_causerie_3.pdf

⁴⁰villeintelligente.montreal.ca/assets/doc/R%C3%A9colte_Causerie_4_%C3%89ducation.pdf

⁴¹villeintelligente.montreal.ca/assets/doc/R%C3%A9colte_Causeries_5_Ouverture.pdf

- Co-design event on municipal priorities⁴² (November 23, 2014).

Hundreds of citizens from all walks of life (contractors, scientists, members of civil society organizations, city workers, etc.), took part in these consultation sessions.

4.2.6 - SUGGESTION BOX AND SUGGESTIONS FROM CITIZENS

Some 357 suggestions were received online and at the co-design workshop, of which 232 were selected for further study.

Most of the suggestions perceive technology as a catalyst. Such technology may consist of infrastructure (sensors, detectors, networks) or applications and software. They break down as follows:

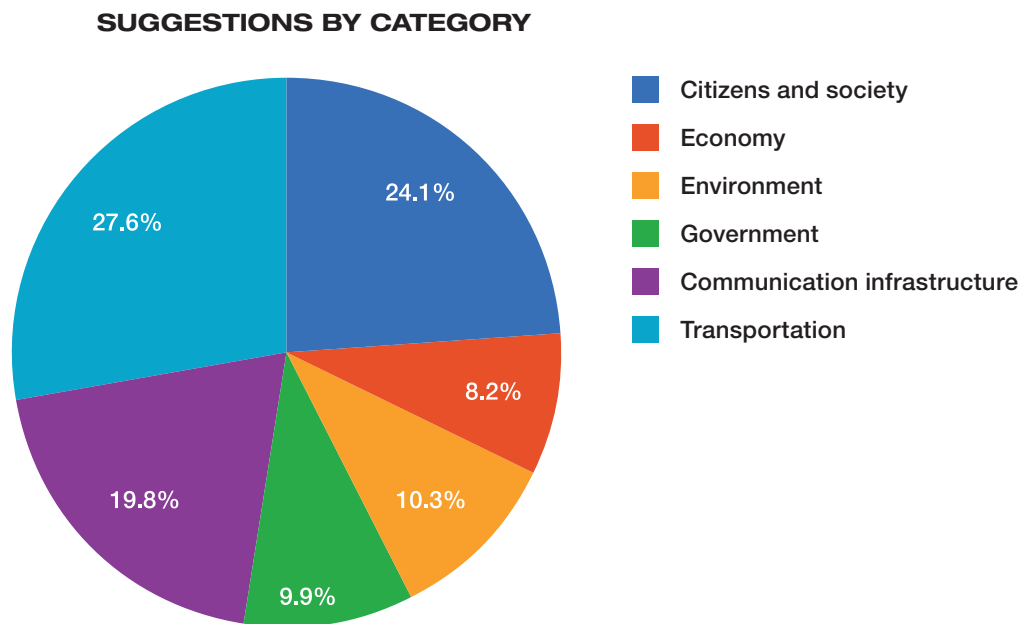


FIGURE 6: SUGGESTIONS BY CATEGORY

⁴²villeintelligente.ocpm.qc.ca/sites/villeintelligente.ocpm.qc.ca/files/ville-intelligente-rapport-codesign.pdf

4.2.7 - TOWN HALL MEETINGS

Town hall meetings focused on different topics. In some cases, participants were asked to vote on certain statements to indicate their preferences.

SMART CITIES AND THE ECONOMY

1. A city that develops services enabling small, medium-sized and large businesses to grow and create new jobs (supported by 43%).
2. A city that support new immigrants and job seekers (supported by 43%).
3. A municipal laboratory enabling citizens to test new products and services (supported by 26%).
4. A city that promotes an economy of sharing (supported by 26%).
5. A city that combines its resources more efficiently to generate collective wealth (supported by 26%).

SMART CITIES AND CULTURE

1. A city that explores new ways of creating, based on citizen participation, to improve the built environment, the urban landscape, our living areas, etc. (supported by 31%).
2. A city that centralizes cultural information (supported by 26%).

COMMUNITY LIVING, SOCIOCULTURAL DIVERSITY AND THE SMART CITY

1. A city that promotes everyone's participation through digital tools.
2. A city that co-creates urban planning strategies tailored to multicultural communities.
3. A city that helps new citizens find jobs.
4. A city that seeks to span the intercultural divide.
5. A city that delivers accessible and effective services.

EDUCATION AND THE SMART CITY

1. A city that promotes access to education through digital means.
2. A city that adapts its digitals tools to make educational universally accessible.
3. A city that encourages decompartmentalization of learning through citizen participation and democratization of knowledge.
4. A city that promotes universal digital access.
5. A city that uses digital technologies to democratize education.

TRANSPARENT AND OPEN GOVERNANCE

1. A city that enables citizens to participate in public decisions.
2. A city that uses digital technologies to increase its transparency.
3. A city that brings together citizens, elected officials and decisions.
4. An urban laboratory in which citizens can test and co-build practices, projects and new services.
5. A city that can continuously communicate with citizens on current and future projects.
6. A city built on shared power and participatory democracy.
7. A city that breaks down barriers and pyramid structures to work with an integrated approach.

4.3 - KEY CONCERNS OF CITIZENS

The set of data obtained reveals the key concerns of Montrealers and the focus areas of greatest importance to them. Montréal's strategy will initially be based on these focus areas.

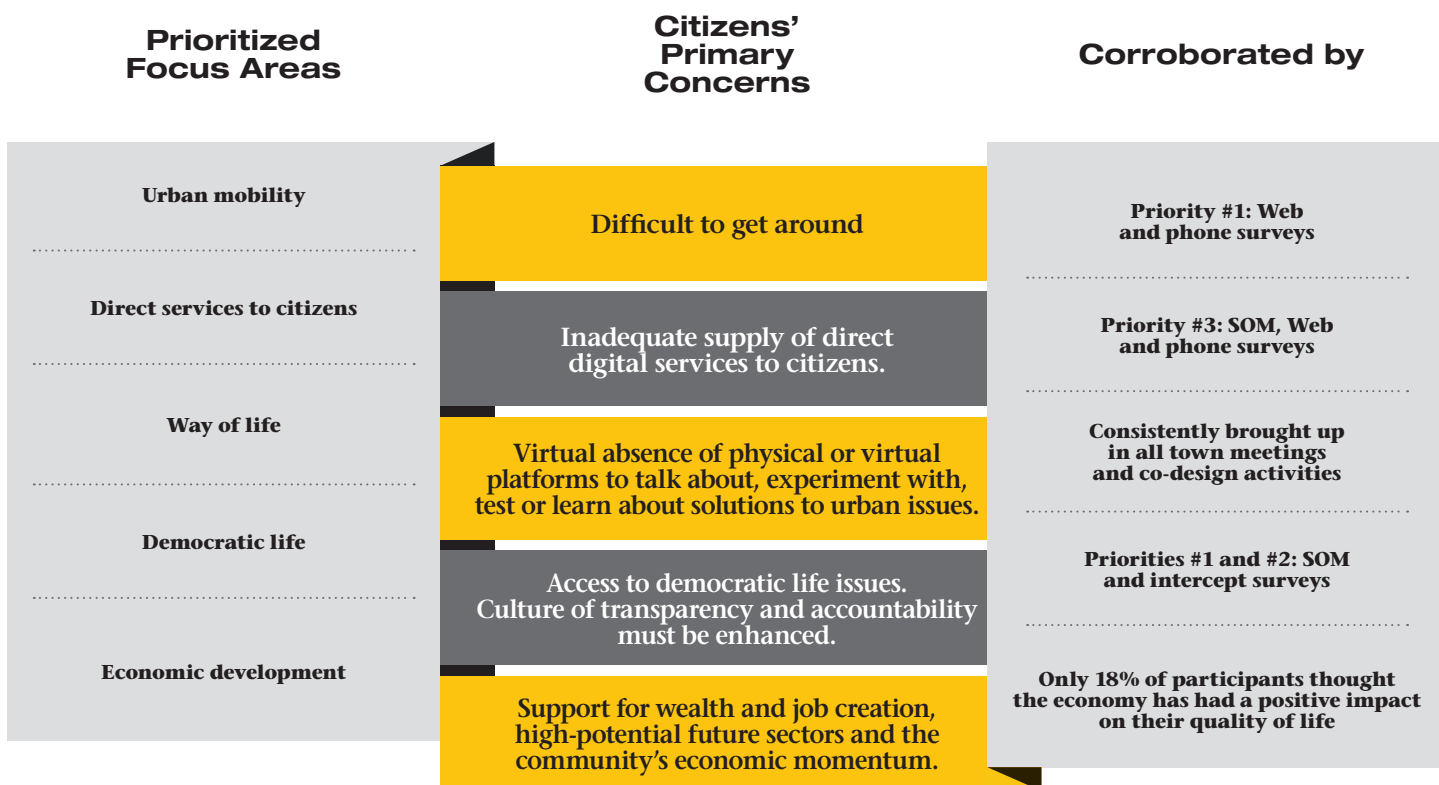


FIGURE 7: KEY CONCERNS OF CITIZENS

Apply collaborative innovation, state-of-the-art technology, and Montrealers' trademark creativity in imagining and developing an exceptional quality of life and prosperous economy, with and for citizens.⁴³

The BVIN's activities and studies have revealed five focus areas and four structural components supporting them. Goals have been formulated for each area and component, accompanied by relevant international examples.

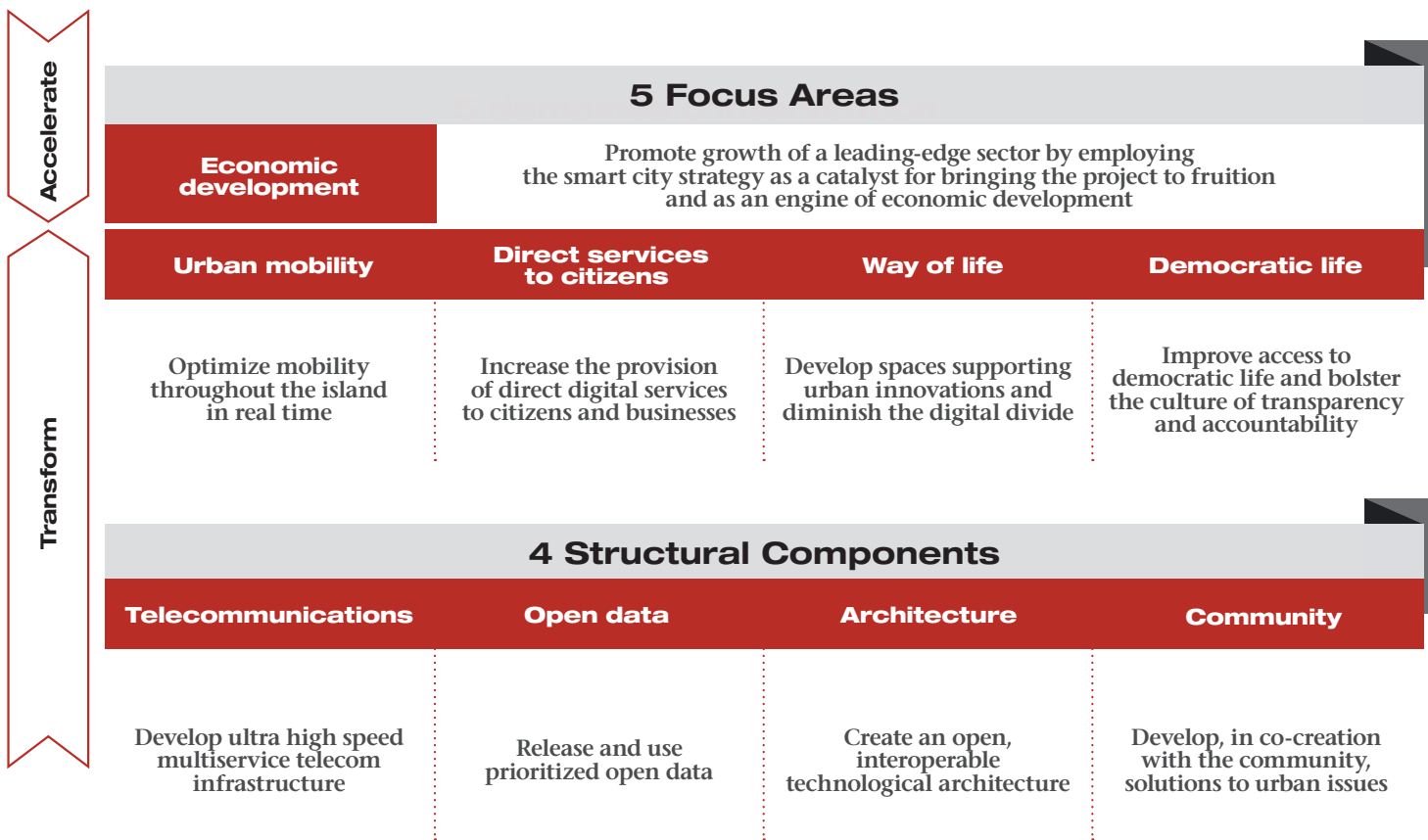


FIGURE 8: SUMMARY OF POLICY GUIDELINES

⁴³Collaborative innovation involves multiple parties—such as the city, the academic community, business and civil society—and results in the creation of new products and services.

5.1 DEVELOPING MULTISERVICE ULTRA-HIGH SPEED TELECOM INFRASTRUCTURE⁴⁴

- Provide free public Wi-Fi access throughout Montréal.
 - Example from New York City: Deployment of free Wi-Fi throughout the Chelsea district to enhance its reputation as a NYC hub of communications and technology.⁴⁵
- Promote residential and business access to ultra-high speed last mile⁴⁶ telecom service. (last mile⁴⁷)
 - Example from Austin: deployment of Google Fiber⁴⁶ with speeds up to 1,000 Mb/s⁴⁸ and free broadband access to 5 Mb/s⁴⁹.
- Include the telecom system in urban planning, particularly in the urban plan and from now on, in project charters.
 - Example from New York City: As previously noted, Hudson Yards was partially planned around the telecom system.⁵⁰

5.2 RELEASING, ANALYZING AND USING PRIORITIZED OPEN DATA⁵¹

- Use municipal data and develop apps to make citizens' lives easier (such as the MTL InfoSnow App).
 - Example from San Francisco: 33 departments and partners are releasing data to DataSF. Online apps are available for viewing this information.⁵²
- Promote development of interrelationships between open data from the boroughs, the urban agglomeration, the CMM⁵³ and public/parapublic partners⁵⁴).

⁴⁴ Ultra-high speed Internet service generally provided over fibre-optic lines.

⁴⁵ chelseaimprovement.com/neighborhood/free_wifi.html

⁴⁶ Set of agents, operations and associated equipment used for a telecom network's final distribution segments. Source: Adapted from wikipedia.org

⁴⁷ <https://fiber.google.com/about/>

⁴⁸ Mb/s is a quantity of digital data transmitted per unit time (1 million de bits—0 or—per second).

⁴⁹ <https://fiber.google.com/cities/austin/home/>

⁵⁰ www.hudsonyardsnewyork.com/

⁵¹ Based on plan priorities and international standards.

⁵² <https://data.sfgov.org/Economy-and-Community/Mobile-Food-Permit-Map/px6q-wjh5>

⁵³ Communauté métropolitaine de Montréal.

⁵⁴ Communauté métropolitaine de Montréal

5.3 CREATING AN OPEN, INTEROPERABLE TECHNOLOGICAL ARCHITECTURE⁵⁵

- Define a technological architecture that will promote system decompartmentalization and data flow, including third parties.
 - Example from France: *The Chief Data Officer*⁵⁶ is responsible for decompartmentalizing data and has special authority to require the government to accelerate the release of data.⁵⁷
- Use the capital investment program (3-YCP⁵⁸) to upgrade the city's IT infrastructure and share data more effectively, particularly with its partners
 - Example from San Francisco⁵⁹: Each set of data can be accessed by an API.⁶⁰

5.4 DEVELOPING SOLUTIONS TO URBAN ISSUES IN CO-CREATION WITH THE COMMUNITY

- Mobilize businesses, public institutions, universities and citizens to find and tests solutions to daily problems.
 - Example from Chile: The MueveTT Innovation Challenge seeks to generate new ideas for passenger transport, road safety and urban mobility information.⁶¹

5.5 OPTIMIZING MOBILITY OF PEOPLE ACROSS THE ISLAND IN REAL TIME

- Collect, process and distribute data and mobility information in real time, to:
 - Improve the flow of all types of transportation (public transit, alternative, individual, intermodal⁶² and freight).
 - Example from Lyon: Optimod'Lyon is an integrated platform for urban mobility and public private cooperation on urban⁶³ intelligent transportation systems.⁶⁴
 - Let people optimize their trips in real time by providing them with all useful information (public transit schedules, construction site locations, traffic and accident reports, detours, blockages, etc.).

⁵⁵Ability of heterogeneous computer systems to work together, through the use of shared languages and protocols and to provide reciprocal access to their resources. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

⁵⁶Senior French official responsible for releasing data for all of France.

⁵⁷www.journaldunet.com/ebusiness/le-net/chief-data-officer-de-l-etat.shtml

⁵⁸Three-year capital program. Planning of municipal investments over three years.

⁵⁹<https://data.sfgov.org/developers>

⁶⁰Interface containing functions required for application development. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française

⁶¹innovatingcities.org/innovatingcities/chile/ et blogs.worldbank.org/ic4d/co-creating-solutions-smart-cities

⁶²Intermodal transportation means successive use of two or more forms of transportation to transport an individual or payload from origin to destination. Source: Adapted from wikipedia.org.

⁶³www.optimodlyon.com/

⁶⁴New information and communication technology applications for the transport sector. They are "intelligent" because their development is based on features generally

- Example from Houston: The Houston TranStar consortium is a partnership of four government agencies responsible for transportation management and emergency services in Greater Houston.⁶⁵
- Example from Toronto: The One Toronto Transit Plan works with public services to ensure better coordination of work and resulting urban congestion. The plan involves use of centralized information in real time and an intelligent transportation system support by such technological devices as traffic monitoring cameras.⁶⁶

5.6 INCREASING THE PROVISION OF DIRECT DIGITAL SERVICES TO CITIZENS AND BUSINESSES

- Increase access of citizens and businesses⁶⁷ to municipal digital services (permits, taxes, 311, jobs, libraries, time tables, etc.).
 - Enable citizens and business to be more autonomous in their use of municipal services.
 - Provide an integrated user experience to citizens who communicate digitally and non-digitally with the city.

5.7 DEVELOPING AREAS SUPPORTING URBAN INNOVATION AND DIMINISHING THE DIGITAL DIVIDE

- Create “public innovation laboratories” enabling citizens and businesses to test new public services in their beta phases.
 - Example from Denmark: MindLab comprises three departments from the city of Odense. A true hub of innovation, MindLab focuses on entrepreneurship, digital services, education and employment.⁶⁸
- Set up workshops to teach citizens about using these new apps.
 - Example from Barcelona: Citilab⁶⁹ has a teaching and testing component.

⁶⁵www.houstontranstar.org/

⁶⁶www.thestar.com/news/gta/2015/01/04/new_plan_aims_to_get_toronto_traffic_moving_again.html

⁶⁷See: www.sf311.org/ or www1.nyc.gov/311/index.page

⁶⁸mind-lab.dk/en/om-mindlab/

⁶⁹citilab.eu/en/citilab/what-is

5.8 IMPROVING ACCESS TO DEMOCRATIC LIFE AND BOLSTERING THE CULTURE OF TRANSPARENCY AND ACCOUNTABILITY⁷⁰

- Through new technologies, provide better access to all forums for public discussion, in terms of participation and information.
 - Example from Houston: citizens can comment on proposed by-laws.⁷¹
- Improve distribution of the city's KPIs (budgets, financial statements, project monitoring, service level targets, etc.) and develop new tools for presenting this information.
 - Example from New York: CheckBook NYC is an online app that posts the city's daily expenditures.⁷²

5.9 PROMOTING GROWTH OF A LEADING-EDGE SECTOR BY EMPLOYING THE SMART CITY STRATEGY AS A CATALYST FOR BRINGING THE PROJECT TO FRUITION AND AS AN ENGINE OF ECONOMIC DEVELOPMENT

- Maximize the economic benefits generated by the smart city initiative:
 - By stimulating local businesses.
 - By attracting top companies.
 - By promoting networking between the research, industrial, venture capital, institutional investor and start-up sectors to build on Montréal's existing expertise, so it becomes a world leader among smart and digital cities.
 - Example: Urban.us is a venture capital fund focusing on the smart city.⁷³

⁷⁰Obligation of a manager, executive, director or administrator to demonstrate that s/he has complied with various explicit or implicit conditions in managing and controlling resources under his/her authority. Source: Adapted from the Encyclopédie du parlementarisme québécois.

⁷¹www.houstontx.gov/Proposed-Ordinance-Feedback

⁷²www.checkbooknyc.com/

⁷³urban.us/aboutus/

6.1 FORMULATION OF ACTION PLAN

The BVIN had received 232 ideas for project by the end of 2014 through its Web site’s suggestion box, through “I see mtl⁷⁴” and through the experiences of other cities that have embarked on similar initiatives.

Starting in January 2015, a major effort to organize information will be made. Ideas will be grouped by focus area and associated with a structural component, where applicable.

Projects will be developed based on suggestions received until mid-February 2015. Projects will then be selected and processed based on an assessment matrix (next section), then included in the BVIN’s planning portfolio. The action plan will be submitted by late March 2015.

At the same time, the BVIN will initiate various short-term projects. Most have already been approved in various forums or pertain to Structural Components.

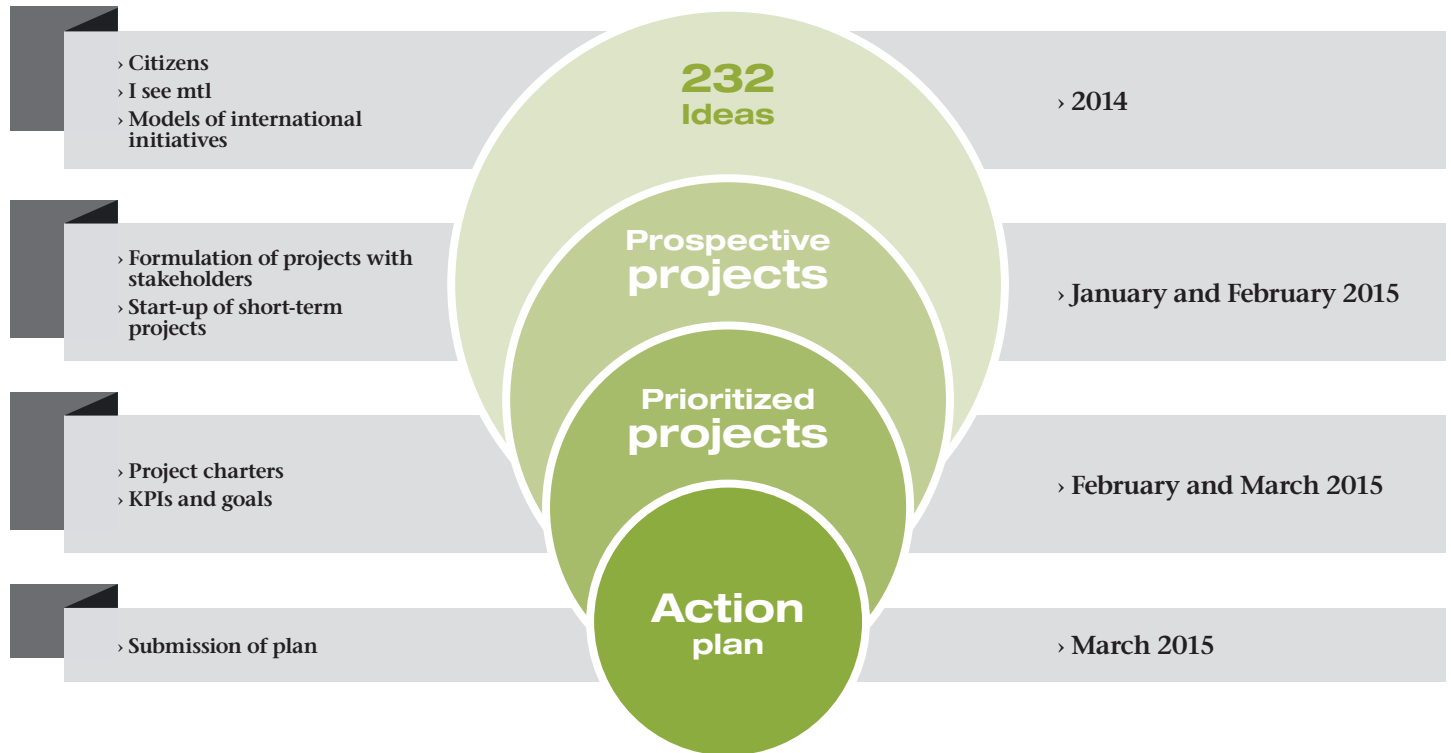


FIGURE 9: FORMULATION OF ACTION PLAN

⁷⁴jevoismtl.com

6.2 PROJECT SELECTION

Obviously, the number of projects and actions the city could take to make Montréal the world's leading smart city is vast. Consequently it must select those that will be seen through to fruition and determine their implementation order.

All proposals must accordingly be assessed according to a grid prepared by the BVIN and validated by citizens at the November 23, 2014 Convergence Workshop. The grid will be used to determine the value of projects submitted for approval to the city administration.

The matrix is organized as follows:



FIGURE 10: PROJECT ANALYSIS MATRIX

Project analysis and selection will be an ongoing process.

6.3 PUBLICATION OF PROJECT CHARTERS

A public project charter will be produced for each project so everyone can evaluate its elements:

- The project's actual scope.
- The party responsible for the project.
- The planned funding/partnership structures (if applicable).
- The initial schedule.
- Project KPIs.

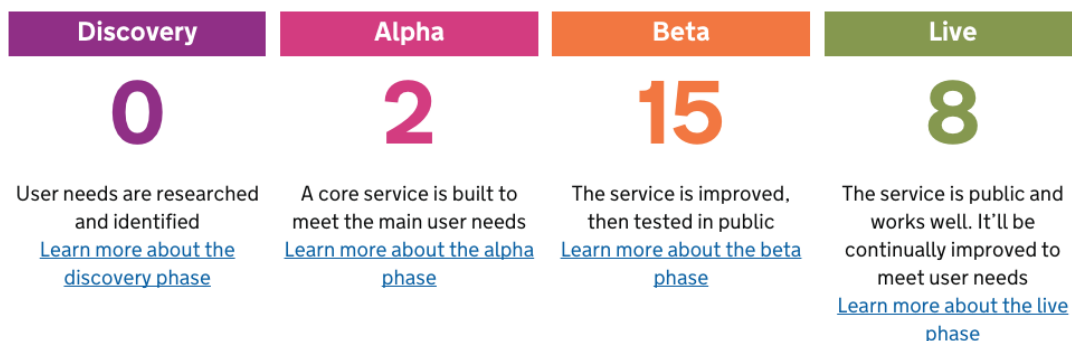
Naturally, project definitions will be enhanced through consultations with citizens or experts.

6.4 MONITORING PROJECT PROGRESS

The four-phase project evolutionary cycle is drawn directly from a digital initiative⁷⁵ of the UK government. In contrast with cities that merely produce annual reports of their activities, the BVIN intends to constantly post the progress of its projects on its Web site.

Digital Transformation

Government is building digital services that are simpler, clearer and faster to use. We're starting with these 25 services. You can follow our progress on this page.



Digital services so good people prefer to use them

The [Government Digital Strategy](#) and [departmental digital strategies](#) commit us to the redesigning and rebuilding of 25 significant 'exemplar' services. We're going to make

FIGURE 11: UK GOVERNMENT'S DIGITAL TRANSFORMATION PROJECT PORTAL

⁷⁵www.gov.uk/transformation

Project progress will be posted to the BVIN site

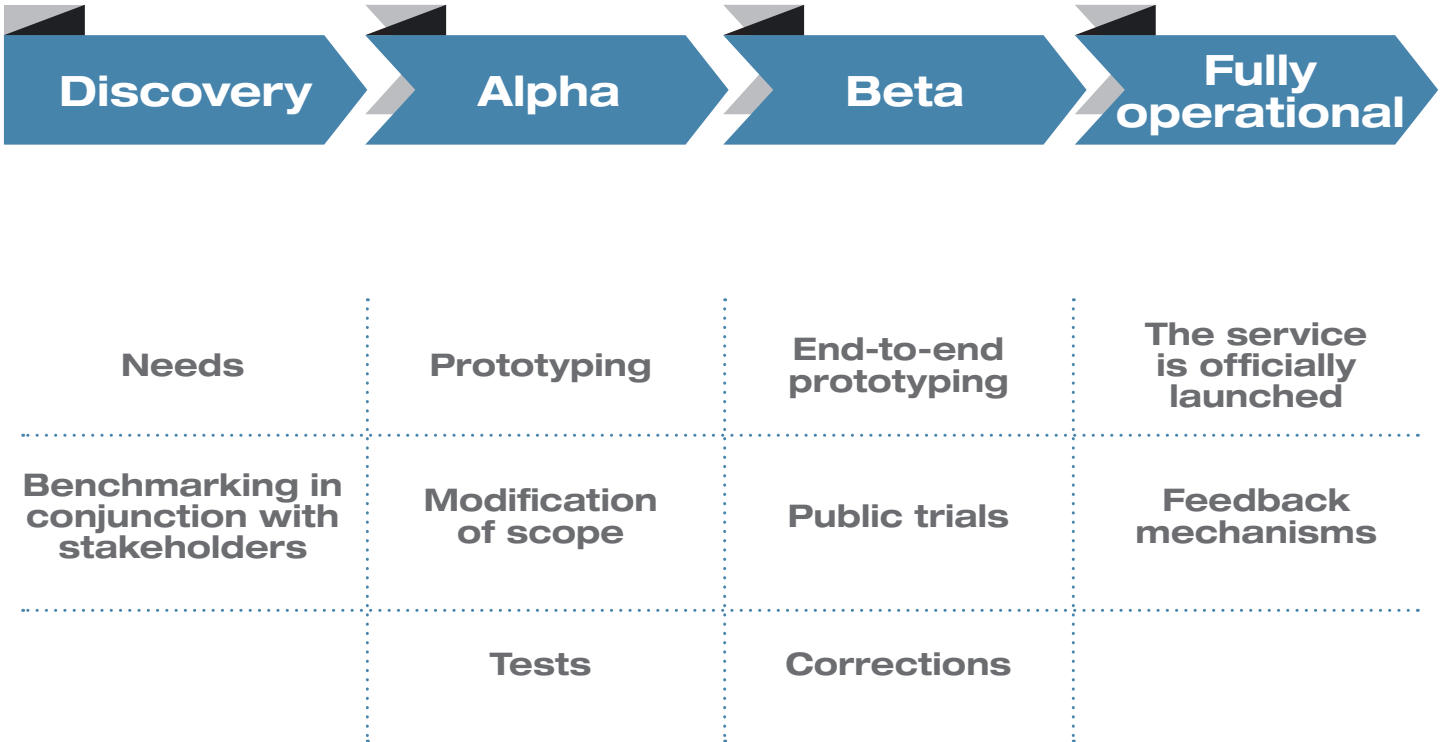


FIGURE 12: PROJECT EVOLUTIONARY CYCLE

The BVIN intends to adopt a project evolutionary cycle during regular consultations with stakeholders (citizens, experts, city workers, partners and associates.)

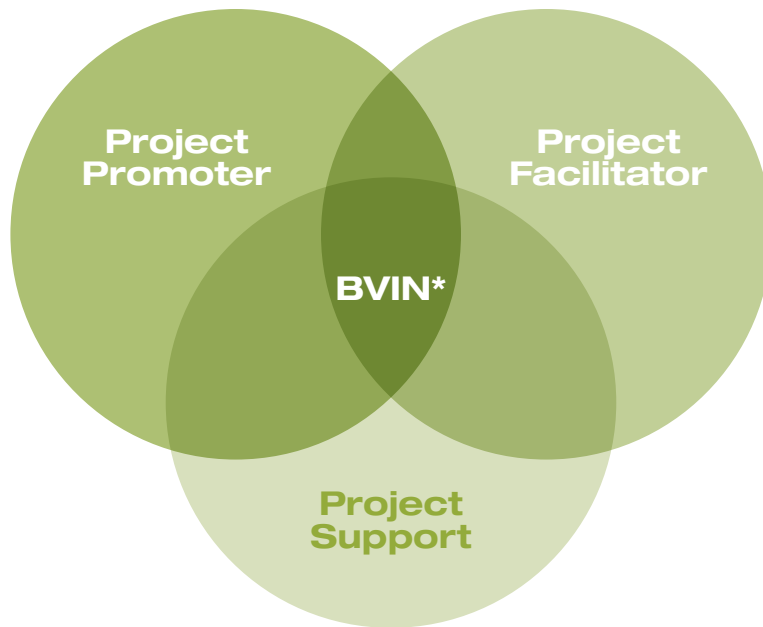


FIGURE 13: MONTRÉAL’S LEADERSHIP IN ALL PROJECTS BASED ON THIS STRATEGY

07 CONCLUSION

Montréal seeks to become an international leader among smart and digital cities. Broad areas of project focus and implementation will now be the result of collaborative efforts, rather than the sole preserve of city workers or elected officials.

The BVIN's strategy has been dictated out of a concern for transparency and cooperation with stakeholders. Civil society, university, businesses—and in particular, young entrepreneurs – representatives of other cities and levels of government have all made major contributions to producing the 2014-17 Montréal Strategy. Many have participated in the numerous work sessions to which they city invited them, even on weekends. The engagement of Montréal's collaborative ecosystem is certainly a good omen for the success of the ambitious goals Montréal has set.

The city would like to thank all local stakeholders for their work over the past few months. The city does hope it can continue to count on them to forge transformation projects that will take shape over the next few weeks and that will make Montréal unique and decisive as a smart, digital city. Montréal will take advantage of technological progress, along with the collective creativity and intelligence of its citizens and partners. Montréal will deliver collective well-being in line with all its citizens' hope and efforts.

GENERAL CONCEPTS

- *Coagglomeration, Clusters, and the Scale and Composition of Cities*⁷⁶ - Grosvenor Professor of Cities, Business Economics and Public Policy Sauder School of Business. University of British Columbia. Canada (2014).
- *Smart Cities: Background Paper*.⁷⁷ UK Department for Business Innovation & Skills (2013).
- *Smart Cities Initiatives*.⁷⁸ Université Laval (2012).
- *Smart Cities and 311 service*⁷⁹. Center for Technology in Government. (USA. 2012)
- *The Importance of Death and Life of Great American Cities (1961) by Jane Jacobs to the Profession of Urban Planning*.⁸⁰ New Visions for Public Affairs (2009)
- *What are Future Cities? Origins, Meanings and Uses*.⁸¹ Government Office for Science (2014)

ECONOMIC ASPECTS

- *Business Models for Open Government Data. Magalhaes et al.*⁸² The University of Texas at Austin (2014).
- *Getting Smarter about Smart Cities*.⁸³ Brookings Institution (2014)
- *Strategic Opportunity Analysis of the Global Smart City Market*.⁸⁴ Frost & Sullivan (2013)
- *The Smart Cities Market : Opportunities for the UK*.⁸⁵ Department of Business Innovation & Skills (2014)

CO-DEVELOPMENT AND CO-CREATION

- *Co-Design in Smart Cities*.⁸⁶ Smart Cities. (2011).
- *Make it Local*.⁸⁷ Nesta (2014).

⁷⁶ www.sauder.ubc.ca/About/Dean_Robert_Helsley/~media/Files/HS_Coagglomeration_1-22-2014.ashx

⁷⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/246019/bis-13-1209-smart-cities-background-paper-digital.pdf

⁷⁸ ofti.org/smart-cities-initiatives/

⁷⁹ ofti.org/smart-cities-and-311-service/

⁸⁰ www.sppa.udel.edu/sites/suapp.udel.edu/files/The%20Importance%20of%20Death%20and%20Life%20Final.pdf

⁸¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337549/14-820-what-are-future-cities.pdf

⁸² opendata500.thegovlab.org/files/Business_Models_for_OGD.pdf

⁸³ www.brookings.edu/research/papers/2014/04/23-smart-cities-puentes-tomer

⁸⁴ www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=SA&subtype=WH&htmlfid=UVW12372USEN#loaded

⁸⁵ ofti.org/the-smart-cities-market-opportunities-for-the-uk/

⁸⁶ <http://ofti.org/co-design-in-smart-cities/>

⁸⁷ <http://ofti.org/make-it-local/>

CULTURE

- *Community as Canvas: The Power of Culture in the Emergence of Intelligent Communities.*⁸⁸ Intelligent Community Forum (2013)

OPEN DATA

- *Building Community around Open Government Data.*⁸⁹ European Public Sector Information Platform (2014)
- *Fiscal Transparency and Open Government Data*⁹⁰ European Public Sector Information Platform (2013)
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311: Service used in many US and Canadian cities as an easy and single telephone entry point for citizens seeking non-urgent municipal services.

3-YCP: Three-year capital program. Planning of municipal investments over three years.

Accelerator: Generally, a for-profit business operated by venture capital investors to generate returns on investments in client firms. Accelerators provide a range of services to businesses at the start of their growth, including financial support, advice on business, office space, development and additional services provided through partner organizations. Source: Adapted from the Canada National Research Council.

Accountability: Obligation of a manager, executive, director or administrator to demonstrate that s/he has complied with various explicit or implicit conditions in managing and controlling resources under his/her authority. Source: Adapted from the *Encyclopédie du parlementarisme québécois*.

API: Interface containing functions required for application development. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

Big data: Set of data continuously produced in real time from heterogeneous sources in different formats, with exponential growth. Source: Adapted from the *Grand dictionnaire terminologique* of the Office québécois de la langue française.

Chief data officer: Senior French official responsible for releasing data for all of France.

CMM: Community métropolitaine de Montréal.

Co-Creation: Sustainable development of products and services by a business in active collaboration with its clients. Source: Adapted from wikipedia.org.

Co-Design: Process of developing a typically innovative product or service involving the final user. Source: Adapted from wikipedia.org.

Co-Development: There are two types: horizontal (within different administrations of the same kind) and vertical (between stakeholders, citizens and programmers).

Collaborative innovation: Work involving multiple parties – such as the city, the academic community, business and civil society – and resulting in the creation of new products and services.

Digital divide: Widening inequality in personal computer hardware and Internet access, growing disparities by income level, region and ethnic background. Source: Adapted from the *Grand dictionnaire terminologique* of the Office québécois de la langue française.

Electric service delivery: Delivery over the Internet of secure and non-secure government services to users. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

Fab Lab: A fab lab (from “fabrication laboratory”) is a site in which members of the public can use a host of tools, such as computer-controlled machine tools, to design and produce objects. Source: adapted from wikipedia.org.

Incubator: Generally, an NPO that provides services similar to those of an accelerator, but tends to spend more time on the businesses. An incubator provides a broader range of services in terms of facilities and coaching services. Incubators are often sponsored by universities, colleges and economic development agencies. Source: Adapted from the Canada National Research Council.

Intelligent Transportation System: New information and communication technology applications for the transport sector. They are “intelligent” because their development is based on features generally associated with intelligence: sensory abilities, memory, communication, information processing and adaptive behaviour. Source: Adapted from wikipedia.org.

Intermodal: Intermodal transportation means successive use of two or more forms of transportation to transport an individual or payload from origin to destination. Source: Adapted from wikipedia.org.

Interoperable: Ability of heterogeneous computer systems to work together, through the use of shared languages and protocols and to provide reciprocal access to their resources. Source: Adapted from the Grand dictionnaire terminologique of the Office québécois de la langue française.

Last mile: Set of agents, operations and associated equipment used for a telecom network’s final distribution segments. Source: Adapted from wikipedia.org.

Mb/s: Quantity of digital data transmitted per unit time (1 million bits – 0 or 1 – per second).

Multimodal: Movement of passengers or freight involving different successive modes of transportation. Source: Adapted from the *Grand dictionnaire terminologique* of the Office québécois de la langue française.

Prototyping: Process involved in producing a prototype. The prototype is an incomplete and not final model that could be the product or final object. Source: Adapted from wikipedia.org.

Detector: Technology device that can detect something with one or more characteristics. Detectors are used in alarms, fire-prevention systems and satellites. Source: Adapted from www.linternaute.com/dictionnaire/fr/definition/senseur/.

Start-up: Young, high-potential firm that spends most of its time raising money. “Start-up” is a term also used for construction companies that have not yet entered the commercial market. Source: Adapted from wikipedia.org.

Telemetry: Use of acoustic, optical and radio signals to measure the distance between an observer and distant location. Source: Adapted from the *Grand dictionnaire terminologique* of the Office québécois de la langue française.

Ultra-high speed: Ultra-high speed Internet service generally provided over fibre optic lines.

Wi-Fi: Use of microwaves to connect different computer devices to a network and permit data transmission between them. Source: Adapted from wikipedia.org.