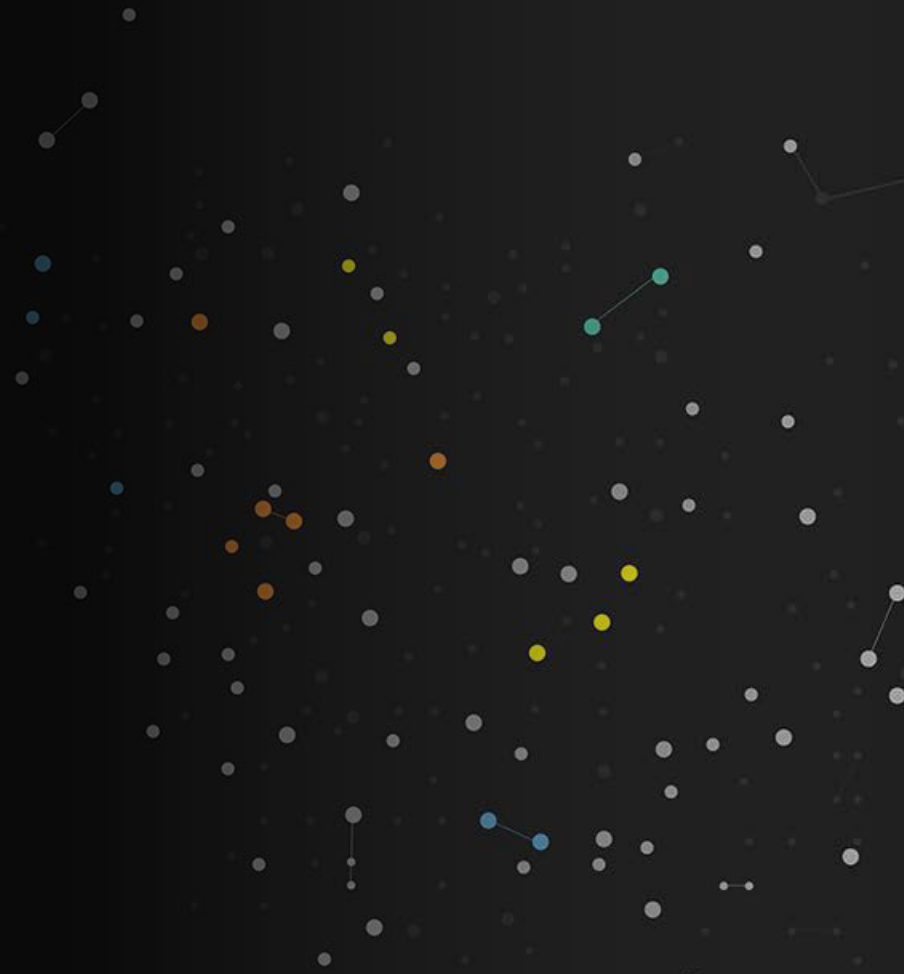# Smart City

The City of Vancouver Digital Journey

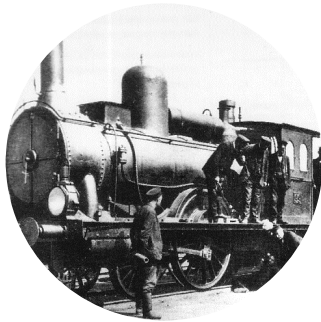Jessie Adcock
Chief Technology Officer
City of Vancouver

December 2017

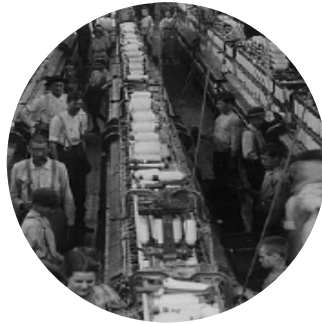CITY OF VANCOUVER

Technology is transforming cities...

1784 2017

STEAM REVOLUTION

ELECTRICITY REVOLUTION

AUTOMOBILE REVOLUTION

DIGITAL TECHNOLOGIES
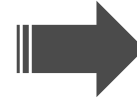
... and redefining Vancouver

External pressures, innovation, new data sources, social and environmental needs, operational constraints and changing citizen expectations created a need for cities to become smart and digital.

The challenge once they complete their strategies… is staying smart!

Foundational Strategies

Evolving Strategies

Driven by
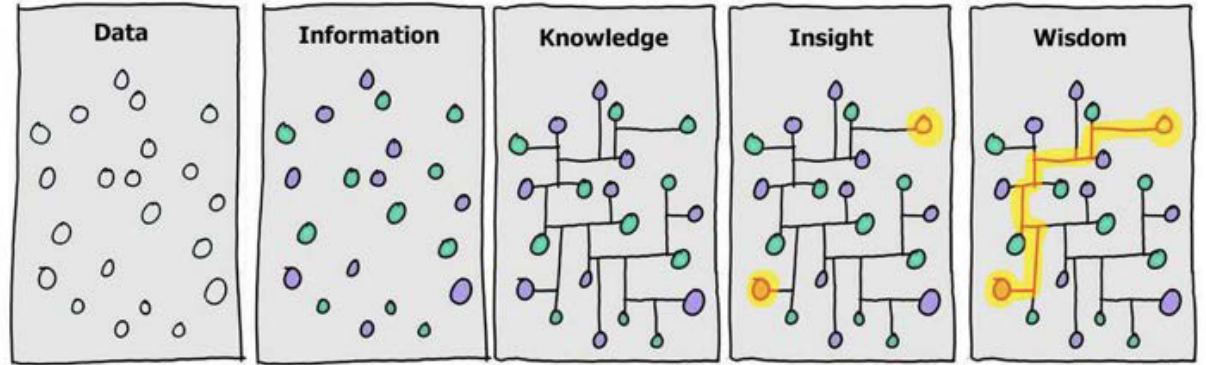**Changing Citizen Expectations**

Driven by
Technology Shaping Cities

CITY OF
VANCOUVER

Where does the journey to becoming a smart city begin?

It starts with data and ends with the connections citizens, business, and government make to enhance the urban experience.

@SOURCE: Artwork by David Somerville, based on an original drawing by Hugh McLeod

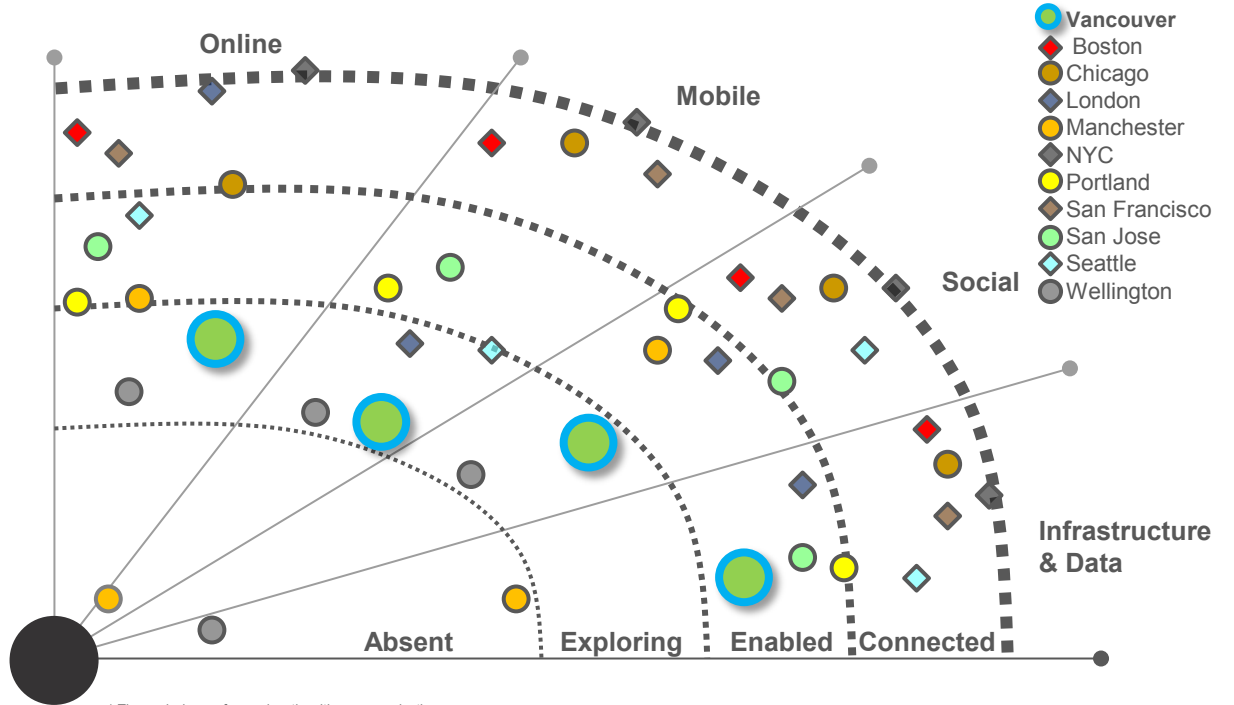In 2011, Vancouver saw NYC rise to face the digital challenge.

In 2012, we assessed our digital maturity. We discovered we had some work to do.

We also discovered that digital strategies of the breadth we felt was needed were few and far between.

1. The analysis was focused on the cities as organizations .
2. Data was not normalized to conduct assessment.
3. Vancouver Public Library or Vancouver Police Department digital readiness was not included in the assessment.
4. Boston, Portland, San Francisco, San Jose, and Seattle were assessed using the PwC capability metrics by the VSR.
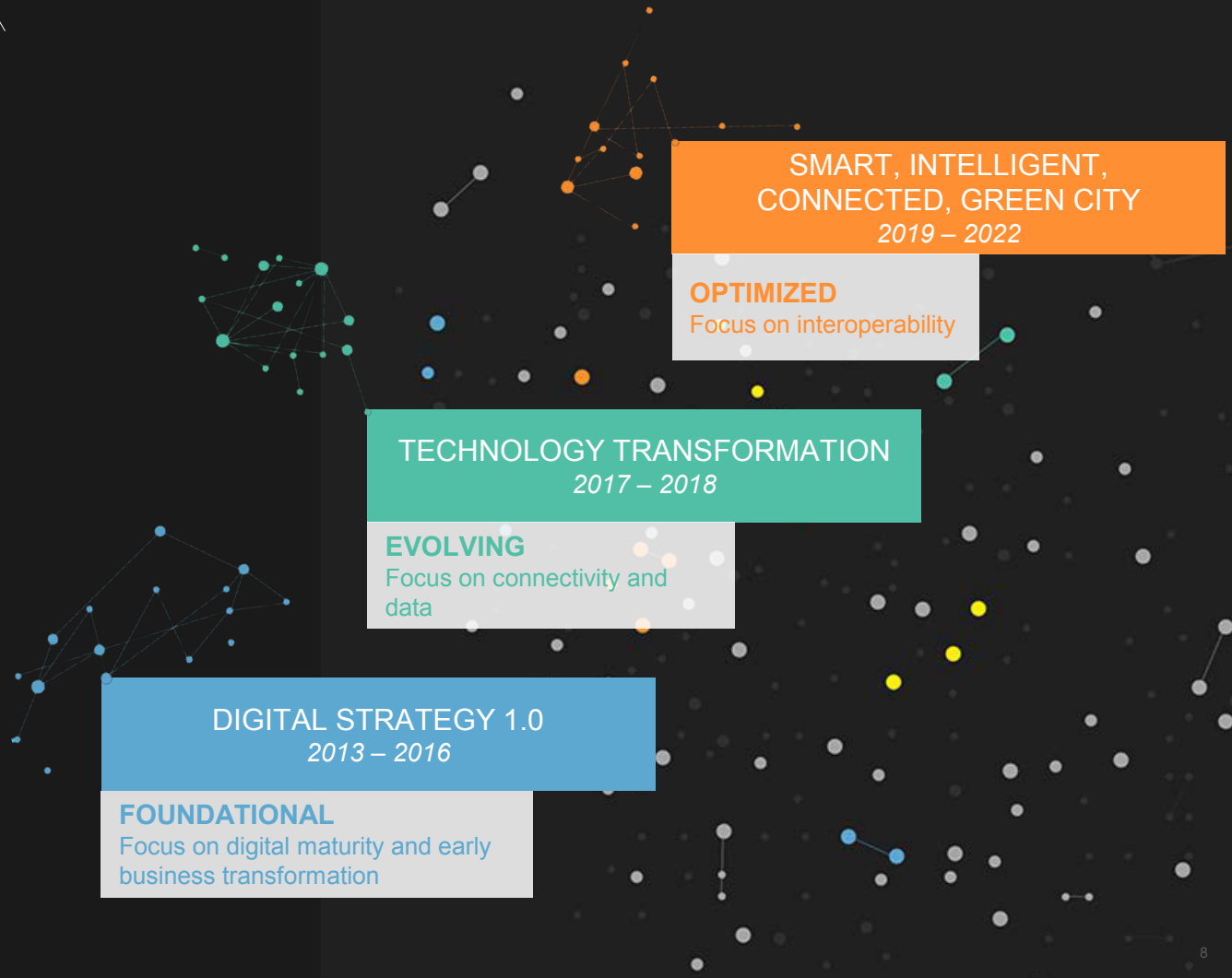5. The assessment was completed in the fall of 2012.

@SOURCE: PwC Digital Readiness Assessment and Maturity Model
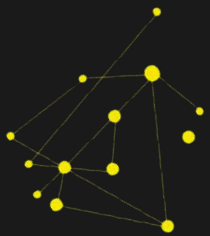
Vancouver is on a journey. A journey to create a smart, intelligent, connected, green city. And it's taking some time to get there. This is CoV's story to date.

DIGITAL MATURITY

SMART, INTELLIGENT, CONNECTED, GREEN CITY
2019 – 2022

OPTIMIZED
Focus on interoperability

TECHNOLOGY TRANSFORMATION
2017 – 2018

EVOLVING
Focus on connectivity and data

DIGITAL STRATEGY 1.0
2013 – 2016

FOUNDATIONAL
Focus on digital maturity and early business transformation

CITY OF VANCOUVER

Laying the foundation for a Smart City

DIGITAL STRATEGY 1.0
2013 – 2016

ENGAGEMENT + ACCESS

DIGITAL ECONOMY

INFRASTRUCTURE & ASSETS

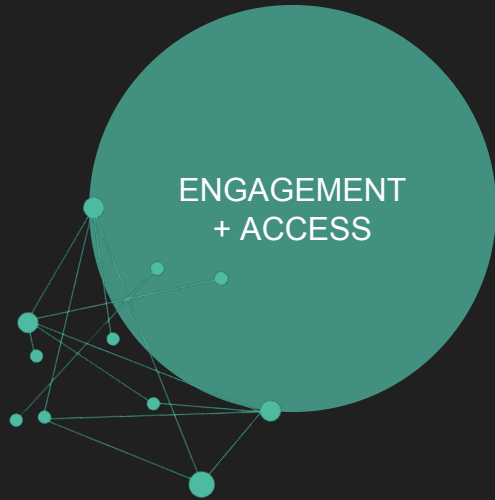ORGANIZATIONAL DIGITAL MATURITY

CITY OF VANCOUVER
DIGITAL STRATEGY
CITY OF VANCOUVER

CITY OF VANCOUVER

ENGAGEMENT + ACCESS

Citizens and businesses can easily interact with the City through digital channels

CITY OF
VANCOUVER

Improve delivery of high demand services through digital channels

Provide access to technology and increase digital literacy for all

3-1-1

Increase citizen involvement through digital engagement

Prioritize Digital

CITY OF VANCOUVER

Be citizen centric and invest in practices that will drive adoption

Better digital services lead to better data

Unify service delivery Models…
Think multi or omni Channel

CITY OF VANCOUVER

Embrace mobility
and promote activity
through digital tools

The table stakes
of digital
transformation

Transparency into the
process drives delight

CITY OF
VANCOUVER
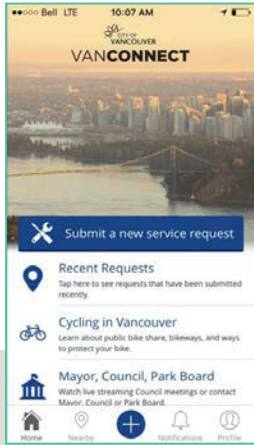
Hastening graffiti removal along Hastings with VanConnect and evolving relationships with City partners

38, 092
downloads
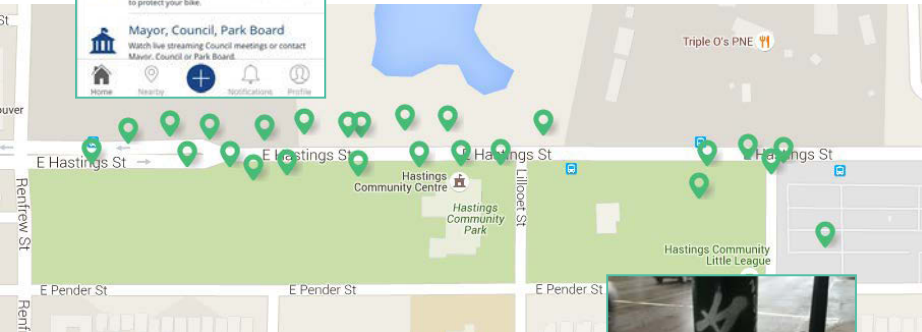
82, 411 service requests
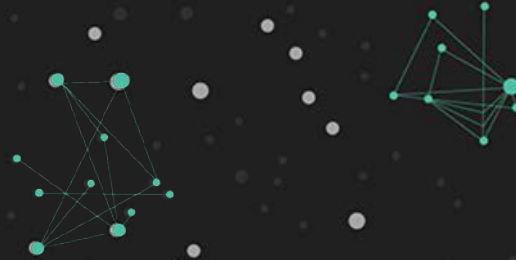
Mobilizing on mobile

CITY OF VANCOUVER

DIGITAL ESSENTIALS

+3,000
digital literacy programs

+620
advanced digital
skills programs

Demolishing the
digital divide
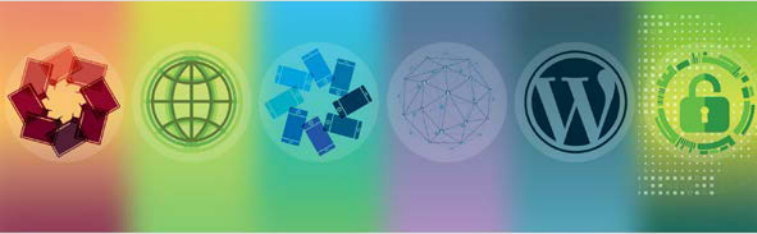
"Having the ability to understand the digital world and engage in it is vital for everyday life,"

Anne O'Shea, Manager of programming and learning, Vancouver Public Library

CITY OF VANCOUVER

A robust digital infrastructure built through strategic investments and partnerships

INFRASTRUCTURE & ASSETS

CITY OF VANCOUVER

Pervasive digital infrastructure, the convergence of IT and OT, and data as an asset
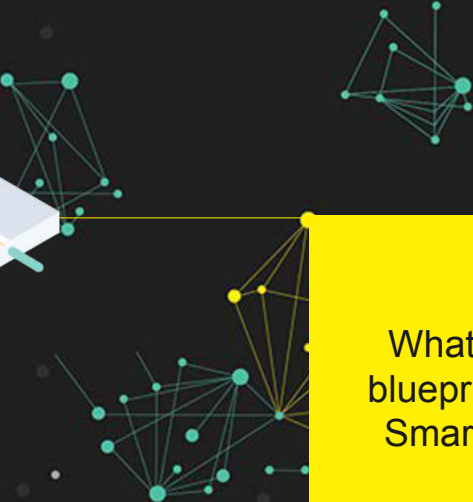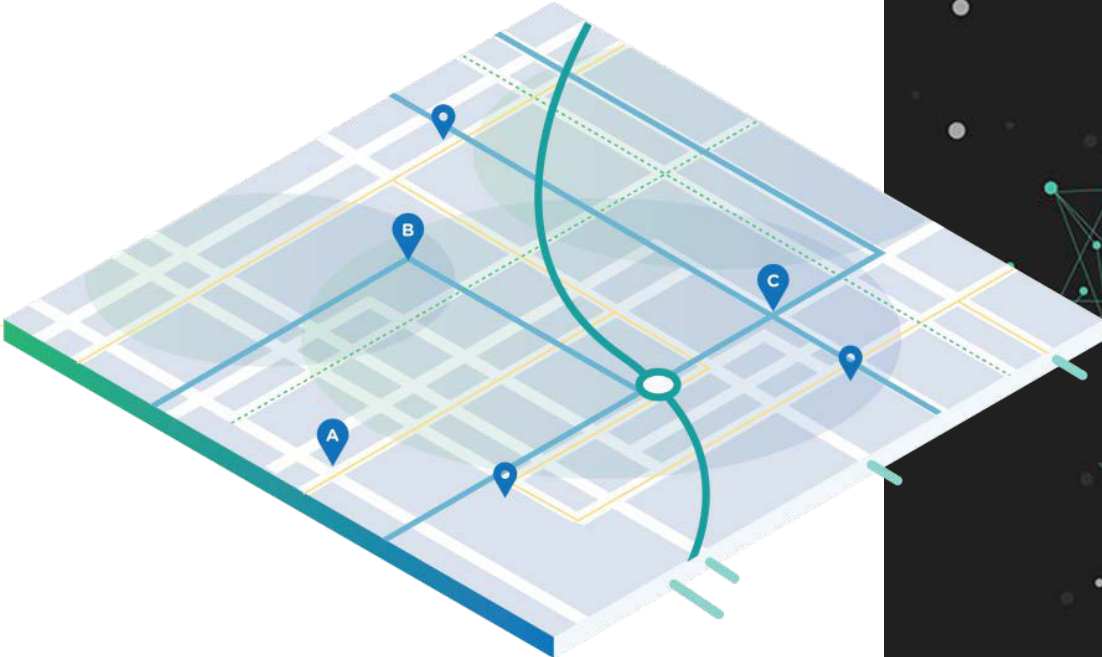
What is the blueprint for a Smart City?

CITY OF VANCOUVER

18

Total Property Values for
Single Family Home (RS) Districts
City of Vancouver
2016

Total BC Assessment Property Values
Land + Improvement Values
Over $1 million
Below $1 million
Non-RS Property/Data Unavailable

@SOURCE: The End of the $1 million Line for Single Family Homes in the City of Vancouver, Andrew Yan, January 2016

Data wrangling and visualizations illuminate the the story of affordable housing in CoV

145 datasets

5,000 average downloads per month

Awakening awareness with open data

"The Catalogue should be lauded by everyone in the data community in the City for providing incredibly rich and robust tabular and spatial datasets from which analysts, scholars, and advocates can draw upon."

CITY OF VANCOUVER

BCNET

TELUS

The right approach to strategic partnerships will put Vancouver on the global map of wireless cities

230
kilometers of fibre

Strategic partnerships help connect the dots

connect approximately **200** locations

with **99.999** uptime

CITY OF VANCOUVER

How do you get ready to become a Smart City?

You pave the way for pervasive, fibre-enabled, digital infrastructure through innovative policy.

DIG ONCE

ANTENNA ATTACHMENT PROTOCOL

OVERBUILD CONDUIT
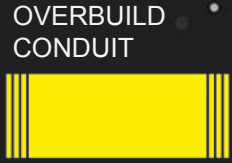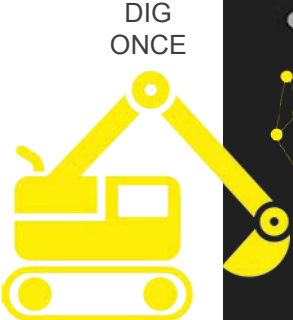
Smart cities run on digital infrastructure

CITY OF VANCOUVER

"Connectivity is not a luxury"
– *Jo-Ann Stevens*

+280,000
#VanWiFi users in 2017 to date

14
#COV public WiFi locations

43
#VanWiFi sites

Things to do in Van @1K_things · Jun 21
BerrihanXxx We've got free #VanWifi CityofVancouver bit.ly/2rgPMQB #veryvancouver (via Twitter twitter.com/MyVancouver/st…)

Vancouver Park Board @ @ParkBoard · 13 Aug 2016
Free #VanWiFi at #SecondBeachPool means you can do #VanSplash survey in between splashes vancouver.ca/VanSplash

CITY OF VANCOUVER
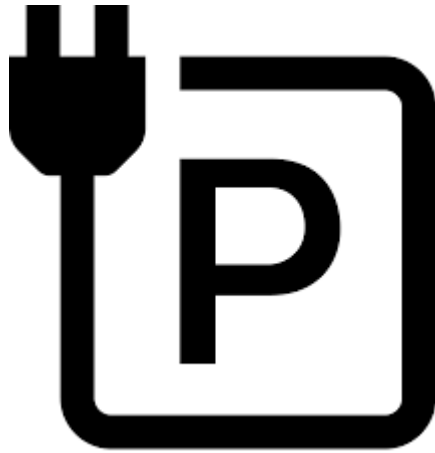
"The cost of electricity to fully charge an electric vehicle is less than your morning coffee"

250+
EV Charging Stations
In Vancouver

Electric vehicle sales have grown

70%

year-over-year since 2011

75
City of Vancouver
Level 2 Chargers

1
City of
Vancouver
DC Fast Charger

CITY OF VANCOUVER

DIGITAL ECONOMY

Vancouver is a global leader in supporting innovation and growth in the digital economy

Vancouver's Innovation Economy

#1 Job-Creating Economy in Canada (Conference Board of Canada)

#1 Most Diverse Economy in Canada (Conference Board of Canada)

#1 Startup Ecosystem in Canada (World, Startup Genome)

#1 VFX & Animation Cluster in World (World, Variety Magazine)

#1 Cleantech Cluster in Canada (World, Global Cleantech Cluster Association)

VANCOUVER
ECONOMIC COMMISSION

① ② Downtown Core & Yaletown

Microsoft | Sony Pictures imageworks | amazon | MPC
slack | ARCHIACT | hp | AVIGILON THE BEST EVIDENCE
AxiomZen | SAP | acl | sage | Canon
CISCO | IBM | BOEING | intel | ZENEFITS | salesforce

③ Gastown

cognitiveVR | work [at] play
A THINKING APE
VANCOUVER FILM SCHOOL | ZOIC | INDUSTRIAL LIGHT & MAGIC

④ Mount Pleasant

Hootsuite | double negative visual effects
dhx media | CAPCOM

⑤ False Creek Flats

Nintendo | BANDAI NAMCO
STEMCELL TECHNOLOGIES | BBI BLACKBIRD

⑥ Kitsilano & Broadway

lululemon athletica
RainmakeR | DIGITAL DOMAIN

Vancouver	603,502	30%
Burnaby	223,218	20%
Coquitlam	126,456	15%
Richmond	190,471	10%

Rapid Transit (Tri-Cities)
Skytrain (Burnaby)
Skytrain (YVR/Richmond)
T Skytrain Station
Major Bus Route

Business Density
MEDIUM — HIGH

Stanley Park

Vancouver Harbour

English Bay

20 min walk

10 min walk

35 mins to UBC

30 mins to Coquitlam
45 mins to Maple Ridge

15 - 20 mins to Burnaby
25 - 30 mins to Coquitlam

20 mins to Richmond
25 mins to Airport

Digital districts driving the innovation economy

DIGITAL ECONOMY

26

Plotting the Digital Evolution Index, 2017
Where the digital economy is moving the fastest, and where it's in trouble.

HOW COUNTRIES SCORED ACROSS FOUR DRIVERS ON THE DIGITAL EVOLUTION INDEX (OUT OF 100)

SOURCE DIGITAL EVOLUTION INDEX 2017, THE FLETCHER SCHOOL AT TUFTS UNIVERSITY AND MASTERCARD   © HBR.ORG
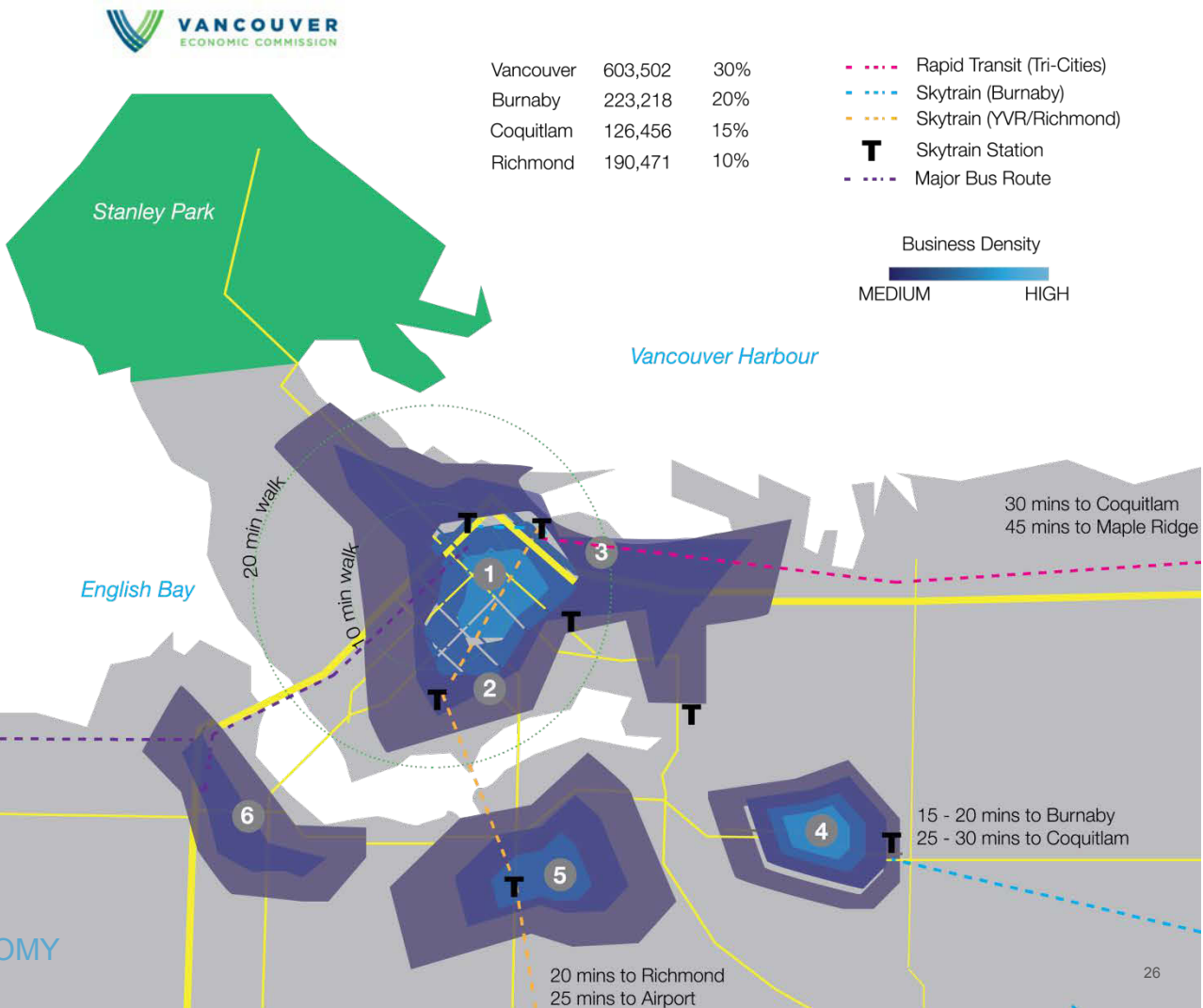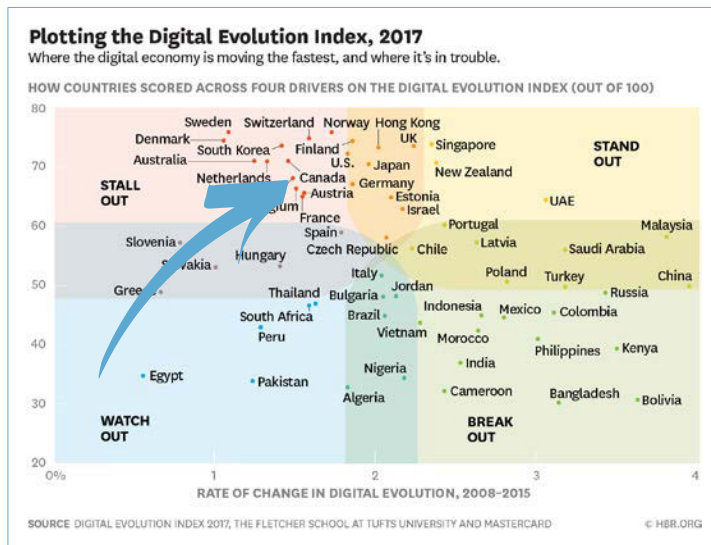
@SOURCE: 60 Countries' Digital Competitiveness, Indexed, HBR.org

According to HBR, Canada is **"stalling out"** in the digital economy. What is stalling out? These are "countries that enjoy a high state of digital advancement while exhibiting slowing momentum".

Public policy is essential to the success of the digital economy.

Countries [and cities] should identify and amplify their unique drivers of digital momentum

Start your engines. Averting the stall out in the digital economy

CITY OF VANCOUVER

VANCOUVER
ECONOMIC COMMISSION

GREEN & DIGITAL
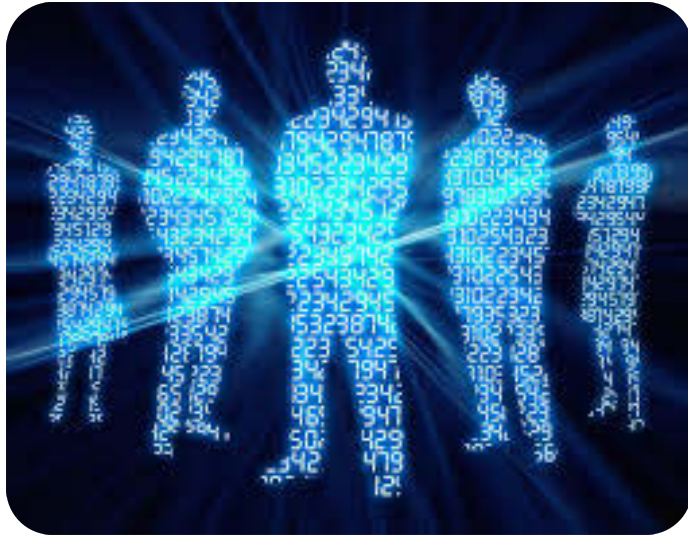**DEMONSTRATION PROGRAM**
GDDP

#14

of 25 of the highest tech cities
in the world (WEF 2017)

Growing green
and digital
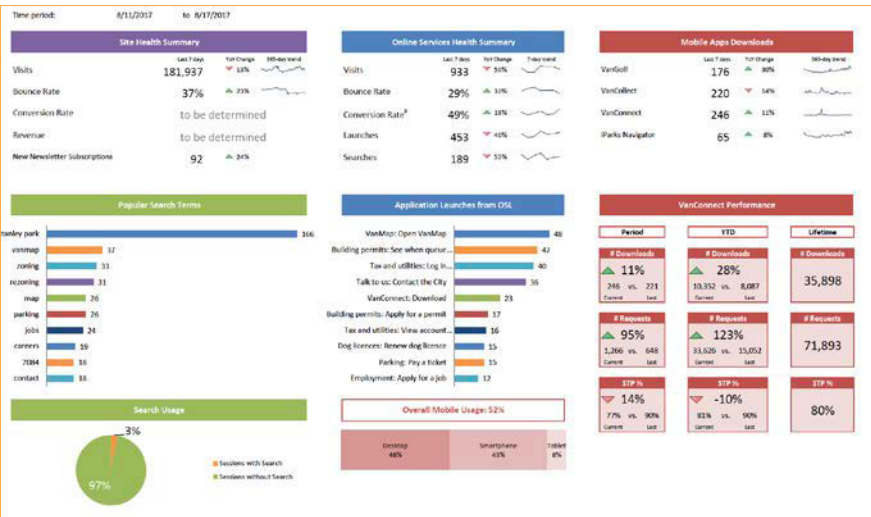innovation

CITY OF
VANCOUVER

ORGANIZATIONAL DIGITAL MATURITY

Digital IN and OUT

Digital business in the real world

The digital dashboard creates ongoing visibility of the impact of the digital transformation and its outcomes

CITY OF VANCOUVER

32% of CDOs have a technology background, a significant increase since 2015 (14%).

@SOURCE: Chief Digital Officer Study, 2016, Strategy& (part of the PwC Network)

Unifying the digital and technology agendas

CITY OF VANCOUVER

Evolving to get ready for the Smart City

TECHNOLOGY TRANSFORMATION
2017 – 2018

CITY OF VANCOUVER

Flexible frameworks that empower.

Maturing IT practices.

Fluency in agile and traditional modes of operation.
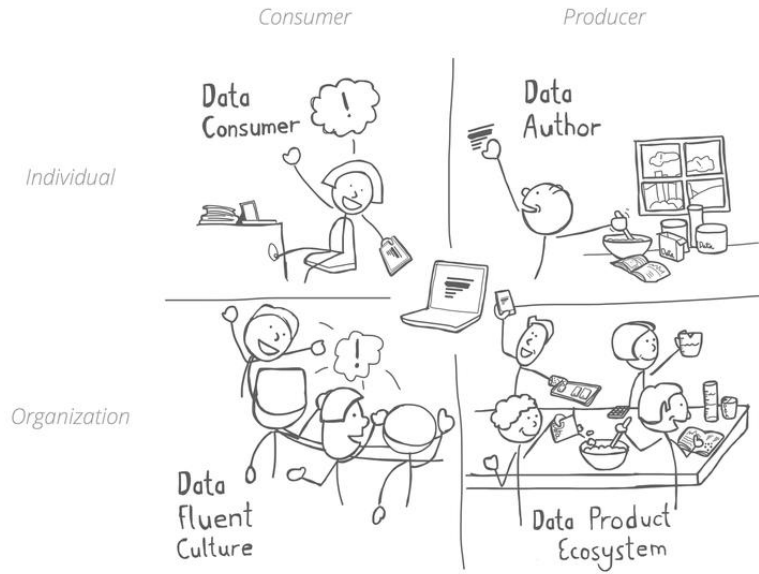
Designed to evolve, continually.

Moving from project orientation to product orientation.

Evolution not revolution.

Strategy is not a capital project.

An innovative, resilient and agile framework for IT

Consumer | Producer

Individual

Data Consumer | Data Author

Organization

Data Fluent Culture | Data Product Ecosystem

@SOURCE: Shutterstock Builds a Data Fluent Culture, Juice Analytics

Driving a 'data fluent culture'

Optimizing for interoperability

SMART, INTELLIGENT, CONNECTED, GREEN CITY
2019 – 2021

CITY OF
VANCOUVER

"Over half of trips in Vancouver are made by walking, cycling and transit"

+600,000

MOBI rides to date, covering a million km's

3916

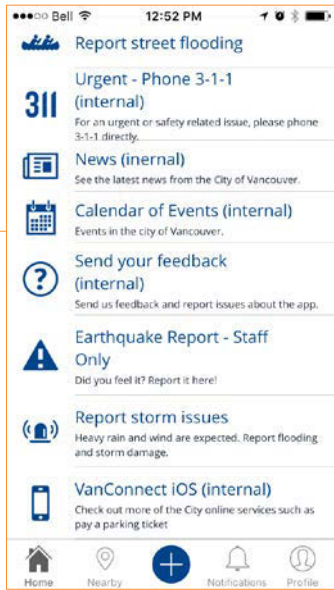Peak number of daily trips (July 1, 2017)

124

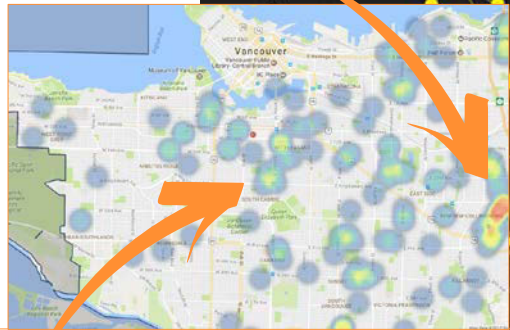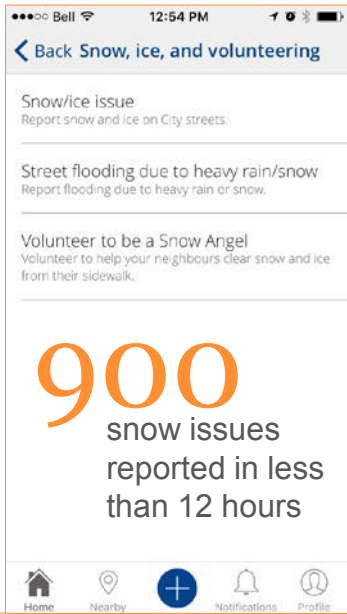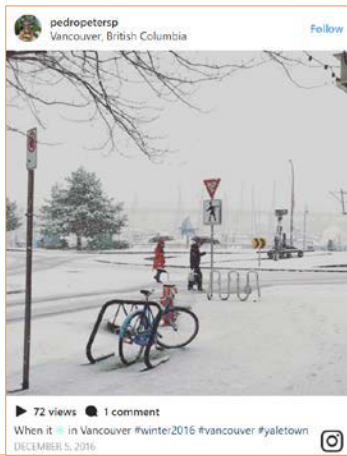Number of stations & growing

CITY OF VANCOUVER

Mobilizing our mobile workforce

Doing double-duty as data collectors

Our sanitation engineers capture geocoded data that is distributed to our social services partners (the very next day!) in order to better support the homeless
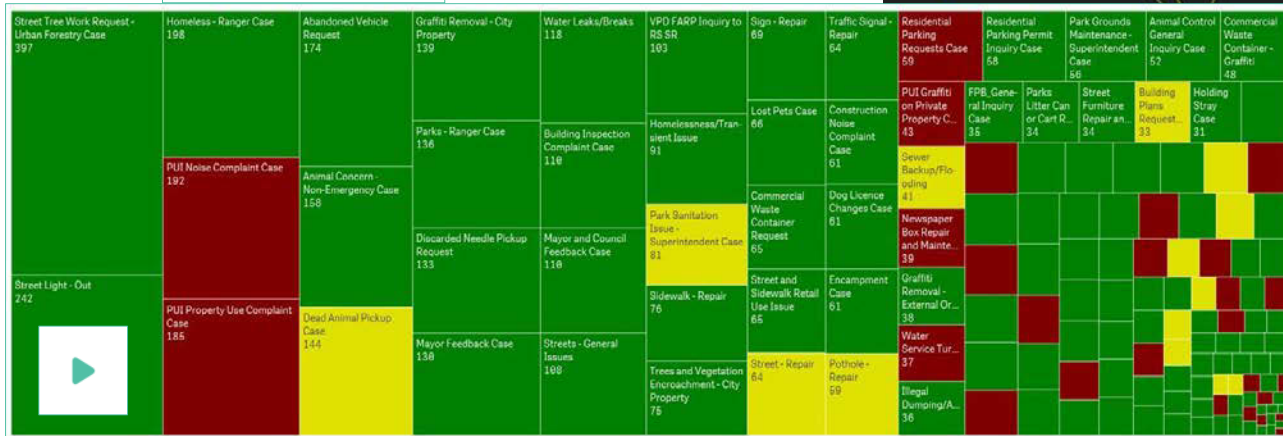
900 snow issues reported in less than 12 hours

Emergencies need the right rapid response

With flexible techology and digital channel governance, service delivery can be focused in the right way, informed by near real-time data

The right rapid response

"How can I keep my finger on the pulse of the city?"
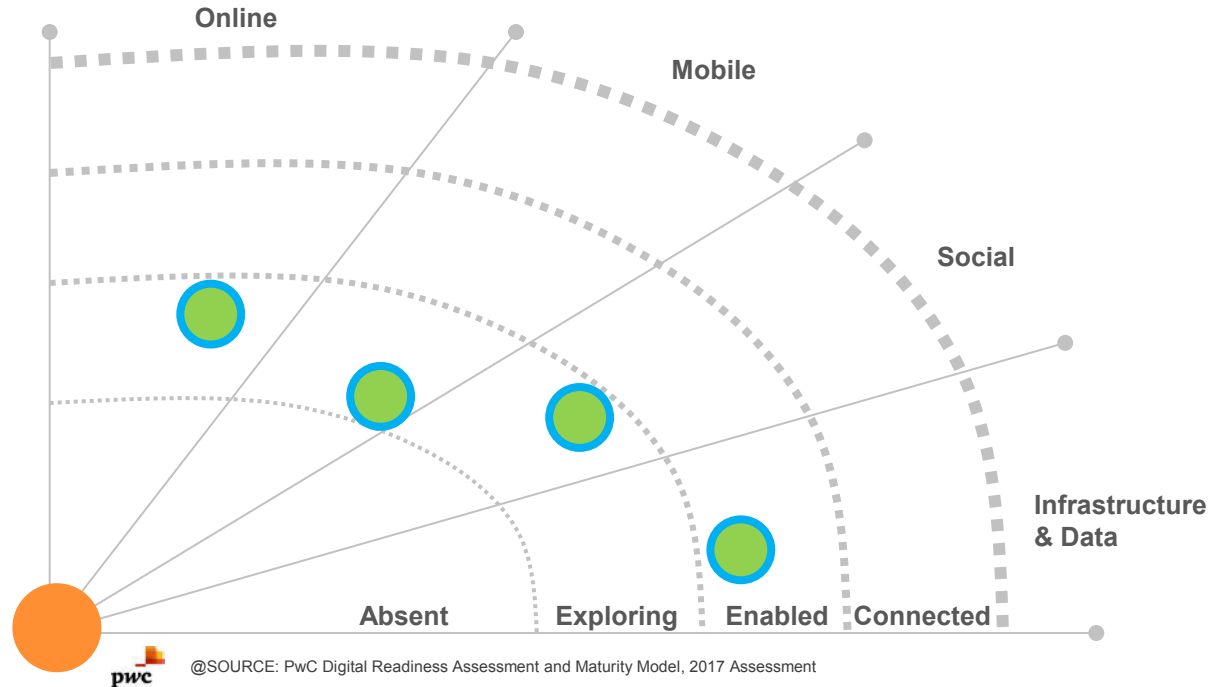– City Manager

Putting the smart in Smart City

From data to insights.
From insights to decisions.
Making data an asset.

CITY OF VANCOUVER

TODAY

Where are we today?
Our digital maturity
has increased
significantly. But so
has the bar. And the
gauge itself is
changing.

Online

Mobile

Social

Infrastructure
& Data

Absent   Exploring   Enabled   Connected

@SOURCE: PwC Digital Readiness Assessment and Maturity Model, 2017 Assessment

CITY OF VANCOUVER

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As Vancouver continues on its successful digital journey, the smart, intelligent, green, and resilient city of the future will emerge from the digital noise and the data exhaust.