NS LIVE CASE SERIES 2018

CANADA'S SMART CITIES CHALLENGE: HARNESSING INNOVATION THROUGH COMMUNITY ENGAGEMENT

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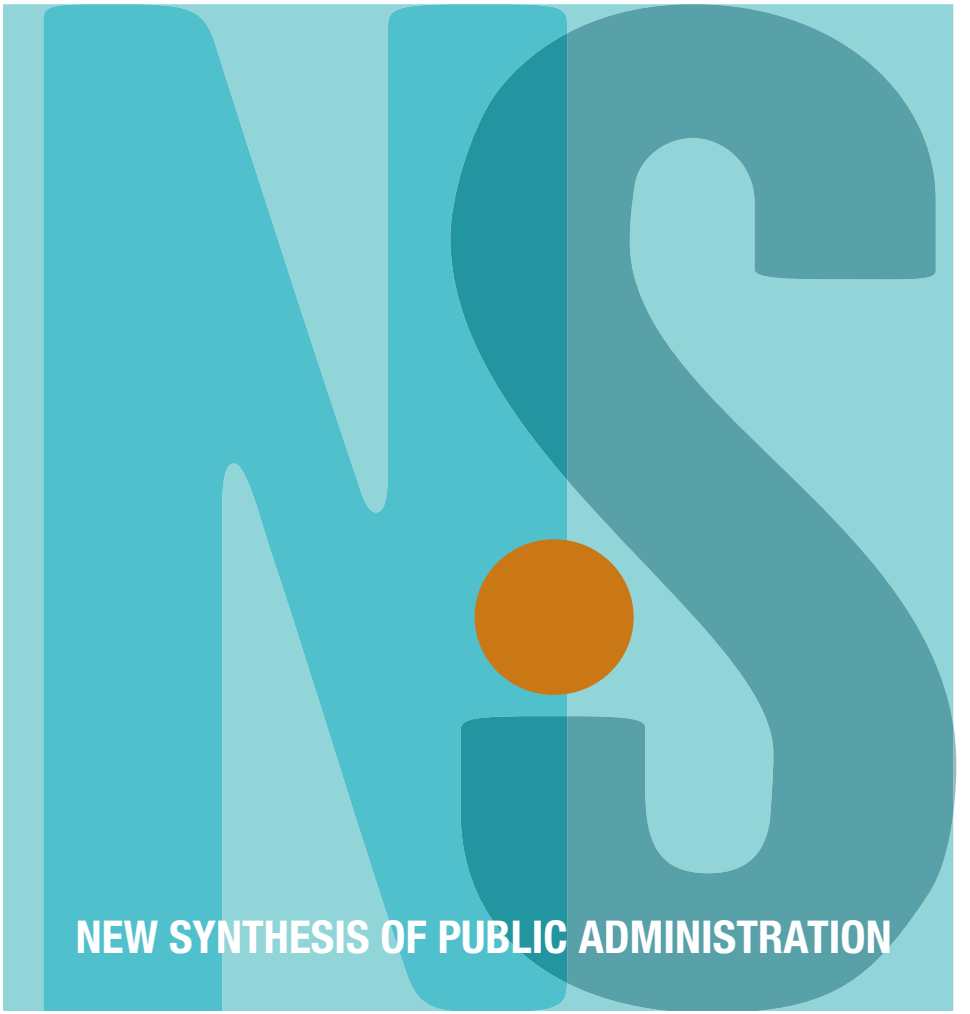

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Context

A 1998 OECD report titled *21st Century Technologies*, properly asserted that "many people welcome the prospect of technological innovation offering such bountiful possibilities for the twenty-first century. However, along with this optimism there is also a profound recognition that both the desirability and feasibility of technological developments will depend primarily on the introduction and diffusion of numerous economic, social and governmental enabling conditions."[1]

Over the last two decades, we have witnessed significant technological advancements and innovations in many areas, including transportation, energy conservation, sustainability, and urban development. In fact, technological innovation has spurred a worldwide phenomenon of experimenting with their possible applications in the public sector. Among the many applications of information technology which can be seen in the world today are the so-called "Smart Cities"[2].

Smart Cities' definitions and approaches have evolved among scholars, policymakers and technology pacesetters over the years. Interpretations of the concept have also varied from one place to another. However, information and communications technology (ICT) and modern technology are considered the core aspect of the smart cities concept.[3] For example, in North America, the U.S. Department of Transportation launched a *Smart City Challenge* in 2015 and asked mid-sized cities across America to develop ideas for integrated and smart transportation system using data, applications and technology.[4] Additionally, in the U.S., the Rockefeller Foundation has pioneered the 100 Resilient Cities (100RC) initiative that focuses on building integrated and inclusive ecosystems that strengthen the capacity of communities and diverse stakeholders to "survive, adapt and thrive" no matter the types of shocks they experience.[5] In Europe, Barcelona's Smart City program and the "Smarter Together" club of cities (Vienna, Munich, Lyon, etc.) are utilizing smart city approaches and citizen-centric innovation to contribute to positive societal outcomes.[6] The above examples show that beyond leveraging modern technology, collaborative and inclusive engagement is fundamental to building smart and resilient cities.

1 Organisation for Economic Co-operation and Development (OECD). 1998. "21st Century Technologies: Promises and Perils of A Dynamic Future". p.29. https://www.oecd.org/futures/35391210.pdf Retrieved on June 26, 2018.

2 The United Nations defined a smart city as a "city that operates in an ambitious and innovative manner covering areas of economy, people, governance, mobility, environment, and living. Such innovation is to be built on the smart combination of support and active participation of self-decisive, independent and aware citizens" (2015:14). However, Cellary (2013) notes there is no common consensus regarding the meaning of "smart" in the context of information and communications technology (ICT).

3 Arafah and Winarso (2017) highlighted ICT and modern technology as key characteristics of the smart city concept. However, "very few, if any, literature emphasizes the importance of resilience in the smart city discourse" p.1.

4 U.S Department of Transportation (n.d). Smart City Challenge. https://cms.dot.gov/sites/dot.gov/files/docs/Smart%20City%20Challenge%20Lessons%20Learned.pdf
Retrieved July 11, 2018

5 Rockefeller Foundation (n.d). 100 Resilient Cities: What is Urban Resilience? https://www.100resilientcities.org/resources/ Retrieved July 17, 2018

6 Smarter Together (n.d). https://www.smarter-together.eu/about-club Retrieved July 12, 2018

Canada's Smart Cities Challenge

This case describes the approach used by Infrastructure Canada (INFC) to empower Canadian communities to address local issues.

In 2016's *Fall Economic Statement*, the Government of Canada proposed a *Smart Cities Challenge*.[7] In *Budget 2017*, the Government of Canada provided some details regarding this initiative. As part of its objective of encouraging innovative ideas in cities and communities, the Government provided INFC with "$300 million over 11 years to launch a Smart Cities Challenge Fund."[8] In November 2017, the *Smart Cities Challenge* was officially launched. It was "open to communities of *all sizes*, including municipalities, regional governments and Indigenous communities (First Nations, Métis and Inuit)."[9]

One of the sources of inspiration for Canada's *Smart Cities Challenge* was the U.S. Department of Transportation's *Smart City Challenge*, which focused on locally-driven innovations for addressing challenges in mid-sized cities. The U.S. program administrators of the *Challenge* used an approach focused on community engagement for the design and implementation of the initiative.

This case details the steps that Canadian officials took to adapt the Smart Cities approach to the realities of diverse communities across Canada through a process of public and community engagement. This engagement process contributed to fostering new partnerships, strengthening community capacities, and breaking down barriers between people and government through collective problem-solving.

The Initial Program Challenges

At the outset of the initiative, the program administrators in INFC faced a few challenges. The initiative was announced before funding had been secured through the parliamentary approval process and there was no established protocol as to how the program would operate. The program administrators took a number of steps to overcome these initial challenges. They recruited staff members with experience at the federal and municipal level. They also adopted communication and marketing strategies to ensure the visibility of the program, and to build support and maintain momentum at the municipal level. Furthermore, they built partnerships to accelerate the often-lengthy approval process.

Beyond these initial steps, the administrators were aware that a major communication effort would be needed to spread the message from coast to coast to coast. They also understood that public and community engagement processes would be essential for the success of the program.

7 Government of Canada. 2016. Fall Economic Statement 2016
https://www.budget.gc.ca/fes-eea/2016/docs/statement-enonce/chap02-en.html
8 Government of Canada. 2017. Budget 2017: Chapter 2 – Communities Built for Change
https://www.budget.gc.ca/2017/docs/plan/chap-02-en.html
9 Infrastructure Canada (n.d). Smart Cities Challenge. http://www.infrastructure.gc.ca/cities-villes/index-eng.html Retrieved July 12, 2018

Community Engagement and Framing for Impact

As soon as the program administrators received governmental authority to launch the *Smart Cities Challenge*, they focused on soliciting ideas from communities and cities across Canada. In fact, they chose to design the program *with* communities. This collaborative community engagement approach went well beyond public consultation. Program administrators, acting as facilitators, encouraged citizens to engage with each other, to make creative contributions, voice their concerns and share insights.

The *early* process of engagement *with* communities gave program administrators a broad perspective of the challenges that communities were facing and the diversity of Canadian communities. This became the foundation for framing the competition around community needs.

THE POWER OF A COLLABORATIVE COMMUNITY - CENTRIC APPROACH
TO: IMPROVE THE QUALITY OF LIFE FOR COMMUNITY RESIDENTS BY CO-DESIGNING SOLUTIONS ↑ FROM: CITIZEN ENGAGEMENT THROUGH CONSULTATION

Program administrators were of the view that communities knew best about their own issues and realities. As a result, the competition was framed around achieving meaningful impacts for community residents. In keeping with an outcome-based impact assessment, program administrators framed the purpose of the program as addressing a "challenge" rather than a "policy objective". This shift had a significant impact on the capacity to garner support for the program. Communities were given the opportunity to select the challenge they wanted to address, build partnerships and propose ideas to improve the quality of life for residents. The *Challenge Statement*, a statement that defined the outcome a community aimed to achieve, had to be "measurable, ambitious, and achievable through the proposed use of data and connected technology."[10]

Communities were empowered to work together to achieve outcomes that would benefit their communities and society. The community-centric approach encouraged a high level of public participation.

Engaging Communities – Five Phases

Canada's *Smart Cities Challenge* entails five phases as depicted in *figure1* below:

Figure 1 - Source: Smart Cities Challenge Announcement Flyer, Government of Canada.

10 Smart Cities Challenge: Application Guide.p6. https://impact.canada.ca/en/challenges/smart-cities/applicant-guide Retrieved July 18 Retrieved 18 July 2018.

A community-centric approach was used in each phase of the initiative. This approach encouraged co-design and co-creating locally-driven solutions.

Phase 1 - Application

The first phase of Canada's Smart Cities Challenge was launched in November 2017. The prize categories included: one prize of up to $50 million open to communities regardless of population; two prizes of up to $10 million open to communities with populations under 500,000 and one prize of up to $5 million open to communities with populations under 30,000. This break-down ensured that *all* communities, regardless of size or capacity could participate in the competition.

The Canadian approach diverged from the U.S approach which only focused on mid-sized cities. It was hoped that this approach would resonate with Canada's largest cities as well as the smallest communities across Canada.

Program administrators embarked on a robust process of public and community engagement. They knew that the time was short to meet political expectations, but they also understood the importance of community engagement in the context of the shared responsibility of the Government of Canada and the provinces for regional development.[11] The program team of the *Smart Cities Challenge* visited all provinces and territories before the end of December 2017.

The officials travelled extensively across the country in late 2017 and early 2018 to meet community representatives and key industry leaders. Community engagement activities included participating in meetings with municipal and city leaders (councillors, mayors and chiefs), speaking at events, attending conferences and trade shows, holding webinars, face-to-face meetings, connecting with local media and visiting indigenous communities. Considering that many community members had little to no experience in developing public proposals, active community engagement was a prerequisite to help communities develop their projects.

The program team helped communities to prepare their proposal. Their effort covered everything from warnings about potential pitfalls, to ensuring that the *Challenge's* impacts were focused on "outcome" rather than "outputs". The administrators ensured that the initial application to the *Smart Cities Challenge* was kept short. They encouraged participants to present their challenge using "storytelling". The program administrators realized that storytelling resonated especially well with indigenous communities and smaller communities.

The program administrators also engaged academics, civil society groups and key private sector players, including information, communication and technology professionals. They built an outreach network with a number of associations including Federation of Canadian Municipalities (FCM), Canadian Association of Municipal Administrators, Canadian Institute of Planners

11 Note that there are multiple levels of government in Canada: federal, provincial, territorial and municipal.

and National ICT conferences. This proactive approach resulted in regular invitations to attend various associations' conferences.

Administrators also used social media to encourage participation. They capitalized on local media coverage and generated interests among local leaders who in turn became champions of the initiative. As the message moved around, neighbouring communities became keen on discussing the challenges they were facing. Community members came together to take a hard look at their needs. This contributed to creating a strong sense of community.

During this early phase, communities submitted their applications to Smart Cities Challenge staff. Officials reviewed the applications to determine the eligibility of the proposals based on evaluation criteria provided to all applicants in a guide.

The applications were then sent to subject matter experts in other government departments for assessment. The assessments were sent along with the applications to a 13-member jury for evaluation.

The jury was comprised of a group of accomplished individuals in fields related to smart cities. The jury was selected through "a transparent and merit-based process."[12] The jury selection process encouraged applications of talented and experienced candidates that also reflected Canada's linguistic, cultural, and regional diversity.

Overall, the community-centric approach and active public engagement strategy resonated with stakeholders and set the program on a successful path.

Phase 2 – Selection of Finalists

The second phase involved the selection of finalists. Once the applications were screened for eligibility, INFC posted the summaries online. Applicants were also required to post the full versions of their proposal online.

The proposals were first reviewed by experts in the federal government and then evaluated by an independent 13-member jury based on the criteria set out in the applicant guide. The applicant guide highlighted that meaningful engagement should be central to each stage of the competition process. The evaluation criteria gave preponderance to achieving outcomes.

Program administrators received 130 eligible applications from communities across Canada. The community and public engagement efforts were paying off. The topics most frequently identified by applicants were empowerment and inclusion, and economic opportunity. *Figure 2* provides additional details about the eligible proposals, including geographic distribution and the technologies most frequently identified by applicants for their projects.

12 Markets Insider (April 2018). "Government of Canada announces Jury for Smart Cities Challenge"https://markets.businessinsider.com/news/stocks/government-of-canada-announces-jury-for-smart-cities-challenge-1022415709

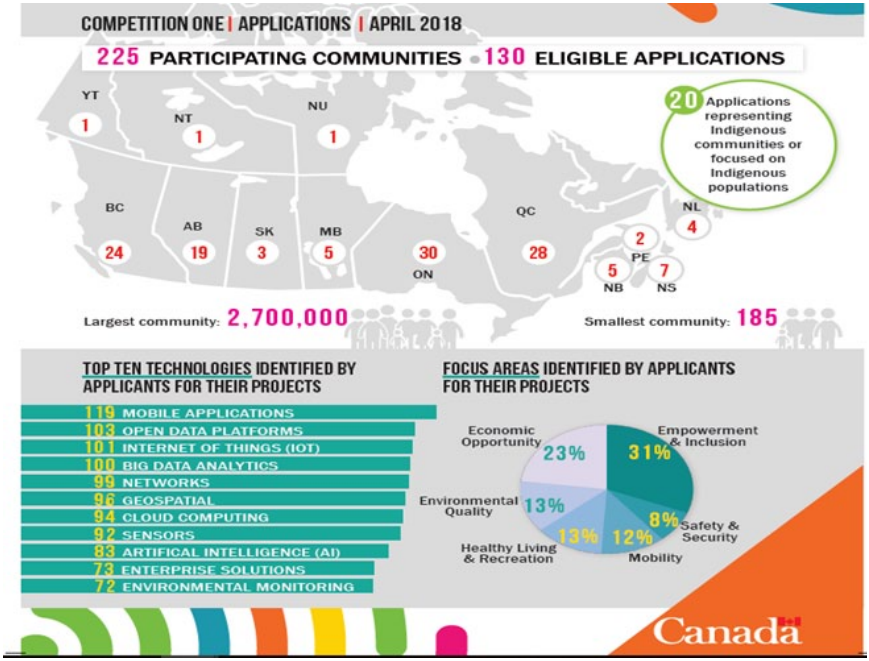

Figure 2 – Source: Smart Cities Challenge Dashboard, Government of Canada.

Phase 3 – Final Proposal

The third phase was the selection of finalists in June 2018. Out of the 130 eligible applications, 20 were selected as finalists to go to the next stage of the competition. As in the second phase, the top two areas identified by the finalists were economic opportunity, and empowerment and inclusion.

The break-down of the 20 finalists among the prize categories were as follows: 5 finalists for the $5 Million Prize Category, 10 finalists for the $10 Million Prize Category, and 5 finalists for the $50 Million Prize Category (***See Appendix A*** for their Challenge Statements). The finalist communities were awarded a $250,000 grant to develop their final proposal.[13] The grant can be used for various activities, including professional services, capacity building, community engagement and relevant training.

During this phase, the challenge for the finalists is to develop an implementable final proposal that outlines the design, planning, and management components of their initiatives. This requires engaging with community members, formalizing partnerships with organizations to implement the project and establishing its governance structures.

13 Infrastructure Canada (n.d). Smart Cities Challenge. Spotlight on Finalists http://www.infrastructure.gc.ca/cities-villes/spotlight-vedette-eng.html

INFC's program administrators launched a Smart Cities Community Support Program with the goal of working with non-profit organizations to support the finalist communities. INFC sought applications from "not-for-profit organizations interested in generating and sharing knowledge and building awareness in order to advance and support understanding of smart cities issues and approaches across the country."[14]

The non-profit organizations selected will be funded to provide advisory and capacity-building services to communities. They will also support community engagement activities and strategic collaborations across sectors.

Phase 4 - Selection of Winners

The fourth phase of the competition will be the selection of winners in Winter 2019.

Infrastructure Canada (INFC) will post all final proposals online. Similar to the earlier phases, the final proposals will be reviewed by experts and evaluated by a jury. Evaluations will focus on project feasibility, strength of the business case, and clear links to the outcomes established in the Challenge Statement.[15]

The winners will be announced by *Spring 2019*.

The *Smart Cities Community Support Program* will assist communities to build internal capacity during this phase.

Phase 5 - Implementation

The fifth phase of the competition is the announcement of the winners by Spring 2019. A formal contribution agreement between the winners and INFC will be finalized in order to ensure payments in accordance to milestones.[16]

The winners of the *Smart Cities Challenge* will monitor progress and if course corrections are required, they will work with INFC as needed. Implementation is expected to span between 2-5 years and the lessons learned from the entire process will be shared with Canadian communities.[17] The project administrators anticipate that sharing of best practices will be one of the key elements of the overall program evaluation in the future.

Beyond the Competition

A measure of the success of the Smart Cities Challenge to date may be seen most clearly in the communities that participated but were not selected.

14 Infrastructure Canada (n.d). Smart Cities Challenge. Smart Cities Community Support Program - Application Submission Guide.http://www.infrastructure.gc.ca/cities-villes/support-guide-soutien-eng.html

15 Smart Cities Challenge: Application Guide. https://impact.canada.ca/en/challenges/smart-cities/applicant-guide Retrieved July 18 Retrieved 18 July 2018.

16 Smart Cities Challenge: Application Guide. https://impact.canada.ca/en/challenges/smart-cities/applicant-guide Retrieved July 18 Retrieved 18 July 2018.

17 Ibid.

Many of the communities who did not make it as finalists have nonetheless decided to go forward with their projects to address community challenges. This is a testimony to the effect the process had on their sense of community and their capacity to identify and address problems.

The *Smart Cities Challenge* in Canada did not only benefit the selected communities but started a movement that encourages communities to look at the problems they are facing in a systematic way. It promotes collective problem-solving by merging community engagement and innovation.

As a multi-year contest, the Smart Cities Challenge is still underway. We will monitor the progress of this initiative and produce an update of this case towards the end of 2019.

Appendix A - Finalist Communities/Cities and their Challenge Statements

Prize Category	Finalist Community/City	Challenge Statement
$5 Million: populations under 30,000 people (One prize available)	1. Biigtigong Nishnaabeg (Pic River First Nation), Ontario	By means of active, cross-generational, technology-empowered, real-world participation in the intergenerational transfer of traditional Nishnaabe knowledge through the medium of our language, and the bilingual delivery of modern K-12 STEM knowledge, our community will transform our youth into better-educated, more employable, better-grounded, and more holistically Nishaabe people.
	2. Cree Nation of Eastmain, Quebec	"Improving Community well-being". Our community will develop an affordable Net Zero Energy Housing Program, offering culturally appropriate designs, using smart technologies, innovative building techniques and alternative energy systems in order to address the housing shortage crisis, the poor-quality and costly construction of houses in Eastmain and Indigenous communities across Canada.
	3. Town of Bridgewater, Nova Scotia	Our community will lift 20% of its residents out of energy poverty by 2028.
	4. Mohawk Council of Akwesasne, Quebec	Decrease the rate of new cases of diabetes per year in Akwesasne to the Canadian average (0.5%; 5.9/1,000) by improving community wellness using traditional approaches encompassing holistic Indigenous practices, improved access to community services and health diagnostics.
	5. City of Yellowknife, Northwest Territories	Yellowknife will experience a rise in our community's social and environmental well-being by transforming the simple lamppost into a beacon for sustainability.
$10 Million: Populations under 500,000 people (2 prizes available)	1. Town of The Pas, Opaskwayak Cree Nation, Rural Municipality of Kelsey, Manitoba	Our community will utilize LED Smart Farm technology to support local nutritious food growth and promote food security, create a smart phone distribution system and integrate wearable technology to achieve a 40% reduction in the number of imported vegetables and a 20% reduction in community diabetes rates by 2023.
	2. City of Côte Saint-Luc, Quebec	Our city will provide socially isolated seniors with confidence they can live more autonomously, secure in the knowledge that the city is looking out for their well-being.
	3. Nunavut Communities, Nunavut	Our communities will implement protective and preventative measures to reduce the risk of suicide in Nunavut, which is ten times the national average, and increase the amount and accessibility of peer support networks, educational resources and creative outlets that promote positive Mental Health to all Nunavummiut.

$10 Million: Populations under 500,000 people (2 prizes available)	4. Saint Mary's First Nation and City of Fredericton, New Brunswick	"My city does not recognize me or connect me to what matters most; Fredericton will collaborate with First Nations to create an accessible, welcoming, supportive city for youth, newcomers, and an aging population, empowering everyone with a Personalized Inclusion Plan that connects people to create an exceptional quality of life."
	5. Parkland, Brazeau, Lac Ste Anne and Yellowhead Counties, Alberta	Our agricultural community will revitalize and grow through the connection of people to the land and food while attracting citizens to share in its prosperous, innovative and resilient way of life
	6. City of Airdrie and Area, Alberta	Become Canada's healthiest community, by engaging and securing the participation of all in the community to create a community healthy culture that improves social, economic, physical and health care environments and individual characteristics and behaviours, so that healthy life expectancy is increased by 3+ years over 5 years.
	7. City of Richmond, British Columbia	Richmond, an island city with a rapidly growing and diverse population and home of nationally significant infrastructure and government services, requires resilient physical and virtual platforms that are integrated seamlessly across all levels of government to enhance quality of life in day-to-day activities and minimize community impacts from major disasters.
	8. City of Guelph and Wellington County, Ontario	Guelph/Wellington will become Canada's first technology-enabled Circular Food Economy, reimagining an inclusive food-secure ecosystem that increases access to affordable, nutritious food by 50%, where "waste" becomes a resource, 50 new circular businesses and collaborations are created, and circular economic revenues are increased by 50%: 50x50x50 by 2025.
	9. City of Saskatoon, Saskatchewan	To be the city that breaks the cycle of Indigenous youth incarceration by creating a new cycle focused on building purpose, belonging, security and identity.
	10. Greater Victoria, British Columbia	"Freedom to move" We will collaboratively create a multimodal transportation network that is convenient, green and affordable, which will boost South Islanders' mobility wellbeing score by at least 20%.

$50 Million: All communities, regardless of population (One prize available)	1. Region of Waterloo, Ontario	We will become the benchmark community in Canada for child and youth wellbeing by using early intervention, youth engagement and a connected-community framework to create adaptive, data-driven programs and scalable learning technologies that improve early child development, mental health and high school graduation rates.
	2. Quebec City, Quebec	"The social inequalities in health: Understanding and engaging differently" To engage the community of Quebec City in a societal project centered on citizens' sustainable health and well-being using the collective intelligence and the deployment of digital tools that support decision-making and follow-ups.
	3. City of Edmonton, Alberta	Edmonton will lead the transformation of Canadian healthcare using an unprecedented municipal approach by focusing on leveraging relationships, health data and innovative technologies to provide a personalized health connection and experience as unique as the health of every Edmontonian.
	4. City of Surrey and City of Vancouver, British Columbia	Surrey and Vancouver will implement Canada's first two collision-free multi-modal transportation corridors, leveraging autonomous vehicles and smart technologies to demonstrate the path to safer, healthier and more socially connected communities while reducing emissions, improving transportation efficiency and enhancing livability in the face of rapid growth and traffic congestion. #SmarterTogether
	5. Montréal, Quebec	The Montreal community is shaping an efficient and dynamic neighbourhood life by innovating mobility and access to food. Through a co-creation and citizen participation process, the accessibility of services and the well-being of Montrealers are increasing significantly.

Source: http://www.infrastructure.gc.ca/cities-villes/spotlight-vedette-eng.html#list. Table created by Author: Information was compiled from INFC's website.

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