



FUTURE CITIES
CANADA

Community Solutions Research Series

SMART CITY DISCOURSE THE IMPORTANCE OF COMMUNICATION IN THE DEVELOPMENT OF SMART CITIES

Michelle Collyer | December 2019

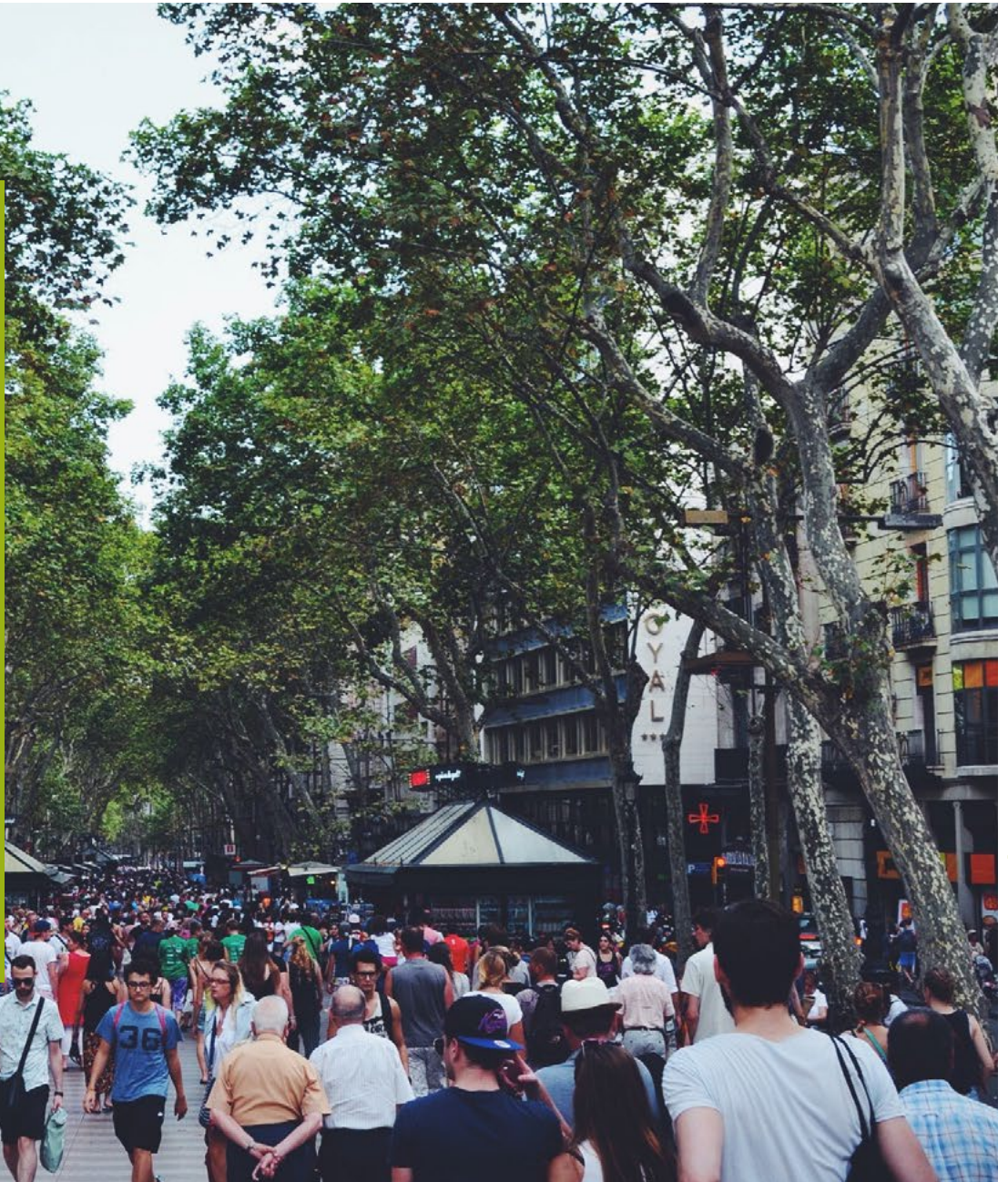


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Designed by Jiali Ou.

Constructing Smart Cities Through Discourse



Cities in Canada and across the world are grappling with the many operational, technical, and ethical concerns that accompany the adoption of smart city approaches. Alongside these challenges is a growing public dialogue on smart cities. Communication is an important area of focus, and we should consider how society, and its institutions, talk about and frame the concept of smart cities in the public dialogue. This research focuses on the communications aspects of smart cities, and specifically analyzes Infrastructure Canada's communications surrounding the Smart Cities Challenge (SCC). This research prompts us to consider: how do we construct smart cities – not with hammers or technology – but through discourse?

dis-course

[/'dis, kôrs/] *noun, verb*

A socially produced way of talking or thinking about a topic¹, producing language that constructs the topic in a certain way, and limits the ways we can talk about it.² Discourse involves power relations and has an impact on and implications for people and society.

Communication around smart cities is complex because there is no universal definition of the term. The smart city discourse tends to follow two broad areas³:



A focus on the **technology** – this discourse frames smart cities as relying on Information and Communications

Technologies (ICTs) and big data collection through a technological approach to urban centre;^{4,5}



A focus on **human interaction** – this frame suggest that smart cities enable social innovation,

creativity, and cooperation between sectors in urban governance;^{6,7}

The discourse surrounding making communities “smart” is not a new concept: ideas of smart growth and new urbanism emerged in the 1990s.⁸ The smart city is the most recent manifestation of an established historical pattern that promotes technologies to “solve” the real or perceived problems of cities, dating back to the industrial and post-industrial age.⁹ However, the smart city distinctly emphasizes solving problems and

improving cities with ICTs and social systems, rather than tangible physical assets⁸. Although the smart city is not a new concept, it is transforming how we think about cities by bringing in different discourses, particularly from connected technology and Artificial Intelligence (AI). In doing so, it is also changing how we think about citizens¹⁰ and their roles, rights and responsibilities, as well as the overall social and political fabric of society.

The smart city is the most recent manifestation of an established historical pattern that promotes technologies to “solve” the real or perceived problems of cities, dating back to the industrial and post-industrial age.⁹

The Importance of
Communication
**in the Context
of Smart Cities**



The smart city discourse is appealing to local governments as it frames data-driven connected technology as the solution to societal problems^{11;5;12;6;13;14;15}. However, the smart city has some unique challenges that make how institutions talk about smart cities particularly important:

- There is debate and concern relating to complex issues of social inequality, surveillance, privacy, and public control.
- There are implications of framing the smart city narrative to achieve a diverse set of goals.
- There are concerns over ensuring smart city frameworks serve public interests^{16;17;18;19;20;21;22;23;24;25;26;27}.
- Smart cities blur definitional boundaries and represent diverse concepts in practice.
- They generate mass amounts of data which may include highly sensitive personal information, which can enable privacy-invasive activities, such as surveillance or profiling²⁸.

In addition, Martin et al. (2018) reviewed 32 empirical studies of current smart city initiatives in North America and Europe, and their analysis revealed that current smart cities in North America and Europe validated some of these concerns, finding a neglect of social equity and environmental protection and the reinforcement of consumerist culture, and a concentration on unsustainable economic growth²⁹. The smart city, then, is a difficult concept to communicate,

and presents a range of overt and covert implications for people, which can be hard to understand. As a result, public communication and engagement processes should aim to build trust and create ethical smart cities by framing them through discourses of democracy, free will, community contribution, and collaboration. When discussing the smart city with different audiences, it is important to create engagement processes with these challenges at the front of mind, and ensure there is an inclusive strategy in place to bridge communication gaps and address emerging issues.

Understanding how our institutions talk about smart cities is important. Given that the smart city concept is very broad, the smart city narrative has been leveraged to frame policy and deploy a diverse set of strategies and goals^{30;31;32;33;34}. The concern is ensuring that smart city frameworks serve public interests. Smart city framing can lead to public assumptions¹⁹, is frequently used as a marketing or rhetorical tool to justify a variety of political and economic interventions³⁵, and may obscure problematic agendas that are not in the public interest^{36;37;38}.

There has been significant criticism of how the smart city has been communicated and framed, leading to recent shifts in the smart cities discourse. Criticisms include smart cities serving business over public interests and calls for “less technology-oriented and more citizen-centred approaches”^{18;39}. This has led to trends of the smart city being re-framed as serving

citizens^{40;41;42;43;44}. However, citizen-centered framings have been criticized when smart initiatives failed to meaningfully include city residents. Examples include studies that revealed smart city frameworks which claimed to be citizen-centred, yet used smart technologies to pursue an agenda to change participants’ behaviour,^{29;45} or that were paternalistic²⁶. If citizens are not involved in the development of the smart city and space is not created for debate, citizen-centred smart city visions that promise a better future risk amounting to surface-level justifications for the smart city⁴⁶.

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Potential Impacts of **Smart Cities** Communication



Smart cities communication (and miscommunication) has significant potential implications, ranging from its effects on residents to its impact on government priorities. The benefits of effectively communicating smart cities processes and projects range from driving global economic competitiveness to building trust and empowering communities. Consider the potential economic benefits that broad public communication of smart cities initiatives can bring to local communities: a country simply embracing “smart city” policies and narratives could provide economic benefits on a global scale, as branding a country as technologically forward thinking may attract city investment⁴⁷. In this way, smart cities may act as an apparatus for establishing economic and even political power. This potential economic and political benefit was likely not lost on Canada’s federal government, and may help explain its motivations for implementing the Smart Cities Challenge.

There is a risk in not considering the power relations surrounding smart cities discourse and its potential impact on society. Discourse

is an important concept to research in relation to smart cities because how authoritative institutions, subject matter experts, and planners talk about cities determines how and for whom urban development will occur. When analyzing discourse in specific contexts, it is important to examine how higher-level authoritative governmental institutions shape discourses^{48,49}, public perception and, ultimately, action. Determining who will be included in, and excluded from, the benefits of the smart city begins with how we communicate. The impact of the federal government’s public communication is already notable because our institutions have authority. However, communication in this context is also significant because the Smart Cities Challenge is meant to be carried out in practical actions and policy frameworks at the local level— the language used guides the preferable approach⁴⁸. In other words, the Smart Cities Challenge, and the way it is communicated by the federal government, influences how cities and Indigenous communities across Canada are planning their respective futures.

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The Smart Cities Challenge also has the potential to transform how members of society understand themselves, the roles and identities of citizens in digital settings of political governance^{50;51;52;53}, and the roles they may be obligated to take on as contributing *smart* members of Canadian society. The “smart” narrative is already powerful, framing the smart city as a good and positive thing. This brings a tension of willing compliance – who would not want to be labelled “smart”? Also, government communication that conflates good citizenship with the smart discourse has impact on the social and political fabric of society. For example, a potential implication of encouraging citizens to be “smart” by engaging with and feeding smart technology is that such involvement may push boundaries on how we think of citizens and their roles, obligations, rights and responsibilities, not to mention the scope of citizenship. This raises philosophical questions: if there is an increased responsibility for citizens to feed and create data, should there also be broadened citizen rights, such as more robust privacy protections^{54;55;56}?

In addition to focusing on broad public communication, it is important to consider how to include and engage the public in the smart city in real practice. There is an opportunity for the power of communication to play a major role in building trust and shaping ethical and inclusive smart cities that represent our diverse communities, and there is a significant risk in not doing so. Public participation and engaging local and Indigenous communities in the smart city is critical. As attractive as a smart future for Canada may be, if the smart city fails to meaningfully include all residents in practice—notably Indigenous communities and marginalized and vulnerable populations—or make space for pluralistic debate, community- and citizen-centered framings risk being nothing more than powerful rhetorical devices used to justify the smart city⁵⁷.

Lessons learned from
**Canada's Smart
Cities Challenge**



How do we talk about smart cities to ensure increased public understanding and empowerment of communities? Although this research focused specifically on federal government communication, lessons learned and broad understanding of smart cities discourse may benefit local communities carrying out smart city initiatives in practice. This study analyzed public communication of Infrastructure Canada's Smart Cities Challenge from launch to finalist selection in order to better understand how the Government of Canada frames its future smart cities, and to what extent citizens guide its rationale.

Towards an Inclusive Smart Citizenship: Smart Communities and their Residents

A content analysis of Canada's Smart Cities Challenge applicant and finalist guides reveals an aim to include the broader diverse community in the smart city and a focus on community rather than business interests. Findings support communications that Canada's Smart Cities Challenge is potentially the first to actively include Indigenous communities in the process^{58;59;60}.

Analysis points to the federal government's discursive practices moving towards an inclusive smart citizenship. The language used by the Government of Canada

emphasizes an aim to include the broader diverse community in smart cities, rather than just voting citizens. For example, "resident" represents a more inclusive term than "citizen" and reflects support of inclusive governance⁶¹. Permanent residents are citizens of other countries who have been given permanent resident status by immigrating to Canada. Although unable to vote, permanent residents have access to most social benefits, the right to apply for citizenship, and protection under Canadian law and the Canadian Charter of Rights and Freedoms⁶². Moreover, inclusion, reconciliation, and a rights-based approach to building a nation-to-nation relationship with Indigenous communities remains centrally important to Canada's government⁶³. Given this, the more inclusive terms "resident" and "community" are used over "citizen," and Indigenous actors are included in challenge guides. This may also be a reflection of Indigenous peoples having their own nations, and many potentially not considering themselves Canadian citizens, narrowly defined. This paints a picture of an inclusive smart citizenship that creates broader smart communities and smart residents. The move to more inclusive language is a key finding, as it differs from the standard of other international actors which favoured heavily citizen-centred smart city framing, such as the British Standards Institution (BSI) smart city standard^{64;65;66}.

Table 1. Occurrence of "citizen" and other actors.
Combined occurrence of "citizen" in the SCC applicant guide and the SCC finalist guide

Actor	Total Count
Communities	159
Resident	77
Stakeholders	30
Indigenous	29
Local Authorities	22
Private Sector	12
Business	11
Citizen	5
Not-for-profit	4
Academic institutions	3
Customer	1

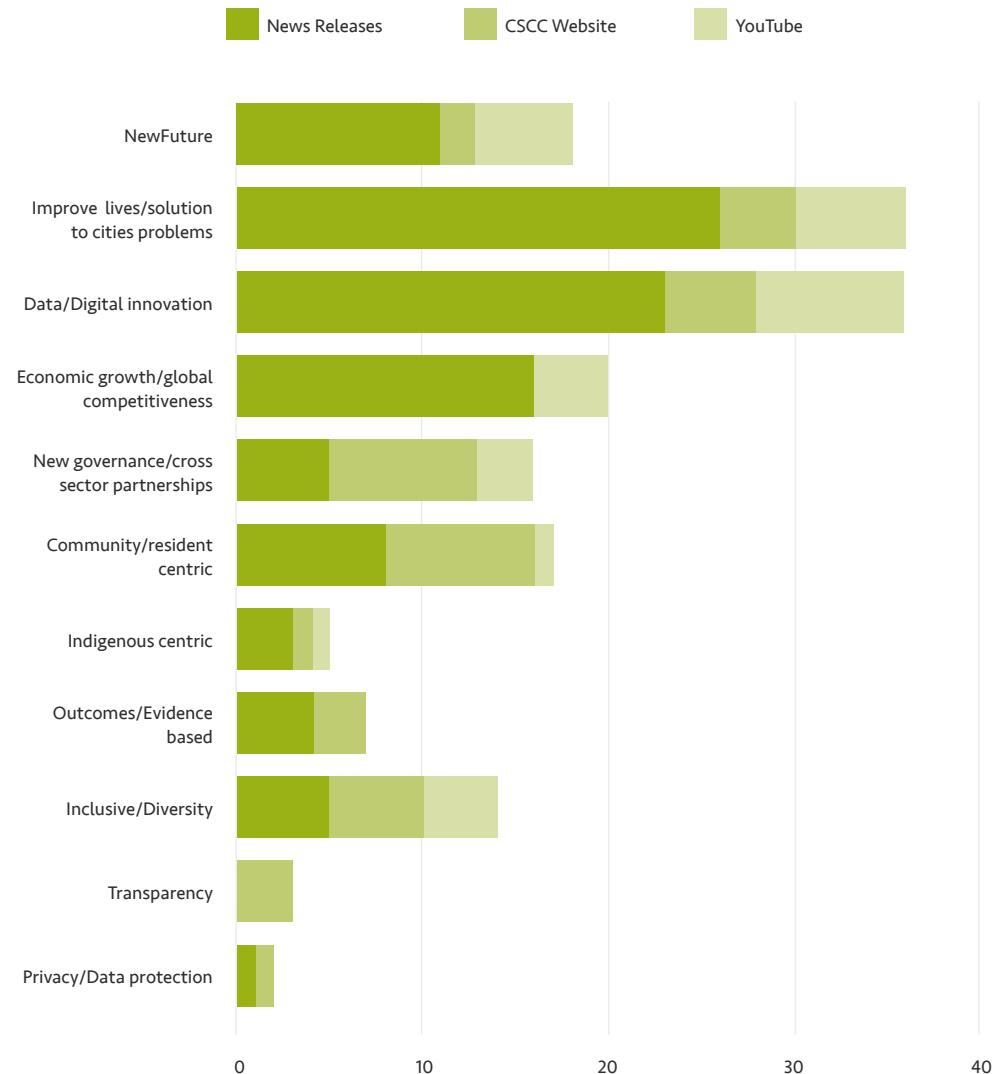
Note: "Citizen" and other actors denotes both singular and plural forms. "Local authorities" includes "municipal authorities," "local government," and "city authorities." "Indigenous" includes "Indigenous communities," "Indigenous leaders," "Indigenous groups," and "Indigenous peoples." "Academic institutions" includes academia. Reference to "communities" in the minister's title "Minister of Infrastructure and Communities" was excluded from this count.

Framing the Smart City: Key Discursive Frames and Overarching Narrative

The findings from qualitative discourse analysis of selected data reveals the overarching narrative and framings used in Canada's Smart Cities Challenge to justify the smart city. Across public communication materials (news releases, SCC website, and YouTube videos), there are eleven main interconnecting frames that construct the overarching smart city narrative: a community centric, innovative, connected, data-driven approach that will solve the problems of Canada's cities and improve people's lives, while driving globally competitive economic growth. Canada's smart city's future is illustrated as one that approaches urban governance with new cross-sector partnerships and inclusive resident participation (Figure 1). Figure 2 also shows examples of visual data analyzed together with its narrated script from Canada's Smart Cities Challenge launch video, which reinforced the main discursive frames shown in Figure 1^{67,68}.

However, this study also found that smart city assumptions and challenges were inconsistently communicated. In any given discourse, it is important to be aware of exclusionary practices, key aspects left out of the dialogue⁶⁹. As such, it is critical to also note key discursive frames that are notably absent or not central to the smart city narrative. This includes social equity (absent) and a low frequency of privacy and surveillance. This framing of the issue props up a romantic aspect of the smart city reality, which falls short in meaningfully including potential smart city challenges and implications in public discursive practices.

Figure 1. Occurrence of key discursive frames across the corpus of News Releases, YouTube Videos, and SCC website.



Lessons learned emerged from this absence in public communication. For example, Canada's Smart Cities Challenge did not initially communicate privacy concerns when the challenge launched. This resulted in federal, provincial, and territorial privacy protection authorities sending a joint open letter to the Minister of Infrastructure and Communities urging privacy protections be built into the challenge, and privacy commissioners included in the process⁷⁰. In response, the Deputy Minister at the Department of Infrastructure and Communities spoke to the Privacy Commissioner of Canada and stated that the department was open to engaging with privacy commissioners, and competition finalists would be subject to applicable access and privacy laws⁷¹. As a result, the finalists' guides prepared by the government after this public political correspondence included criteria that smart city proposals must outline privacy and data protection planning⁷².

In addition to privacy issues, social equity remains an important area of focus. This study's analysis revealed that communication pertaining to social equity failed to emerge at all (Figure 1). Given the concern raised in the scholarship surrounding potential social equity challenges^{73;74;75;76} this is an important consideration to reflect on. If social equity challenges are not emphasized, proactively addressed, and communicated in the smart city, there is a risk of reinforcing rather than disrupting social inequalities⁷⁶. In addition, particular sensitivity and care will be needed for smart city initiatives in Indigenous communities, which have been historically marginalized in Canadian policymaking⁷⁷.

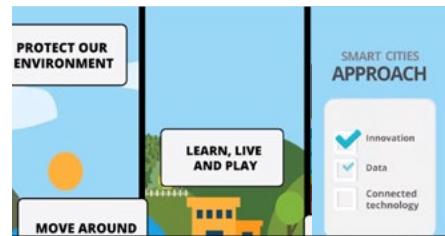
Figure 2. Examples of key visual representations from the Infrastructure Canada YouTube channel SCC challenge launch (June 1, 2018)



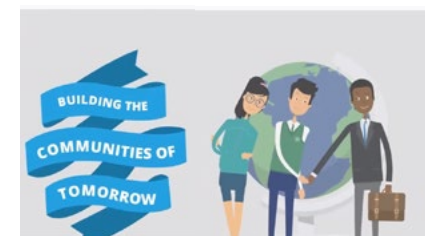
A. Communities of all sizes and across Canada still face challenges that traditional solutions have failed to solve.



B. How can we improve how we move around, earn a living, create safety and security, protect our environment, learn, live, and play?



C. The smart cities challenge will give communities a platform for implementing bold ideas to address priorities using innovation, data, and connected technology.



D. The smart cities approach is all about building communities of tomorrow, which will take everyone working together.



E. What is emergency responders could use data to find more efficient routes to respond to distress calls.



F. The smart cities challenge calls on communities from coast to coast to come forward with their best ideas.

Steps
forward



Photo by Echo Grid on Unsplash

What does this mean in practice for municipalities and Indigenous communities working on smart cities projects?

Communication matters. How local governments talk about their smart city initiatives will determine how, why, and by/for whom smart urban development will occur. An inclusive smart city must also be reflected in ongoing communication, while also recognizing the diversity of people by using language and communication channels they are most comfortable with. In addition, talking about an inclusive smart city is not enough – all residents and Indigenous communities must be meaningfully included in the development of the smart city in practice in order to reflect Canada's diversity. It is also critical to be aware of unintended impacts of exclusionary practices in communication – and ensure consistent communication of how smart city challenges such as social equity and privacy will be addressed to build trust and shape ethical and inclusive smart cities.

This study's examination and analysis of the Government of Canada's online public communication of Canada's Smart Cities Challenge provided some practical and theoretical insights, and suggested recommendations⁷⁸:

Reflection on smart cities language

- Residents and communities might not all perceive equally or agree that smart cities are *fundamentally* beneficial⁷⁹; there are challenges that must be addressed, and different language should be considered in order to build a shared sense of ownership of the smart city.

Continued collaboration with privacy guardians

- Canada to date has not followed Europe's response to privacy concerns by forming new, modern data protection regulations⁸⁰.
- Given this, it is important to work transparently with privacy guardians early to follow best practices, such as the Office of the Privacy Commissioner of Canada's new guidelines on meaningful consent and inappropriate data practices as well as existing Canadian privacy laws^{81;82}, and effectively communicate privacy considerations with different audiences.

Consistently communicate how smart cities challenges will be addressed

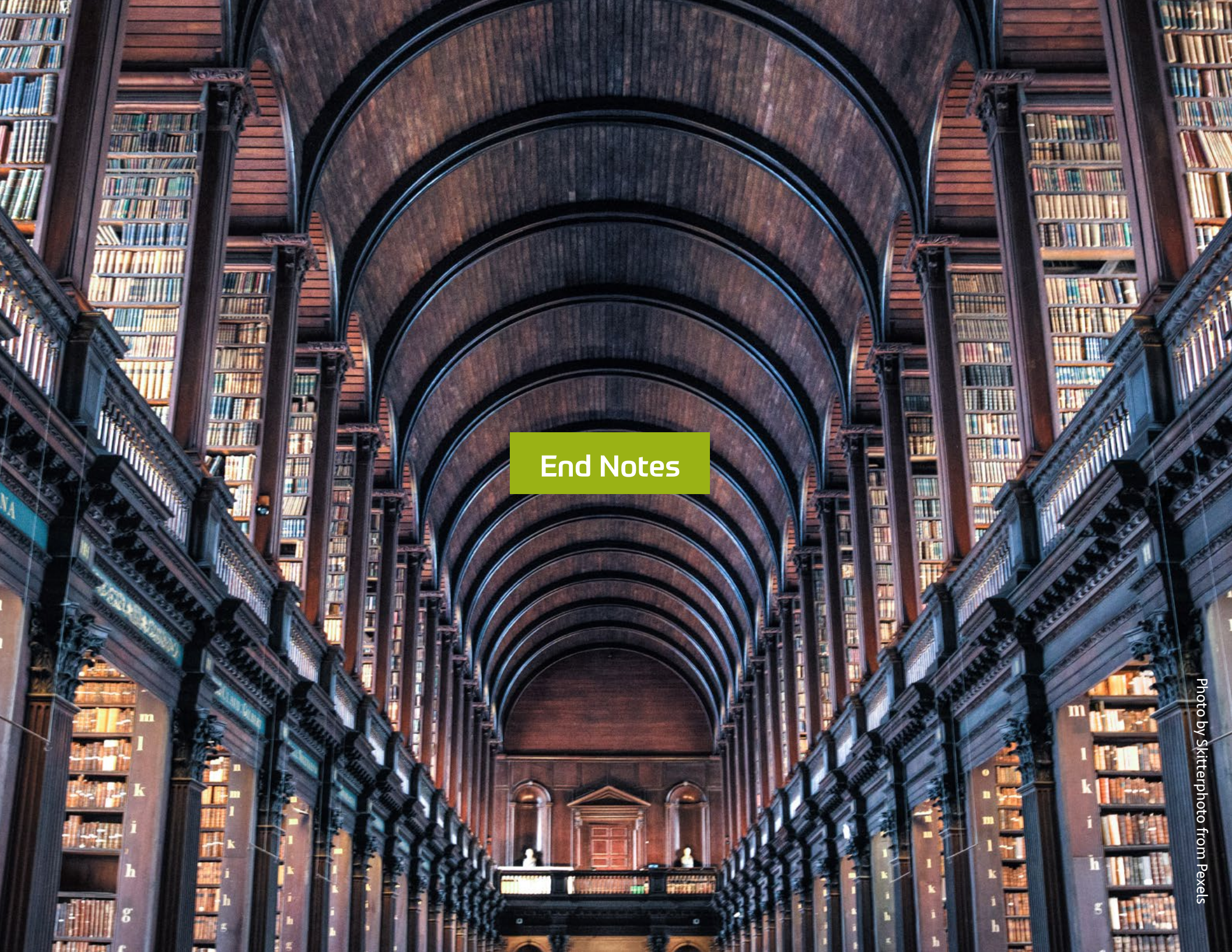
- Assumptions and challenges inherent to the smart city remains a contentious issue that will have to be continually considered and communicated in order to ensure that smart city frameworks in practice serve communities.
- The key to the success of this will be the degree of transparency and using different approaches for varying community needs. Information needs to be communicated clearly to residents in a way that ensures understanding, and that reflects diverse communities and culture.

Meaningfully include the public as stakeholders and make space for discussion

- Ensure that the smart city truly is community driven and benefits and empowers communities in practice by *meaningfully* including the public and making space for diverse perspectives. Avoid just "ticking the box" on consultation.

Although significant steps have been taken to address challenges, this study suggests reflection on smart cities language, and that Canada must be smart in communicating and implementing smart cities visions and policies, to ensure power relations are considered, residents are meaningfully included in decision-making, and future smart cities serve their communities.

Residents and communities might not all perceive equally or agree that smart cities are fundamentally beneficial⁷⁹; there are challenges that must be addressed, and different language should be considered in order to build a shared sense of ownership of the smart city.

The image shows a perspective view down a long, grand library aisle. The ceiling is composed of a series of dark wooden barrel vaults that recede into the distance. On both sides, tall, dark wood bookshelves reach from the floor to the top of the vaults, filled with books. Ornate wooden balustrades with decorative balusters run along the upper levels of the bookshelves. At the far end of the aisle, a small, brightly lit area features a wooden door flanked by two arched niches, each containing a statue. The overall atmosphere is one of historical grandeur and intellectual pursuit.

End Notes

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A photograph of a grand library interior, likely the Bodleian Library in Oxford. The image shows a long, narrow aisle with high, vaulted ceilings made of dark wood. On both sides, there are tall, dark wood bookshelves filled with books. The shelves are supported by ornate, dark wood columns. In the distance, at the end of the aisle, there is a small, ornate structure with a pediment and a door, possibly a reading room or a study. The lighting is warm and focused on the bookshelves, creating a sense of depth and grandeur.

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