Diverse partnership envisions our 5G-enabled future cities

More efficient bus route selection based on granular user data.

Supports to deliver health care at home rather than in hospital.

Sensors to reduce costly leakage in underground infrastructure.

These are some possibilities imagined by a unique collaboration of public and private sector partners who considered what 5G and advanced technology could do to increase the responsiveness and adaptability of our cities.
This 5G mission, titled the Future of Cities and hosted by Communitech, began in January. It will be followed by the Future of Cities 2022, a 12-month collaboration that begins soon.

It's among several “Future of” collaboratives convened by Communitech to bring its community of tech founders together with public and private partners to solve challenges, using platforms such as 5G and available data.

Led by Adam Straker, Communitech’s Program Manager for the “Future of” events, with contributions from Kevin Tuer, Communitech’s Vice-President, Data & Advanced Technologies, and Joel Semeniuk, Communitech’s Vice-President Ecosystem Collaboration, the first Future of Cities collaboration culminated with an invitation-only virtual event this autumn, where collaboration partners discussed use cases and proofs of concept for the 5G connected future, for an audience of startup CEOs, public-sector representatives, academics and professionals.

Straker said the Future of Cities asked, “How to take a brilliant vision of the city, animated by 5G networks, and turn it into something practical with a loud and clear call to action for businesses, governments and citizens?”

Beginning in January 2021, partners Rogers Communications, PwC Canada, Interac and the cities of Waterloo and Brampton, had begun seeking answers. The focus was urban transportation – with transit route planning and optimization being top of mind – but use cases involving crowd management, disaster response, procurement, privacy and urban infrastructure were also addressed.

At the wrap-up event, presenters from Rogers, PwC and Helpful Places, which aids agencies in developing transparent policies for data collection and use, outlined the highlights of the collaboration and the prospects for a 5G future.

The group heard that a recent survey showed that commuting to work was no longer the primary reason to use public transit: travel to events or leisure-time activities had risen to the top. Based on that, transit services may need to rethink their business model, and leverage geolocation to close the gap in understanding rider and non-rider behaviour. Data can allow municipalities to close the gap between where they are now, and where they want to be, and allow cities to be more agile in decision-making and planning.
Key to that accumulation and analysis of data will be 5G. 5G’s higher bandwidth permits the analysis of the granular movement of vehicles and people. Its low latency means it can gather real-time data. And its small cell network distribution can give greater precision in accumulating data. A simulated car commute from Barrie to Brampton showed how the addition of 5G would produce 10 times more granularity in geo-location detail than the current 4G network.

This kind of data can allow agencies to test, deploy and refine transit operations to, for example, design schedules to promote social mobility or introduce active transportation alternatives in high-use areas. Leveraging 5G to tap into devices that generate data allows governments and agencies to understand people’s movements more accurately, improving the passenger experience and increasing the use of public and alternate modes of transit.

The group was reminded of the evolution of mobile data, from the simple 2G service that allowed a phone call to be made away from home, to the 4G (aka LTE) system that enables Netflix, Uber and AirBnB to thrive. The emergent Internet of Things isn’t just about connected home thermostats: technical advances in sensor batteries translate into a 25-year battery life, without the need to replace a battery, permitting “set it and forget it” infrastructure. Today, a sewer or water main leak is often discovered when the sinkhole appears, and the underground pipes and cables have been destroyed. Imagine a city where sensor-equipped underground services can alert staff to problems in their infancy.

The group heard that there is increasing interest among municipalities in the ability to use 5G-generated data to design transit-oriented digital twins, and from developers to deploy IoT across entire real estate projects to better manage utilities and amenities, ultimately reducing their carbon footprint.

Or consider the use case of medical facilities, where 5G remote home-monitoring could free hospital beds and take pressure off of medical professionals, or a drone could deliver a defibrillator to a critical case ahead of an ambulance. These are innovations that can save health care dollars, and lives.

But improved health care is just one aspect of the data revolution. Consider the public-private partnerships that can develop and deploy air quality sensors, forest fire sensors or early earthquake detection systems. These development/deployment collaborations will give society the ability to respond to challenges in a better, more efficient and more automated way.
Privacy emerged as a significant consideration. How would the public feel about public-private partnerships using public data for decision-making?

Guided by the notion that trust is something that takes forever to get and just seconds to lose, the group considered the need for transparent policies for data collection and use.

**While all want to live in better communities, public and private partners need to be forthright and clear when they communicate their goals to their clients: the citizenry.**

The group was reminded of the cliché of the massively dense and detailed user agreement – incomprehensible to all but engineers and lawyers. Such documents might be complete, and totally legal, but might not be accessible by the average citizen, thus engendering distrust.

One answer to the question of trust might be the development of data literacy in all citizens. Keep documents simple. Remove or explain jargon: for instance, does the average person know and understand what is meant by the de-identification of data or the aggregation of data?

The public-private collaborators may be the data stewards for the data that their clients have entrusted to them, but agencies must show they respect the privacy of their customers. By doing so, and by helping the public understand that the data is for the benefit of all society, they can win agreement to use that data.

The Future of Cities was an important exercise, particularly because it had not been done before. Bringing together so many sectors – public sector, private sector, startup, not-for-profit, academia – demonstrated their differences, that the cadence and velocity around each of those sectors can be very different. But it also demonstrated their similarities and their abilities to help one another. Many of the problems are the same problems, and some of the agencies are a bit farther along in solving those problems. **By engaging, collaborating and working together, all can grow and succeed. It’s the “rising tide lifts all boats” model.**

And, while the Future of Cities, and its successor, the Future of Cities 2022, involved many partners associated with Communitech, it was clear that what had begun was a conversation with national implications. As the growth of remote work during the pandemic has shown, geography is not always relevant to collaboration.

Communitech hopes to attract more startups to the next phase of this national conversation, to help them enable their commercial-ready solutions.
Straker promised that the Future of Cities 2022 will involve robust solutions with “some wicked tools” provided by Rogers.

“If you would like to hear more about how you might be able to get involved, we’d like to hear from you. Send me an email.” And that email is: adam.straker@communitech.ca.

What participants had to say:

“I loved the Future of Cities! Great people, great insights and super cool to see how location based tech is really important today.”

– Abhishek Prasad
CEO, Artie

“I learned a lot and will share with the team in Minister Rasheed's office. The opportunities for transportation improvement with 5G are truly mind-blowing. Really appreciate seeing all this impressive work and all those big minds together.”

– Scott Dodds, Senior Policy Advisor and Stakeholder Relations Manager, Associate Minister of Finance, Digital Government, Hon. Kaleed Rasheed

“I learned a lot about 5G and the influx of data that is going to be produced because of this new technology.”

– Tyler Doiron
Founder & CEO, Tilebase

Ready to partner in a collaborative?
Ashwin Sanzgiri, is happy to help.
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