Smart Cities, Human Cities

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In Copenhagen, the number of really sunny days can be counted on the fingers of one hand. So, on the few days when the sun shines brightly, Copenhagen residents want to take advantage of it as much as possible. City planners in the Danish capital got that message and came up with smart sidewalks. On the sunny side of a street, the sidewalk is almost four times wider than on the shady side, and it features public benches and decorative paving.

Check out our special report Smart Cities Mission

Not exactly what you were picturing in connection with "smart cities"? Yet this type of innovation inspired by basic common sense is part of the smart city concept. A smart city is a city people enjoy living in. That's what I took away from the Smart Cities Mission I took part in last week, organized by my colleagues at Événements Les Affaires. For a week, our group of 15 or so, most of them representatives of Quebec municipalities, toured Helsinki, Copenhagen and Amsterdam.

What these three Nordic cities have in common is extremely fast population growth. Copenhagen's population, for example, is increasing by 1,000 per month. Helsinki is planning construction projects for the next 20 to 30 years that will require investments of over €5 billion (around C$7.5 billion).

How can a city make sure it can take in all these newcomers without becoming unlivable?

"We look at the city from the standpoint of the user," says Ritva Viljanen, Helsinki's deputy mayor in charge of educational and cultural affairs, specifying that the Finnish capital is in the midst of the largest construction boom since it was founded in the early 16th century.

Helsinki is preparing to create the position of manager, services design (free translation), to ensure that the City does things from the viewpoint of its customers (residents) and not that of the organization, she explains.

"Before, to organize an event, you had to fill out dozens of forms. Now, a single electronic form is sufficient. Even the police accept it," says Saila Machere, the City of Helsinki's marketing manager. "A single form for starting a business is being developed."

"We need services that respond quickly. Cities have to make decisions faster to stand out from the competition if they want to attract businesses to set up there," she points out.

"The goal is to make cities easier to live in. It's a resident-oriented approach. That requires a very strong policy agenda," says Steen Christiansen, mayor of Albertslund, a small municipality of 28,000 people (and 600 companies) outside Copenhagen. The politician knows what he's talking about: he's also chairman of the Greater Copenhagen council, which brings together 46 Danish and 33 Swedish municipalities, encompassing 11 universities and 3.5 million inhabitants.

City as Laboratory

Smart cities do things differently so they can better serve their customers, both residents and businesses. In most cases, this

means the development of new agile technologies, to the point where smart cities are often lumped together with technology cities.

All the cities we visited used this approach in urban laboratories, or living labs. Here are five examples.

The new Kalasatama neighborhood is currently under construction.

1. Kalasatama

Built on the old piers of the port of Helsinki, Kalasatama (fiksukalasatama.fi/en/) is a platform used to test clean technologies with a view to implementing the most effective ones throughout the city. At street corners, rows of collective garbage cans have been installed that are actually vacuum system intakes

that gobble up residents' already sorted waste at a speed of 70 km/h.

The main issue is energy. All the buildings are equipped with solar panels and are connected to the city's smart grid. As part of the Agile Piloting Program, the City is providing funding of as much as €8,000 per project for technological testing.
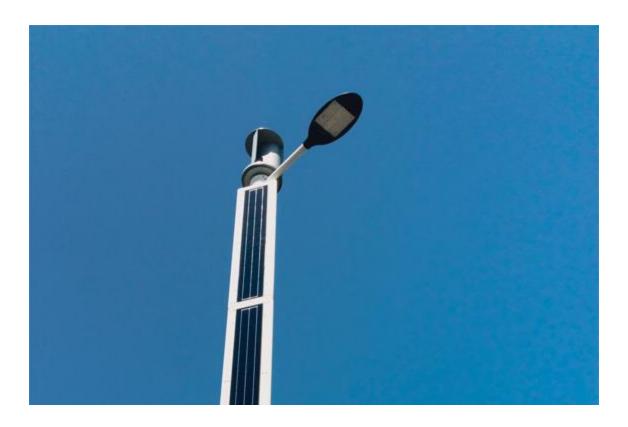
Cranes dominate the skyline of this new neighborhood, and noise and dust are everywhere. Despite the construction work, 3,000 people already live in the area. "They are pioneers," says Kari Pudas, the City of Helsinki's manager of urban development. "The idea of smart cities is to make the city livable while continuing to develop," he explains. To reduce the disturbances caused by the ongoing construction, the City has opened an office in the neighborhood, where it holds weekly workshops for local residents.

Smart cities are greener and more welcoming, more human. On Vester Voldgade, in Copenhagen, the sidewalk on the sunny side of the street has been broadened.

2. Vester Voldgade

Our delegation spent two days in Copenhagen prior to the official opening of what the City, not without pride, calls the "world's first completely smart neighborhood." It consists of Vester Voldgade, the street with the asymmetrical sidewalks I mentioned earlier, and running parallel to it, Hans Christian Andersen Boulevard, the busiest and most polluted street in Denmark. Smart sensors are installed along the two streets. Based on the principle of fogging, the sensors themselves analyze the data, rather than sending them to the cloud. Their functions include monitoring air quality, to forecast the fierce storms that sometimes hit the city, which is surrounded by water and therefore highly vulnerable, and optimizing parking, very heavy bicycle traffic and even the growth of trees. Smart cities are green cities, and that is particularly true of

Copenhagen, which aspires to become the world's first carbon-neutral capital city by 2025.

3. DOLL, in Albertslund

In a somewhat rundown industrial park in the Copenhagen suburb of Albertslund, the look of the street lights changes every 200 meters. "So far we have tested 80 different urban lighting methods," says Kim Brostrøm, technology manager at the Danish Outdoor Lights Lab (DOLL).

Founded 18 months ago thanks to grants from the Danish Department of Energy, the region, municipalities and the European Commission, DOLL is now funded by businesses that conduct

testing in the neighborhood. One of the technologies being evaluated is li-fi, or light fidelity, which involves transmitting information by means of visible light and has the advantage of offering huge bandwidth.
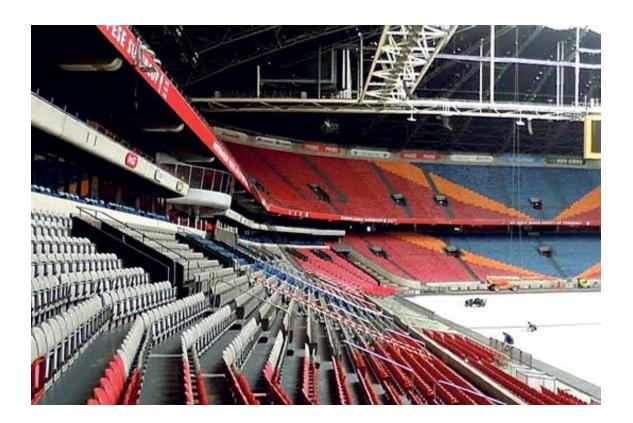
DOLL is attracting a great deal of interest from around the world: "Cities really are catalysts for innovation," says Kim Brostrøm.

4. Vuores

Presented as "a small town surrounded by nature," Vuores, on the outskirts of Tampere, a city about an hour north of Helsinki, is a

neighborhood that features many of the attributes of a smart city. All residents live within 300 meters of a bus stop; there are social housing units, low-income housing and detached houses, all of which are energy self-sufficient; and household waste is delivered to a processing center through an underground vacuum system.

5. Amsterdam Arena

Home to Ajax, the Amsterdam Arena is more than just a soccer stadium. It's also a living lab. "A stadium is like a miniature city, a good laboratory for businesses," says Sanders van Stiphout, manager of Arena International, referring to the 53,000-seat stadium with a retractable roof (that actually works!). One of the technologies being developed there is the Mobility Portal, which

facilitates stadium access (bus ticket purchases, parking reservations, etc.).

In addition to its environmental and quality-of-life benefits, the smart city concept also serves economic goals. Tampere is using the concept to help drive its economic turnaround. Machinery manufacturing, which used to be its strength, is now in decline. Through the joint efforts of the City and the local university, Tampere is now selling itself as a hub specializing in embedded systems for smart machinery.

Besides, the transparency characteristic of smart cities encourages budgetary discipline. Timo Cantell, of Helsinki Region Infoshare, explains that the Ahjo system the city council is using to go paperless and publish its resolutions online makes it easier for residents to access decisions and saves the City hundreds of thousands of euros: "Public office holders pay more attention to their spending, and that saves money."

"About 10% of the one million people who live in the greater Helsinki area use the Journey Planner, an app for planning trips by public transit," says Mika Vuorio, Director, Intelligent Transport Systems, at CGI Finland. "We know in real time where a bus is. The data generated can be used to refine schedule planning. The entire fleet of 250 buses is connected."

"The city made the best choice the easiest choice. Infrastructure, infrastructure, infrastructure!" stresses Morten Kabell, one of Copenhagen's seven mayors, in charge of technical and environmental affairs, including transportation, design and city planning.

Like Montreal, Helsinki can tout itself as a smart city, a city of design, culture and sports. But since it is impossible to be all things at the same time, Helsinki has chosen to define itself at a higher level: "Our brand is an attitude: the courage and passion required to have an impact. The city is human in size. Here, the day is 25 hours long, rather than 24, which is really important for young people. The result of this branding is that here you'll find people and organizations that have a passion for creating," explains Saila Machere, the City of Helsinki's marketing manager.

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Amsterdam's Smart City Program was able to get off the ground thanks to funding from the European Commission. "But the goal is to be independent," says Nina Tellegen, director of the Amsterdam Economic Board. "Because we need a full-time employee just to take care of all the paperwork, but also because we want the program to rely more on the community and the private sector, to get them more involved." The Smart City Program runs on an annual budget of €500,000. It doesn't invest in projects; its partners do.

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As in Quebec, the confidentiality of personal data is a hot topic in Northern Europe. "Telephones capture data, but legislation prevents the data from being used in real time," laments Gerrit Schipper, President and CEO of Geodan Next International (data-based governance and decision making), in Amsterdam. "Laws make things difficult for us, but there are ways to get around that by making the data anonymous," he points out.

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Forum Virium is an organization that promotes innovation in Finland. Founded by private promoters, it was acquired by the City of Helsinki in 2010, which now funds it to the tune of €1 million annually out of a total budget of €4 million. A number of private

companies, including Siemens and IBM, are Forum members. They are prohibited by law from funding the Forum, but they manage some of its projects or provide technology for them.

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Check out our special report Smart Cities Mission

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