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Smart City Briefing

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Smart cities

By Mike Scott

Business and environment journalist, Ethical Corporation contributor

The smart city is one of those visions of the future that can be forever tantalisingly out of reach, a gleaming mirage of spotless streets, high-tech vehicles and buildings occupied by thrusting, young, tech-savvy millennials.

A few such metropolises are on the drawing board – Saudi Arabia’s \$500bn clean energy-powered NEOM project, for example – but the reality tends to be grittier, not least because most smart cities are not going to be built from scratch but fashioned out of settlements that have histories – and development – going back decades or even centuries.

There is no consensus on what makes a smart city, says Alex Herceg, lead analyst at Lux Research. “Songdo in South Korea looks a lot different to Leeds in the UK or New York in the US,” he points out, “even though they are all implementing smart city measures.”

Partly this is because smart cities can mean all things to all people. “Smart cities can help with lots of different areas – they do everything, really,” says

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Roman Serdar Mendle

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Roman Serdar Mendle, Smart Cities Program Manager at ICLEI, the Local Governments for Sustainability organization. However, one characteristic all smart cities share is that they are focused on sustainability, he says.

Doug Walters, chief sustainability officer of LA Sanitation at the City of Los Angeles, agrees: “The smart city is focused on the future, having a strong vision of being a sustainable city.” But despite this forward-looking focus, many of the issues that need to be tackled are the same as they ever were – how to deal with waste, how to transport people around the city safely, securely, quickly and without causing undue pollution, how to provide essential services such as water, health and education.

Data explosion

What makes the city of the future different, many believe, are not just a focus on environmental sustainability, economic prosperity, and liveable spaces, but the harnessing of data and connectivity. Over the last few years, the amount of data generated by governments, companies, individuals and even devices, has exploded. For a long while, there was no way to process it all but the rapid development of big data analysis, machine learning and artificial intelligence means that it is now possible to turn the data into actionable information. Technologies such as 3D printing promise to revolutionise industries such as construction – Dubai recently completed the first 3D-printed office, which was built in just 17 days, while the first ever 3D-printed bridge is being planned in Amsterdam.

The greater connectivity promised by the Internet of Things opens up new possibilities in maintaining city buildings and infrastructure, allowing people to report issues such as potholes and buildings that need repairing – while individual machines and pieces of infrastructure will also be able to automatically alert city authorities to problems that need to be fixed.

Coherent vision

However, the possibilities thrown up by all of these technological advances mean nothing without a coherent vision of how to harness them in the context of the city in question. Ever since the Paris Conference on climate change in 2015, more and more cities have been articulating such visions, in part as a response to a lack of leadership at a national level, particularly in the US. The Under2 Coalition brings together 205 local governments spanning 43 countries, which have committed to reduce their GHG emissions toward net-zero by 2050.

Los Angeles, for example, has a sustainability plan developed by the mayor, Eric Garcetti, covering 14 different issues from waste and water to equitable living, and with targets to be met by 2017, 2025 and 2040.

“The smart city is focused on the future, having a strong vision of being a sustainable city.”

Doug Walters





At the same time, as we emerge from the austerity imposed by the financial crisis, cities do not have the resources to implement this vision on their own. As a result, collaboration with the private sector is essential, Walters says. “We have partnerships with various industries within the city and we work as collaboratively as possible.”

This is a change in outlook, says Mendle. “In the past, those concerned with sustainable cities saw the private sector as bad, and governments and NGOs as the ones that were fighting the good fight. Now companies are seen as the solutions providers – if you can just get hold of the right company with the right technology, that will solve the problem.”

Problem solvers

This often makes sense because private companies are often at the heart of many issues, both as part of the problem and part of the solution. For companies there is a delicate balance to be struck because cities can often be both customer and regulator.

UPS, the world’s biggest logistics company, faced restrictions in the German city of Hamburg, where the authorities announced plans to restrict vehicle movements in the city at certain times of the day to reduce congestion. But rather than simply imposing a ban, the city asked companies to suggest solutions.

“That required us to come up with alternative ways to service our customers at the same time as meeting the needs of the city,” says Tamara Barker, chief sustainability officer. “As an engineering company at heart, we love opportunities like that.” The company’s solution was to have storage containers in the city centre acting as mobile warehouses, with the packages being delivered by delivery agents using electric bikes or on foot.

Based on the success of the Hamburg solution, UPS is working to roll it out to other cities around the world, including Pittsburgh and Fort Lauderdale in the US, as well as Frankfurt and other European locations. It has also created a locker approach through the UPS Access Point network, which allows residents to stop by a local retail shop or other location to retrieve the goods they have bought online. “Being forced to do something allowed us to look for solutions,” Barker says. “We’re taking the opportunity to talk more broadly about the role that transportation and the logistics industry can play in the development of the smart city.”

Another of the company’s innovations is ORION, its on-board routing optimisation software, which reduces the miles driven and emissions of its trucks by constantly updating routing information. As well as helping UPS to contribute to the development of smart cities, these initiatives are part of the company’s own sustainability targets, which include cutting emissions by 12% and procuring 40% of its fuel from alternative sources by 2025.

*“Being forced to do something allowed us to look for solutions.”
Tamara Barker*





The importance of partnerships

Like the cities in which it operates, the company says it cannot meet its goals on its own. We can only do it through partnerships – with city governments, academics, customers, NGOs and even our competitors,” Barker says. One example of this is its partnership with the US Postal Service, which is obliged to deliver to every single address. “For us, it might not make sense to deliver a single parcel to a remote address. Instead, we can pay them to deliver that package.”

Cities are not just looking to corporate giants to create smart cities – they are encouraging start-ups as well. The LA Cleantech Incubator hosts 42 start-ups focusing on issues such as food, water, waste and transport using technologies such as the internet of things. “We have a very close relationship with the city through the Department of Water and Power,” says president and CEO Matt Petersen. “The incubator serves as an interface between start-ups and the city, giving them the opportunity to look at these new technologies and decide whether they are something that they can test or pilot. We have similar relationships with local electric utilities, government agencies and the transport authority.”

The projects LACI is working on range from a way to deliver the benefits of electric vehicles to low-income neighbourhoods through car sharing and installing neighbourhood charging points to a travelling indoor farm built in a shipping container that uses “a proprietary form of hydroponic technology to grow leafy greens equal to five acres of land, 365 days a year, with up to 99% less water than conventional agriculture and is pesticide and herbicide free”.

“We are the front door for innovation in the city,” Petersen says. However, while technology will play a crucial role in smart cities, it is vital that both cities and companies do not forget that the technology is there to serve the city’s residents rather than the other way round. That means addressing issues such as cyber-security and ownership of citizens’ data, as well as constantly engaging with residents to ensure they are getting the services they need.

“Companies need to remember that cities are not just places where they can sell their stuff,” says Mendle. “They have certain responsibilities. At the same time, it is not their job to come up with the vision for how the city develops – that is the job of the city government. The company’s job is not to tell cities what to do, but to help them fulfil their vision.”

Corporations need to understand what the city’s pain points are and offer solutions to those challenges.

Ultimately, however impressive the technological solutions on offer, it is important that both cities and the companies that want to help them become smarter remember that the ultimate goal is to improve the lives of those who live there.

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