

NOKIA



Governmental roundtable report

Opening the boundaries of smart cities everywhere

Mobile World Congress 2016, Barcelona, 23 February 2016



Key messages

- A smart city could rely on a programmable platform where citizens, businesses and government services can “slice” the network in thousands of ways to support the unique requirements of each user.
- Smart cities call for a new type of regulatory dialogue. Governments should rethink their traditional roles, taking time initially to fully understand issues that stretch across multiple industries, and then nurture dialogue among different agencies.
- Even if a government entity is trying to solve a problem for a public good, a viable business case is always important, and essential for areas where government investment will be limited.
- Whether working with a “greenfield” or a “brownfield” smart city, the stakeholders must think big, act big, and do things to move the needle fairly quickly.
- Innovation can be fueled by large and ambitious smart city projects (e.g. Dubai, Abu Dhabi) and even more importantly can be introduced in smaller scale initiatives in emerging regions, which must serve their “digital elites,” helping to disseminate smart service adoption.
- Political consensus and coordination among multiple stakeholders, including citizens, is essential for success. Socio-economic conditions need to be considered carefully, including the “digital skills” of the population, in order to benefit from the new technologies.

Structure of the report

This panel discussion on smart cities was hosted by Nokia as part of the Mobile World Congress 2016, and took place on 23 February 2016 in Barcelona, Spain. The main topics of discussion were as follows:

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Osvaldo Di Campi (Host)
President, Global Enterprise and Public Sector, Nokia



Andrea Faggiano (Moderator)
Associate Director, Arthur D. Little



Antonio Garcia-Zaballos
Lead Specialist, Telecommunications Competitiveness and Innovation, IADB



Jay Hedley
Managing Director, Connected Spaces, Accenture



Kamal Shehadi
Chief Legal and Regulatory Officer, Etisalat



Sébastien Soriano
President, ARCEP



Paul Wilson
Managing Director, Bristol is Open

Roundtable participants



1. Introduction

Seven out of ten people will live in urban areas by 2050. How many cities will be truly “smart” by that time? How many will have been able to create successful smart city projects to reap the social and economic benefits?

Global competition is placing pressure on municipalities everywhere to invest in connected information and communications technology (ICT) infrastructure as a key element of their economic and social success. First, they must ensure access to broadband for their citizens and businesses. Then they need to approach the management of the city in an open and collaborative way. They must break down barriers between different organizations, domains and businesses and find viable business models in order to open up new possibilities. In the context of regional goals and priorities, varying levels of existing infrastructure, multiple regulatory environments and embedded social dynamics, the challenges in making this happen can be substantial.

This government panel discussion brought together thought leaders from the public and private sectors to share their visions, expectations and concrete initiatives aimed at breaking down the boundaries that impede the development of smart cities globally.



“Today, smart cities are not a distant dream, but emerging realities.”

Andrea Faggiano, Associate Director of Arthur D. Little



2. Opening remarks

Oswaldo Di Campi, President of Nokia’s Global Enterprise and Public Sector division, welcomed the panelists and attendees. He provided a brief overview of Nokia’s 150-year history, and summarized the roundtable’s overall agenda. He then introduced the panel’s moderator, Andrea Faggiano, Associate Director of Arthur D. Little.

Faggiano began by noting that cities will represent 70 percent of the world’s population and 65 percent of its GDP by 2020. He characterized cities as a “unique lab” where very complex smart city projects can be accomplished, but with large challenges that extend beyond IT and telecom technology to encompass social organization — the “human touch.” He noted that today, smart cities are not a distant dream, but emerging realities. He explained that in his travels he sees cities launching new departments and funding as they aggregate products, money and skills by partnering with global ICT vendors and other organizations. Still, there are challenges. Faggiano said that he hoped the roundtable would illuminate the boundaries that are slowing down the process of developing smart cities in every part of the world. He suggested two levels of discussion: What is the current status of the industry, and what opportunities do we face?



This network covers the city of Bristol today, and Wilson expects it to extend to the surrounding region within two years.

3. Defining smart city projects

Kamal Shehadi, Chief Legal and Regulatory Officer with the Etisalat Group in the United Arab Emirates, works on smart city projects in 18 countries in the world — from Dubai and Abu Dhabi to sub-Saharan Africa. He noted that not every country and every city has the same definition of a smart city. In Dubai, he explained, there is a push to create a smart city in record time, with connected utilities and wireless Wi-Fi® coverage supplementing mobile networks everywhere. He explained that wherever one goes, the government provides every municipal service in a digital way. He described Dubai's smart city project as “very ambitious,” requiring proactive leadership at the top, because it means rethinking how government services are delivered.

He compared that with some other markets, such as Karachi, Pakistan, where the smart city initiative is smaller — what he described as “more of a real estate development proposition” — though still critically important. As he put it, “In every single one of those countries, even the poorest, there are highly educated young people aspiring to create, to join the digital world, and unless you give them the infrastructure and the cluster and proximity, they will tend to get on a flight and find somewhere else to go. You only get poorer by ignoring those people.” He noted that even though digital elites may comprise a small percentage of some populations, they will still be there to drive others, and that today in Karachi there is incredible innovation. As an example, he noted that the biggest competitor to Uber in the Middle East is a company called Careem, founded by two McKinsey consultants, with all of the development done in Karachi.



Another ambitious smart city project is “Bristol is Open” in the UK. It is being developed as a joint venture between the University of Bristol and Bristol City Council. Managing Director **Paul Wilson** noted that its design is that of an on-demand, elastic, software-defined environment that is creating what he calls “a programmable city.” He explained that citizens, businesses and government services can “slice” the network in thousands of ways to support the unique requirements of each user. This network covers the city of Bristol today, and Wilson expects it to extend to the surrounding region within two years.

4. Removing structural boundaries

While many smart city projects are expected to follow the “greenfield” model – new, highly connected, planned communities designed and administered from the ground up — the fact is that many new projects will involve retrofitting dense, existing urban areas under the “brownfield” model. These have inherent structural boundaries that can include old infrastructure, multiple uses and rights at any given site, heavy traffic, entrenched governance models and conflicting regulations. Faggiano noted that in cases such as these, coordination is essential, underscoring the need for political consensus on the objectives to be achieved.

Shehadi observed that some entity has to place the sensors all over the city, and then someone has to find a way to collect the great volume of information to make it relevant — something that is not going to happen automatically. While telcos have traditionally provided the connectivity, he says that now we are entering a new world where we have to work with people who have been dealing with these challenges in a different way, and at a different level, then bring all efforts together.



Sébastien Soriano, President of the French telecom regulator, Autorité de Régulation des Communications Électroniques et des Postes (ARCEP), observed that power companies, railroads, energy companies and other utilities are looking with great interest into the Internet of Things (IoT),

“You could be off by a meter, and you put a backhoe in the ground, and you hit somebody’s fiber line, or hit the water table, or hit something else that you weren’t expecting.”

Jay Hedley, Managing Director at Accenture



including what kind of technology they will have to use — for example, whether they will wait for 5G or use current technology such as wide area networks. And they are looking at the business cases as well. He suggested that their efforts could yield case studies that will be useful for smart city initiatives, such as interesting services that a city government can use and evaluate before rolling them out to the larger population.

Jay Hedley, Managing Director at Accenture, observed that most cities don’t have a very good understanding of where things are under the ground. “You could be off by a meter, and you put a backhoe in the ground, and you hit somebody’s fiber line, or hit the water table, or hit something else that you weren’t expecting.” He suggested consulting with city administrators, starting at the mayor’s office, with regard to regulation and the objective of getting various municipal entities to share information. Doing so, he said, will help everyone make fewer mistakes, minimize the disruption (and attendant traffic problems) at construction sites, and create a cost advantage.

Soriano agreed that all aspects of breaking down structural boundaries are related to the governance model and how you bring together multiple municipal entities, integrating experiences from developed countries. He advised that also means making sure that regulation in terms of privacy, telecom and IT security is coordinated.

Shehadi stated that sharing of data doesn’t mean that you make all of it available at any time to anybody who wants access. Rather, it should be managed in a granular model with different levels that are extracted and are used by those who are allowed to have access. All of that is something that has to be thought through. We need to have guidelines, and the privacy of individuals has to be respected. He noted that in most countries, this concept is sacrosanct.

Hedley stated that whether working with a “greenfield” smart city or a “brownfield” to be retrofitted, you’ve got to think big, act big, and actually do things to move the needle fairly quickly.

“Everyone is walking around with a computer, a camera and a communications mechanism. These are things that I think are going to help make adoption of the new communications environment go faster.”

Antonio Garcia-Zaballos,
Lead Specialist for Telecommunications
Competitiveness and Innovation at IADB



5. Addressing socio-economic boundaries

Mobilizing and getting “buy-in” from citizens is an essential element of any smart city project. **Antonio Garcia-Zaballos**, Lead Specialist for Telecommunications Competitiveness and Innovation at the Inter-American Development Bank (IADB), noted that “it is the people living in the city who make the city.” He advised that we have to take into account the population — not only the visible infrastructure, but other socio-economic conditions in the area, including “digital skills” — and whether the population is trained and capable of using new technologies and communications paradigms.

Hedley noted that Dubai is a perfect example of engaging and enabling the citizens. “Everyone is walking around with a computer, a camera and a communications mechanism. These are things that I think are going to help make adoption of the new communications environment go faster.” He added that all citizens want to be happy, and all want to help advance the “smart” aspects of the city. They also want their privacy protected, so it is imperative to create the appropriate laws and put the right technology in place so that people will actually use it.

Garcia-Zaballos commented that affordability is also an issue that could impact adoption of smart city services, noting that the top 40 percent of the richest people in Brazil have a monthly income of less than US \$1,000.

6. Sourcing effective financing

What financing models are available for smart city initiatives? They can vary greatly from one region to another. Wilson noted that Bristol is Open was able to use central government money originally intended for broadband in the city. “We said that actually we’re going to take this a giant step further, and some clever folks in the university gave us a vision for how that could look. That then helped open up more and more money.” He noted that once the government unlocked this innovation, it generated excitement from small companies, leading to much more money. He described how the project started with £6 million, which grew to £15 million. His team then used that funding

to engage other stakeholders, rising the funding to approximately £50 million, which allowed them to build the testbed. Wilson commented, “It’s quite intriguing trying to build relationships with very big players who are dancing around a little bit with the whole story. How serious are they? How quickly do they really want to do what they say they want to do?”

Shehadi commented that for countries that are under financial strain, this kind of investment for a Bristol-type network is simply not on the table. In these cases, stakeholders should think first of having a viable business proposition for the network that will bring in commercial partners. Hedley agreed that you have to be laser-focused on the business case, and only then do you do the things that make sense to deliver the smart city.

Hedley noted that one of his favorite sayings is, “It’s always about the money, all of the time, always.” He agreed that even if a government entity is trying to solve a problem for a public good, it has to have the way to pay for it or the project won’t get done, since the companies that do it aren’t there for charity. He proposed that helping the government find the money could be a key strategy, and offered a hypothetical example: City roads often are dug up and then repaved, only to be dug up again months later because of a different problem. With enhanced data sharing, utilities could reduce construction in the roadway by 10 percent, with 10 percent fewer errors, and a case could be made to agencies that such a model could potentially save hundreds of millions of dollars over a five- or six-year period, freeing up investment.

7. Finding the right evolution path for regulation

Faggiano asked the panel if authorities whose mission has been only to achieve fair competition in the country are now taking a broader role, addressing the fragmented regulatory environment for smart city development.

Shehadi noted that each market faces different regulations for data privacy and data security. He added that smart city initiatives also labor under regulations that tend to be very specific to the telecom market, when in fact these initiatives are dealing with challenges that cut across all sectors of economic activity. He stated that basic regulatory building blocks are still being developed, with no best practices yet established. He suggested that the regulatory way forward can be forged by rethinking the issues through a public and private partnership — how stakeholders can change the way services are provided, the way people interact — and creating a whole new digital space.

Soriano stated that the first thing regulators need to do is *nothing*, meaning that if they act too soon, they will make mistakes and deter innovation. The priority now should be to understand and not to act. He noted that ARCEP decided to launch a cycle of public hearings to meet all of the manufacturers, the operators and users on all of the platforms — not only for smart cities, but for IoT.



“Telecom regulators are only familiar with telecom regulation, so we decided to invite to our work sessions the privacy regulator (the ICT Security Authority), the competitiveness authority in France and the administration in charge of building regulations, in order to have a 360 approach,” he explained. “We plan to create a kind of white paper to put what we consider the good questions on the table before the end of this year. We don’t have all the answers, but still we can raise good questions. That’s our ambition.”

Wilson offered that opening up some spectrum for experimentation and innovation with 5G could be a very important next step. That could happen at the European Commission level to create some smart city-style wireless innovation, which would be very helpful for many smart cities, fostering a new wave of innovation that could be used for social good.

Soriano spoke about a new kind of regulatory dialogue. Since there was a different approach from one local authority to another, ARCEP decided to propose a dialogue between the regulator, the local authorities, and the industry of telecom operators. “We tried to work with best practices in the local authorities, and to make sure the public money was directed to scalable investments and standard technologies.” He noted that his agency now is trying to do the same thing with smart cities, organizing a first conference last January under the name “smart territories,” which broadened the smart city concept to attract local authorities from rural areas who are interested in issues such as e-health.

Soriano observed two main trends in these conferences: local authorities want to reuse existing infrastructure, for instance, the fiber network. They also are wondering whether they have to work with big private companies that will ensure most of the jobs and benefits from the final services, or if they have to do it themselves.

8. Summary: Helping smart cities happen

This panel utilized experts from both the public and private sectors to provide a 360-degree perspective on the challenges facing smart city developments everywhere, and the approaches that could be most successful in meeting them. Faggiano summarized the panel discussion by reiterating that stakeholders in smart city initiatives can take a three-step approach:

1. Take the time to understand the issues and the various technologies before acting.
2. Make sure the game is open to all vendors, platforms and technologies.
3. Build confidence by understanding the business cases.



He added that success depends on coordination not only on the local and central levels, but also among different sectors. Transport companies and telecoms can share data, provide expertise and financing, and take a leading role in helping developing countries to build some infrastructure.

Ultimately, realizing smart cities everywhere will require breaking down the old paradigms of regulation and governance to help address the existing structural boundaries; aggregating multiple stakeholders to supply expertise, financing, and the inspiration to get a broad ecosystem of supporters on board; and engaging citizens from the beginning, with a focus on digital skills and social benefits. It is a challenging road, but progress already is being made, creating a new generation of globally competitive smart cities with services that enhance the well-being of citizens, enterprises and visitors.

Learn more about [Nokia Smart City solutions](#)

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