



Smart connections: a city's competitive advantage over other cities will drive development, especially in emerging markets

Emerging smarter

SMART CITIES WILL PRESENT OPPORTUNITIES WORTH AN ESTIMATED \$1500BN OVER THE NEXT FIVE YEARS, WITH URBAN AREAS IN EMERGING MARKETS AT THE FOREFRONT OF THIS DEVELOPMENT. BUT, ASKS JAMES GRUNDTVIG, CAN A MOVE TOWARDS 'SMART' FILL THE INFRASTRUCTURAL, SOCIAL AND ENERGY REQUIREMENTS OF THESE CITIES?

The pressure is on. More than 53% of the global population lives in urban centres, with that proportion expected to soar to 75% by 2050, according to a 2013 World Bank study.

"There are 180,000 people moving into cities each day," says Wim Elfrink, executive vice-president of industry solutions and chief globalisation officer at networking multinational Cisco. That equates to more than 5 million every month. "One thousand people arrive each day in Bangalore, India," he adds. "At that rate, the city would have to build a new school each year and a new hospital every two years. That's an impossible task. So how can technology-enabled solutions meet demand?"

In 2007, Mr Elfrink's journey in smart city development began with the building of Cisco's 'second headquarters' in Bangalore. The smart and connected campus became a 'liv-

ing lab', where ideas were hatched, tested, repeated and sustained.

The size of the problem

The problems cities face are inefficiency (through power and water loss, siloed government agencies and ageing infrastructure) and a voracious appetite for resources: the urban population will swell to 5 billion by 2030. Cities around the world use only 2% of the globe's land mass, but consume 75% of its natural resources, while generating 80% of the planet's greenhouse gas emissions, according to the McGraw-Hill Financial/Global Institute study, *Smart Cities: How to Build Sustainable and Resilient Environments In An Increasingly Urbanized World*.

At the core of the smart city concept is government transparency based on technology that enables the flow of real-time data with critical insights.

In the view of Dr Katharine Frase, vice-president and chief technology officer at IBM Public Sector, smart cities are built from several city verticals: power, employment, education, safety, the urbanisation of water and climate change. She asks: "What is the human impact? How do cities factor in pervasive security? Old methods don't work anymore; they don't scale well. How will cities better handle traffic, transportation and air pollution?"

"Cities have concentrated populations. To alleviate the density, cities must relay information through instrumentation flow. How can technology share data sets and communication in a sustainable way? To make that work, cities need reliable power, a good education base and a government willing to break from old static models."

Sharing data

Ms Frase puts transparency at the top of the list of key smart city components. That can only come when government agencies, which don't speak to one another, break down silos to share data with the citizens, and enable entrepreneurs to develop products to smarten up public services. According to IBM, smart cities need to pervasively "col-



Pictures: far left, Bigstock; middle two, Opera Software; far right, Cisco

lect, communicate, and crunch data” to operate efficiently.

Public services are frontiers in smart city development. Smart Cities Council, based in Seattle, is a two-year-old advisory and market accelerator that provides readiness and funding guides for cities worldwide. “Rio de Janeiro collects information from 30 different city agencies, from water and energy to weather and transportation,” says chairman Jesse Berst.

“IBM created Rio’s unified control centre that enables the city to view critical data in real-time, such as floods or mud slides and traffic congestion. Cities need to learn change management as they face three distinct challenges: innovative financing, siloed workers, with collaboration being key, and vulnerability to data privacy and cybersecurity issues.”

In the near future, a city’s competitive advantage over other cities will drive development, especially in emerging markets. With the sea change in demographics, population flows from rural to city centres and Asia and the Middle East getting younger, attracting talent of the ‘millennial’ generation will be crucial to developing a smart and sustainable ecosystem.

Africa and Asia

Helping spur the growth is Opera Software in Norway, which develops mobile compression technologies. In its ecosystem of 350 million

mobile customers, “the fastest-growing regions are BRIC [Brazil, Russia, India, China] countries, in absolute numbers. But African nations have the fastest growth rate as a percentage of users,” says Jan Standal, Opera vice-president of product partnerships.

“There are huge regional differences,” he adds. “Overall, it’s still urban and mostly male, and 87% of millennials say their smartphones never leave their side. For price-sensitive markets, such as Africa, people need prepaid solutions to access the internet or phone services.

“There are close to 3 billion people on the internet, with 45% of the users being Asian. In Kenya, Opera estimates that from 40.5 million mobile users in 2011, there will be 63 million by 2030, and more than 80 million by 2050.”

In Asia, the epicentres of smart city growth are India and China, and Indian prime minister Narendra Modi has announced an ambitious plan called 100 Smart Cities.

“India needs an intelligent public sector. It’s a challenge to Indian businesses,” says IBM’s Ms Frase. “How can Mumbai improve planning based on a 1960s development model? What does that look like? There is a need to leverage existing cities. But Mumbai will look different to new greenfield cities, such as Masdar. How can a city use heat from a datacentre to heat the building next door? That is a smart solution that needs to be planned out.”

The smartphone opportunity

Dr Anders Corr is the founder of geopolitical risk analyst firm Corr Analytics, and has carried out extensive analysis of mobile penetration versus GDP in emerging markets. “The biggest unrealised opportunities are in India,” he says. “A huge population with a low but decent GDP per capita has a much smaller smartphone penetration than one would expect. There are also unrealised smartphone opportunities in Indonesia, Brazil and Vietnam. The Internet of Things will be built on the backbone of smartphone connectedness. In China and Saudi Arabia, where smartphone markets are saturated, there are a lot of opportunities for new app development.”

According to consulting firm Frost & Sullivan, there will be a \$1500bn smart cities market opportunity over the next five years. “The mega cities from emerging economies will witness a compound annual growth rate of 4.4% in GDP from 2009 to 2025, as compared to a compound annual growth rate of 1.63% for the same period in the mega cities from developed economies,” says its report *Urbanization Trends in 2020: Mega Cities and Smart Cities Built on a Vision of Sustainability*.

But for that to happen, governments will have to become more transparent, using smart regulation to foster efficient, attractive and sustainable living and working environments of the future. ■