



# Smart Moves for Smart Cities

From building the right infrastructure to providing connected networks, service providers are seeing a golden opportunity in every phase of smart city development. Naturally, major players are upping the ante and gearing up to cash in on the boom



**W**ith overpopulated cities and their strained infrastructure, India is already in the midst of a crisis. Given the country's population growth and unchecked migration to urban areas, the path ahead looks even more difficult. To get a perspective on the massive challenge ahead for India, let's look at some statistics: According to the World Bank, almost 10 mn people migrate from rural to urban areas in India every year. Further, by 2020, 70% of people will be living in cities.

As the urban population swells, there will be greater demands on the already strained city infrastructures, which in turn will impact vital services such as transportation, healthcare, education, and public safety. To this end, the concept of smart cities can truly prove path-breaking in changing the face of the country. No wonder, conceptualization and creation of smart cities is high on the agenda for Indian government, which has earmarked an investment of ₹50,000 crore for the development of 100 smart cities.

#### TECHNOLOGY CENTRAL TO REALIZING THE SMART CITY DREAM

For a city to be smart and connected, the first requirement is for a new-age broadband infrastructure which would include cable, optical fiber, and wireless network. It should have the capacity to meet the network usage requirements of entire populace of the city. With an increasing number of devices getting connected to the Internet, termed Internet of Things and in the wake of ever-increasing use of mobile applications, having a best in class broadband infrastructure would enable citizens to access smart city applications as per their requirements.

Vineet Kshirsagar, Senior Director & Group Head Businesses, Oracle believes, "An important step would be to make sure that smart devices and sensors

are embedded in the infrastructure of the city. These devices would provide the city administration with the real-time data, alerts, and analytics along with a rich experience to the citizens. This collective intelligence would also assist in connecting the citizens of the city and the city administration. The real-time data and analytics would be critical for health, judicial, police, fire, and many more administrative departments, thus keeping crimes and public grievances at bay."

Another important step would be the development of smart urban areas, which would use ICT technologies in an innovative manner to benefit the environment and economy. These areas would offer Wi-Fi spots, charging points for electric cars, buildings with smart cooling/heating systems, and information kiosks.

#### PLETHORA OF OPPORTUNITIES

With the buzz for smart cities gaining traction, it has opened up abundance of opportunities for technology players and service providers to develop technologies that are able to satisfy the evolving requirements of the stakeholders involved.

"Right from providing and setting up the right infrastructure for the last mile connectivity, providing the right technology to enable better governance and access to services, and ensuring that all components for the decided solution work seamlessly, there is an opportunity at every stage," agrees Raman Bountra, Business Leader, Government Sales, Dell India.

Echoing similar sentiments, Rajeev Saxena, Director sales, India Public Sector, Commercial and Saarc, NetApp Marketing & Services says, "Smart city ecosystem has a host of opportunities, to start with installation of sensors and dashboard that will help reduce energy while

managing waste collection, analytics to measure carbon footprint, and charging for electric vehicles."

Sensing the immense opportunity, service providers have upped their ante and are devising strategies and developing solutions to gain their share of smart city pie. "To help make the GoI's Smart Cities dream a reality, solution providers across the ecosystem are gearing up with offerings that can come together to create a connected and collaborative environment," states Satish Jadhav, Director - IoT, Embedded Sales Group - South Asia, Intel Technology.

A major player which is aggressively targeting smart cities opportunity is Wipro. "We are offering end-to-end IT solutions for smart cities right from utility management to a centralized command and control center for pollution moni-

toring," informs Anuj Bhalla, Vice President and Global BU Head - Product, System Integration and Maintenance Service, Wipro. The company is also offering smart healthcare systems, including remote cardiac and fetal monitoring, fall detection, and online patient information storage systems.

As connectivity underpins many aspects of the smart city concept, IoT is emerging as the biggest area of interest for technology providers. Various devices like sensors, gateways, communication infrastructure, and servers collectively form the 'Internet of Things' and will be critical in shaping the future of smart cities. According to Cisco's estimates, the value at stake as businesses digitize over the next 10 years is \$394.4 bn for the private sector and \$116.2 bn for the public sector.

### At a Glance Traditional Cities Vs Smart Cities

	The Problem	The Smart City Solution
Planning	<ul style="list-style-type: none"> <li>• Adhoc and decentralized</li> <li>• Cost savings aren't realized</li> <li>• Limited potential for scalability of investments</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinated and holistic</li> <li>• Resources are shared cost savings are fully realized</li> <li>• Investments are scalable</li> <li>• Improved city</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• Runs inefficiently</li> <li>• Costs more money and resources to run</li> </ul>	<ul style="list-style-type: none"> <li>• Optimized with cutting-edge technology</li> <li>• Saves money and resources</li> <li>• Improved service level agreements</li> </ul>
System operators	<ul style="list-style-type: none"> <li>• Guess at infrastructure conditions</li> <li>• React to problems</li> <li>• Can't deploy resources efficiently to address problems</li> </ul>	<ul style="list-style-type: none"> <li>• Enjoy real-time reporting on infrastructure conditions</li> <li>• Predict and prevent problems</li> <li>• Deploy resources more efficiently</li> <li>• Automate maintenance</li> <li>• Save money</li> </ul>
ICT investments	<ul style="list-style-type: none"> <li>• Piecemeal and siloed</li> <li>• Deliver suboptimal benefit</li> <li>• Don't realize economies of scale</li> </ul>	<ul style="list-style-type: none"> <li>• Centrally planned</li> <li>• Deployed across city departments and projects</li> <li>• Deliver optimal benefits</li> <li>• Provide maximum value and savings</li> </ul>
Citizen engagement	<ul style="list-style-type: none"> <li>• Limited, scattered online connection to citizens</li> <li>• Citizens can't make optimal use of city services (or easily find them)</li> </ul>	<ul style="list-style-type: none"> <li>• Complete and singular online presence</li> <li>• Citizens can easily find and use services</li> <li>• Citizens can participate in smart city initiatives</li> <li>• Two-way communications between government and people</li> <li>• Specialized services focused on the individual citizen</li> <li>• Citizens can both contribute to and access real-time intelligence</li> </ul>
Sharing data	<ul style="list-style-type: none"> <li>• Departments and functions are siloed</li> <li>• Departments rarely share data and collaborate on initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• Departments and functions are integrated and/or shared</li> <li>• Data is shared between departments and better correlated with their data services</li> <li>• Results are improved</li> <li>• Costs are cut</li> </ul>

Source: Orange Business Services



— Vineet Kehirsagar  
Senior Director & Group Head Business,  
Oracle

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"Given that the IoT is the foundation on which most smart cities are built, this is also an area of opportunity for service providers," asserts Bountra of Dell India.

Consequently, leading companies are devising strategies to tap the IoT opportunity in smart cities. "IoT is one of Intel's fastest growing businesses and we are building on our long and successful history in the embedded market by delivering platform level solutions with integrated, scalable hardware, software and services for intelligent devices and gateways, while also enabling end-to-end analytics to turn big data into actionable information," informs Jadhav.

Similarly, Cisco has announced a strategic engagement with Electronics City Industries Association (ELCIA) to develop Asia's first end-to-end 'IoT Innovation Hub' in Bengaluru. Cisco is using the network as a platform to transform physical communities to connected communities run on networked information. "We are working with global and local partners on solutions to address public safety, traffic management, citywide wired and wireless networked Internet access, smart parking, remote access to government agency services, and a host of other urban services," says Purushottam Kaushik, Managing Director,



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Director - IOT, Embedded Sales Group -  
South Asia, Intel Technology

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Cisco India and Saarc.

Among other technologies, big data and analytics will clearly play a major role to drive the growth in the smart city journey. However, more clarity will come as smart city framework and standards are evolved. Air Vice Marshal Dattatray Pande AVSM, CSM (Retd), Vice President Government, Defence and Aerospace, Persistent Systems opines, "Big data and analytics will play a pivotal role in ensuring a check on unauthorized usage or wastage of essential resources needed in day-to-day activities like water, electricity, etc. To offer best services to its residents, the proposed smart cities will have to focus on automation of operations including asset management, property management, maintenance management, visitor management, facility booking, space management, tenant billing, etc."

With respect to this, Persistent is building an open source platform for smart cities. Persistent believes that the smart city platform should be open standard, cloud-based, and fundamentally aiming to break the silos of independent services in the city.

Another big opportunity lies in integrating Geographi-



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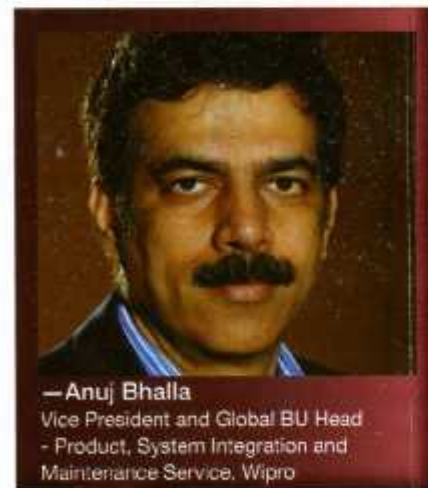
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### Smart City Projects

Intel has announced a joint initiative with the state of Chhattisgarh where it is designing solutions to build Naya Raipur as a smart city. It is working to build a blueprint of solutions, which are implementable, scalable, and can help create an ecosystem that will help in speeding up deployment and make them citizen-centric.

Cisco has announced a partnership with the Jaipur Development Authority to set up a digital infrastructure to offer citizens amenities including connected transport, interactive kiosks, wireless broadband, safety and security services, traffic management, and environmental updates. Jaipur will also have a command and control center as well as response control room powered by Cisco technologies to manage the city with greater efficiency and effectiveness. It is also working with Lucknow and Navi Mumbai administration to set up smart city surveillance.



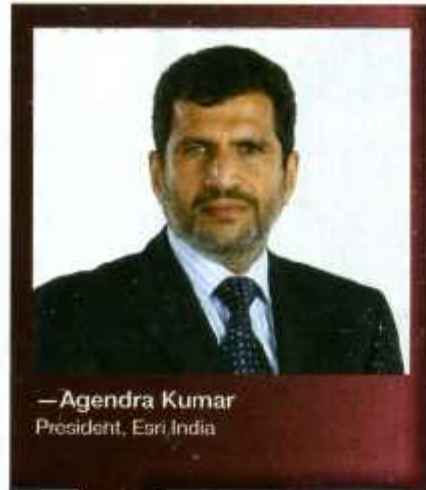
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Director Sales, India Public Sector,  
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A smart city should be able to provide top-class infrastructure, transportation, energy utilities, and security that need to be smarter and driven by technology and automated processes



—Agendra Kumar  
President, Esri India

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cal Information System (GIS) in the smart city framework. "Location is a common denominator in every aspect of smart city and hence a location platform, ie, a GIS-based platform technology has to form the backbone since the very beginning including the planning for ICT deployment," opines Agendra Kumar, President, Esri India.

A centralized information system based on GIS will provide an IT framework which will integrate every aspect of a smart city—starting from conceptualization, planning, and development to maintenance. Esri, for example, is working with governments and private organizations in India to help them in setting up enterprise GIS technology platform.

A good example is GIFT city (Gujarat International Finance Tech City). In GIFT city, GIS is used in benchmarking of master plan, 3D visualization for urban skyline, geometric network of power utility, and landscape management. Also, GIS software helps in providing a secure workplace through CCTV live feed for surveillance.

#### SECURITY IS AN ESSENTIAL ASPECT

As the vision of digital transformation takes shape, security needs to be considered as an integral part of the plan.

As systems grow more complex, become interconnected, and start handling more information, their exposure to vulnerabilities increases—whether due to malicious intent or human error. Smart cities can securely thrive and prosper if cybersecurity and information security are taken as fundamental components in the smart city blueprint.

With a stringent cybersecurity framework, the need of the hour is to build a skilled taskforce to combat complex cyberattacks. Symantec is making huge strides in the area by partnering with Nasscom to train and certify world-class professionals with the requisite cybersecurity skills.

Technology vendors are also providing solutions to support security of connected systems. For example, Avaya has introduced SDN Fx solution for ensuring security in smart cities. Using this technology, the company has demonstrated nearly 15,000 cameras running over a single converged infrastructure with one protocol.

#### CROSSING THE HURDLES

Like the opportunities, the challenges for developing smart cities are also humongous. Implementation of smart city solutions is a complex process. "City gov-



—Purushottam Kaushik  
Managing Director, Cisco India and Saarc

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ernments face challenges in terms of cost, time, obsolescence of technology, and of course the biggest challenge is from where to start," explains Neeraj Gill, General Manager – Public Sector, Microsoft India.

India is a diverse country that has witnessed rapid urbanization over the past few years and hence, there is no single solution that can be applied across the country to make it smart.

To address and enhance security as part of a smart city initiative, many devices such as cameras, sensors, wearables, etc, need to be deployed. Saxena of NetApp says, "A smart city should be able to provide top-class infrastructure, transportation, energy utilities, and security that need to be smarter and driven by technology and automated processes."

Apart from this, other challenges that could come up during the process include social and cultural change taking longer time than expected; poor understanding of open source platforms; unavailability of smart city standards and detailed ICT roadmap, and so on.



—Khwaja Saifuddin  
Senior Director - South Asia, Middle East and Africa, WD

While technology and data will play an important role, the success will depend upon the most accurate assessment of the current and future needs of the city and mapping the fulfilment of those needs with the most competent solution providers

#### OUTLOOK

The wave of urbanization that is sweeping across India represents one of the country's greatest opportunities as well as one of its most serious challenges. Over the past few years, service providers have invested in the smart city space to make their offerings more relevant to city challenges and are coming up with different solutions each passing day. However, success of smart cities initiative will also revolve around other factors.

Khwaja Saifuddin, Senior Director - South Asia, Middle East and Africa, WD sums it up perfectly, "Different cities have started implementing smart city initiatives in bits and pieces and these will eventually coalesce to accomplish a larger and insatiable objective. While technology and data will play an important role in solving some of the critical issues, the success will ultimately depend upon the most accurate assessment of the current and future needs of the city and mapping the fulfilment of those needs with the most competent solution providers."