Accenture Business Journal for India

Technology that Empowers:
Building smart cities for the digital citizen
By 2031, more than half of India’s population will live in urban areas,1 placing city infrastructure—including transportation, healthcare, education and public safety systems—under increased stress (see Figure 1). To manage this rapid urbanization, India needs to spend approximately INR1.2 trillion (US$2.2 billion) over the next 20 years in building infrastructure that provides responsive and transparent city services, offers a higher quality of life for citizens and promotes economic growth.

Invested wisely, the money will help India build “smart cities”—urban spaces with public services that respond and adapt to meet the needs of today’s digital citizens. To accelerate its smart city journey, India’s public sector will need to think global but act local—be inspired by thriving global cities, but put business and technology to work—to develop and apply workable solutions customized for the unique needs of its citizens.

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Cities are for citizens

India faces multiple challenges in developing the infrastructure needed for rapid urbanization. Putting citizens at the heart of its urbanization strategy and using technology as an enabler of improved public sector outcomes can be an effective answer to these challenges.

Planning and design: India lacks experience in planning large cities, or metros as they are popularly known in India. Master plans are not available for most cities. Urban planners develop a vision and strategy only for a city’s core but not for the surrounding urban and rural areas. The result is haphazard development.

Policies and regulation: Most municipal laws are so complex that planners have difficulty interpreting them. The Indian government developed the Model Municipal Law in 2003 to provide urban planning guidance but only a few states adopted it. Floor space index (FSI) regulations are outdated and have proved inefficient in guiding growth and allocating land for alternative uses such as sports and recreational facilities.

Funding: India’s urban local bodies (ULBs) do not have much influence on capital financing of infrastructure and services; even their borrowing powers are restricted. So, the Indian government aims to implement smart cities in the same way it does large-scale urban infrastructure projects: through special purpose vehicles (SPVs), which will appraise, approve and release funds for smart city development projects as well as implement, manage and evaluate outcomes.

Technology as an enabler of citizen-centric urbanization

A new plan to build 100 smart cities in the next 10 years, with a central funding of INR480 billion (US$9.5 billion), offers some hope for citizen-centric urbanization. These cities will go beyond process improvements to encourage innovation to deliver improved city services, while promoting smart resource management, energy efficiency and citizen engagement with ULBs to sustain successes.

City governance and service delivery: Urban planning and governance responsibilities are distributed across three tiers of government in India, with lines of authority overlapping or unclear. The existing framework does not define the roles and responsibilities of state governments, municipal governments and other bodies—such as water supply and sewerage boards, improvement trusts, urban development authorities and district or metropolitan planning committees—in preparing, implementing, enforcing and monitoring project plans, resulting in delayed and inefficient decision making and a lack of accountability.

Economic and social inclusion: Throughout India, impoverished communities are governed by traditional, informal or religious leaders as well as the officially elected town council. Often, leaders and council members’ ideas and actions clash, delaying projects and keeping residents trapped in poverty. Regulations aimed at capping population density in cities and discouraging people from migrating from villages limit the supply of land available for housing. This situation drives urban sprawl and pushes up land prices as well as the cost of delivering services such as water to citizens.

Forward-looking state governments have realized that they must reinvent their cities—by combining technology with a citizen-centric approach to city design and public service delivery.

The smart city guidelines issued by the Ministry of Urban Development focus on city improvement (retrofitting), city renewal (redevelopment), city extension (greenfield development) and the creation of smart solutions for the surrounding areas. The guidelines emphasize integrating new technologies with urban and town planning initiatives, while keeping citizens at the core through a modified governance structure, as well as funding solutions to help cities become autonomous and self-reliant. How effectively local governments define their strategy based on these guidelines and implement smart city projects will determine their success.

Building a smart city strategy

Drawing on our experience of working with more than 80 cities around the world on designing and implementing digital city initiatives, we have developed a framework to help define a smart city strategy. This framework has six key elements (see Figure 2).

- Keep citizens at the center
- Think local
- Collaborate with stakeholders

Keep citizens at the center

A city’s urbanization plan should start with the needs, wants and aspirations of its citizens. For instance, the ease of doing business; improved cleanliness, safety and security; and faster and more accessible transportation. Planners can use a variety of tools, such as stakeholder analysis, best practice assessment and SWOT analysis to clarify these imperatives and generate ideas. An example of this is the way the Bandra-Kurla Complex in Mumbai, Maharashtra, used fact-finding surveys to meet user needs. Working with Accenture, it used the inputs collected from stakeholders—visitors, tenants, government officials and local business owners—to identify five quick wins to deliver the most valuable results to citizens in the shortest time.

Think local

Every city has characteristics that make it unique and famous. Varanasi and Kyoto are known as religious centers, while Mumbai and Hong Kong are famous as financial hubs. Some are manufacturing centers such as Pune and Detroit or high-tech centers such as Bangalore or San Jose. A city’s urbanization plan needs to reflect and draw inspiration from its local character to preserve its uniqueness.

The Kerala government applied this principle while developing Technocity in Trivandrum into a knowledge center. Working with Accenture, which helped analyze the current macro environment and undertake a detailed SWOT analysis, the approach and methodology for this project considered both the existing “hard” infrastructure such as air and land connectivity, as well as “soft” infrastructure such as the lead time for building approvals. By thinking local, the state government succeeded in assessing the nature of the workforce, which ultimately helped shape the vision for the knowledge center.

Collaborate with stakeholders

To build a smart city, an array of stakeholders—including government agencies, private corporations and citizens—must collaborate. And effective collaboration requires a strong governance framework. For example, policies governing master plan approval and funding processes could help ensure that urban local bodies and private companies can collaborate and drive the urbanization agenda.

India in 2031

75% of its GDP coming from urban areas
50% of the population in urban areas
255 million people in 87 metropolitan cities
140 million people in top 10 cities

This map is not drawn to scale. The data is provided “as is” and are not legal surveys or legal descriptions. Accenture explicitly disclaims any representations and warranties as to the accuracy, timeliness, or completeness of maps and data.
One such example is Yokohama. In 2010, the city’s Environmental Planning unit established a consortium of seven companies, including Accenture, with the aim of reducing carbon dioxide emissions and stimulating economic development through locally developed high-tech energy solutions.

Measure the ROI

Smart city project leaders must assess tangible and intangible return on investment (ROI), both in the short and long term. Examples of tangible returns include operational efficiency and cost reduction. Intangible returns include stakeholder trust and citizen satisfaction. By regularly measuring ROI, project leaders and other stakeholders can make timely decisions, for instance, providing funding for an infrastructure project or getting a troubled project back on track.

Integrating digital technologies into the design of urban infrastructure can stimulate creation of smart cities. This will also enhance efficiency and effectiveness of city infrastructure systems, enabling the delivery of high-quality services. For instance, Mexico’s Ciudad Creativa Digital (CCD) used digital to improve its infrastructure and drive efficient city services for a new digital and creative cluster in Guadalajara to foster a knowledge-based economy. The digital initiatives included intelligent security, digital mapping of utility services, solar public lighting, smart parking and a city operating system collecting real-time data.

Put Internet of Things to work

Even as the market potential of the Internet of Things (IoT) grows and is estimated to reach US$15 billion by 2020, citizens’ expectations from digital services are also increasing. IoT will be critical in making cities smarter and various initiatives have been proposed under the Digital India program to create digital infrastructure. For instance, the concept of “connected space” that leverages IoT technologies to maximize the utilization of physical space by improving India’s urban infrastructure needs to be developed further. This is because this concept connects IoT to digitally enable and strengthen processes for timely as well as cost-effective municipal services, improved public transportation, reduced traffic congestion, and increased safety and community engagement for citizens. Forward-thinking cities can achieve this by providing a secure and scalable IoT infrastructure that integrates these multiple disparate processes.

Focus on execution

Smart cities take years to build. Therefore, planners need a well-defined road map that charts out feasibility, approval processes, governance structure, planning and design, marketing of plans and schemes, and execution. The Kerala Knowledge City project, for example, created a structured road map covering all steps from the prefeasibility study to execution. Accenture worked on the project, defining critical success factors at each step—for instance, completing documentation and securing cabinet approval, delineating the organization structure, and forming consortiums for execution.

The way ahead

To succeed, smart city initiatives need strong entrepreneurial leaders who can define and communicate a compelling vision that has citizens’ needs at the heart of it, foster innovation and collaboration, and secure funding. Leaders who do this stand the best chance of strengthening India’s cities, growing urban economies and improving citizens’ lives—delivering public service for the future and helping India realize its dream of building 100 smart cities.

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Authors

Sanjeev Gupta
Managing Director and Lead – Health & Public Service, Government Relations and Corporate Affairs, Accenture in India
sanjeev.gupta@accenture.com

Vishvesh Prabhakar
Managing Director - Operations and Sustainability, Accenture Strategy
vishvesh.prabhakar@accenture.com

Vishal Sharma
Senior Manager – Health & Public Service, Accenture in India
sharma.vishal@accenture.com