



By Nirav Shah

Nirav Shah is the President of EI Technologies, LLC in Denver, Colorado. He is also a part of the US delegation for Smart Cities Infrastructure Trade Mission.

Using GIS Technology for *Smart Cities*

A *Smart City* is a transparent organization that thrives to provide superior services to its citizens.

When a governmental organization is committed to transparency, efficiency becomes a way of life. So how do we go about building such an organization?

For the past 30 years, organizations in Western countries have been implementing Geographical Information System (GIS) to plan, implement, and operate smarter organizations. Technological advances of the past decade have drastically improved the ability of these organizations to improve citizen services. Our challenge is to take the best-in-class technology and processes, and apply those towards the 100 *Smart Cities* goal of the Indian Government. Let's start exploring.

PLANNING

Good planning is at the heart of successful implementation of a *Smart City* project. GIS Technology is at the forefront of urban planning. With the latest technology in 3D modelling, city planners are now able to visualize their plans at the click of a button and see how changes in land use, zoning and height restrictions will look once completed. This allows the planners to view the impact of high-rise buildings on neighbouring property for a variety of parameters from sunlight and shadows to wind draughts.

There is more to planning than zoning and land use. A *Smart City* also needs to plan for Smart Utilities and Smart Transportation. Providing on-demand utility is central to any *Smart City*. GIS Technology helps with planning for utility transmission and distribution capacity. Environmental factors should also be taken into consideration when planning for utilities. For instance, storm water drain designing needs to account for peak rain to avoid flash flooding. GIS Technology will help with the analysis of historical data along with soil type to account for saturation to calculate runoff. GIS Technology also helps calculate paved areas to determine runoff from the developed area.

Transportation planning as part of land use and zoning planning helps alleviate traffic congestion.

In short, this technology can bring all the factors under one umbrella while creating a comprehensive actionable plan.

IMPLEMENTATION

Once officials have a comprehensive plan, they need to start implementing it. GIS Technology helps with the implementation of a *Smart City* plan. The construction of key infrastructure is managed better by integrating project management and finance tools with GIS. Setting up police and fire incident management systems that are integrated with GIS Technology will help in better response when an incident does occur.

OPERATION

GIS Technology helps government officials efficiently operate their *Smart City*. It touches every aspect of operation of a *Smart City*. For example, GIS Technology allows a detailed analysis of crime, including an incident analysis, a journey to the crime site, a crime profile and a hotspot analysis. Once an area is considered a hotspot, GIS Technology also allows us to review patrol effectiveness by reviewing the results of increased patrolling in a hotspot zone.

Similarly, GIS Technology allows planning for fires in key buildings by analysing building plans and preparing evacuation routes.

ENGAGEMENT

A *Smart City* is one which constantly engages with its citizenry. GIS Technology allows officials to provide apps and websites where citizens can report crimes, potholes on streets, issues with water quality, garbage pick-up issues and so on. The GIS will help manage this citizen feedback and allow organizations to fix problems while keeping citizens in the loop throughout the complaint lifecycle. Such transparency will make organizations more accountable helping them serve the community better. ■

send your feedback to:
info@bureaucracytoday.com