Smart City Sustainable Solutions

Transforming Lives: What Data can do in the Building of Smart Cities

Data can be a powerful tool for transforming the systems that perpetuate urban problems, today, be it Pollution, Drinking Water Scarcity, Unemployment, Waste Management, Traffic, or Crime. Data allows us to understand current conditions, identify problems, set goals, track progress and bring in oversight for sustained impact.

In developed countries across the world, cities have realized the importance of data and have implemented smart solutions using trustable data and technology.

It's time our cities in India, too, started on Smart initiatives that have transformed life in many of these Smart cities.

The United Nations' Executive Office, too, has launched an initiative called Global Pulse, whose primary mission is to build trustable data and use real-time analytics technologies to help policymakers understand human well-being and emerging vulnerabilities in almost real-time, in order to protect the environment, help the marginalized and protect populations from shocks. We recently presented our capabilities to UN Global Pulse in New York City; the response has been extremely encouraging.

We, at Navigem, can specifically bring in value from a Governance standpoint using Data and Technology towards bringing in sustainability in these areas:

Municipal Solid Waste (MSW)

Waste disposal is among the most important aspects of civic governance .Collection, collation and action on the related data yields economic, environmental and health benefits on a long run. Pertinent data, once subjected to intelligent logic, helps evolve informed,

- fact-based decision-making practices ranging from resource allocation (men, material & money); building normative standards
- waste segregation and processing (power generation, composting, recycling, reuse);

- spatial resource development (commercial, residential, transit zones)
- and temporal (time of the day) dynamic resource deployment;
- pattern generation (weekday, weekends, festivals) and subsequent real-time improvisation in a scalable manner to keep up with the urban sprawl;
- and making use of the resources available at hand with minimal/nil capital infusion;
- and an auditing and monitoring system to keep check on the processes

Traffic

Urban areas across India are plagued by traffic problems of humongous proportions leading to

- Environmental Pollution
- Health: Pulmonary diseases resulting from pollution, mortalities from accidents
- Economic Fallouts: Congestion, increase in travel time and hence fuel consumption

These issues result from a combination of causative factors like increase in vehicular density and fall in the carrying capacity of the road. But if we are able to come up with patterns that identify excessive congestion areas and times of the day factoring in the human activity for specific times and areas, dynamic interventions can be made in areas such as pre-emptive planning, rerouting, increased frequency of public transport plying in targeted corridors in specific time spans, and deploying appropriate infrastructure. These scalable, sustainable interventions could mitigate our traffic woes to a remarkable extent.

Health

"Every epidemic begins with a single infection." What if that single infection, figuratively speaking, could be nipped in the bud through timely intervention? For such an ideal situation to prevail there is a need for suitably equipped medical infrastructure (PHC in villages, Referral Hospitals in cities, networked health infrastructure) situated in strategic regions (based on population density, slums) which are more often than not the sources of many an urban epidemic breakout.

Interventions arising from data analytics could also help cities mitigate problems like vaccine shortages, and keep up with procedures such as mass inoculations, isolation and quarantines.

Water

The next World War would be fought for WATER, opines an analyst, highlighting the problem of drinking water scarcity that almost all our cities face to varying degrees. A study reveals that nearly 40% of the total water supplied to any Indian city gets lost due to wastage. Hence alleviating the water problem involves a three-pronged approach:

- Plugging the seepage
- Ensuring adequate supply
- Developing sustainable sources

A smart water system is designed to gather meaningful and actionable data on the flow, pressure and distribution of a city's water supply, based on the population and consumption patterns inferred solely through application of data sciences. Further, it is critical that that the consumption and forecasting of water use is accurate to enable resource mobilisation and subsequent mitigation.

Water loss management is becoming increasingly important as supplies are stressed by population growth and water scarcity.

Energy

A smart energy infrastructure primarily performs three basic functions:

- Modernizes power systems through automation, remote monitoring and control, and establishment of micro grids.
- It empowers customers through information dissemination and education about their energy usage, costs and alternative options, to enable them to make decisions autonomously

about how and when to use electricity and fuels.
- Provides safe, secure and reliable integration of distributed and renewable energy resources

All these add up to an energy infrastructure that is more reliable, more sustainable and more resilient. Smart grids provide targeted backup to critical urban infrastructure on priority (hospitals, transport, fire) during times of shortage and enables coordination and real-time decision-making capability between officials, infrastructure operators and those responsible for public safety.The smart grid would shed load in a predictable and more manageable fashion so that critical city infrastructure and functions are maintained, supported by micro grids.

The community (industry, commercial, residential) would respond automatically, to reduce their energy needs to lessen the burden of restoration. Transportation and traffic systems would coordinate with the energy systems to support critical transportation arteries and modes. Through it all, timely logistics information would be gathered and supplied to the public by all means available, but particularly through social media networks. Conservation, efficiency and safety will all be greatly enhanced through the availability of accurate logistical information.

Data plays the role of life blood in such a complex intelligent setup enabling cities to go the smart city way factoring in scalability and sustainability

Crime & Police IT

What if law enforcement agencies can predict impending threats to peace and tranquillity?

What if the local cop could be empowered with actionable intelligence regarding the most crime-prone duration of the day/week/month/year for different regions? The answer to this "What If "scenario is Data. The data available with the State Crime Record Bureau (SCRB) can be used to build insightful analysis to provide such meaningful revelations but only after suitable processing, treatment and application of intelligence.

This data could be an active force multiplier enabling efficient resource utilisation; effective and timely deployment; proactive surgical interventions (spatial & temporal); evolution of scenario-specific Standard Operating Procedures (SOP) which help in evolution of a people-friendly, efficient, effective, pro-Active crime-fighting/preventing machinery.

A city is an interconnected system of systems, a dynamic work with progress as its watchword, a tripod that relies on strong support for and among each of its pillars, to become a smarter city for all.

Smarter cities drive sustainable economic growth and prosperity for their citizens. Their leaders need tools to analyze data for better decisions, anticipate problems to resolve them proactively and coordinate resources to operate effectively. As demands grow and budgets tighten, solutions also have to be smarter, and address the city as a whole. By collecting and analyzing the extensive data generated every second of every day, *Navigem's Tool-Set and Solutions* can coordinate and share data in a single view creating the big picture for the decision makers and responders who support the smarter city.