

# Can Pakistan Build Smart Cities?

## Evolution of Smart Cities

The concept of smart cities is evolving with the advancement of technology. Incorporating Information and Communication Technology (ICT) and the Internet of Things (IoT) solution will be useful to ease the city management process. It helps to tackle the administration of city assets, including schools, libraries, hospitals, water supply networks, waste management, law enforcement and other services (Musa, 2016).

Building a smart city aims to increase the citizen's quality of life. Using sensors integrated with real-time monitoring systems, data is collected from citizens and devices - then processed and analysed. The information and knowledge collected are keys to tackling the inefficiencies of the city administration.

Smart Sustainable Cities can be defined as "innovative city that uses ICT and other means to improve quality of life, the efficiency of urban operation and services, and competitiveness while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects."

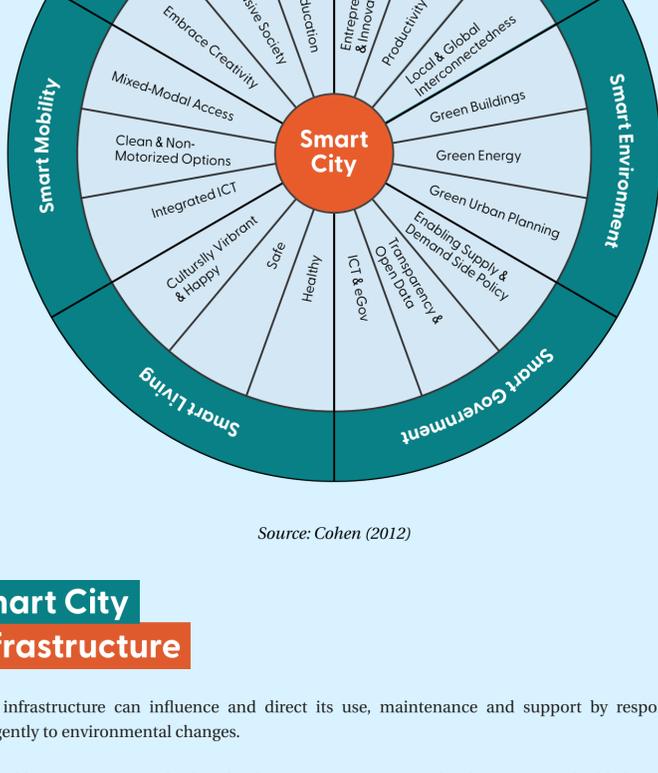
The concept of smart cities provides dual opportunities, i.e., to improve economic growth and deal with the challenges of rapid urbanisation, affecting more resource-scarce countries. It is mostly the case in developing countries where the government is giving the least importance to the subject of smart cities (Vu & Hartley, 2017). The countries like Pakistan need to transform their cities into smart ones as the population is increasing over time, reaching 243 million in 2022. Nonetheless, urbanisation was 36.5% in 2017, posing economic, spatial, social and infrastructural challenges (GoP, 2022).

These incited policymakers to transform urban settlements into sustainable urban areas. Moreover, Pakistan Vision 2025 also endorsed the development of digitally connected cities, which will be equipped with wireless network sensors and devices that must be connected, allowing the easy transmission of information (GoP, 2018). Akin to this, Punjab Growth Strategy 2018 aimed to develop cities as an engine of growth by utilising digital tools to solve the problems of urban issues (GoP, 2018).

## Indicators of Smart Cities

The indicators of smart cities are comprised of various industries of the city. Cohen explicitly elaborated on the components of smart cities in Figure 1 below. The author has compartmentalised the smart city indicators into six categories: smart economy, smart environment, smart government, smart living, smart mobility, and smart people. (Cohen, 2012).

Figure 1: Indicators of sectoral smart city interventions



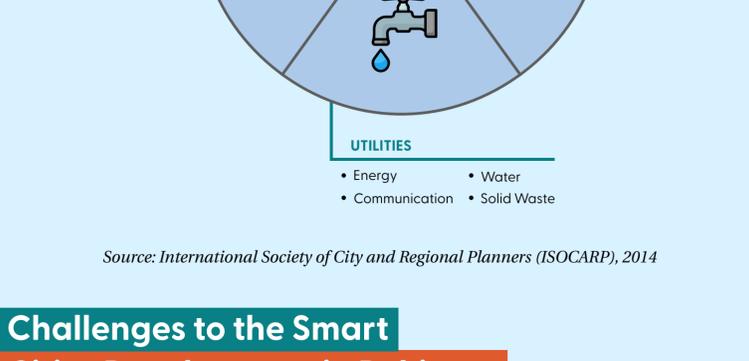
Source: Cohen (2012)

## Smart City Infrastructure

Smart infrastructure can influence and direct its use, maintenance and support by responding intelligently to environmental changes.

The world is moving towards digital infrastructure; sensing technologies are embedded with the infrastructure, generating real-time data and analysis. The collected data is analysed, interpreted and delivered as reliable, robust and meaningful information to infrastructure providers, who can then make better-informed decisions about their assets' structural health and maintenance (Khan, 2016).

Figure 2: Essentials of smart cities infrastructure for development of Smart Cities



Source: International Society of City and Regional Planners (ISOCARP), 2014

## Challenges to the Smart Cities Development in Pakistan

Several challenges impede the development of smart cities in Pakistan, such as:

- Lack of awareness on how to operate and implement smart city projects
- Lack of consensus on the Right Model for the smart city in Pakistan's Socio-Political context
- Developing countries like Pakistan are resource-constrained countries, and it becomes difficult for them to implement smart city projects
- No clear, cohesive road map, process and scale for the smart cities program
- Irrational and outdated government plans and their poor implementation
- To enforce the model, the government can initiate two tiers: a high-level committee led by CM Punjab for developing vision; strategy; deciding about financial resources/model for interventions an autonomous body; coordinating the execution of projects (this composition will be changed as per the need of the city)
- Inappropriate and inadequate digital infrastructure to build and sustain smart cities
- Lack of willingness of the government to formulate it
- Decentralised governance system with weak local government
- Limited service delivery of the institutions
- Limited e-governance base
- The perpetual and related energy crises and air pollution issues

## Readiness of Pakistan's Cities

### • Case Study of Lahore and Multan:

	Lahore	Multan
<b>ICT's</b>	100% 3G and 4G coverage; Broadband connectivity through fiber optics	100% 3G and 4G coverage; Broadband connectivity through fiber optics
<b>Hardware Tools</b>	Mobile penetration; Hotspots in public spaces; network of surveillance	Mobile phone penetration; Wi-Fi hotspots in public places
<b>Software Tools</b>	Web presence of all government agencies; GIS technology/expertise; GIS mapping data of urban property	The limited web presence of government agencies; GIS technology and GIS mapping data of urban property

The availability of input components is well structured, which requires building smart cities in Lahore and Multan. In terms of surveillance cameras, Lahore is better than Multan, which are essential for collecting data and helping decision-making. Similarly, all the governmental agencies of Lahore are present in cyberspace, whereas Multan has limited space. E-government and e-governance are important components of smart governance (SG), and as per the table, Multan is far from achieving an SG (Lopes & Farooq, 2018).

### • Essential Components for Building Smart Cities:

Sector	Solutions
<b>Governance</b>	Citizen Portal (CP) Android-Based City Command and Control Center, Disaster Management
<b>Security</b>	Video Surveillance/Analytics with loitering Detection, Crowd Counting, Facial Recognition etc. Neighborhood Watch Ported to CP
<b>Energy</b>	Variable Intensity and Proximity Based Smart Lightening System
<b>Mobility</b>	<ul style="list-style-type: none"> <li>• Accident Reporting App</li> <li>• Traffic Reporting App</li> <li>• Digital Signage</li> <li>• Bus Information System: Booking App, Bus Information Via SMS Hybrid Bike Taxi</li> </ul>
<b>Livability</b>	Wifi in Parks and Public Spaces, Incubator Parks, International expo centres, Entrepreneurship and economic activity through themed streets.

## Solutions

- Government should Propose a framework for developing smart cities at the national, provincial and city levels.
- There is a need to develop and design a New Economic City by following the smart city paradigm, which also includes an industrial area which should be based on a Smart Industry planning framework.
- The provincial government should initiate a 'Replicable Model', under which all stakeholders recommend replacing the city model with smart cities.
- To implement the smart city model, the government can start a mixed approach to initiate reform from the top down and slowly move towards bottom-up intervention on a smaller scale.
- To disseminate information and awareness about smart city development, stakeholders such as media, ICT companies, potential investors, and businessmen need to engage all stakeholders.
- To enforce the model, the government can initiate two tiers: a high-level committee led by CM Punjab for developing vision; strategy; deciding about financial resources/model for interventions an autonomous body; coordinating the execution of projects (this composition will be changed as per the need of the city)
- The government can involve efficient and competent real estate businessmen to overcome budget constraints

## Concluding Remarks

To build world-class cities, it is incumbent to amalgamate technology with it. Pakistan direly needs smart cities to improve its administration and management. The country's meager IT infrastructure and poor governance impeded the implementation of the smart city model. In Pakistan, major cities like Lahore have the capacity to build it partly, but other cities have to improve the infrastructure. To acquire prosperous cities, the government should effectuate the smart cities model.

## Reference

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