

The concept of smart cities is part of the urban development vision. It envisages the integration of information and communication technology (ICT) and the internet of things (IoT) in a secure manner to efficiently manage a city's assets. Essentially, the "smart" component of a smart city rests on the data captured by sensors, which is analysed through ICT to facilitate real-time decision-making by the concerned authorities. A city-wide network of sensors can provide real-time information on the movement of citizens, noise and environment pollution, traffic and weather conditions. This information can help the local authorities streamline the city's operations to ensure economic, social and environmental sustainability.

The government has launched the Smart Cities Mission, which envisages the creation of 100 smart cities with an initial investment of Rs 1 billion per city per year for five years (2015-16 to 2019-20). An equal amount is to be contributed by the state governments and urban local bodies. So far, the government has selected 90 cities under the mission through a city challenge competition.

### **ICT requirements in smart cities**

A smart city has three layers – the application layer, the information highway and the core. At the core lies the command and control centre as well as data centres where all the data flowing from the application layer is analysed and informed decisions are taken.

A smart city is founded on a highly advanced ICT infrastructure comprising devices that are connected through telecom networks. The data generated by these devices gets stored in data repositories, to be later leveraged for decision-making and creating services and applications.

An analysis of the proposals submitted by the cities selected under the Smart Cities Mission reveals that around 47 per cent of the use cases are ICT based. These include smart water management, surveillance, smart transportation, smart energy and smart waste management. The cities have proposed a total budget of Rs 12.44 billion for these applications.

### OFC networks

Globally, a mix of communication networking technologies including wired networks, wireless networks, satellite networks, Wi-Fi hotspots, transmission protocols, machine-to-machine (M2M) and IoT is being used to provide the requisite infrastructure for smart cities.

Optical fibre cable (OFC), with its virtually unlimited capacity, is the perfect backbone for the delivery of high speed internet. OFC facilitates the installation of sensors, which are crucial to the development of intelligent solutions for smart cities. The cities selected under the mission have submitted budget proposals worth Rs 13.44 billion for city-wide OFC deployments, ducting for OFC networks, deployment of OFC for command and control centres and other OFC-related civil works.

A key challenge with regard to the deployment of fibre infrastructure in smart cities has been that very few cities have explicitly mentioned fibre deployment as a key component of their smart cities development plan. This is because most cities expect telecom operators and other service providers to lay the fibre at their own cost.

### The way forward

The successful implementation of the Smart Cities Mission requires meticulous planning, effective capital disbursement and large investments in infrastructure. Several cities selected under the mission so far have overlapping requirements. Hence, there is a need to devise a methodology that allows the infrastructure of a smart city to be shared with other cities and re-used in order to bring down the costs of infrastructure deployment. Moreover, cities must be able to monetise the infrastructure for sustaining their operations. A similar kind of approach is needed for the provision of services as well.

**Based on a presentation by Neetika Chhabra, Chief Information Officer, Gaia Smart Cities**

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