



Smart Sustainable Cities- Policy and Regulatory Issues for India

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Smart means?

Efficient way of doing

Smart City?

**Efficiency of urban operations and services for
better quality of life for people**

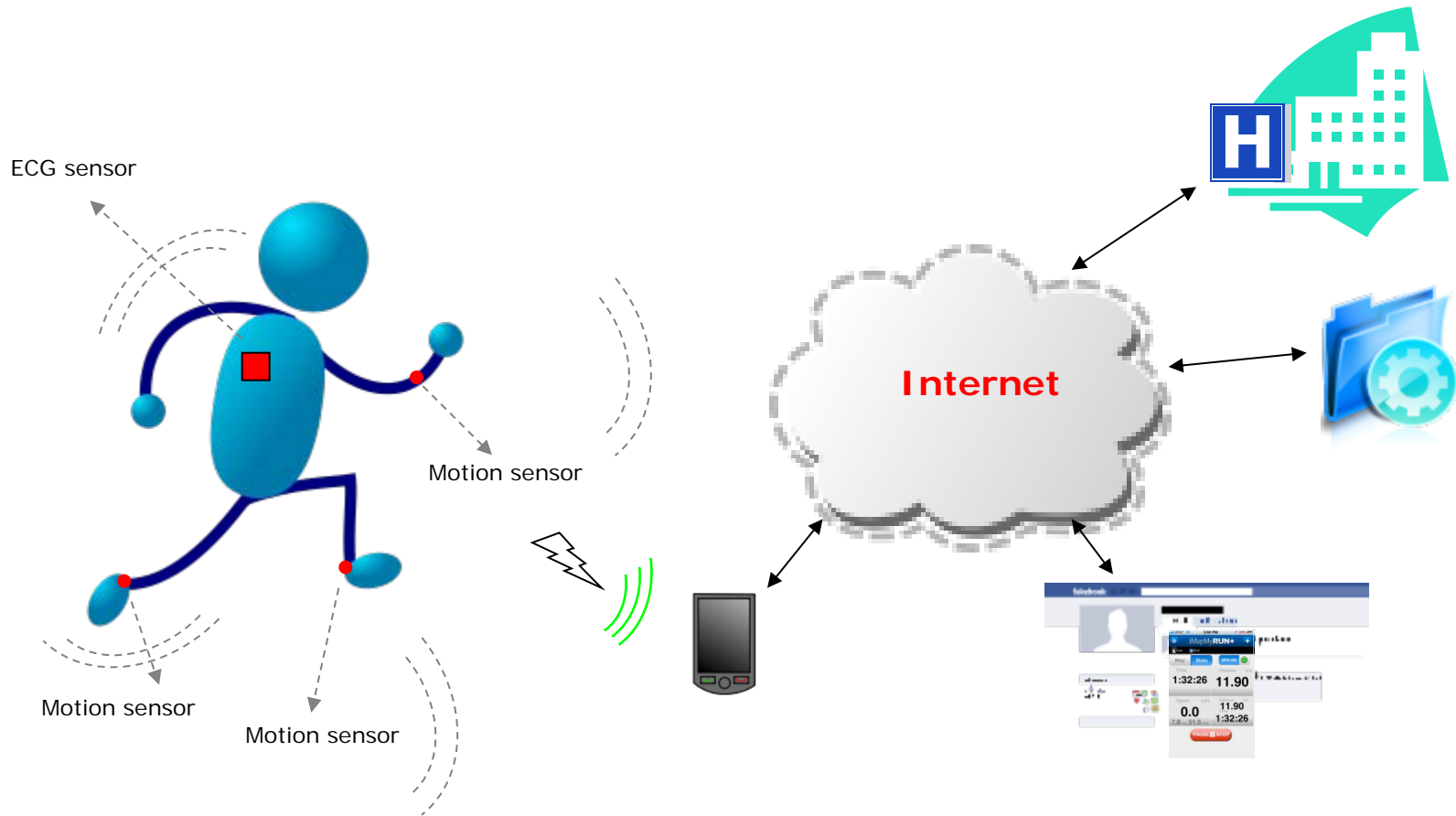
Smart cities - Definition

The ITU Focus Group on SSC agreed on the definition of Smart Sustainable City which reads as:

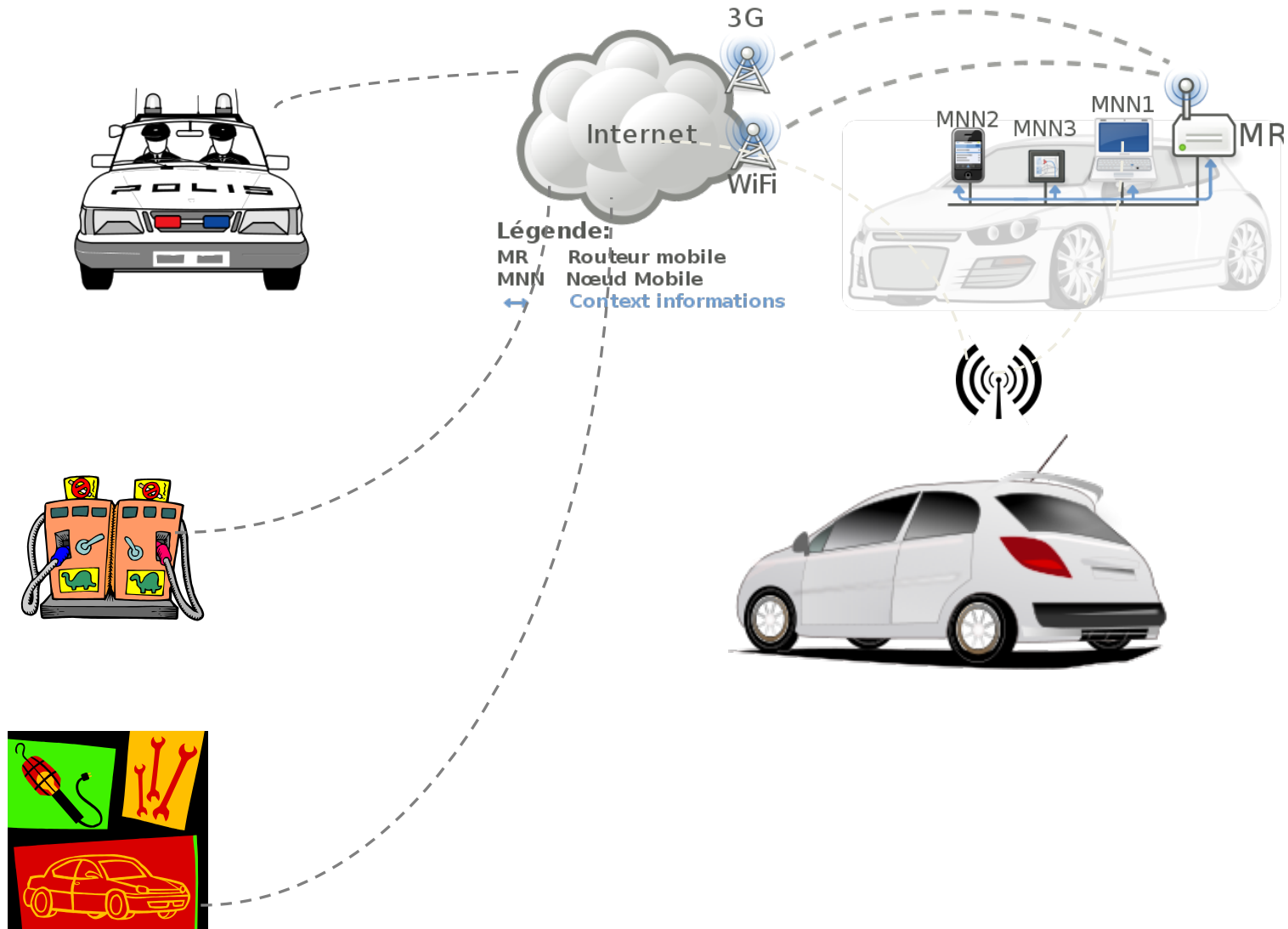
“A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects”

The main goal for a SSC is to enhance the quality of life of the citizens across multiple, interrelated dimensions, including the provision and access to water resources, energy, transportation and mobility, education, environment, waste management, housing and livelihoods, utilising ICTs as the key medium

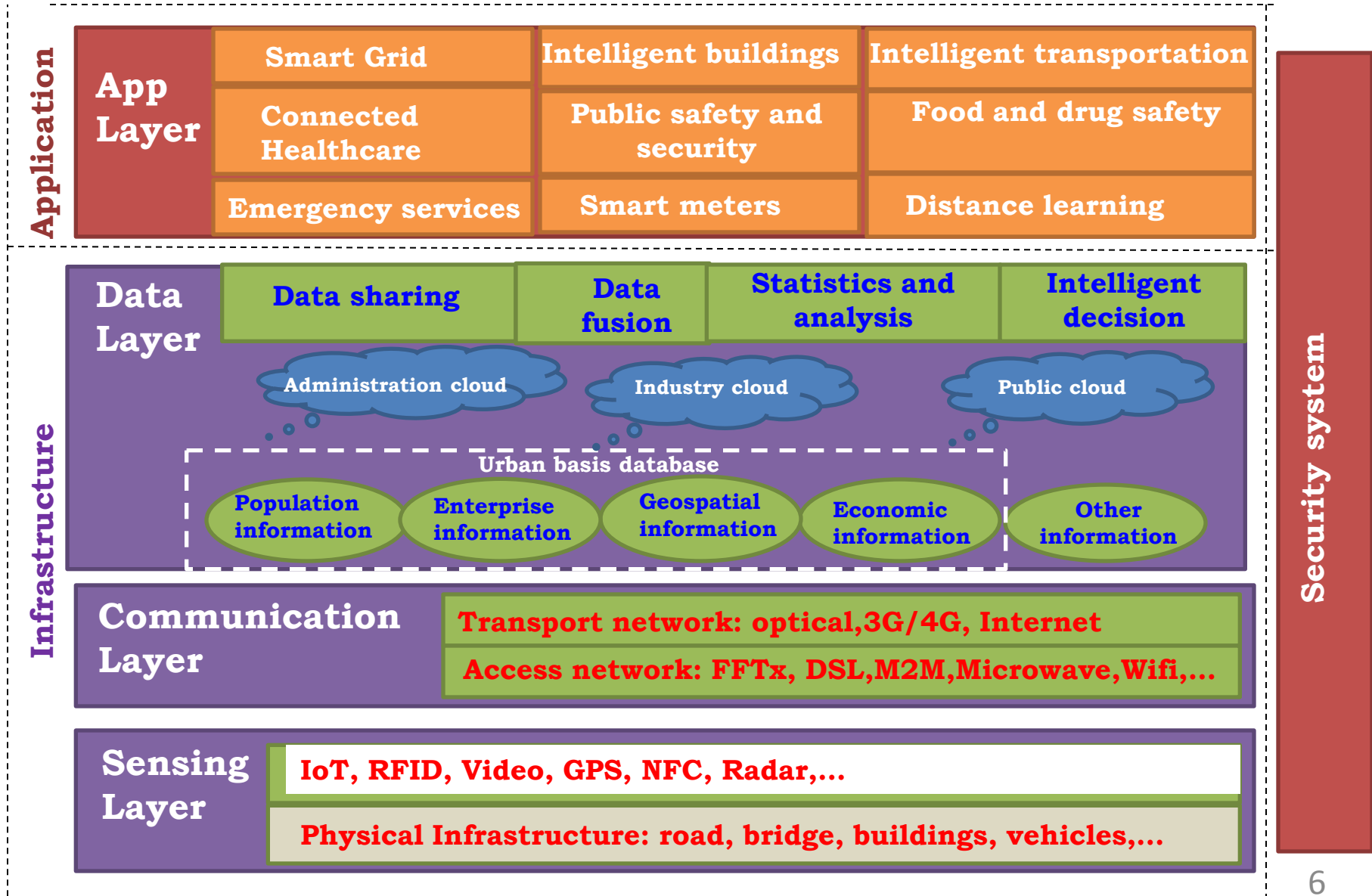
People Connecting to Things



Things Connecting to Things



Smart City Architecture



Structure of Smart City

Cloud Computing

Data Gateway

Firewall

Medical Cloud

Digital Signage Cloud

Service Cloud

XXX Cloud

Interconnected

IoT

Edge Computers

Edge Computers

Edge Computers

A/I

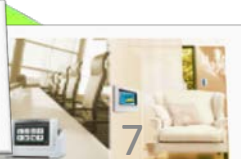
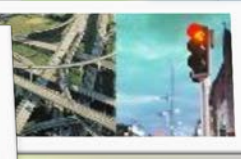
Digital Input

WSN

Audio Capture

Video Capture

WSN





Smart cities Initiative in India

Urbanization in India: Need for Smart Cities

- India's urban population is currently around 31% of the total population, it contributes over 60% of India's GDP. India is at a point of transition where the pace of urbanization will speed up. It is expected that urban India will contribute nearly 75% of the national GDP in the next 15 years.
- Complex challenging nature of cities

Coastal cities



Mountain cities



Historical cities



New cities



- Finding new ways to manage complexities, increase efficiency, reduce expenses, creation of employment opportunities, economic activities and improve quality of life.

Smart cities - In India

- **The Government of India has decided on developing ‘100 Smart Cities’, as satellite towns of larger cities and by modernizing the existing mid-sized cities.”**
- **This programme shall use a mixture of public-private partnership and public-funded basic infrastructure in the ratio of 80:20.**

Identifying Smart cities

Criterion for selection of Smart Cities:

Brown Field Cities

- One satellite city of each of the cities with a population of 4 million people or more (9 cities)
- Most of the cities in the population range of 1 – 4 million people (about 35 out of 44 cities)
- All State/UT Capitals, even if they have a population of less than one million (17 cities)
- Cities of tourist, religious and economic importance not included in above (10 cities)
- Cities in the 0.2 to 1.0 million population range (25 cities)

Green Field Cities

- Initially 7 cities along Delhi-Mumbai Industrial Corridor

Benchmarks for Smart cities

Cities will strive towards attaining specified benchmarks in the services, including:

Transport

Solid Waste
Management

Wi-Fi
Connectivity

Building
Planning

Sewerage and
Sanitation

Health Care
Facilities

Water Supply

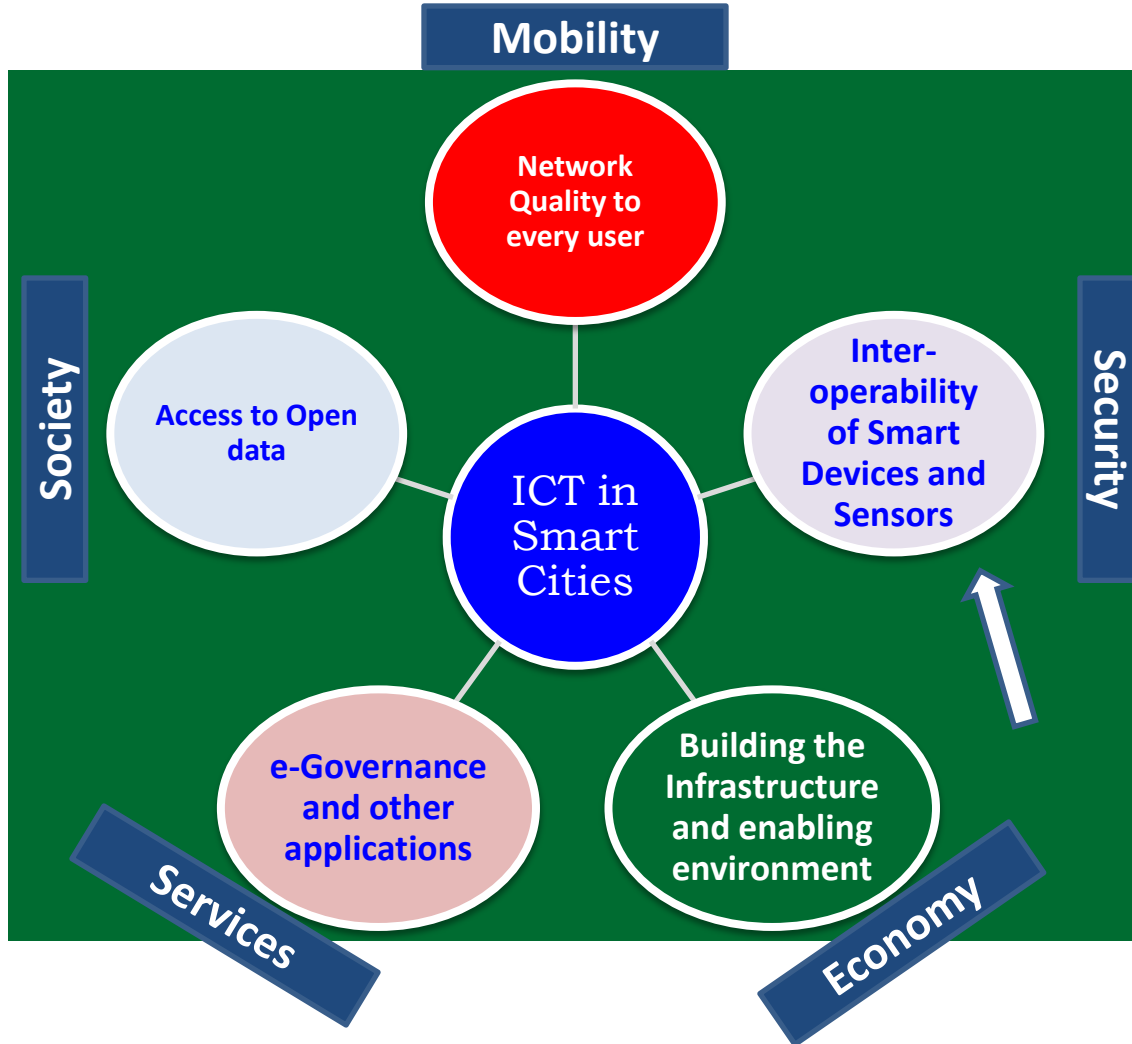
Electricity

Education

Financials for Smart cities in India

- **High Power Expert Committee (HPEC) on Investment Estimates has assessed a per capita Investment Cost of Rs 43,386 for a 20 year period.**
- **Their estimates cover**
 - **Water supply**
 - **Sewerage and sanitation**
 - **Transport**
- **Total investment requirements estimated by HPEC comes is about Rs. 7 lakh Crores(\$113bn) over 20 years.**
- **The Government has allocated \$1.2bn in budget for smart cities.**
- **Cities desiring to participate in Smart city programme may develop a financing plan**

ICT Infrastructure for a successful Smart City





Way to smart cities

- 1. All IP Core network:** Converged ICT systems
- 2. Broadband Access Network:** Integration of wireline, wireless, copper, fiber and other access nodes
- 3. Building sensing and analytical capabilities:** environment management systems, mobility and transport system, smart buildings, smart grid etc.
- 4. E-services to citizens:** by information sharing, e-healthcare, e-education, entertainment, culture, commerce etc.



Strategy for ICT infrastructure in smart cities

- **Ubiquitous high speed data coverage: using shared infrastructure**
 - Wifi in all Public Places, Education Institutions, Parks etc.
- **Small Cell Deployment:** for high speed and capacity of data
- **Sensing infrastructure:** Sensors, smart devices
- **Robust, Reliable & Secured Network:** for mission critical applications
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Policy and Regulatory issues in SSCs

- 1. Sharing of common assets and resources owned by ICT stakeholders. (How to encourage sharing?)**
- 2. Smart cities will have spectrum intensive ICT activities. What will be Spectrum requirements to ensure QoS across multiple networks?**
- 3. Green field smart cities will be developed through SPVs. SPVs will lay ICT infrastructure either their own or through an existing TSP. Can such SPVs be able to provide services inside smart city? If yes, how?**
- 4. If no, can SPVs work as VNOs inside Smart cities?**



Policy and Regulatory Issues in SSCs

- 5. EMF issues in view of large scale wireless sensors**
- 6. Identification/Development of Open Standards for IOT particularly for interoperability between cross-sector data (e.g. health-telecom)**
- 8. Data security for ICT based systems**
- 9. Numbering and addressing Plan, Customer address for M2M devices for traceability**
- 10. Security and lawful interceptions for M2M devices**
- 11. QoS regulations for M2M devices(VL, low, medium and high BW requirements)**
- 12. Other issues: RoW**



THANK YOU