



# 8<sup>th</sup> Edition: Smart cities & Intelligent mobility India 2022

Session: A Deep Dive into the Future of Mobility and Smart Cities with 5G



# Overview

- According to **United Nations**, by 2030, the world will reach an urbanization rate of 60.4%.
  - Smart cities will create a more efficient way of life for its citizens and help boosting economic growth.
  - Development and deployment of technology will play a crucial role in the way that cities of the future capitalize on the use of data – especially in the context of mobility and transport.
- In view of above, Government of India introduced “Smart Cities Mission” initiative on 25<sup>th</sup> June 2015 to develop 100 smart cities all over the country to:
  - drive economic progress
  - boost the quality of life by fueling local development and harnessing technology to create smart outcome for the citizens.

# India – Policy



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# Smart City Mission

- 100 smart cities selected in four rounds with a target for its completion by 2019-20, but has since been extended and now effective until June 2023
- **According to latest data provided by Ministry – MoHUA (as of July 5, 2022):**
  - 7,825 projects worth Rs 1,90,878 crores have been tendered
  - work orders for 7,650 projects worth Rs 1,81,113 crore have been issued, and
  - 4,035 projects worth Rs 66,343 crores have been completed.
- Varanasi, Bhopal, Indore, Surat, Bhubaneshwar, and Ahmedabad are considered to be said as first smart cities of India.

## Core infrastructure elements:

- ✓ Adequate water supply
- ✓ Assured electricity supply
- ✓ Sanitation, including solid waste management
- ✓ **Efficient urban mobility and public transport**
- ✓ Affordable housing, especially for the poor
- ✓ Robust IT connectivity and digitalization
- ✓ Good governance, especially e-Governance and citizen participation
- ✓ Sustainable environment
- ✓ Safety and security of citizens, particularly women, children and the elderly, and
- ✓ Health and education

# Government/Industry Initiatives to support “Smart City Mission”

## Open Data Platform/India Urban Data Exchange (IUDX) by Ministry of Housing and Urban Affairs (MoHUA):

- [IUDX](#), an open-source software platform for Indian Smart cities facilitating secure and authenticated exchange of data amongst various data platforms, 3rd party applications, data producers and consumers. IUDX has also become first software platform to fully adopt BIS standards for Unified Data Exchange
  - Unified Data Exchange standard – IS 18003, for Indian Smart Cities to ensure a secure and sustainable digital infrastructure and to facilitate the implementation of various smart city projects.

## National Urban Digital Mission (NUDM) by MEITY:

- to establish a digital infrastructure & formalize a citizen-centric and ecosystem-driven approach to urban governance and service delivery in cities by 2022.

## Smartnet by Ministry of Housing and Urban Affairs (MoHUA):

- to create a resource-rich ecosystem of learning, sharing and dissemination for the city managers and primary stakeholders in the urban transformation of India.

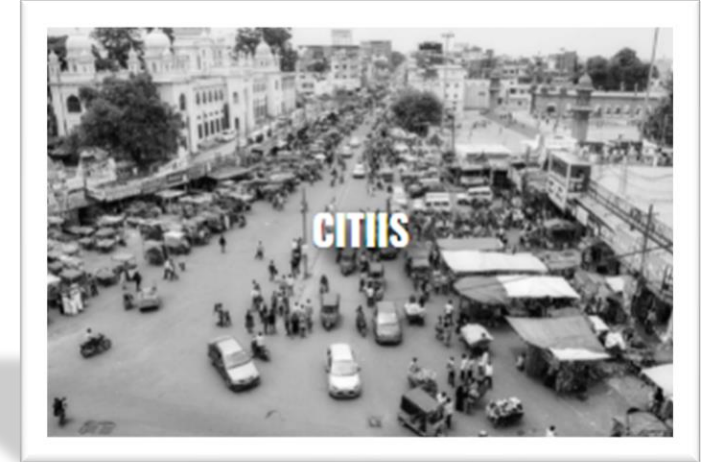
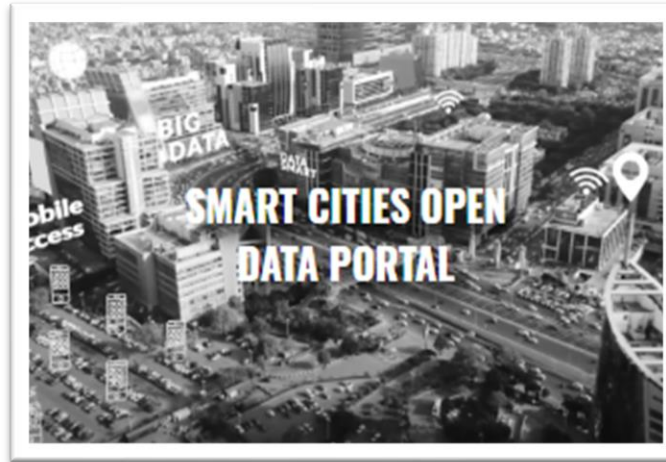
## Smart City Living Lab:

- an open-innovation ecosystem is set up at [IIITH](#), with support from MEITY, Smart City Mission, Govt of Telangana in collaboration with technology partners [EBTC](#) and [Amsterdam Innovation Arena](#) with an aim to discover & develop cutting edge innovations with smart city use cases and enrich them with the knowledge from research.

## Freight Smart Cities by Commerce Ministry’s Logistics Division:

- to improve the efficiency of urban freight and create an opportunity for the reduction in logistics costs.

# Other Initiatives





**Ci<sup>X</sup>** City Innovation Exchange  
Turning Challenges into Opportunities

Powered by NUIS  
**CITY INX**

**DATASmart CITIES**

**INDIA URBAN  
OBSERVATORY**

**CLIMATE SMART  
CITIES**  
Assessment Framework 2.0

**EASE OF LIVING  
INDEX AND  
MUNICIPAL  
PERFORMANCE  
INDEX**

Other Initiatives



**CENELEC**



**SESEI** | Seconded European  
Standardisation  
Expert in India  
Enabling Europe-India Cooperation on Standards

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# Europe – Policy



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# Smart Cities Marketplace: Europe

- **Smart Cities Marketplace** was created by merging two former platforms, the “**Marketplace of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC Marketplace)**” and the “**Smart Cities Information System (SCIS)**”.
  - to bring cities, industries, SMEs, investors, banks, researchers and many other smart city actors together.
- **Marketplace's main areas of cross-cutting operation include:**
  - **sustainable urban mobility**
  - **integrated infrastructures and processes in energy, ICTs and transport**
  - sustainable districts and built environment
  - citizen focus
  - policy and regulation
  - integrated planning and management
  - knowledge sharing
  - baselines, performance indicators and metrics
  - open data governance and standards
  - business models, procurement and funding..

# Many other EU initiatives focusing on making Smart Cities

- **European Energy Research Alliance (EERA) Joint Programme Smart Cities:**

- It aims to develop new scientific methods, concepts and tools designed to support European cities in their transformation into smart cities. The key focus is on large

- **CIVITAS:**

- a network of cities for cities dedicated to cleaner, better transport in Europe and beyond.

- **EIT Urban Mobility:**

- an initiative of the European Institute of Innovation and Technology (EIT), acts to accelerate positive change on mobility to make urban space more liveable.

- **Eltis:**

- It facilitates exchange of information, knowledge and experience in the field of sustainable urban mobility in Europe.

- **BRIDGE:**

- It unites Horizon 2020 & Horizon Europe Smart Grid, Energy Storage, Islands, and Digitalisation Projects to create a structured view of cross-cutting.

- **Intelligent Cities Challenge**

- It supports 136 cities in using cutting-edge technologies to lead the intelligent, green and socially responsible recovery

- **Many more....**



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# Smart Mobility & 5G



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# Smart Mobility (ITS) for Smart Cities

- Smart Mobility (ITS)

- add information and communications technology (ICT) to transport infrastructures and vehicles to improve their road safety, reliability, traffic efficiency and quality.
- is a wholistic system comprising not only Intelligent Vehicles & Road Transport system but it also includes railways, aviation and maritime as well.
- use cases include In vehicle information, Traffic lights, Emergency vehicle on approach, traffic jam, Parking guidance etc.



# Why is 5G is vital to the advancement of smart cities?

- With 5G everything from smart sensors to smart mobility, self-driving cars will be able to communicate at incredibly fast speeds with low latency resulting in more efficient systems and resources for smart cities and it will address:
  - **Public Safety and Security:**
    - Emergency officials will be able to locate and receive real-time information regarding accidents and emergency calls from intelligent sensors that are placed throughout the city.
  - **Mobility:**
    - 5G networks will provide faster and lower latency connectivity for mobility, making it easier for autonomous vehicles and people to navigate cities.
    - Better Traffic Management by the combination of 5G networks and IoT devices are expected to intelligently track and manage traffic flows, monitor road conditions, and reduce traffic congestion.
  - **Smart healthcare: reform towards a fair, accessible and universal healthcare system:**
    - 5G network along with general technologies such as big data, AI and cloud computing, provides an effective, real-time data solution, and inspires innovative methods and ideas for the screening and treatment of contagious diseases.
  - **Energy Efficiency:**
    - 5G creates huge opportunities for connected devices within buildings and cities to help track, monitor, and control energy. This helps buildings and cities better manage their energy supply, save money, and become more sustainable.
  - **Many more...**

# Standards



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# Role of Standards in Smart Cities

- Underpinning common understanding
- Enabling integration between systems, and between the physical and the digital world
- Accelerating smart city solutions and deployment
- Provide confidence in the market & Preventing vendor lock-in
- Enabling scaling and replicability of urban solutions
- Facilitating a collaborative, consensus-driven process open to all stakeholders

**Because STD will create Smart Cities in response to the market and final beneficiaries needs (cities and citizens)**

# EU, India & Global Standardization activity

ISO/TMB/  
Smart Cities SAG + TF



Jointly with IEC and ITU

CEN-CENELEC-ETSI  
Sector Forum on SSCC



CEN/TC 465 'Sustainable  
and Smart Cities and  
Communities'



ISO/TC 268  
ISO/TC 268/SC 1



IEC SyC  
Smart cities



ISO-IEC/JTC 1  
WG 11

ITU-T/FG  
SSC



Technical Committees

- ✓ Standardization Development
- ✓ (Standards, TS, TR, PAS...)

BIS



[CED 59: Smart Cities Sectional Committee](#)

[LITD 28: Smart Infrastructure](#)

**tsdsi**  
India's Telecom SDO

- ✓ transposed oneM2M Release 2 and Release 3



# Smart City Standardization: India

Bureau of Indian Standards, National Standard Body of India, through its technical committees have been developing standards related to smart cities.

- [CED 59: Smart Cities Sectional Committee](#)
- LITD 28: Smart Infrastructure

## Telecommunications Standards Development Society, India (TSDSI):

- transposed oneM2M Release 2 and Release 3
- produced several technical reports on M2M Use Cases in different verticals from Indian Context

## Telecommunication Engineering Centre (TEC):

- adopted TSDSI-transposed oneM2M (Release 2) standards and 3GPP standards (402 nos.) for adoption as national standards
- released various [technical reports](#) related to smart cities

C-DOT, has also developed oneM2M standards based Common Services Platform (CCSP) for IoT which is of tremendous value to Smart city applications developers. IA 18004-1: 2021 is based on oneM2M CSF

List of Standards developed by CED 59 related to smart cities

SI No	IS_No	Title
1	IS 17000 : 2019	Sustainable Development of Habitats Indicators
2	IS 17451 : 2020	Smart Community Infrastructure - Best Practices for Transportation - Guidelines
3	IS 17456 : 2020	Smart Community Infrastructure Guidance on Smart Transportation for Allocation of Parking Lots in Cities
4	IS 17457 : 2020	Sustainable Development of Habitats - Vocabulary

List of Standards developed by LITD 28 related to smart cities

SI No	IS_No	Title
1	IS 802.15.4:2021	Low-Rate Wireless Networks (Adoption of IEEE 802.15.4)
2	IS 18002-1:2021	Unified Digital Infrastructure Data Layer Part 1 Reference Architecture
3	IS 18003-2:2021	Unified Data Exchange Part 2 API specifications (includes NGSI-LD (ETSI CIM))
4	IS 18008-1:2021	Smart Cities- GIS Part 1 Reference Architecture
5	IS 18006-1:2021	Municipal Governance - Part 1 Reference Architecture
6	IS 18006-3-1:2021	Municipal Governance Part 3 Property Tax Section 1 Taxonomy
7	IS 18004-1:2021	IoT System Part 1 Reference Architecture (based on oneM2M CSF )

# ITS Standardization: India

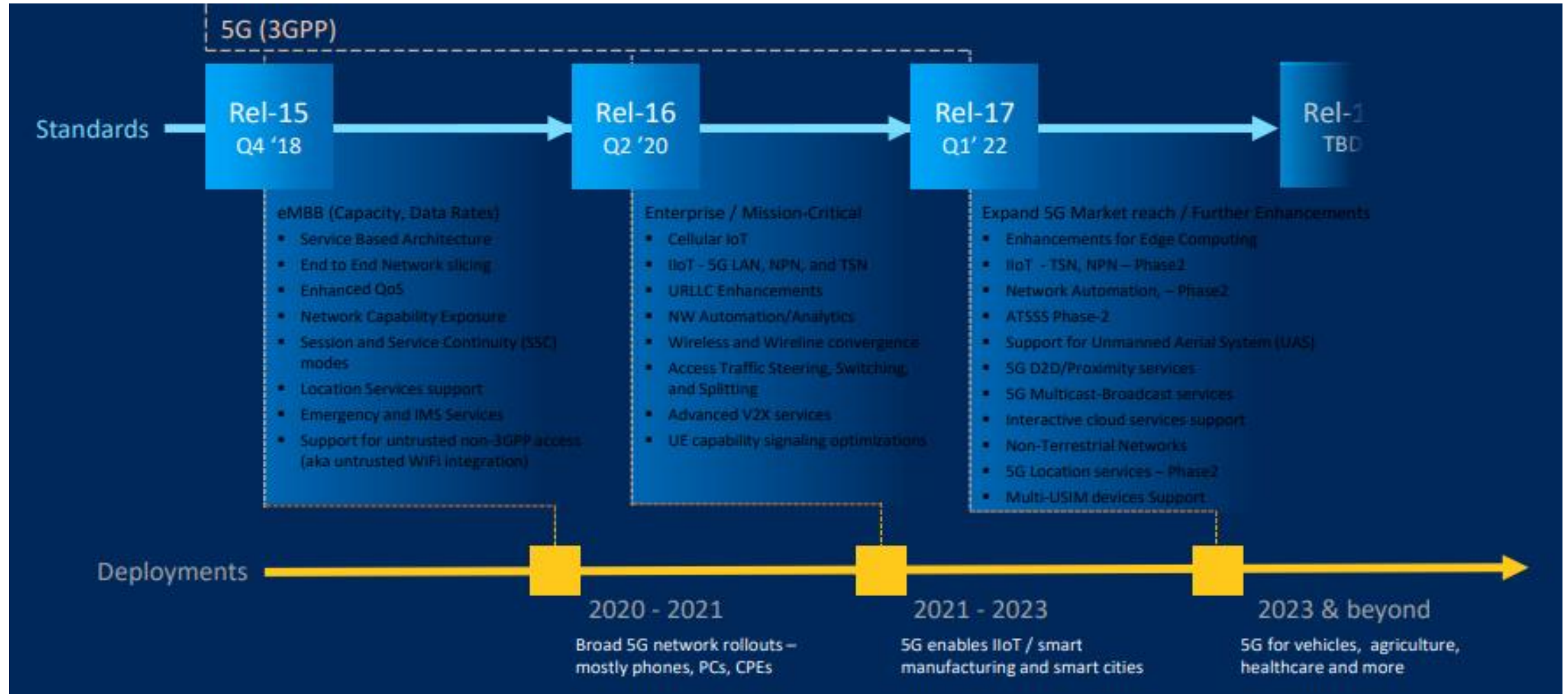
## Bureau of Indian Standards (BIS):

- [TED 28-Intelligent Transport Systems Sectional Committee](#) of Bureau of Indian Standards (BIS) is responsible for
  - a) Standardization of information, communication and control systems in the field of urban and rural surface transportation, including intermodal and multimodal aspects thereof, traveller information, traffic management, public transport, commercial transport, emergency services and commercial services in the intelligent transport systems
  - b) Co-ordination of work with ISO/TC 204 excluded in-vehicle transport information and control systems (ISO/TC 22) and ISO/TC 241
  - c) Published around [20 standards](#)

## Automotive Research Association of India (ARAI):

- Government approved test agency to carry out mandatory certification testing
- Provides technical expertise in R&D, test, certification, homologation and framing of vehicles regulations.
- Published/drafted several standards that are related to electric/smart mobility
  - [AIS-140 & Amd 1 and 2: Intelligent Transportation Systems \(ITS\) - Requirements for Public Transport Vehicle Operation](#)

# 5G: Evolutionary and Revolutionary



# Conclusion

- Smart cities are in essence data-driven urban spaces. As a result, the use of Smart Mobility forms the foundation of smart city architecture.
  - deployment of ITS means the integration of advanced information and communication-based technologies into the mobility infrastructure of the city.
- Standards also play an important role in building a smart city:
  - ✓ Provide the right conditions for open innovation and reduces barriers to integration (includes APIs)
  - ✓ Enables collaboration, open ecosystem and Open innovation
  - ✓ Resulting in productivity increase and service transformation
- 5G will profoundly impact economies and societies as it will provide the necessary communication infrastructure required by various smart city applications.
  - ITS is one of the many smart city applications that can be realized via 5G technology.



Thank you!

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