

# IoT/ M2M STANDARDISATION - The Indian perspective

PAMELA KUMAR

AUG 26, 2019

# AGENDA

- India's unique challenges
- The role of Standardisation

# INDIA'S SMART CITY CHALLENGE

CONGRATULATIONS TO THE WINNERS OF INDIA'S FIRST SMART CITIES CHALLENGE!

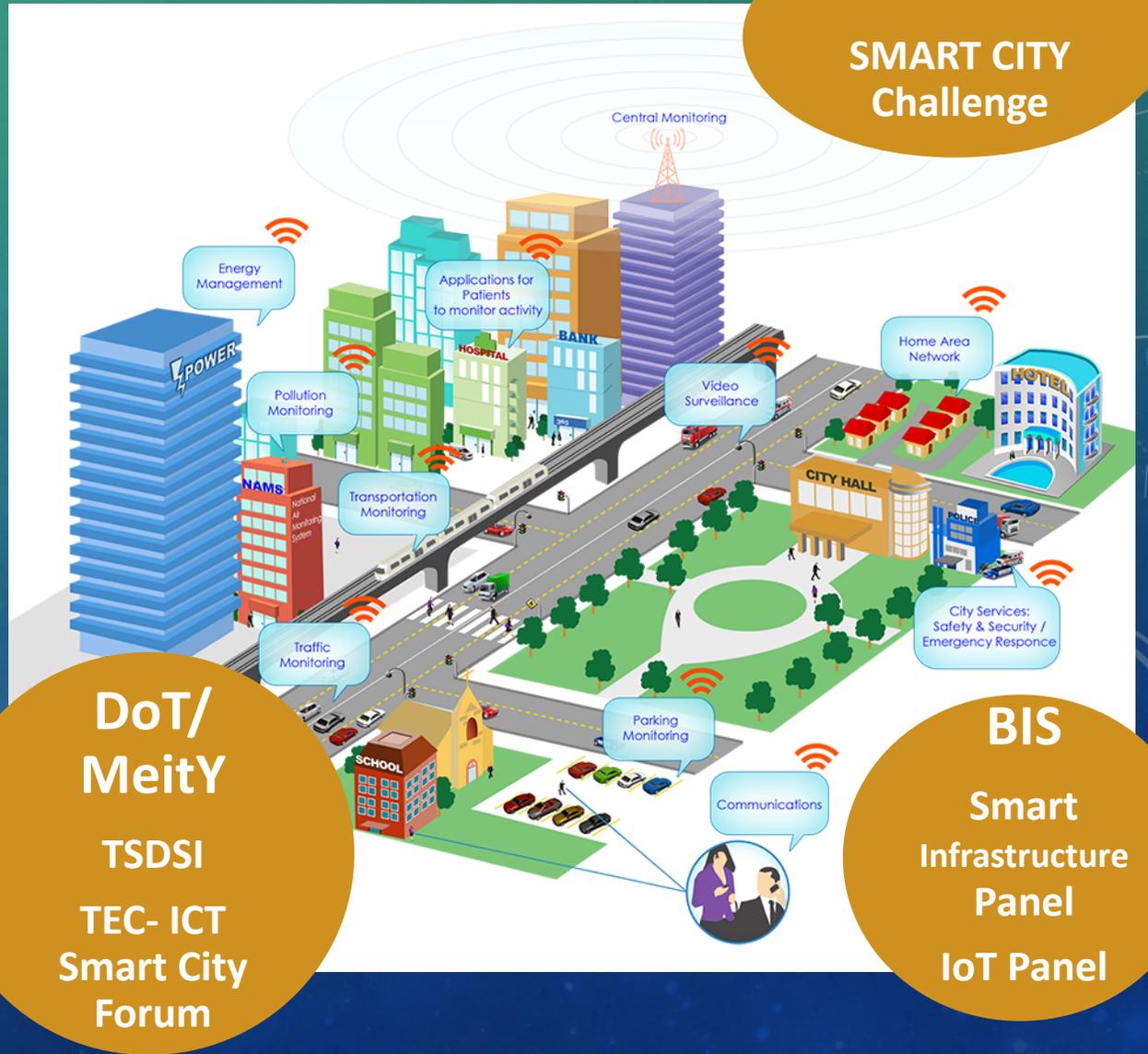


 [www.SmartCitiesChallenge.in](http://www.SmartCitiesChallenge.in)  
 [facebook.com/SmartCitiesChallenge](https://facebook.com/SmartCitiesChallenge)  
 [twitter.com/IndiaCities](https://twitter.com/IndiaCities)

**Bloomberg Philanthropies**



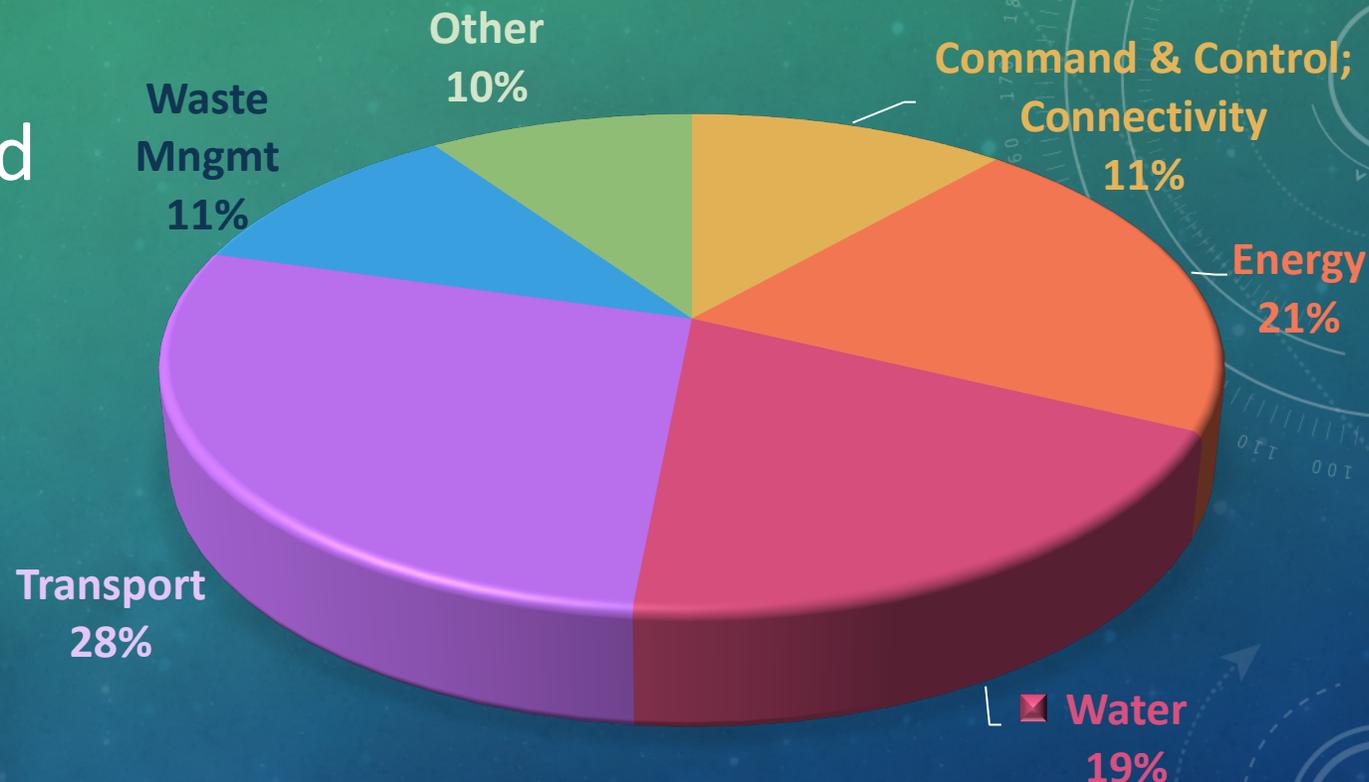
सत्यमेव जयते



# Smart City Solutions in India

“99 smart cities have been selected and to be allocated Rs 2.04 lakh crore (\$30 B)

2020: \$1.5 trillion market



MoHUA has released [Solution Exchange for Transformation of Urban India](#)

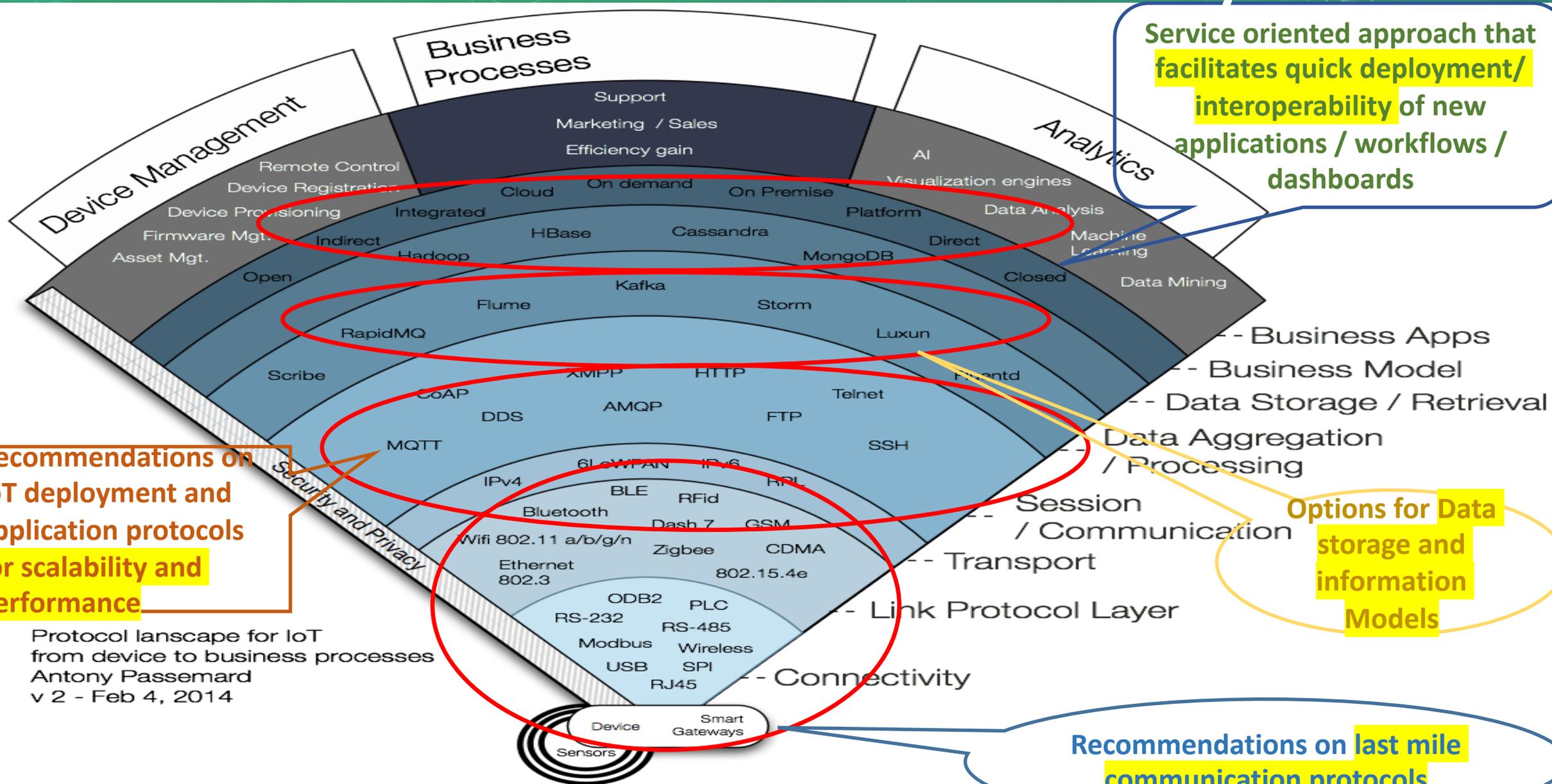
[Integrated Command and Control Center: Maturity Assessment Framework](#)

[Smart cities Promoting Innovation Research and Incubation in Technology \(SPIRIT\)](#)

[DataSmart Cities: Empowering Cities through Data](#)

QUEST for an Interoperable Common Services Platform – Is **oneM2M** the answer?

# Dilemma for the SMART CITY SPV today



Service oriented approach that facilitates quick deployment/ interoperability of new applications / workflows / dashboards

Recommendations on IoT deployment and application protocols for scalability and performance

Options for Data storage and information Models

Recommendations on last mile communication protocols

Protocol lanscape for IoT from device to business processes  
Antony Passemard  
v 2 - Feb 4, 2014

# IoT SDOs and Alliances Landscape (Vertical and Horizontal Domains)

Home/Building



Manufacturing/  
Industry Automation



Vehicular/  
Transportation



Healthcare



Energy



Cities



Wearables



Farming/  
Agrifood



Horizontal/Telecommunication

**F**orce fitting solutions - without factoring in India specific needs

**A**dvancements in technology - rapid and disruptive

**I**nappropriate last mile solutions - Deployment diversity

**L**imited Tech know-how by Administrators and City Officials

**U**nstandardised disharmony - No common framework and architecture

**R**estricted, closed solutions – vendor lock-in, proprietary interfaces

**E**xamples of failure due to technology, business & functional  
**misalignment** - Nirbhaya tender cancellation, Bangalore Traffic+Metereology

## RECIPE FOR SURE SHOT ...

**F**orce fitting solutions - without factoring in India specific needs

**A**dvancements in technology - rapid and disruptive

**I**nappropriate last mile solutions - Deployment diversity

**L**imited Tech know-how by Administrators and City Officials

**U**nstandardised disharmony - No common framework and architecture

**R**estricted, closed solutions – vendor lock-in, proprietary interfaces

**E**xamples of failure due to technology, business & functional  
**misalignment** - Nirbhaya tender cancellation, Bangalore Traffic+Metereology

# AGENDA

- India's unique challenges
- The role of Standardisation

# Global Standards Collaboration (GSC), a high-level gathering of world's leading ICT) standards organizations,

# GSC 22

MONTREUX, SWITZERLAND



3/15/21

10



# 5 YEAR JOURNEY OF TSDSI AT A GLANCE

**Jan 2014**  
11 Members

Indian Telecom SDO  
RnR, IPR Policy  
Working Procedures  
Partner @ 3GPP & oneM2M

**39 Members**

**Oct 2015**

ITU- IMT 2020 TPR : LMLC mandatory  
3GPP & One M2M –  
Active participation & Contributions  
Transpositions initiated  
Indo-EU Collaboration

**41 Members**

**Feb 2017**

**45 Members**

**Feb 2018**

1811 Standards and Reports  
CPRI – Fronthaul  
ITU - RIT/SRIT submission  
oneM2M as National STD  
**STANDARDISATION ROADMAP**  
3GPP Release 17

**65 Members**

**Mar 2019**

**FORMING**

**STORMING**

**NORMING**

**PERFORMING**

# TSDSI's contributions & engagements at oneM2M

## CONTRIBUTIONS

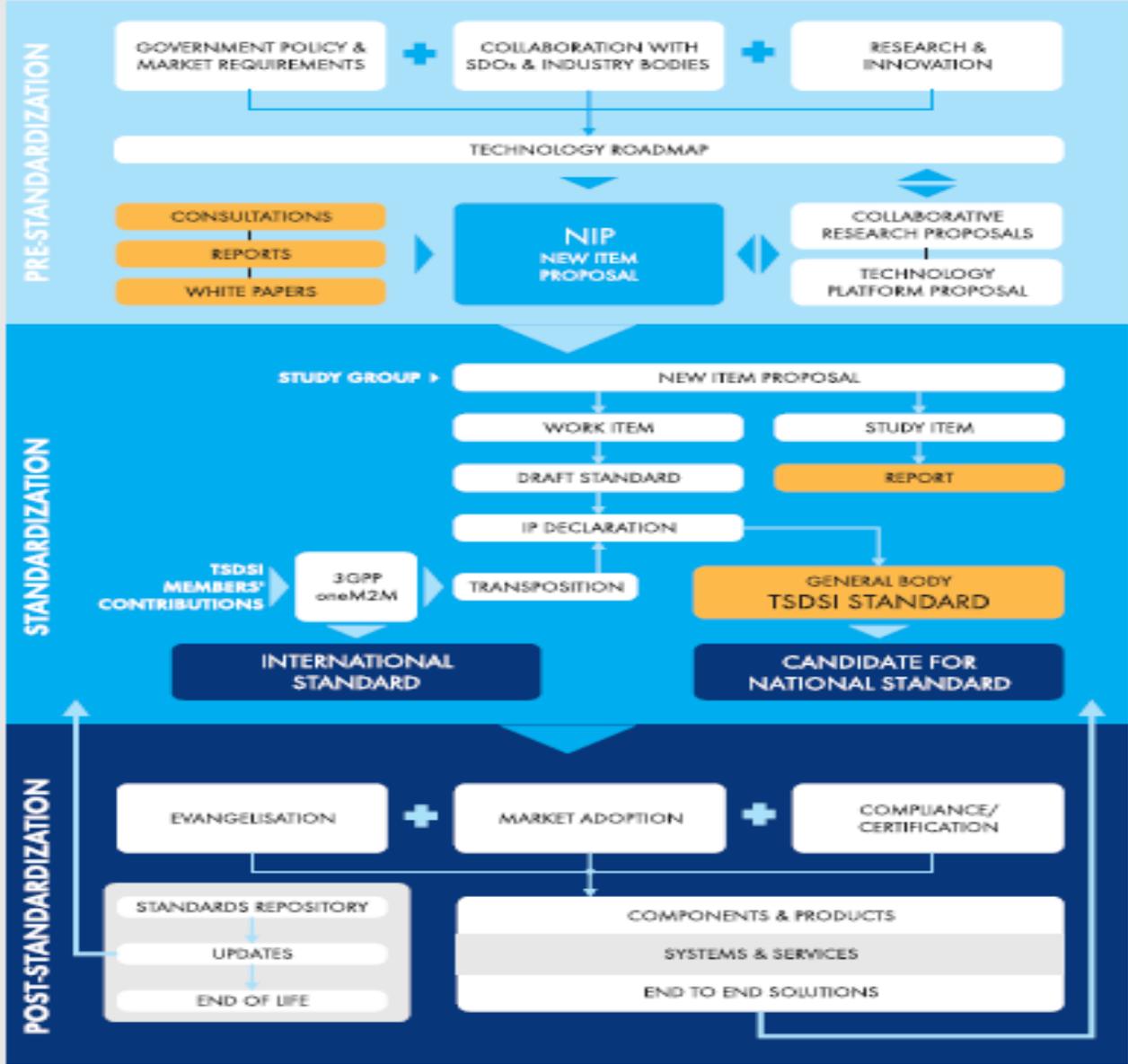
- TSDSI has 5 IMs for oneM2M – More in pipeline.
- C-DOT developed a Common Service Platform based on oneM2M . Made 100+ contributions & participated in Inter-op events.
- **TSDSI transposed Release 2 (2017) – DoT approval as National Standard in process**
- TSDSI to Transpose Release 3 shortly (Published by oneM2M in May 2019)

Working Groups (oneM2M)	Contributions
Architecture (ARC)	21
Protocols (PRO)	64
Security (SEC)	2
Testing (TST)	3
<b>Total</b>	<b>90</b>

## ENGAGEMENTS

- Indo EU collaboration- Hackathons and Tutorials
- TP # 31 in Bangalore during 19<sup>th</sup> to 23<sup>rd</sup> Sept 2017 with over 50 Global participants
- Industry Day with 90+ participants & 20+ global & Indian speakers
- TSDSI contributing man days to MARCOM & Work Program activities remotely
- TSDSI TEC CDOT studying over sixty Global installations based on oneM2M
- **TSDSI to host TP # 42 in September 2019 in Hyderabad with Industry day and inter-op event**

### Standards Life Cycle



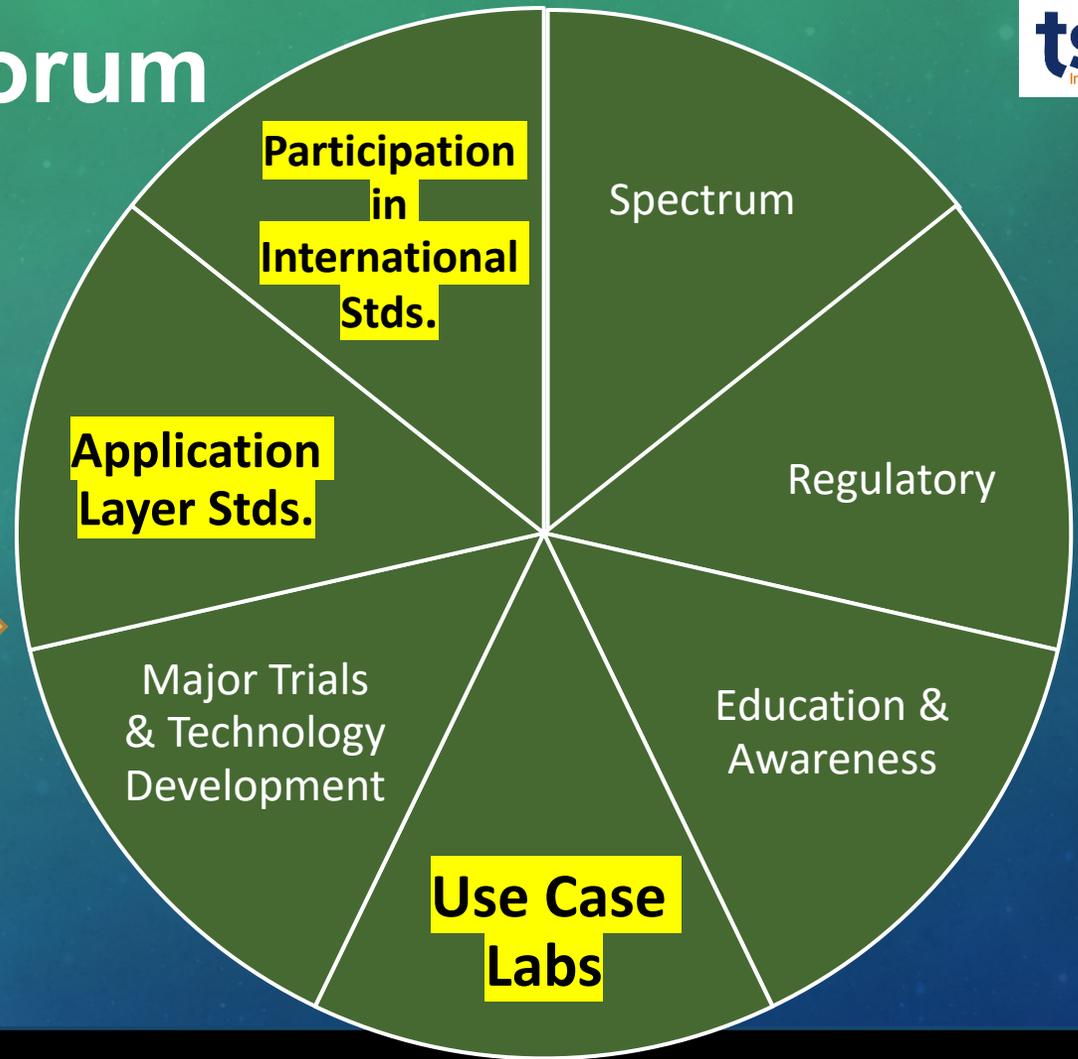
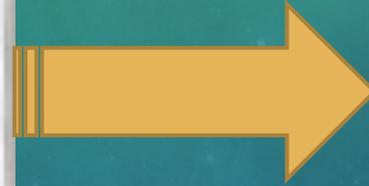
### Study Group- Networks

- CPRI FrontHaul
- Channel Characteristics : 60GHz for 4G/5G backhaul
- Enablers for Private Networks
- NB-IoT Extension
- Broadcast offload
- Spectrum Studies
- IMT2020 (5G) technologies ; 3GPP Release 17

### Study Group- Services & Solutions

- Cloud Interoperability and Portability
- Public Protection and Disaster Recovery
- Dual SIM Services
- Support for Indian Languages
- Information Centric Networking
- UAV/Drone Communications and Services
- M2M/IoT
- Security and Privacy
- oneM2M

# 5G India 2020 High Level Forum

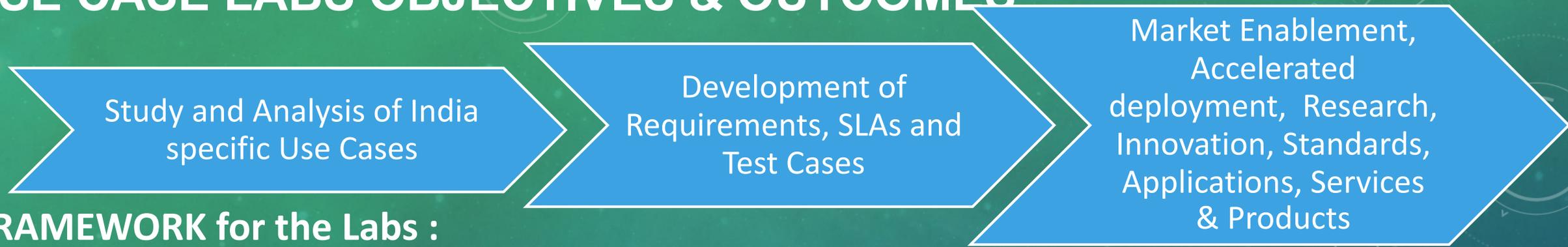


5G technology has the potential of ushering a major societal transformation in India by enabling rapid expansion of the role of information technology across manufacturing, educational, healthcare, agricultural, financial & social sectors.

**India must embrace this opportunity by deploying 5G networks early, efficiently, and pervasively, as well as emerge as a significant innovator and technology supplier at the global level.**

Emphasis should be on 5G touching the lives of rural and weaker economic segments to make it a truly inclusive technology.

# USE CASE LABS OBJECTIVES & OUTCOMES



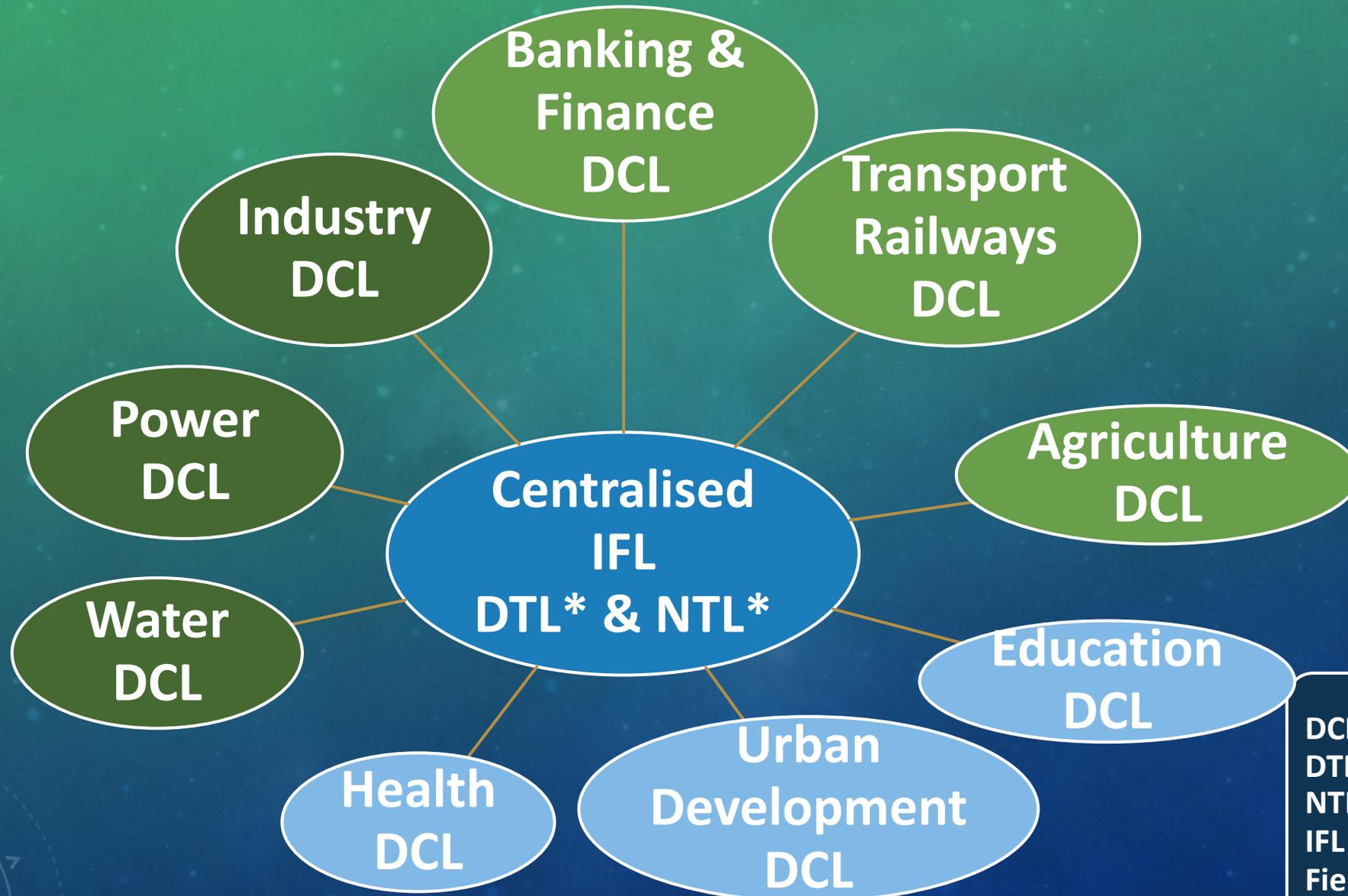
## FRAMEWORK for the Labs :

USER GROUP	TECHNOLOGY GROUP	FACILITATORS	ACTIVITIES
End User Ministries	Technology Ministries	Govt. Agencies	DEMOs & Simulations : Hands-on experience for USER Group
TSPs/ ISPs	Vendors, OEMs; Start-ups	Global Partners	Study, analysis and modelling of India Specific Usage Scenarios, challenges & Use Cases
Domain/Mngt Institutes; Use Case Experts	Technology Institutes; Researchers & Innovators	Professional Bodies	Proof of concept testing, Interoperability and pilot testing

**SCOPE** - In line with national initiatives like Digital India, Smart Cities etc. and the focus areas in 5G :

SMART COMMERCE /BANKING : Department of financial services, LAB @ IDRBT	INTELLIGENT TRANSPORT : Ministry of Railways Ministry of Road Transport & Highways	SMART AGRICULTURE: Department of Agriculture & Farmers Welfare
SMART CITIES : Ministry of Housing & Urban Affairs	SMART GRID : Ministry of Power	SMART WATER : Ministry of Water Resources, River Development & Ganga Rejuvenation
INDUSTRY 4.0 Department of Industrial Policy and Promotion	SMART EDUCATION : Department of Higher Education Department of School Education	SMART HEALTH: Department of Health & Family Welfare

# NETWORK OF LABS



First Set of LABS

Second Set of LABS

Third Set of LABS

DCL - Demo and concept Lab  
DTL - Device Testing Lab  
NTL - Network Testing Lab  
IFL - Interoperability and Field Scenario Test Lab

# Application Layer Standards

## DOMAIN Working Groups

USE CASE LABS

MAJOR TRIALS

Smart Cities

Finance

PPDR

Health

Agriculture

Education

Utilities

Transport

Industry

Technology Study Groups

Global SDOs

Immersive experience AR/VR

Artificial Intelligence/ Machine Learning

Autonomous Systems

Web Technologies

Integrated Data Exchange

Security and Privacy

IoT /M2M Common Services Layer

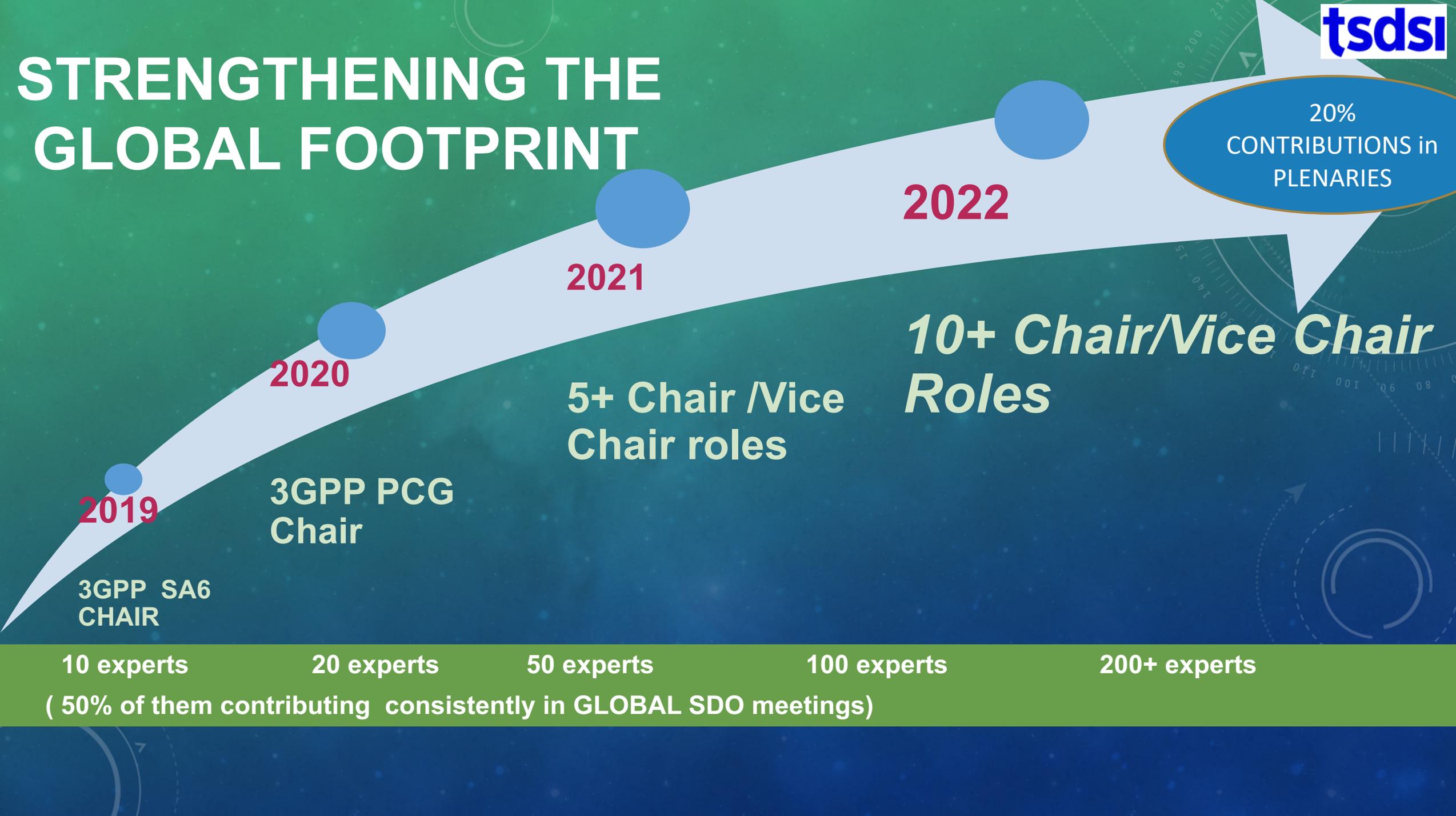
Cloud Computing



OPEN ++



# STRENGTHENING THE GLOBAL FOOTPRINT



2019

3GPP SA6 CHAIR

10 experts

2020

3GPP PCG Chair

20 experts

2021

5+ Chair /Vice Chair roles

50 experts

2022

10+ Chair/Vice Chair Roles

100 experts

20% CONTRIBUTIONS in PLENARIES

200+ experts

( 50% of them contributing consistently in GLOBAL SDO meetings)

# Opportunities for members @ TSDSI

## • Pre-standardisation :

- Govt Consultations – *NDCP, Strengthening the STDs Framework*
  - 5G India2020 Forum – Use Case Labs; Education, Awareness & Promotion
  - Spectrum for 5G – *White paper*
- Numerous workshops - *Smart City, Security, PPDR, Cloud Computing etc.*
- Global Collaborations – Indo EU, Indo Taiwan, IEEE 5G World Forum
- Conferences, tradeshows – IMC, World Telecom Day, NCC, COMSNETS

## • Standardisation :

- Participate in Standardisation Roadmap Committee
- Participate in SG/WGs - Submit your use cases & innovations as NIPs, Contribute to ongoing Work Items
- Collaborate & Participate in 3GPP , OneM2M , ITU- R/T.

STANDARDS are the Collaboration piece of  
“Co-opetition”

The TOOL is Consensus Building,  
&

It is a lot of fun and learning in an open, fearless  
forum

THANK YOU

Acknowledgements

1. TSDSI GC and Members
2. TSDSI Secretariat
3. 5G INDIA2020 HLF Task Forces

PRESENTED in MY PERSONAL CAPACITY