Technologies driving Smart Cities

Standards Update

(Europe & India)

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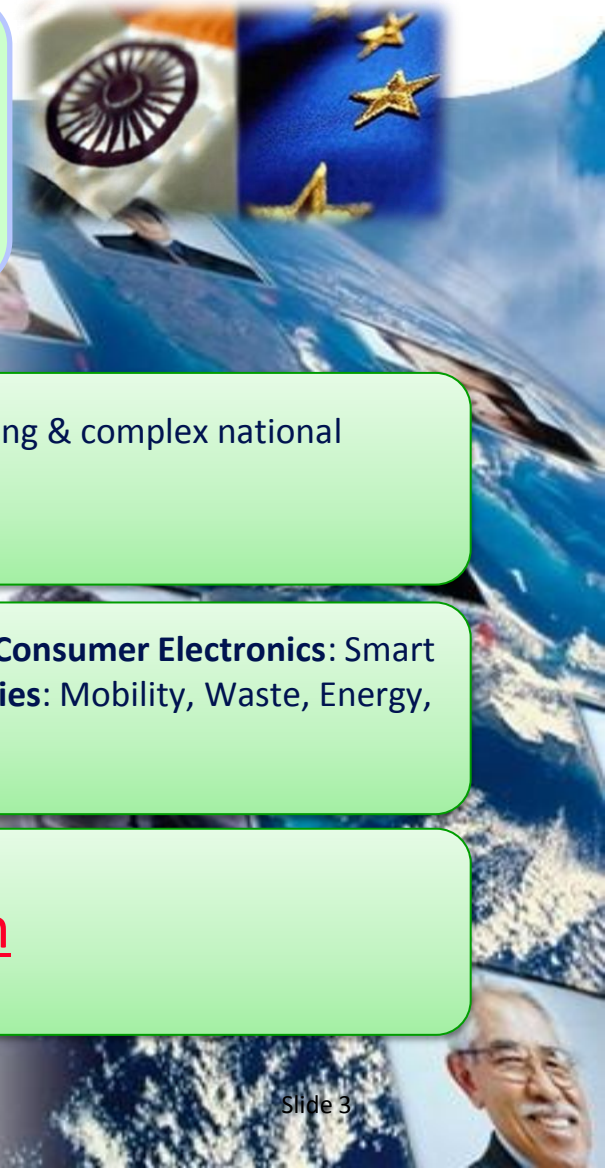
Agenda

- EU Project SESEI
- Smart Cities in Europe and India
  - Policies & Standards
- Conclusion

Project is a permanent presence in India

SESEI (**S**econded **E**uropean **S**tandardization **E**xpert in **I**ndia) ***is a face for the European standardization community in India***

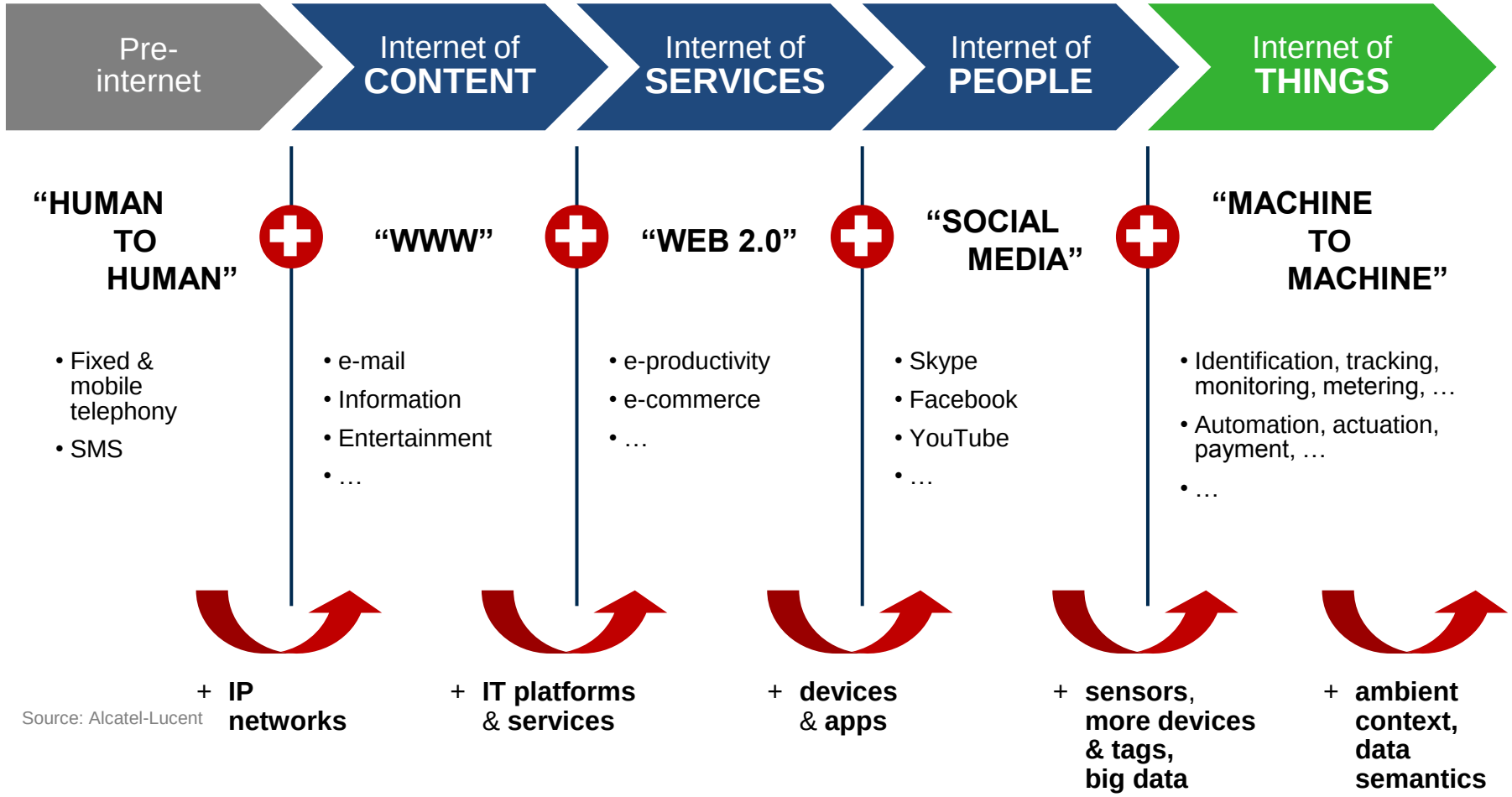


Why SESEI: India is a major trade partners for Europe, Increasing role of standards to gain market access and Evolving & complex national regulatory and standardization landscapes

Sector: 1. ICT: M2M/IoT, Security, 5G, NFV/SDN, e-Accesibility, eHealth, eCALL… **2. Electrical equipment including Consumer Electronics**: Smart Grid, Smart Meter, LVDC, Micro- Grid, Lift Escalator… 3**. Automotive**: Connected Cars, ITS, e-Mobility… 4**. Smart Cities**: Mobility, Waste, Energy, ICT..

www.sesei.eu , www.sesei.in , www.eustandards.in

The next step in internet evolution



Source: Alcatel-Lucent

The **Internet** gave us the opportunity to connect in ways we could never have dreamed possible.

The **Internet of Things** will take us beyond connection to become part of a living, moving, **global nervous system**

Smart Cities in India

Policies & Standards

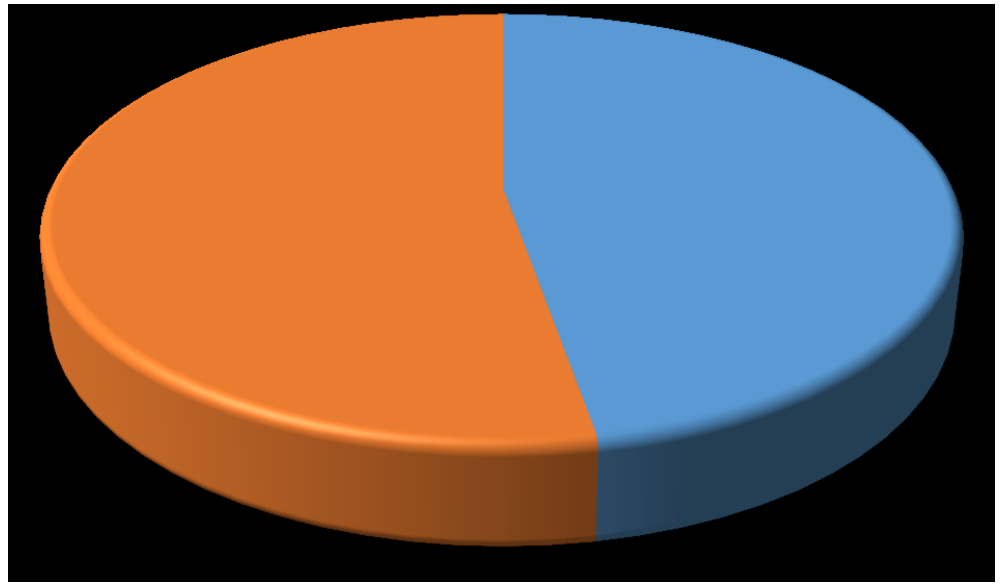
Smart city Mission-Updates

- 3 rounds of bidding just concluded
- 90 Smart Cities identified through extensive selection process
- 4th round of bidding under progress
- Total investment till date up to Rs.1,91,155 cr.
- Smart City Mission Report Card by The Urban Development Ministry
- City Liveability Index launched by Ministry of Urban Development

Smart City Mission- ICT and Non ICT needs

From an analysis of 60 SCP's [First 20, next 13 and the following 27; not the recent 30]

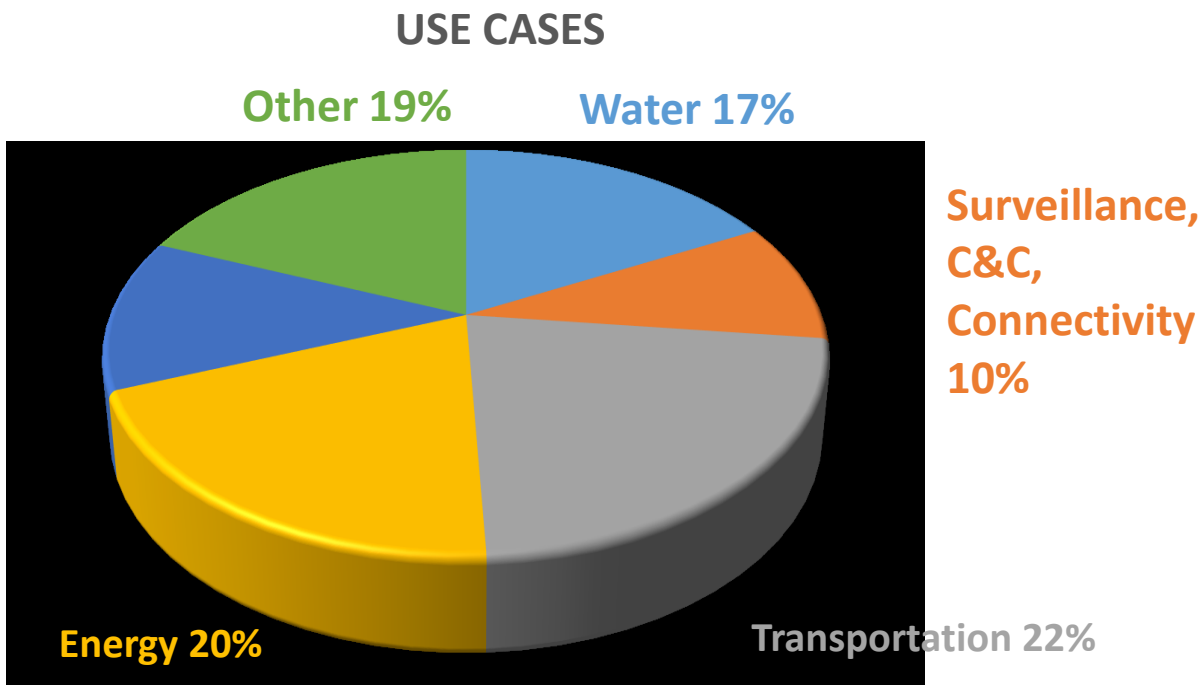
Type	Unique Use Cases
ICT	43
Non-ICT	48



Source: GAIA SMART CITIES

ICT Use Cases in Area Based Development

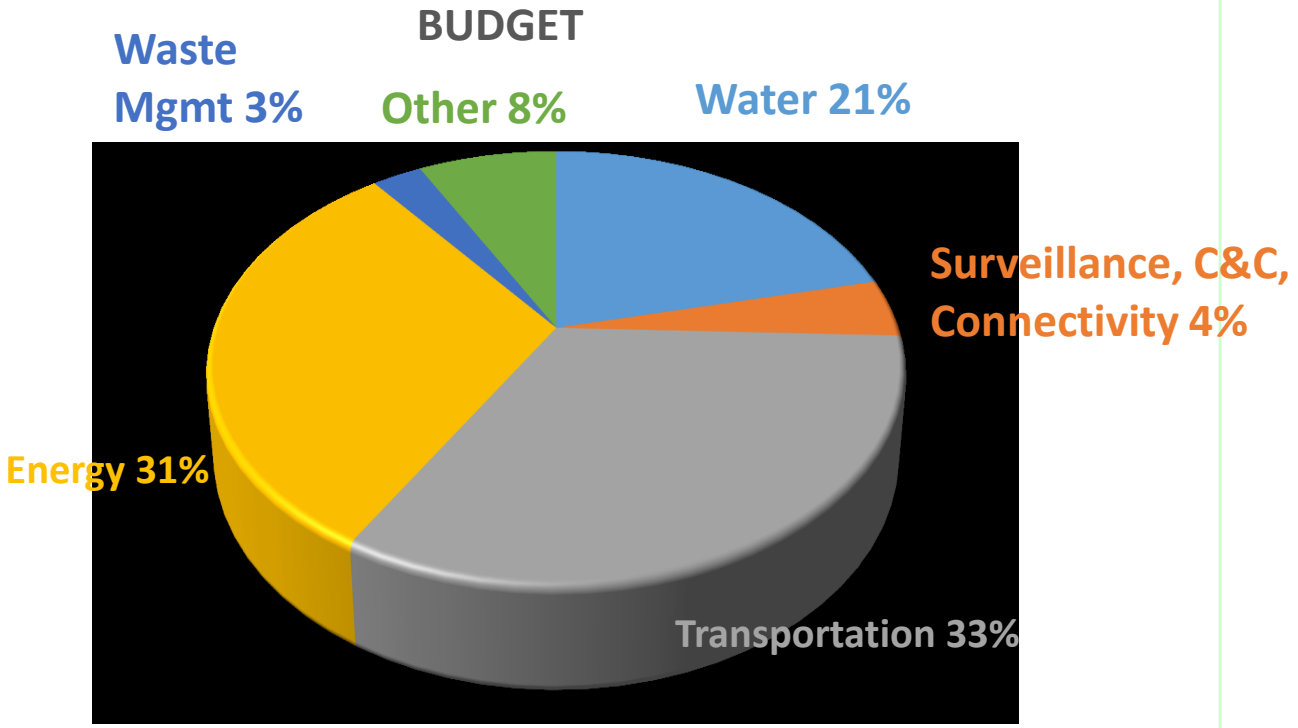
Domain	Use Cases by Cities*
Water	81
Surveillance, C&C, Connectivity	45
Transportation	105
Energy	93
Waste Management	57
Other	88



Source: GAIA SMART CITIES

ICT Use Cases in Area Based Development

Area	Budget (in crores)
Water	3445.11
Surveillance, C&C, Connectivity	693.26
Transportation	5312.6
Energy	5033.64
Waste Management	447.17
Other	1243.59



Source: GAIA SMART CITIES

Smart City - Standards

- BIS CED 45 drafted Smart City Indicators based on ISO 37120:2014 Sustainable Development of Communities: Indicators for city services and quality of life‘
- BIS Panel on ICT New & Emerging Technology
  - Panel 2: Title–Smart Infrastructure monitoring and contributing work carried out at ISO & IEC on the topics of Smart Cities (ICT Technology), Active Assisted Living, Smart manufacturing, Smart Energy
- NIUA and MoUD have also prepared and released Smart City Indicators that can be used by cities to measure their performance
  - 45 core indicators and 22 supporting indicators
- MoUD with NASSCOMM and DSCI also prepared guindelines for the Security part of Smart Cities

Smart Cities in Europe

Policies & Standards

EC RnD Projects encouraged to Standardize: H2020 Lighthouse Projects

EC R&D Projects encouraged to Standardize: H2020 Lighthouse Cities (and others)

- GrowSmarter: Stockholm, Cologne, Barcelona
- mySMARTLife: Nantes, Helsinki, Hamburg
- REPLICATE: Bristol, San Sebastian, Firenze
- RUGGEDISED: Umeå, Rotterdam, Glasgow
- Sharing Cities: London (Greenwich), Lisbon, Milan
- SmartEnCity: Vitoria-Gasteiz, Sonderborg, Tartu
- SMARTER TOGETHER: Wien, Lyon, München
- REMOURBAN: Valladolid, Nottingham, Tepebasi/Eskisehir
- Triangulum: Manchester, Eindhoven, Stavanger

www.smartcities-infosystem.eu/sites-projects/projects

EC R&D Projects encouraged to Standardize: H2020 IoT Large Scale Pilots

- Management of Networked IoT Wearables – Very Large Scale Demonstration of Cultural and Security Applications – www.monica-project.eu
- ACTivating InnoVative IoT smart living environments for AGEing well - www.activageproject.eu
- AUTOmated driving Progressed by Internet Of Things – www.autopilot-project.eu
- Internet of Food and Farm 2020 - www.iof2020.eu
- Delivering an IoT enabled Digital Single Market for Europe and Beyond – www.synchronicity-iot.eu
- User Engagement for Large Scale Pilots in the Internet of Things - www .u4iot.eu
- CRoss FErtilisation through AlignmenT, Synchronisation and Exchanges for IoT – www.create-iot.eu

www.european-iot-pilots.eu

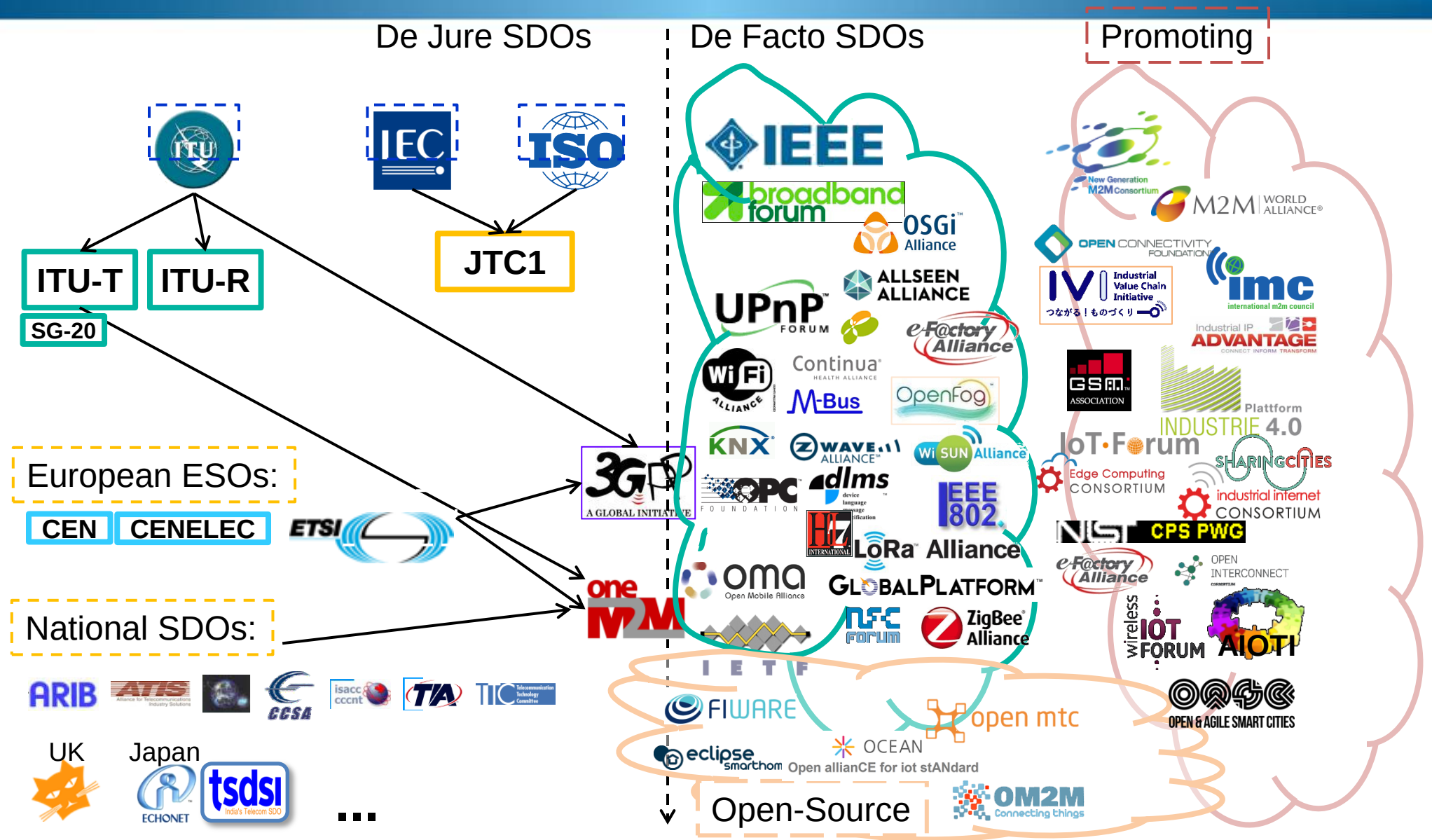
Why Standards for Smart Cities ?

- 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)

Cities need help in the Specifications Jungle



Global & EU Standardization activity

ISO/TMB/
Smart Cities SAG
+ TF

Jointly with IEC and ITU

CEN-CENELEC-ETSI
Sector Forum on SSCC

Advisory & Strategic Group of the ESOs

- ✓ Recommendations and coordination
- ✓ No standardization development

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…)

Standards shrink risks in Enabling Technologies

Fixed:

xDSL, Fibre, PoF, PLT, NGN, SDN/NFV, co-axial (cable)

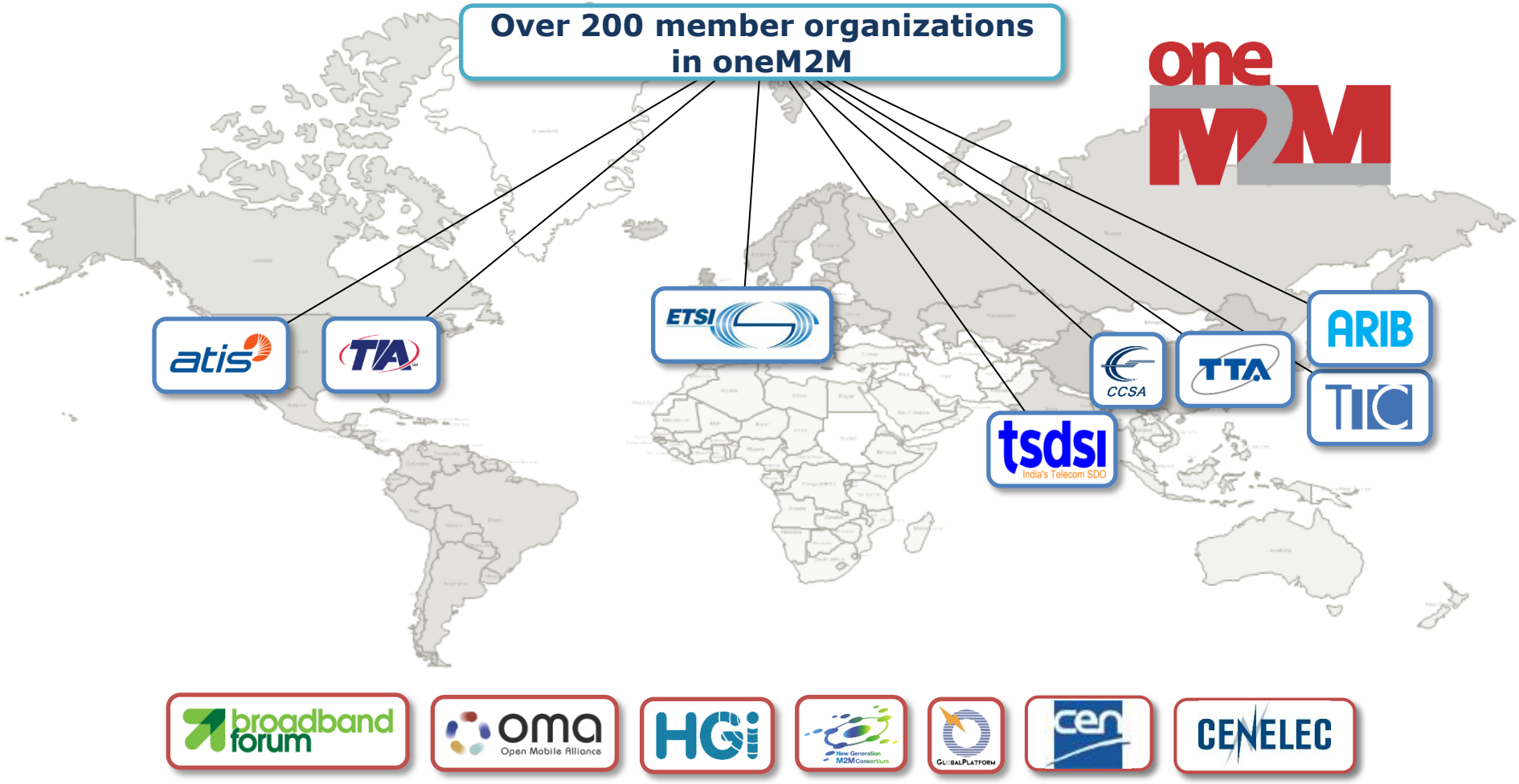
Wireless:

Wi-Fi, Digital Radio, Wide band, narrow band, LTE -> 5G, Satellite, NFC, RFID

Horizontals / Platforms:

Security/privacy, Energy efficiency, M2M, QoS/QoE, Interconnect & Interop, Secure IT platform & data management, semantics, Human Factors

oneM2M Partnership Project



Source: oneM2M

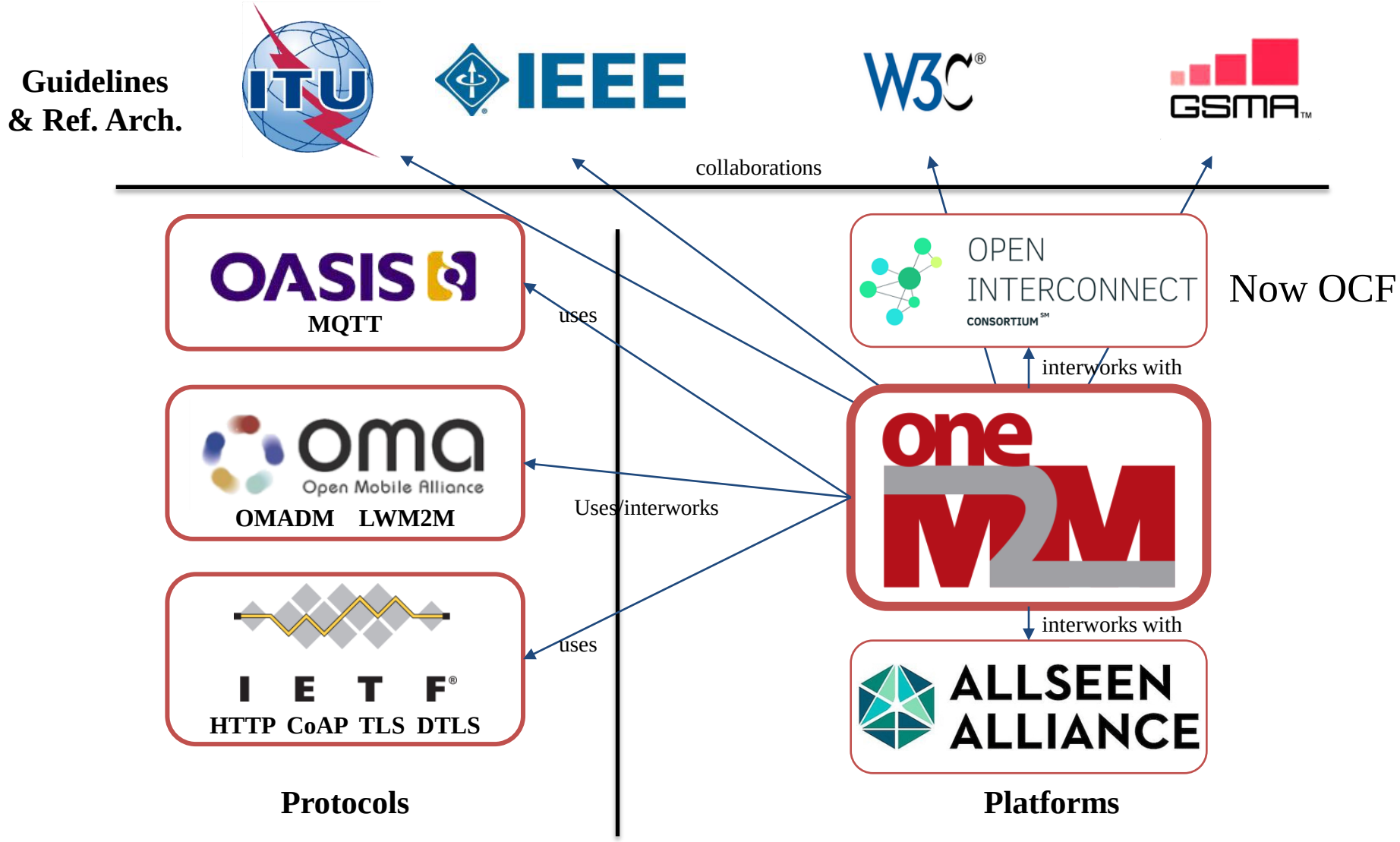
www.oneM2M.org

All documents are publically available

200+ members organizations

Some of the 200+ active members of oneM2M

Ongoing collaborations



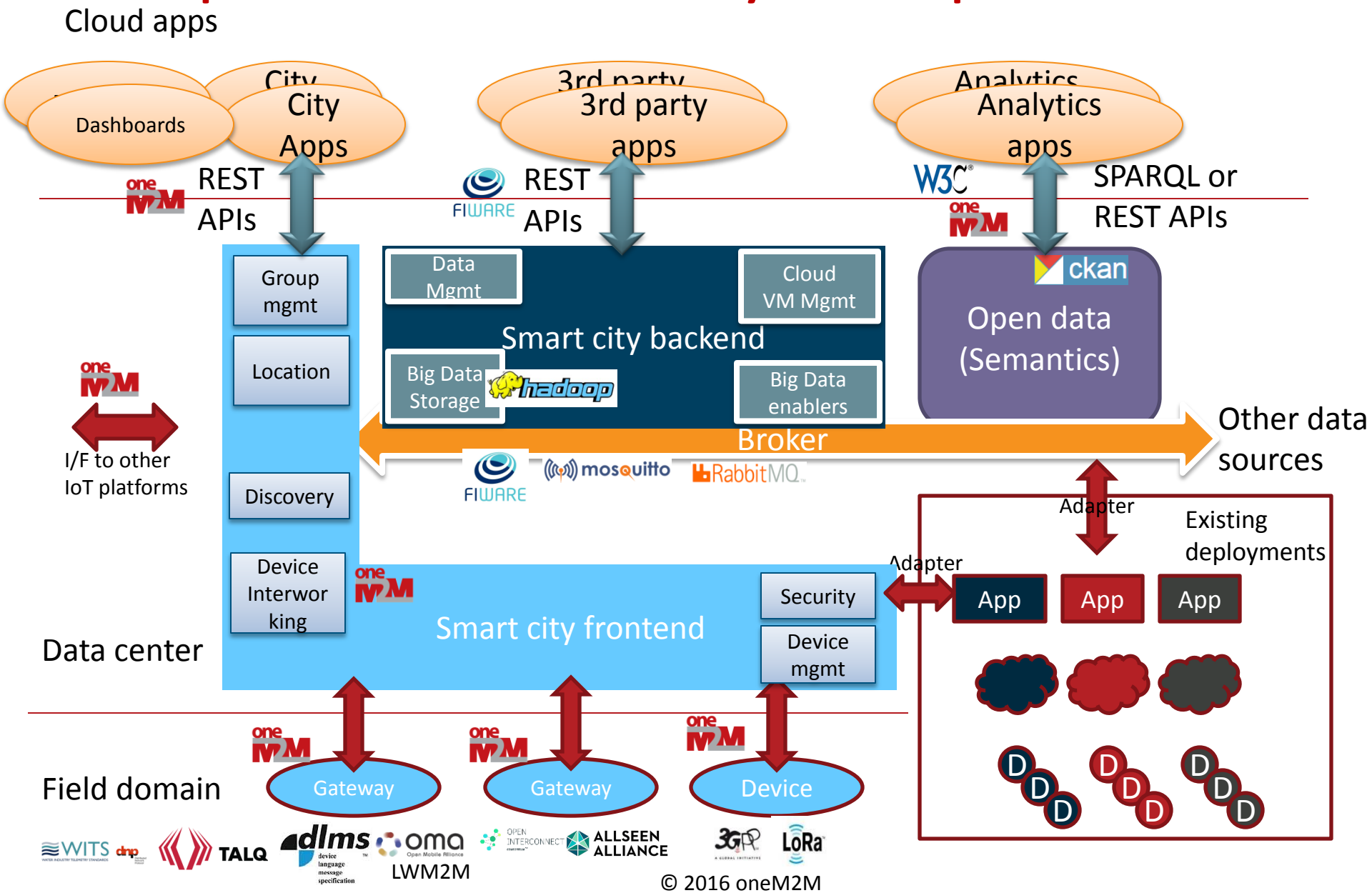
Key requirements for smart city IoT platform

Horizontal platform for new deployments	• Smart city is an incremental and participatory journey • New deployments should, where possible, leverage a converged networks and an horizontal service platform • Open standards are key to avoid lock-in and master the total cost of ownership
Existing deployments	• Do not disrupt existing "vertical deployment" but seek opportunities for an integration path with an horizontal approach • Build value through smash-ups and open data

Participatory and innovative approach	• Surveys
	• Address needs for innovation through app development:
	  • APIs
	  • Access to, eventually semantically enriched, Open data (where feasible and subject to privacy legislation/citizen consent)

Security and (device) management are key	• Despite initial focus on IoT data, there is an increased interest in security and device management (which go hand in hand). • Need arises from security threat analysis conducted recently: e.g. "Two researchers analyzed Smart meters widely used in Spain and discovered that can be hacked by attackers to harm the overall National power network.", source: http://securityaffairs.co/wordpress/29353/security/smart-meters-hacking.html

A possible smart city blue-print



Conclusions

- Avoid fragmentation, develop together Specification for M2M/IoT/Smart City:
- OneM2M Partnership Project & 3GPP work on IOT
- ICT Standards need to be global considering the fact of interoperability
- Consensus based Framework for Smart City Architectures
- In case of Smart Cities standards does exist, they need to stitched, and implemented
- Common Service Layer is important and critical for its implementation as part of Smart Cities & oneM2M is global and interoperable standard
- Project SESEI is here and is working with DoT, MeitY, TEC, TSDSI, BIS, IOT4SCTF, COAI etc..

www.sesei.eu

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