Spotlight on Cities

Future Plans for Upgrading More Cities

(Role of Technology & Standards)

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Innovative Cities India Summit 2017
16/03/2017

Project SESEI

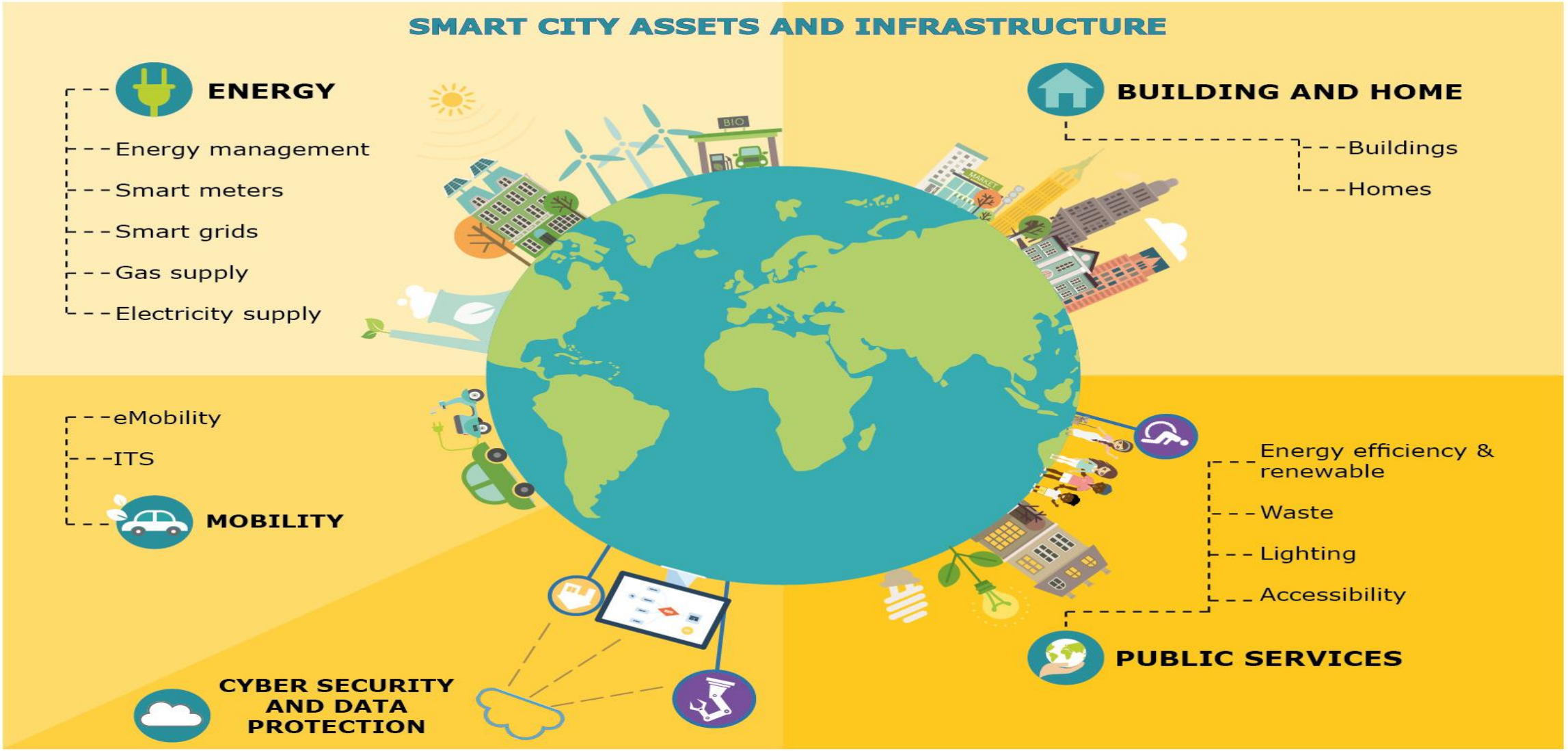
- Seconded European Standardization Expert in India
  - local representative and a connect-between standardizers' communities in EU/EFTA and India
  - EU-India dialogue and cooperation on standards, R&D, Innovation, and policy/regulation around standardization
  - Phase 3: March'16 to June'19
- Project Owners
  - EU Standards Organizations (ETSI, CENELEC and CEN), European Commission and EFTA - European Free Trade Association
    - Project is managed by ETSI
- Priority Sector for this phase of the project (3 Year)
  - Information & Communication Technologies (equipment and services)
  - Electrical equipment including Consumer Electronics – Smart Energy
  - Automotive - ITS
  - Smart City
  - Energy Efficiency in ICT, Manufacturing policy, WTO-TBT, IPR, R&D & Innovation

Why developing standards for smart city ?

Using standards, cities can:

- Reap the benefits of codified and disseminated **best practice**
- Enable **integration** between city systems
- Improve their management systems assets, processes and **performance**
- Reduce inefficiency and costs - '***doing things smarter***'
- Accelerate **smart city solutions** and provide confidence in the market
- Deploy **non-vendor-lock i**n solutions
- Facilitate the **procurement processes**
- Support smart cities **strategies** and projects

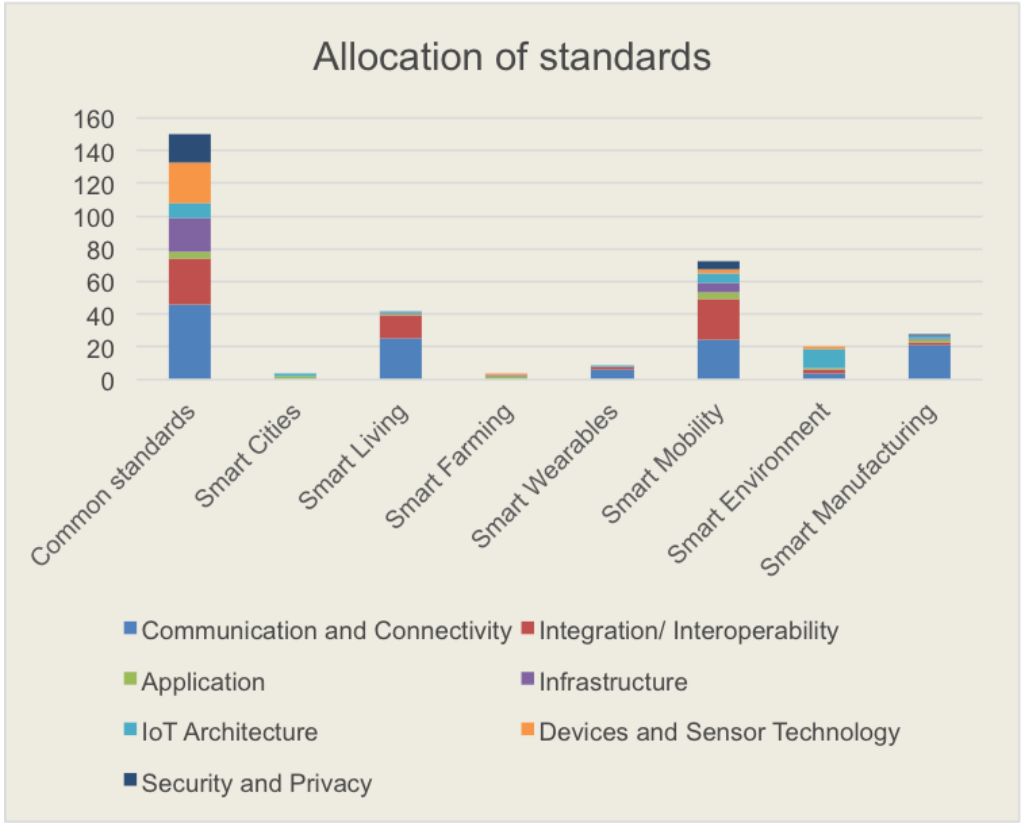
Smart City Assets and Infrastructure



Standards for Smart City - Should cities worry?

- Do we lack standards for smart cities? What are the gaps?
- IoT common and platform standards are generally applicable to Smart Cities
- Smart cities enabled IoT platforms are generally about cross domain and big (incl. open) data
- Several standards exists for, e.g.:
  - Street light: TALQ
  - Water mgmt: WITS WATER INDUSTRY TELEMETRY STANDARDS

Source: STF505 based on ETSI TR 103 375

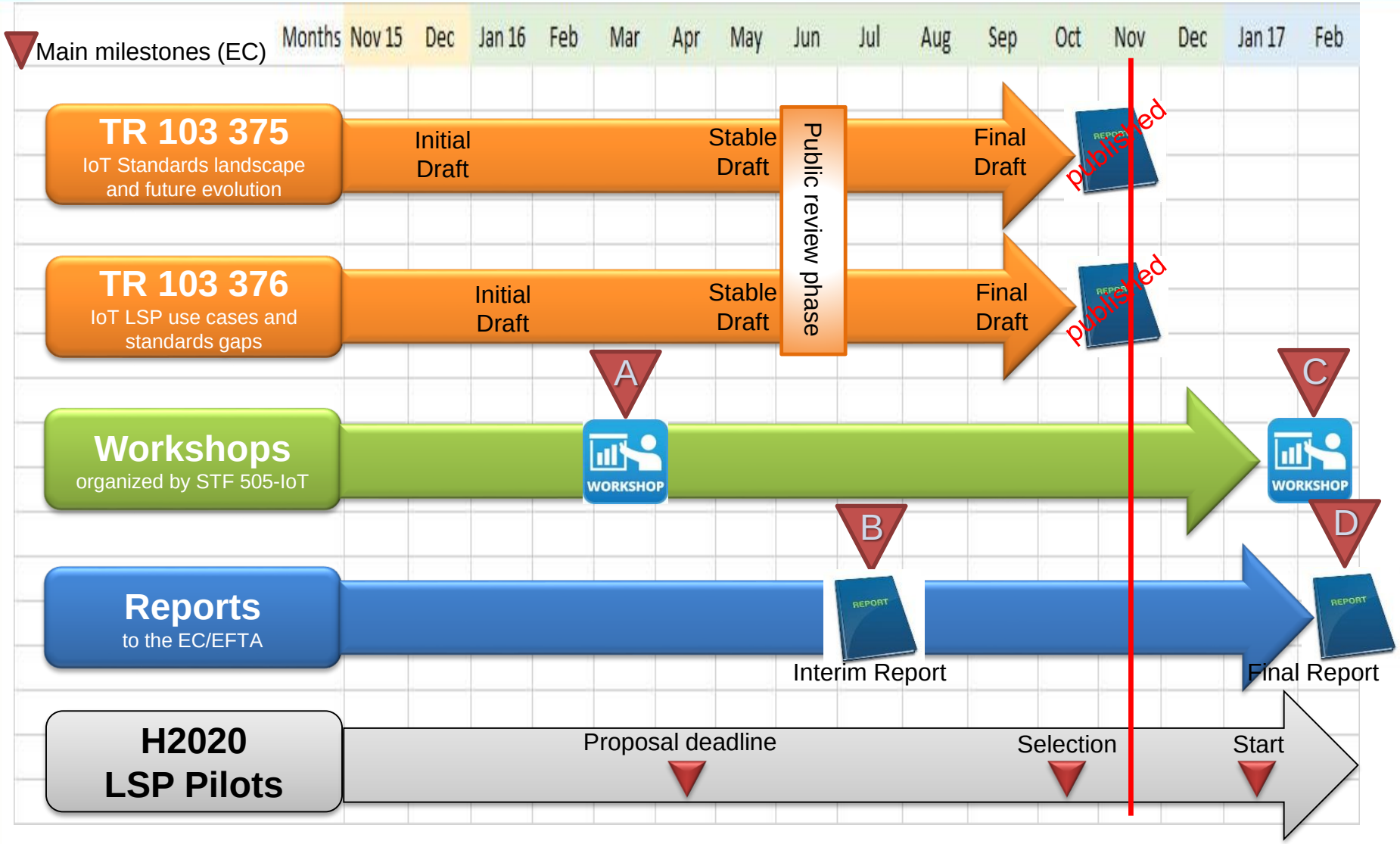


ETSI Specialist Tasks Force STF 505 - IoT

- The European Commission runs the EU Research and Innovation program Horizon 2020.
  It supports the emergence of an eco-system capable of delivering the Internet of Things with actions like
  - Validation of IoT technologies and approaches through **L**arge **S**cale innovation **P**ilots (LSPs); 7 LSPs covering Smart City, Wearables, Farming, Smart Living and Ageing Well Being, Autonomous Vehicle in Connected Environment, Smart Water and Smart Manufacturing (All part of H2020 IoT calls) : EU invests 140 M EURO on Internet of Things for the period of 2016-2017
  - Identification of required standards in support of global deployments and interoperability in order to support the LSPs

  - ➔ For this purpose ETSI has been tasked to provide two reports on "IoT Standards Landscaping" and "IoT European LSP gap analysis";
    ETSI TC SmartM2M launched a Specialist Task Force (STF505) to proceed this task

STF 505-IoT Work Programme



Where do we stand? Three routes to smart cities:

(source The Smart City Playbook, Machina research 2016)

- **The ‘Anchor’ route:** vertical stand-alone applications
- **The ‘beta city’ route:** build hands-on experience through pilot programs which may lead to operational deployments
- **The platform route:** network infrastructure and IoT platform as a step preceding onboarding new applications

Key findings/trends «City 2.0»

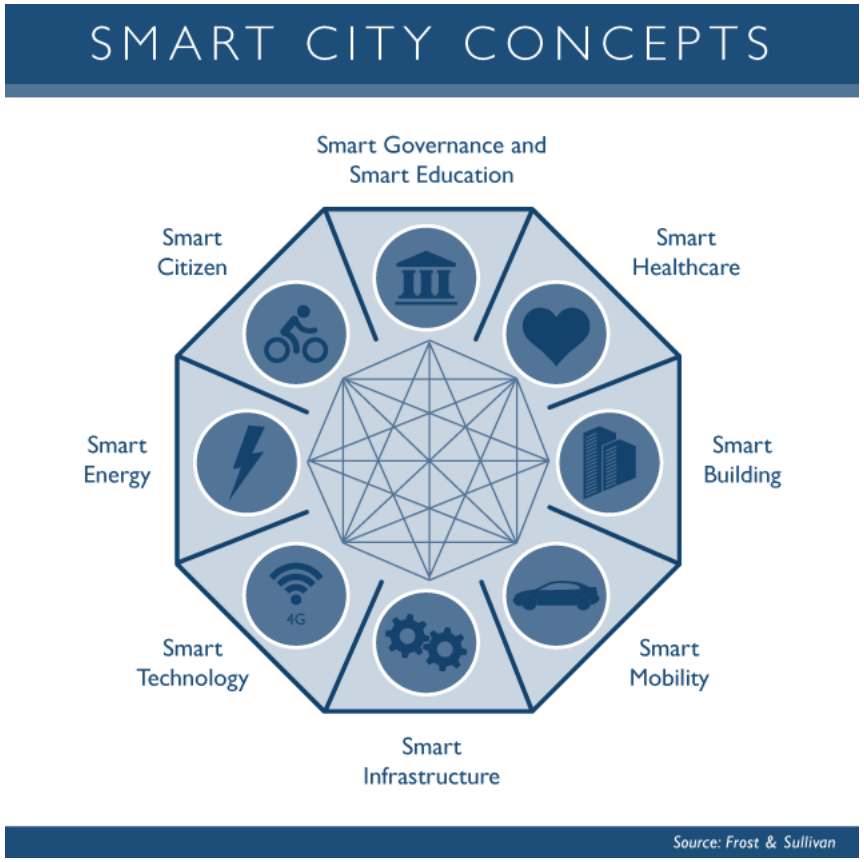
- Smart city platforms bring significant efficiencies when the number of applications grows
  - Shared data
  - Single API set and data formats are beneficial for developers
- Initial cost of platform investment tends to be marginal compared to economies of scale, OPEX options can alleviate initial costs
- Connectivity, plenty to chose from
- Machine learning and analytics create great benefits (e.g. traffic management, parking management)
- Open standards are crucial for sustainable success

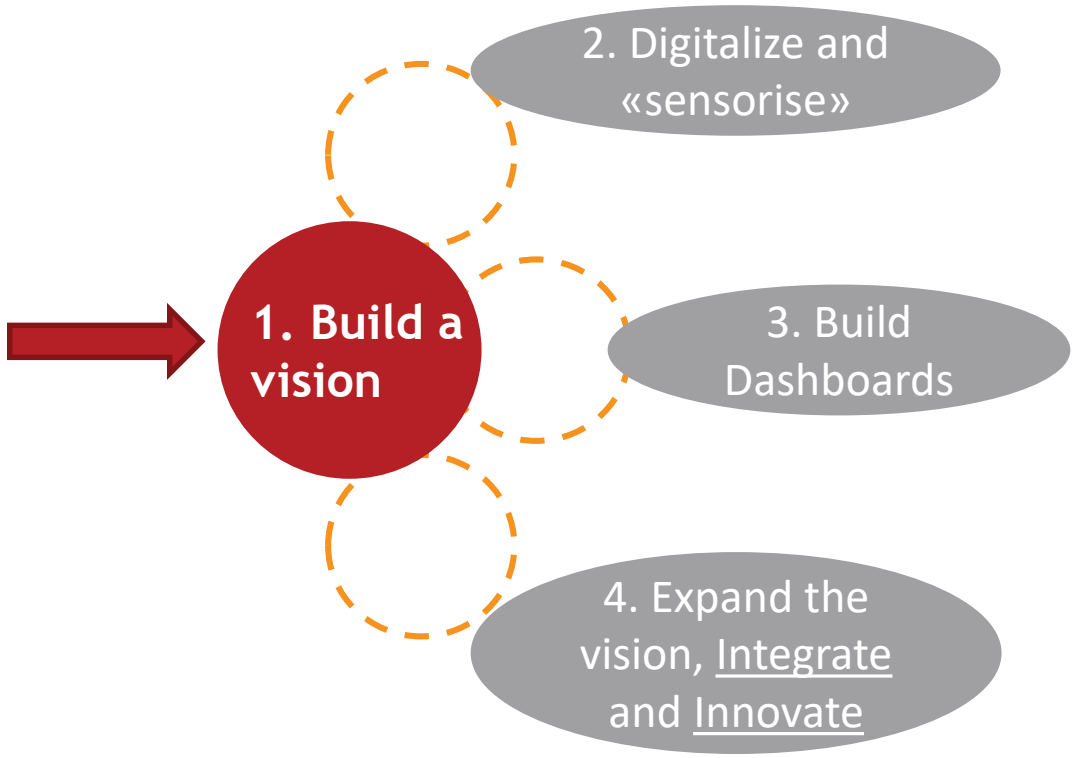
Machina Research

White Paper
May 2016

Open standards in IoT deployments would accelerate growth by 27% and reduce deployment costs by 30%

Vision for building smart cities





Source: Based on discussions with Dr. Martin Serrano, OASC and Insight centre

Vision Example - Singapore "Smart Nation" initiative: Anticipation, Vision and Execution

Singapore Government
Integrity · Service · Excellence

Past

NG-NBN
National Fiber Network

Wireless
National WiFi Network

In Progress

COLLECT & COMPREHEND

Deploy an "operating system" accessible by all stakeholders

CONNECT

Deploy sensors using Above Ground Boxes for electricity & connectivity

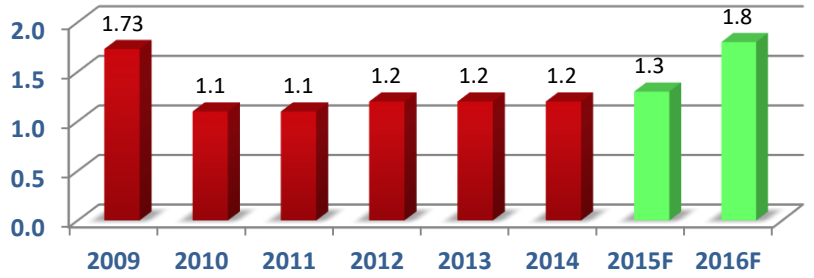
Generalized Heterogeneous Network to boost Citizen Quality of Services

Future

Sustain livability and position Singapore as a (regional) Digital Harbor to drive economic growth.

Singapore Government ICT Investment

in BSGD (1SGD = 0.65Euro)



Source: IDA 2014

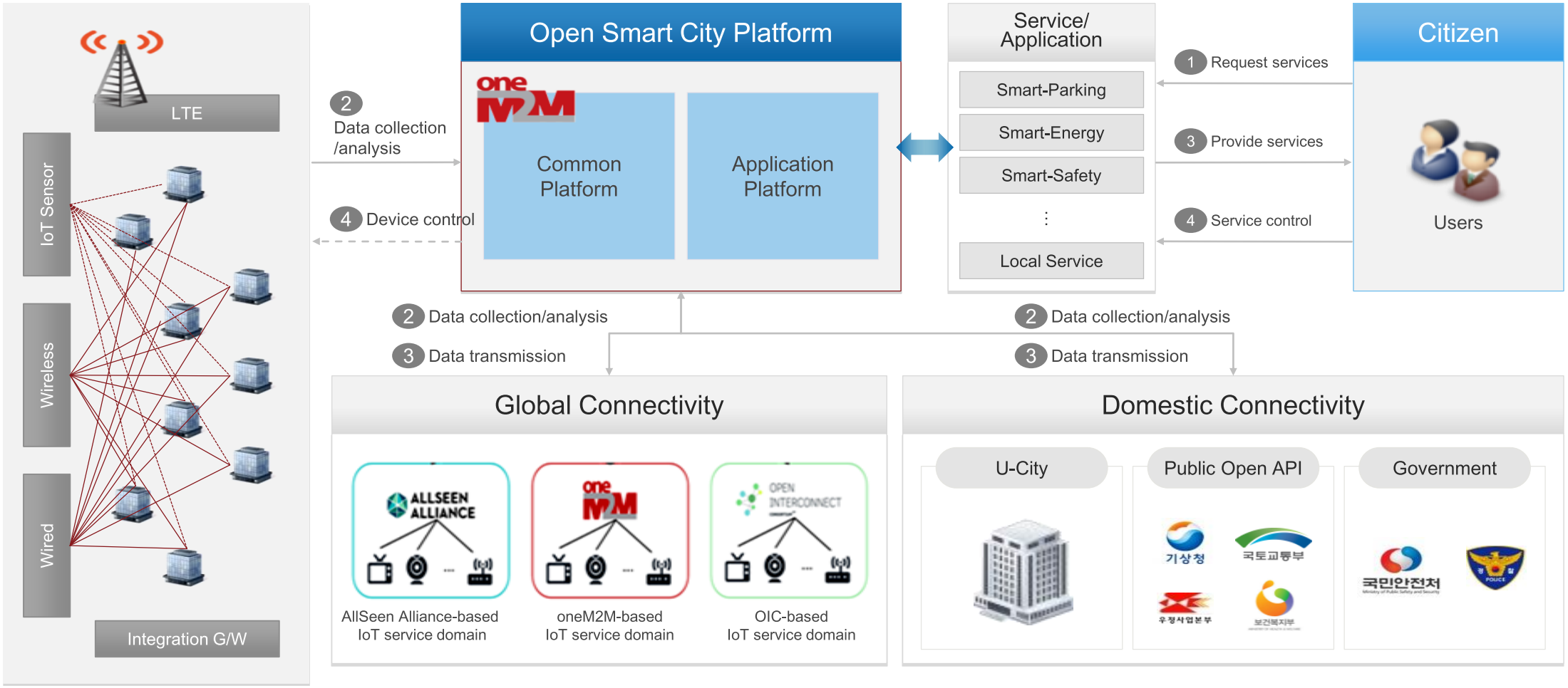
Key requirements for smart city IoT platform

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

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

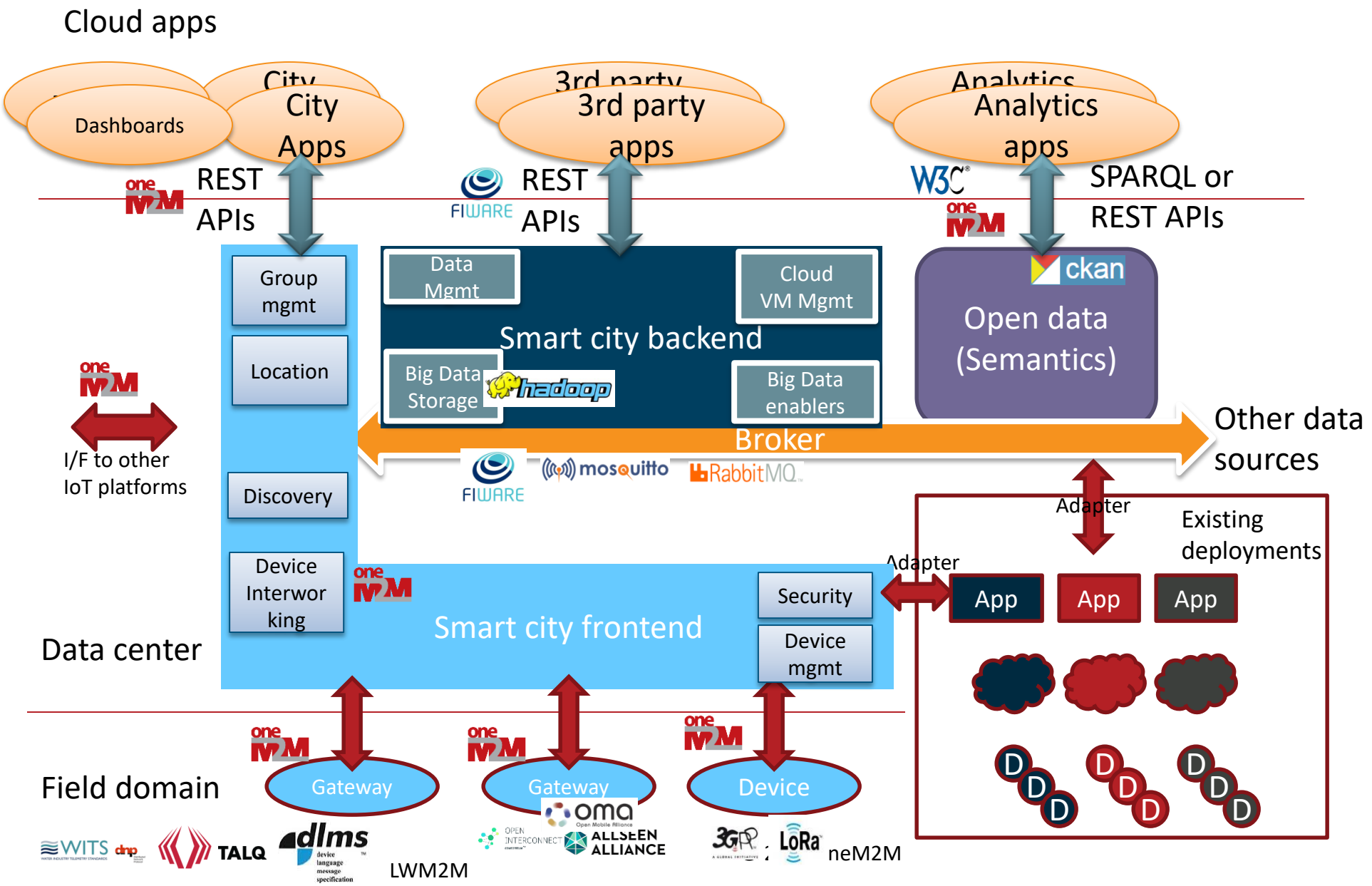
Security and (device) management are key	• Despite initial focus on IoT data, there is an increased interest in security and device management (which go hand in hand). • Need arises from security threat analysis conducted recently: e.g. "**Two researchers analyzed Smart meters widely used in Spain and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

oneM2M based smart city deployment example - Busan



Source: SKT

A possible smart city blue-print



Conclusion : Smart Cities

- Every city is unique hence build a vision:
  - Build Initial set of use cases, build an architecture that leverages cross sector applications while using open standards and as well Integrate existing deployments
- oneM2M provides a fast-track and future proof IoT based smart city: complementary open source standards

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