Connected Smart Cities Conference

"Tech track: emerging standards and mechanisms"

OPEN & AGILE SMART CITIES

17 January 2019 – CSCC – The Egg Brussels

BORDEAUX
MÉTROPOLE

Yet another step beyond towards smart city services scale up !

From an heterogenous and siloed infrastructure towards interoperable and industrialised smart city services.

Thanks to: EC, ESOs, European projects, European cities networks

A summary of previous steps

- 2015: Eurocities: New KSF strategy, " The Smart City from scratch "
- 2015: eG4U: New ETSI ATTM sdmc WG 2016
- 2016: Sharing Cities: A replication strategy at the European level
- 2017: ESPRESSO: A first Smart City architecture including the MIM approach
- 2018: OneM2M a glu to fix the southbound layer interoperability issues
- 2018: NGSI-LD, the first piece of a northbound layer
- 2018: SynchroniCity the first single digital city market for Europe
- 2019: SynchroniCity an open call to close the loop
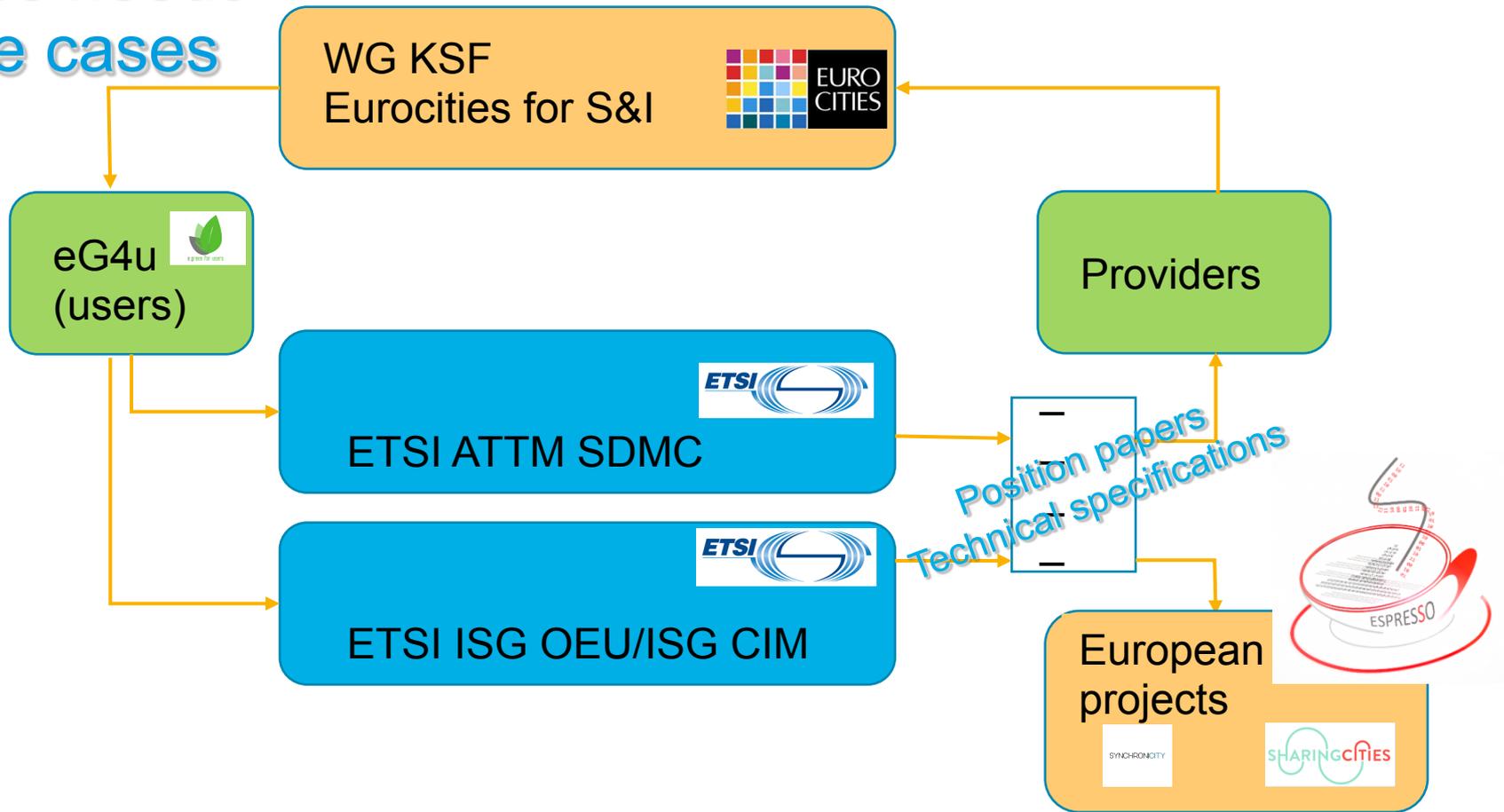
2015: An heterogenous and siloed ecosystem

2015: Eurocities KSF:
A new bottom up approach

Exemple of a useful use case:
A few years ago, each mobile phone provider used a specific interface for their phone charger. In 2009, the GSMA
committee decided to define a common interface for all the smartphones at an international level, the UCS - universal
charging solution. From 2012, except for Apple products, all the providers use the same interface: the micro-USB.

Exemple of a use case where industry representatives didn't agree to define a standardised interface:
For EV chargers, there are at least, today, four different types of depending on the trade mark of the cars: American
cars, VW group cars, PSA cars and RENAULT cars, totally incompatible one from

each other.

Guidance and awareness

India: EV charging stations asked to install both Japanese and Chinese technologies.

EU Project SESEI @euprojectsesei3

In India, the government asked public charging stations to install Japanese and Chinese charging technology both platforms, ending months of ambiguity that delayed electric vehicles procurement by Energy Efficiency Services Ltd (EESL). Read more at:

2015:   eG4U The vehicle for developing standards within ETSI !

eG4U is a Non Governmental Organisation of ICT (Information & communications technologies) users from public and private sector, working together in order to improve Energy Management & Waste monitoring in the three main domains of ICT Sites, Smart Cities and Electrical and Electronic Equipment.

eG4U has been created early December, 2015, by ICT users, members of ETSI(*) Industry Specification Group (ISG) called Operational energy Efficiency for Users (OEU).

eG4U is an ETSI member.

https://www.eg4u.org/

ETSI TC ATTM sdmc WG

WG SDMC will work on deployment of ICT systems, and networks, and sites allowing interactions for data capture (both data consumers and providers) and management of data within each service and between different functions and services and will produce:

- Standardisation work on specific engineering of SDMC ICT
- Specifications of topology and functional requirements
- Specifications of functional and physical characteristics of interfaces
- Standardisation work on operational sustainability management

TS 103 463 published

Defining indicators (KPIs) for Smart Cities expressing city level in terms of People, Planet, Prosperity and Governance.

ETSI TC ATTM sdmc WG

STF 562 and Deliverables

STF 562 Leader	Mike Gilmore

Experts	Flavio Cucchietti
	Eric Stern

TC ATTM

TS 103 463-2	D1	DTS/ATTMSDMC-4
	WORKING TITLE	Global KPI Modelling for Sustainable Digital Multi Service Areas

TS 110 174-2-2	D2	DTS/ATTMSDMC-5
	WORKING TITLE	Femtocell 5G connectivity on light poles

Milestone A	16th JANUARY 2019
	AGREEMENT OF SCOPES AND ToCS

DGNSI – Servic

# 2016: The Sharing cities H2020 Lighthouse project

The Sharing Cities 'lighthouse' programme is a proving ground for a better, common approach to making smart cities a reality. By fostering international collaboration between industry and cities, the project seeks to develop affordable smart city solutions. It will result in integrated commercial-scale smart city solutions with a high market potential. The project partners will work in close cooperation with the European Innovation Partnership on Smart Cities and Communities and with other 'lighthouse' consortia.

Sharing Cities offers a framework for citizen engagement and collaboration at local level, thereby strengthening trust between cities and citizens.

The Sharing cities: Who ?

- 35 partners from cities, industry representatives, NGOs and academia
- Located in the **3 'Lighthouse' cities**:

- **3 'fellow' cities**
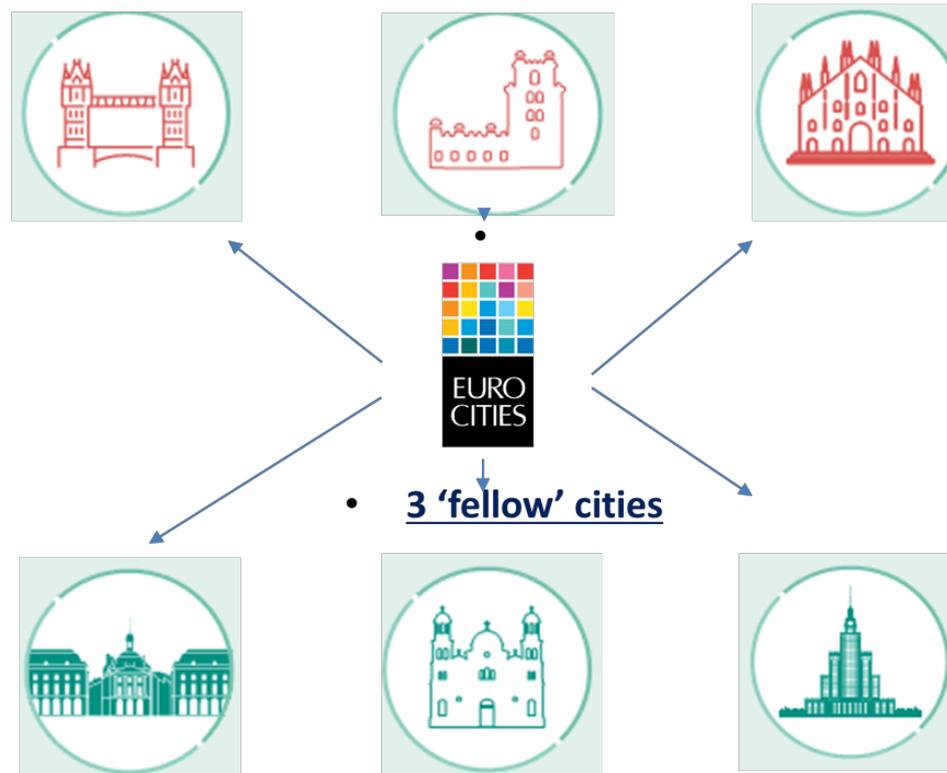
The Sharing cities replication Work Package

| Measure	Bordeaux	Burgas	Warsaw
Citizen Engagement	Co-design	Validate	
Building Retrofit	Validate	Validate	Implement
Energy Management	Implement	Co-design	Validate
eMobility	Co-design	Implement	Validate
EV Car Sharing		Co-design	Validate
eBikes		Implement	Validate
EV Charging		Implement	Implement
Smart Parking		Implement	Implement
EV Logistics		Co-design	
Smart Lamp Posts	Implement	Implement	Validate
Urban Platform	Validate	Validate	

Key: ● Implement ● Co-design ● Validate

# 2016-2017 A first Smart City architecture including the MIM approach

Based on a detailed requirements-engineering campaign executed in close cooperation with cities, standardisation organizations, administrative bodies, and private industry, the project will identify open standards matching the elicited requirements and will establish a baseline for interoperability between the various sectorial data sources and the Smart City enterprise application platform. In a comprehensive set of coordination, support and networking activities, the project will engage a very large number of stakeholders, such as Smart Cities (both existing and those with aspirations), European Standardisation Organizations (ESOs), National Standardisation Bodies (NSBs), Standards Development Organizations (SDOs), public administrations, industries, SMEs, and other institutions. ESPRESSO's approach emphasizes cost reduction and will foster an open market for many actors, avoiding lock-in to proprietary solutions. European Smart City solutions that adopt these prescripts will be raised to the forefront worldwide.

The PPI/MMI approach from the NIST
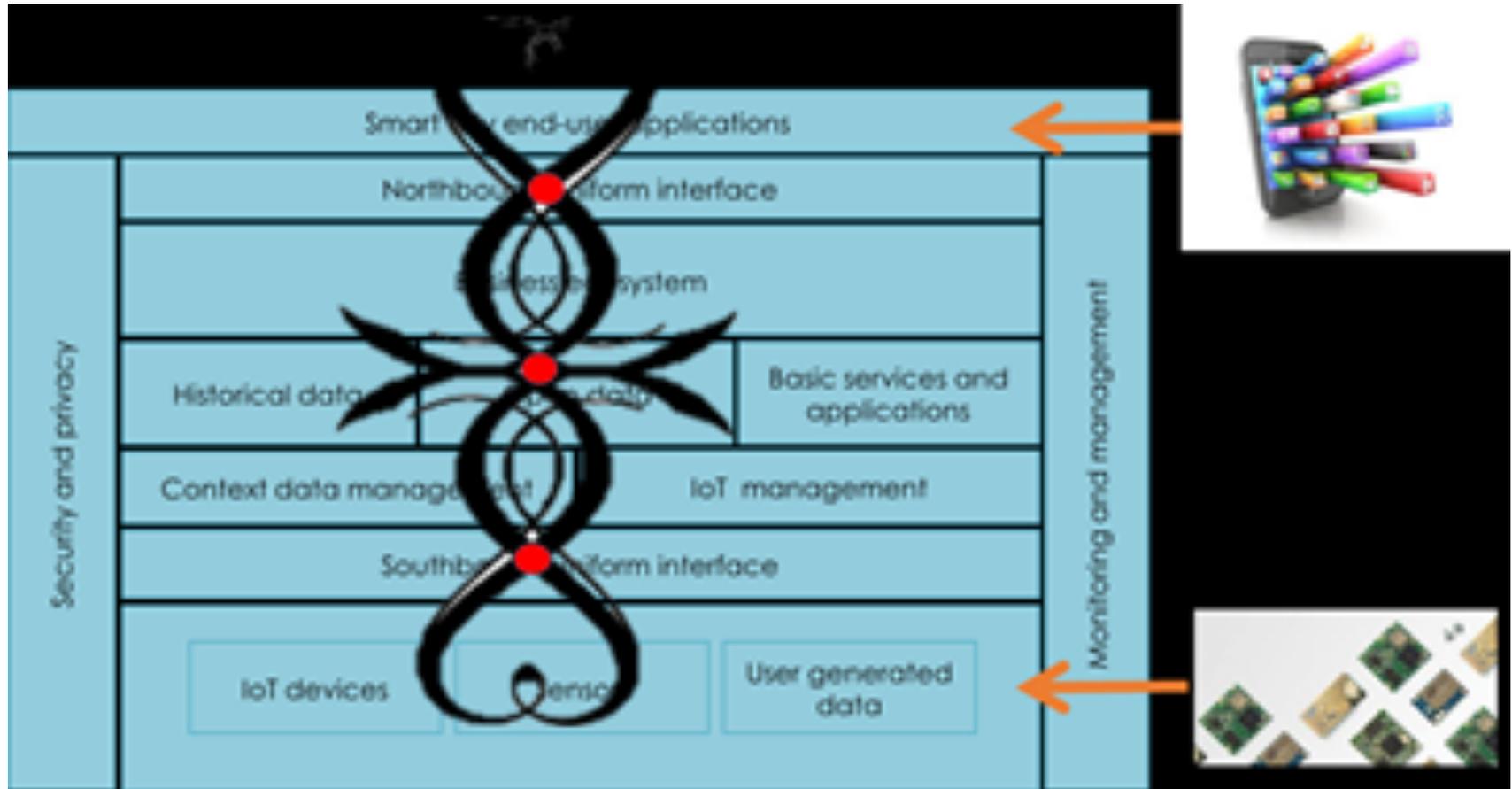
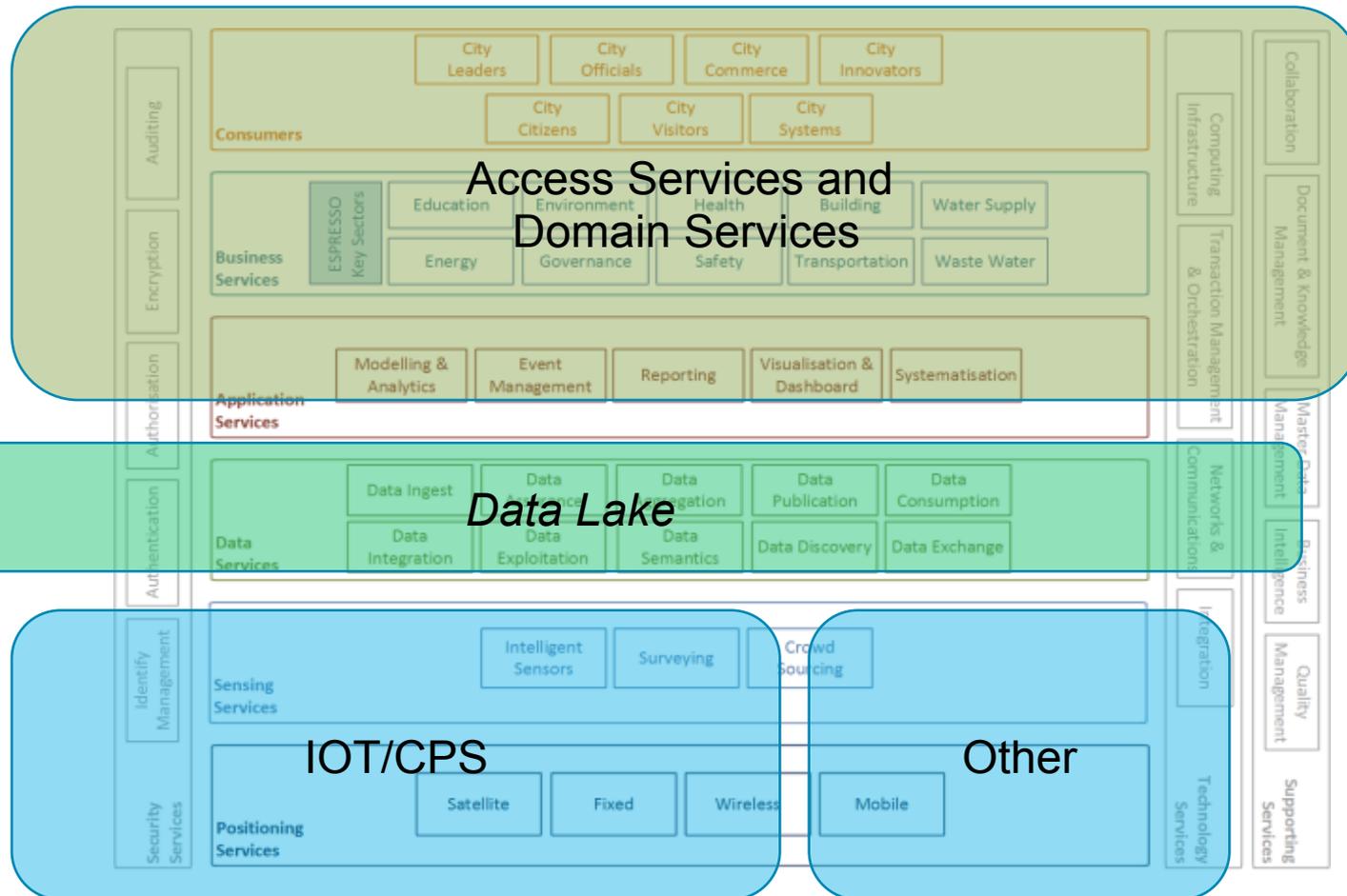# Information Systems Architecture (the complex hamburger slide)
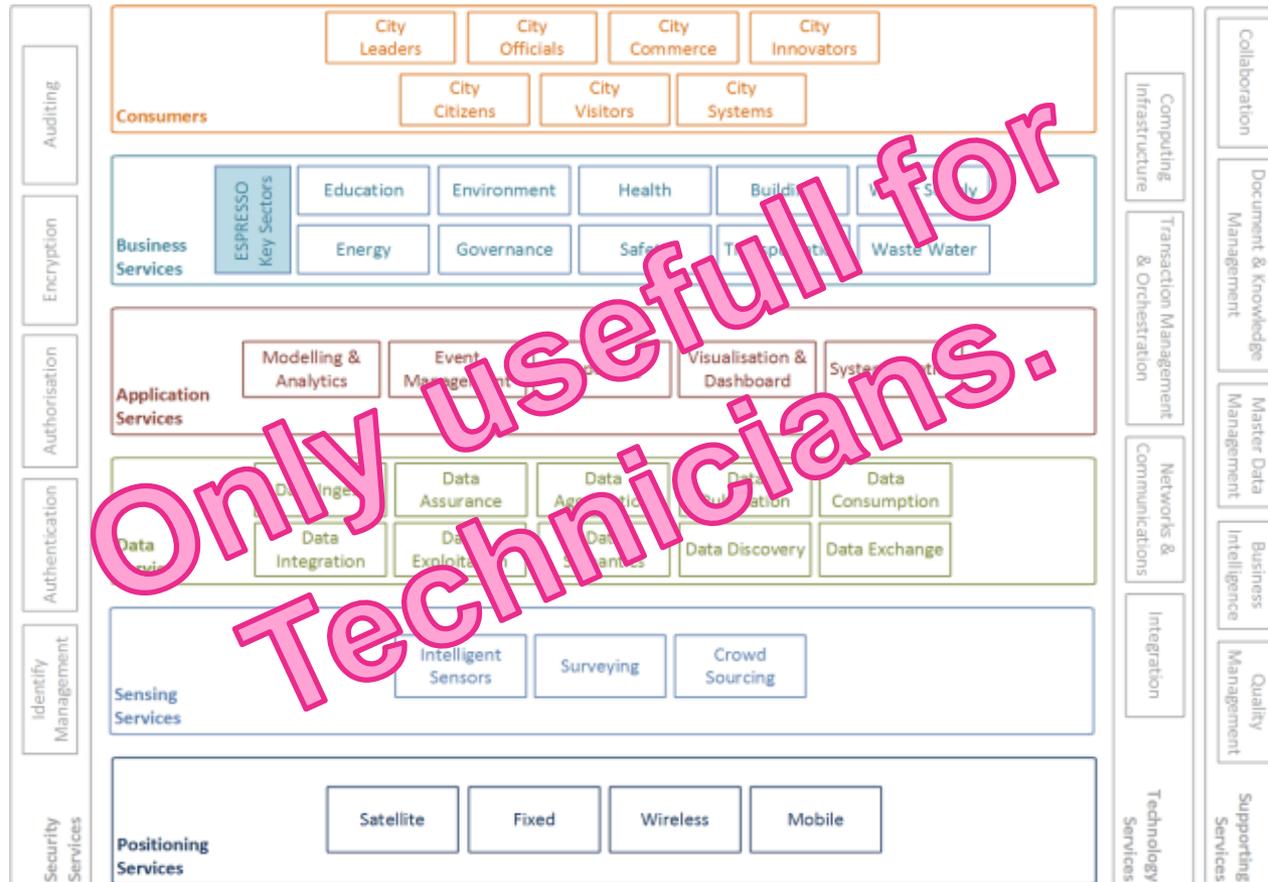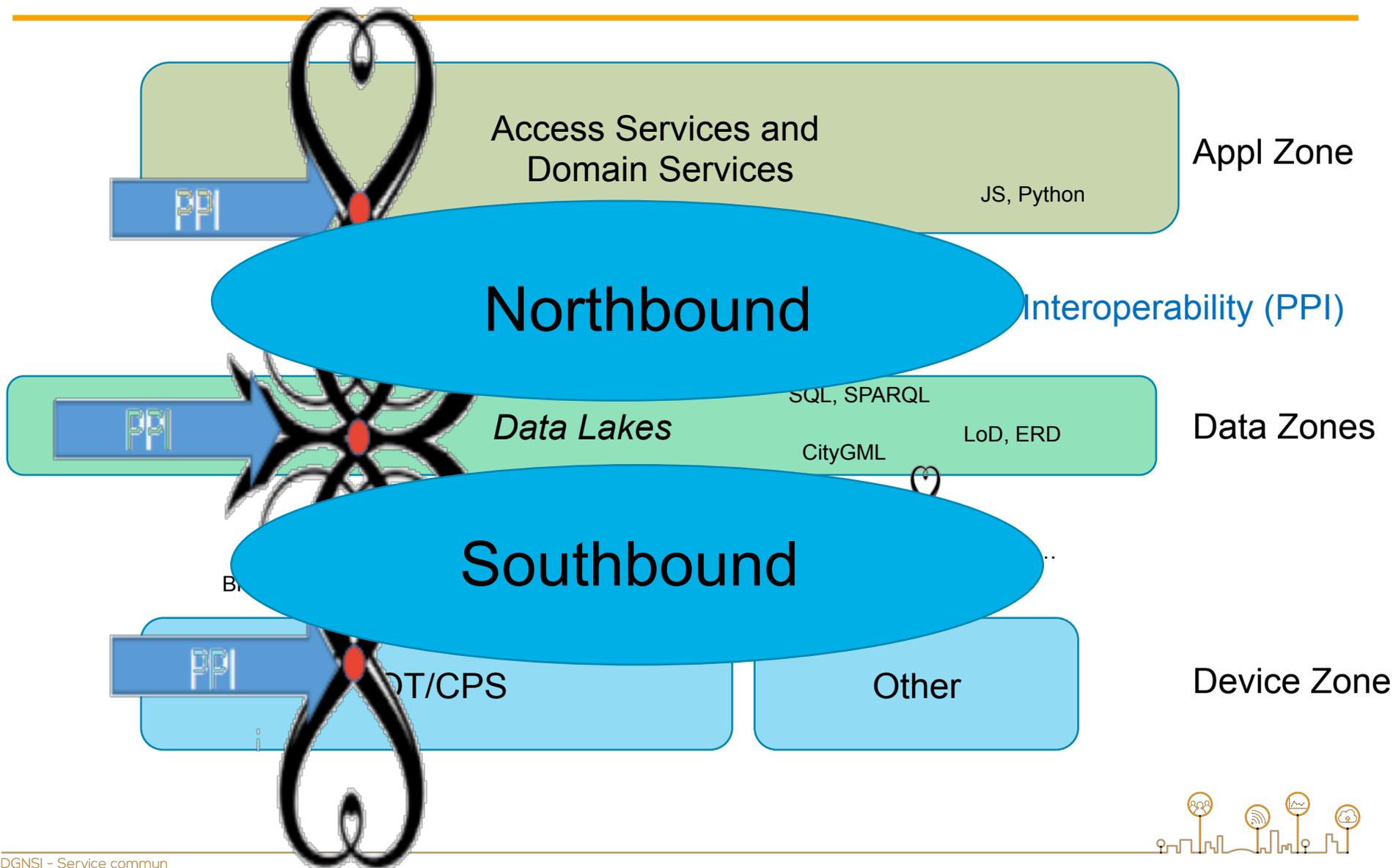
Information Systems Architecture
The MIM approach

From Pivotal Points of Interoperability to Minimum Interoperability Mechanisms

ESPRESSO
systEmic Standardisation apPRoach to
Empower Smart citieS and cOmmunities!

Access Services and
Domain Services

JS, Python

Appl Zone

Northbound

Interoperability (PPI)

PPI

SQL, SPARQL

Data Lakes

CityGML   LoD, ERD

Data Zones

Southbound

PPI

DT/CPS   Other

Device Zone

2018: OneM2M a glu to fix the southbound interoperability issues

Early 2017, Bordeaux launched a call to equip a Smart district located in the north of the city:

- 220 lamp posts

- EV chargers

- Street access control management

- Energy management in public buildings

- Water, gas, electricity meters

- Smart bins …

The procurement specified: **Sensors connectivity to IoT network has to be compliant with the OneM2M specifications release 2 published in september 2016 which describes a standardised API:** www.oneM2M.org

A first tangible outcome: « Smartlight »

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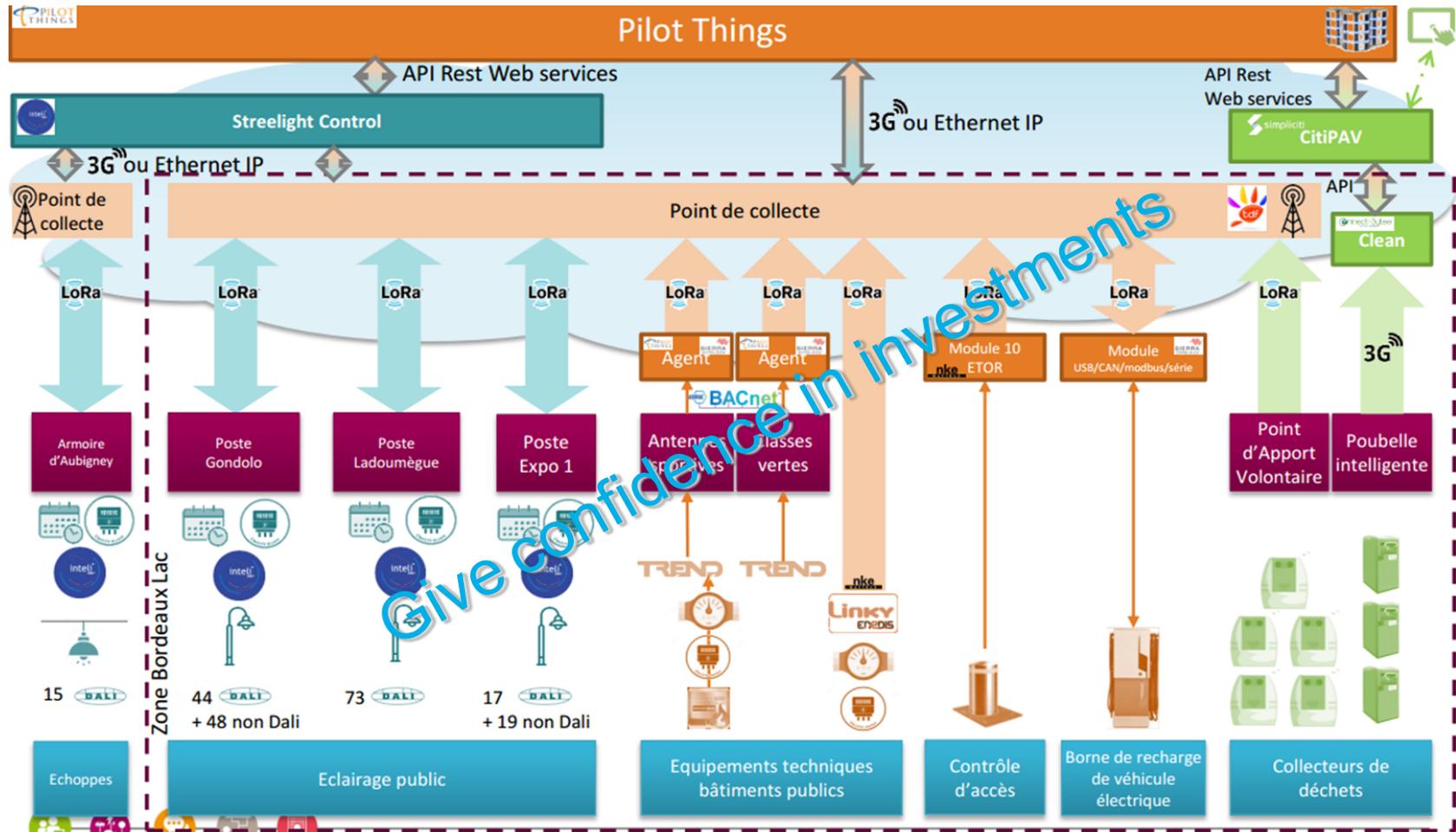

- The cheapest
- The best technical one and …

- **The only one compliant with OneM2M**

A first tangible outcome: « Smartlight »

2018: What about the northband ?
ETSI ISG CIM and NGSI-LD

Context Information Management: Joining Verticals
Information-centric with developer-friendly NGSI-LD

NGSI-LD Advantages
- information-centric
- JSON-LD syntax
- joining verticals

Machine Reasoning Systems

APPs   A.I.   APPs

Context Information Management Layer

User Apps   **IoT**   **Open Data**
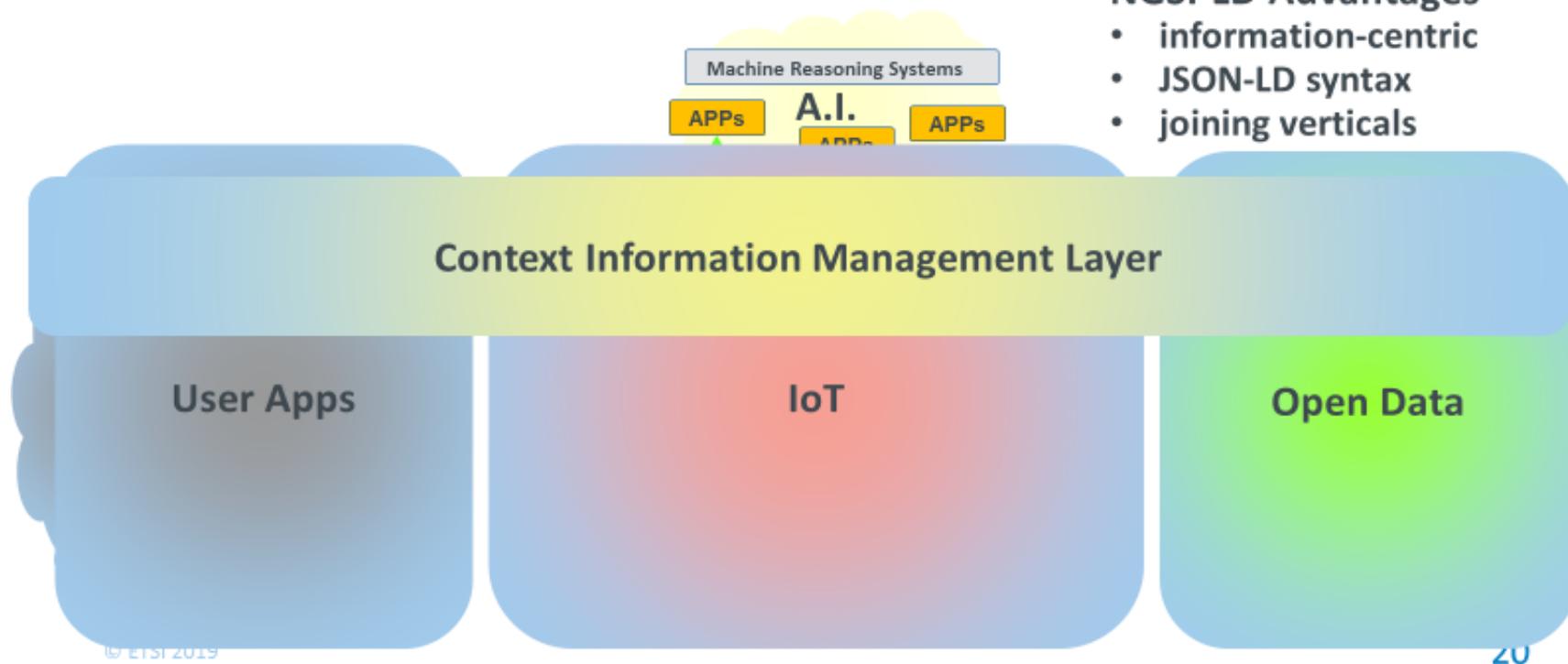
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2018: SynchroniCity H2020 LSP4 project

SynchroniCity represents the first attempt to deliver a Single Digital City Market for Europe by piloting its foundations at scale in 11 reference zones - 8 European cities & 3 more worldwide cities - connecting 34 partners from 11 countries over 4 continents. Building upon a mature European knowledge base derived from initiatives such as OASC, FIWARE, FIRE, EIP-SCC, and including partners with leading roles in standardization bodies, e.g. ITU, ETSI, IEEE, OMA, IETF,

SynchroniCity will deliver a harmonized ecosystem for IoT-enabled smart city solutions where IoT device manufacturers, system integrators and solution providers can innovate and openly compete. With an already emerging foundation,

SynchroniCity will establish a reference architecture for the envisioned IoT-enabled city market place with identified interoperability points and interfaces and data models for different verticals. This will include tools for co-creation & integration of legacy platforms & IoT devices for urban services and enablers for data discovery, access and licensing lowering the barriers for participation on the market.

SynchroniCity … http://cordis.europa.eu/project/rcn/206511_en.html

2019: ASAP-VALUE to close the loop
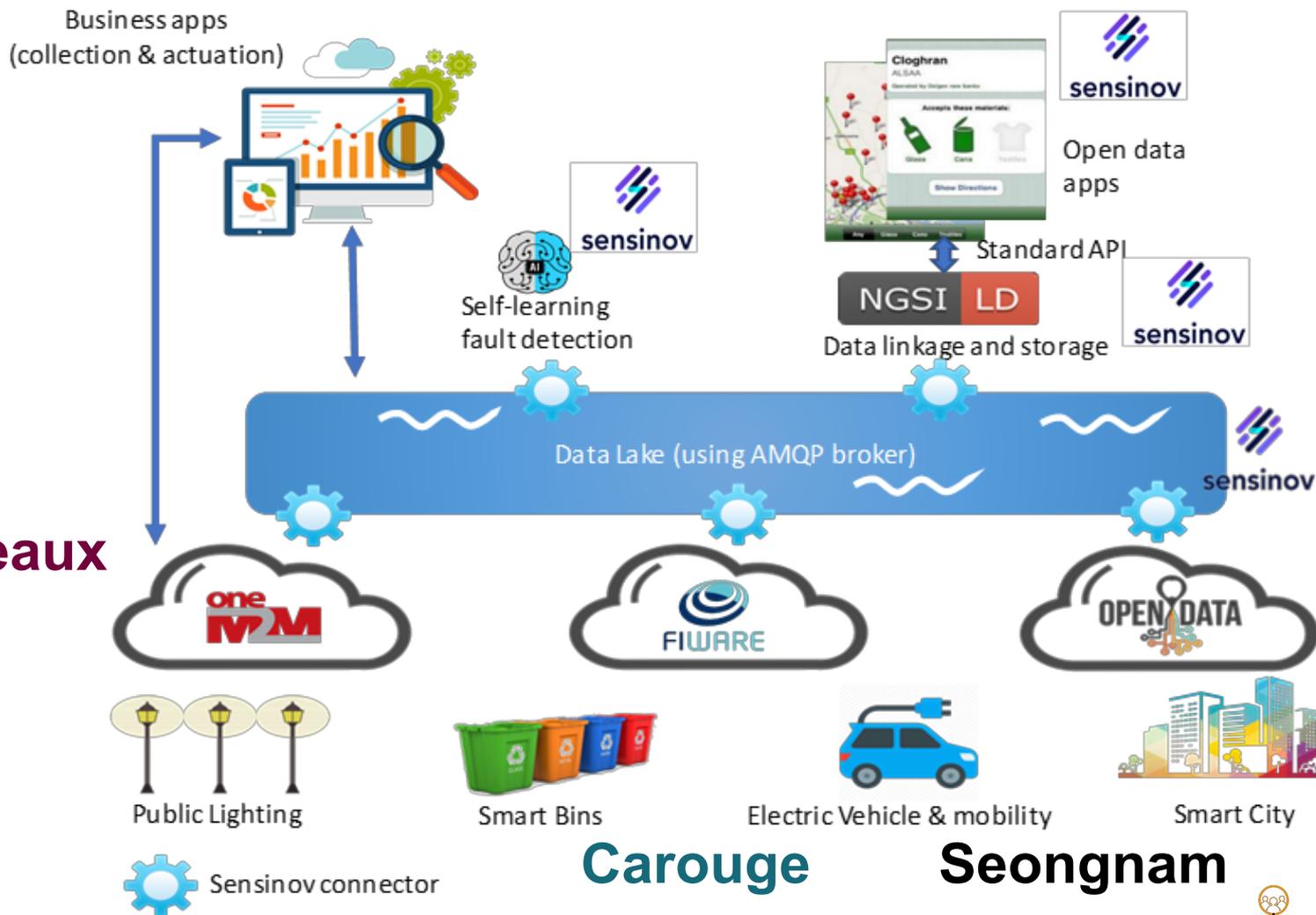
Bordeaux

Carouge

Seongnam

Thanks for your attention

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eG4U: General Secretary
ETSI ATTM SDMC Chairman
ETSI ISG CIM Vice Chairman

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