Connected Smart Cities Conference

“Tech track: emerging standards and mechanisms"

17 January 2019 – CSCC – The Egg Brussels
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“
• 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

Cities needs
Use cases

WG KSF
Eurocities for S&I

Providers

eG4u (users)

ETSI ATTM SDMC

ETSI ISG OEU/ISG CIM

European projects

Position papers
Technical specifications

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

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:
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/
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.
# STF 562 and Deliverables

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<tr>
<th>STF 562 Leader</th>
<th>Mike Gilmore</th>
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<tr>
<td>Experts</td>
<td>Flavio Cucchietti</td>
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<td>Eric Stern</td>
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## TC ATTM

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### Milestone A

- **16th JANUARY 2019**
- AGREEMENT OF SCOPES AND ToCS
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

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Key: Implement - Co-design - Validate
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)

Only usefull for Technicians.
Information Systems Architecture
The MIM approach

Access Services and Domain Services

Applicaton (Appl) Zone

Data Zone

Device Zone

Data Lake

IOT/CPS

Other
From Pivotal Points of Interoperability to Minimum Interoperability Mechanisms

Access Services and Domain Services

Appl Zone

Interoperability (PPI)

Data Zones

Data Lakes

LoD, ERD

CityGML

SQL, SPARQL

JS, Python

Northbound

Southbound

Device Zone

Pivotal Points of Interoperability (PPI)

LoRa, IP, 6LowPan

IP, REST, JSON, …

HTTP, MQTT

Bluetooth, ZigBee

CSV, …

OneM2M

SQL, SPARQL

CityGML

LoD, ERD

JS, Python

CityGML
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](http://www.oneM2M.org)
A first tangible outcome: « Smartlight »
A first tangible outcome: «Smartlight»

- 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

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
Thanks for your attention

Christophe COLINET
Smart City Project Manager
ccolinet@bordeaux-metropole.fr
Directorate General for Digital and Information System
Digital and Connected Territory Department

Eurocities KSF S&I WG Chairman
eG4U: General Secretary
ETSI ATTM SDMC Chairman
ETSI ISG CIM Vice Chairman

Tél: 0033 556 468 107