FAIR AND OPEN SMART CITIES - WHAT DOES THAT EVEN MEAN ????????

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Cutting-edge IT research and technology

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The Alexandra Institute is a non-profit company
that works with applied IT research.

Our mission is to merge research, innovation, IT and business
to create value, growth and welfare in society.

MY FAVOURITE MILESTONE

MIM	MIM Name	Interoperability Point	Description
1	**OASC Context Information Management MIM**	Context Information Management API	This API allows to access to real-time context information from different cities.
2	**OASC Data Models MIM**	Shared Data Models	Guidelines and catalogue of common data models in different verticals to enable interoperability for applications and systems among different cities
3	**OASC Ecosystem Transaction Management MIM (“Marketplace”)**	Marketplace API	The API exposes functionalities such as a catalogue management, ordering management, revenue management, Service Level Agreements (SLA), license management, etc. Complemented by marketplaces for services, hardware and training.
4	**Security**	Security API	API to register and authenticate users and applications in order to access services.
5	**Storage**	Data Storage API	This API allows to access to historical data and open data of cities.

MIMs 1-3 (indicated in the blue box blue) were adopted by the OASC Council of Cities on January 16, 2019.

The SynchroniCity reference implementation of the MIMs is offered to all cities, but it is not the only way to implement the OASC MIMs – some cities simply use their existing services, including data marketplaces, and other implementations will be created as part of the pilot phase.

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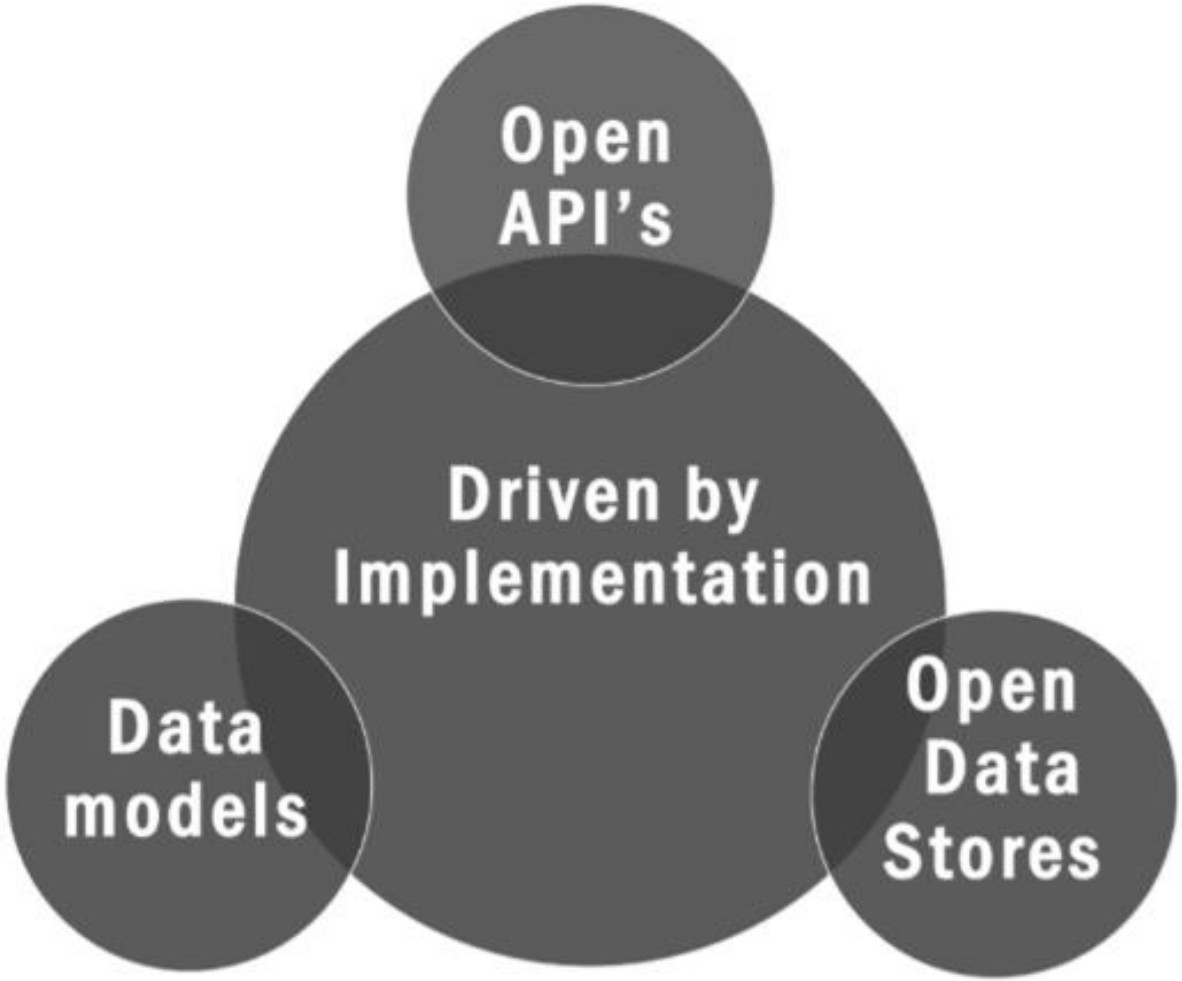
SYNCHRONICITY ARCHITECTURE 101



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ETSI ISG CIM (AKA NGSI-LD) CONTEXT INFORMATION MANAGEMENT

- NGSI-LD, an information model, representation format and open API intended to make it easier for end-users, IoT devices, open data sources and 3rd-party applications to exchange information.
  - The information model, grounded on RDF, leverages the Property Graph information model.
  - The representation format chosen is JSON-LD.
  - The open API has been defined using HTTP REST bindings.

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NGSI-LD

- “Next Generation Service Interface”
- Replaces NGSI v2
  - ETSI ISG CIM initiative
- Using JSON-LD
- Standardised metadata
- Relationship between entities
- https://fiware-datamodels.readthedocs.io


```
{
    "id": "urn:ngsi-ld:AirQualityObserved:RZ:Obsv4567",
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    "dateObserved": {
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        "value": {
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        }
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            "value": 0.95
        }
    },
    "refPointOfInterest": {
        "type": "Relationship",
        "object": "urn:ngsi-ld:PointOfInterest:RZ:MainSquare"
    },
    "@context": [
        "https://schema.lab.fiware.org/ld/jsonldcontext.jsonld",
        "http://uri.etsi.org/ngsi-ld/v1/ngsi-ld-core-context.jsonld"
    ]
}
```


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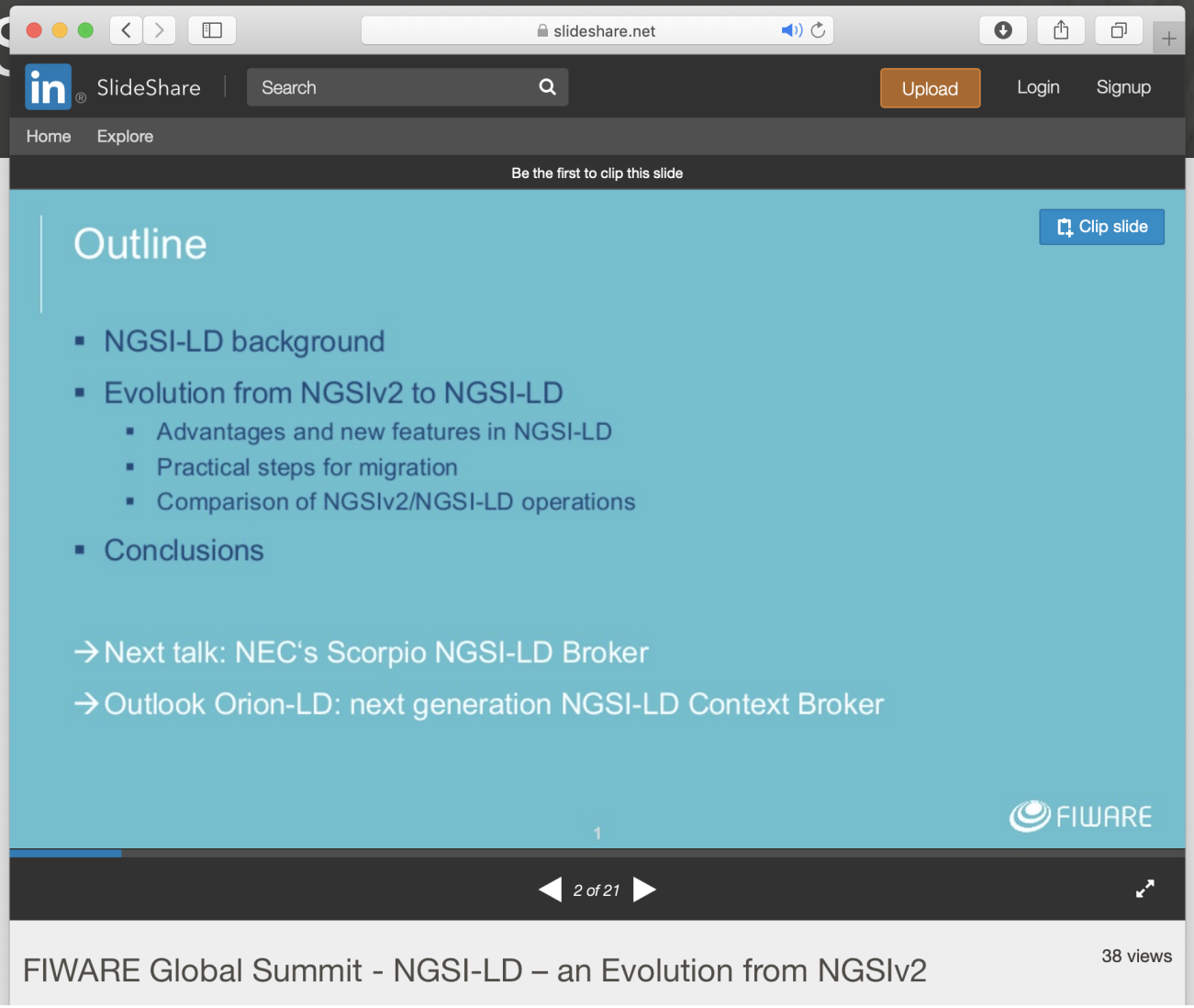
NGSI-LD VS

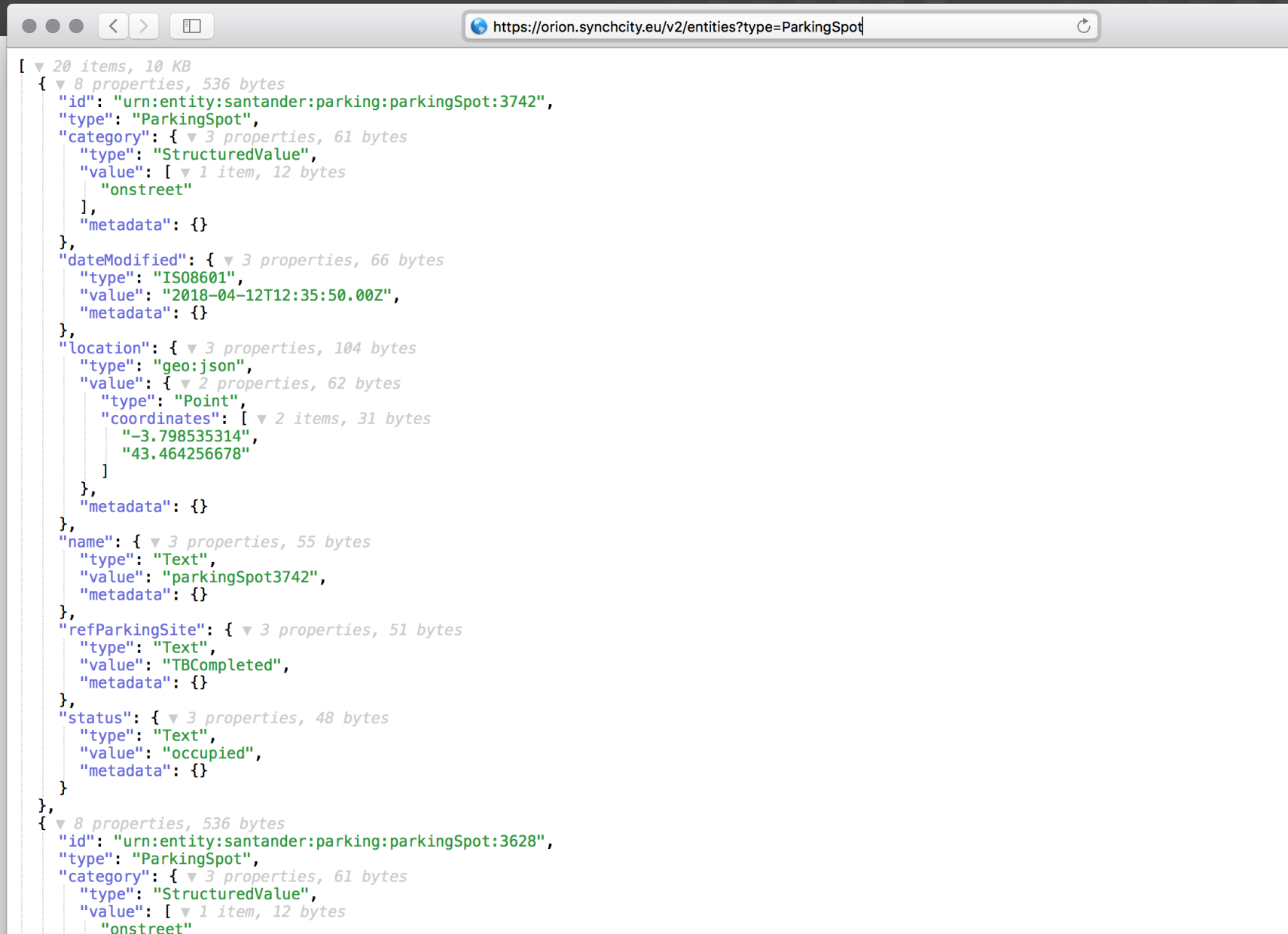


https://www.slideshare.net/FI-WARE/fiware-global-summit-ngsild-an-evolution-from-ngsiv2

https://www.itu.int/en/ITU-T/Workshops-and-Seminars/201901/Documents/Seongmyung_Jeong_Presentation.pdf

SYNCHRONICITY: EXAMPLES OF AVAILABLE DATA

- AirQualityObserved
- Beach
- BikeHireDockingStation
- BusArrivalEstimation
- BusStop
- BusLine
- Device
- GreenspaceRecord
- Museum
- NoiseLevelObserved
- ParkingSpot
- PointOfInterest
- PointOfInterest:shop
- TrafficFlowObserved
- WeatherObserved



synchronicity-iot.eu

SYNCHRONICITY

Home Cities Open Call News Events Docs About

CURRENT IMPLEMENTATIONS IN CORE PILOT CITIES

Data Type	Antwerp	Carouge	Eindhoven	Helsinki	Manchester	Milan	Santander	Porto
Noise Level								
Air Quality Data								
Public Transport Fleet Vehicles								
Municipality vehicles location and speed								
Cyclists								
Cyclists								
Points of interest (POIs) data								
City Event								
Traffic constraints								
ParkingSpot								

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NOT JUST FOR THE TOP5 – TOP10 – TOP20

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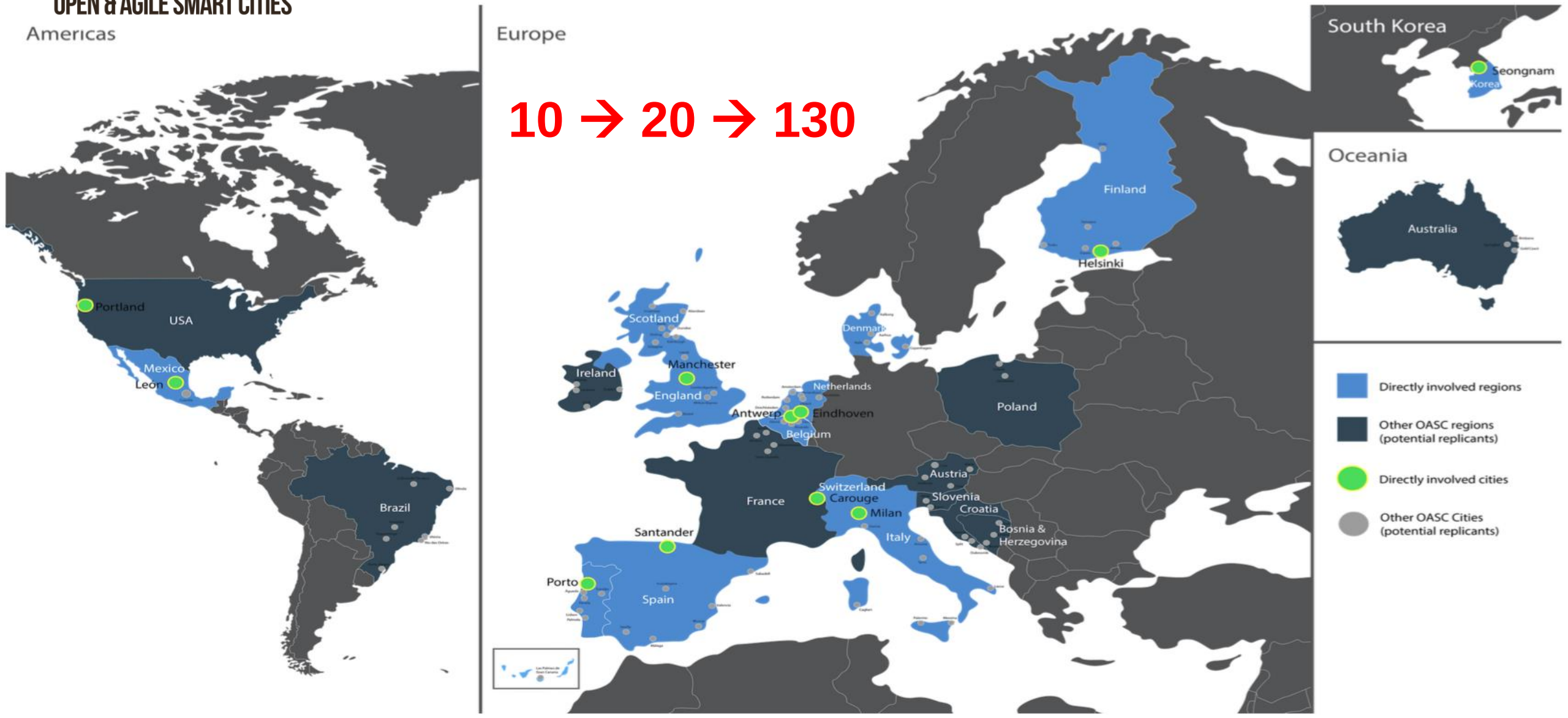
OPEN & AGILE SMART CITIES

IoT-enabled Urban Services - GLOBAL SCALE



FAIR AND OPEN SMART CITY ENABLERS

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DJANE.IO OPEN SOURCE IMPLEMENTATION OF NGSI-LD

- Open Source API to publish, request or subscribe to data and its context information
- Ease data sharing and integration addressing several facets of data: open and commercial data, usage information, AI, etc.
- Not linked to a particular IoT or data platform. It is designed to work with any platform.
- OSS is important to ensure time to market of interoperable products and support a true and sustainable data economy.

djane www.djane.io

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MAIN FEATURES

- Lightweight API (Web friendly)
- Supports any ontology
- Works with unstructured data
- Publish & Subscribe
- Advanced query (Sync & Async)
- Security & Privacy
- Temporal data
- Geo-spatial properties

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DJANE INITIAL DEPLOYMENTS

- djane is currently being deployed in the city of Bordeaux, Carouge and Seongnam in the context of Synchronicity H2020 project.

- djane will also be deployed in a large scale pilot: InterConnect aiming and convergence of IoT and energy services.

- djane press release: https://sensinov.com/press/2019/5/24/sensinov-announces-the-availability-of-djane-a-data-sharing-open-source

- Webinar (India-EU ICT standardization): https://www.youtube.com/watch?v=Oqo01d1ellA

BORDEAUX MÉTROPOLE

VILLE DE CAROUGE
Le bon côté de la ville

성남시
Seongnam City

SYNCHRONICITY

VICINITY 2020

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MULTIPLE IMPLEMENTATIONS

- Open Source base
- Example of NEC commercial implementation
  - Japan, India, Europe…

NEC \Orchestrating a brighter world

India

NEC Technologies India launches FIWARE based Integrated Command & Control Center for Smart Cities

New Delhi, India, 11 January, 2019- NEC Technologies India Private Limited (NECTI) today announced the launch of FIWARE based Integrated Command & Control Center for Smart Cities.

This solution will acts as the brain of cities, by interconnecting embedded sensors around city surveillance, intelligent transport management, solid waste management and parking management, to empower decision making through visualization and analytics for city authorities.

"This move is in line with our strategy to adopt FIWARE as a standard for Internet of Things (IoT) and Smart Cities applications and solutions in India,"

NEC \Orchestrating a brighter world

Global

NEC joins FIWARE Foundation as a platinum member

- Accelerating smart city and IoT-related business -

(from left) Mr. Ulrich Ahle, CEO of the FIWARE Foundation; Mr. Yasunori Mochizuki, Senior Vice President, IoT Strategy, NEC Corporation

Tokyo, March 17, 2017 - NEC Corporation (NEC; TSE: 6701) today announced that it has joined the FIWARE Foundation e.V., a non-profit organization promoting the dissemination of FIWARE technology (*1), as a platinum member. NEC is the first and only Japanese company to join the Foundation.

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