FIWARE successes in Smart Cities and Societies
Ulrich Ahle, CEO FIWARE Foundation
The new Digital Life will gravitate around Digital Twin / Context Information describing **What** is going on, **Where**, **When** and **Why**
Today data are very often organized in silos.

- Smart City
- Smart Water
- Smart Energy
- Smart Lighting
- Smart Transport
- Smart Home
- Smart Retail
- Smart Port
This is FIWARE!

- A framework of open source platform components to access and manage heterogeneous context information through open APIs.

- A standard for exchange of context information: **FIWARE-NGSI** (Next Generation Service Interface).

- Generic Enablers and Solutions to provide Smart Services with the **FIWARE Context Broker** as main component.
A complete Reference Architecture for Smart Cities
FIWARE: Standardization on a global scale

ETSI published on January 24th, 2019 "NGSI-LD" the new Context Information Management Standard API. The rationale is to reinforce the fact that this specification leverages on the ... FIWARE NGSIv2 to incorporate the latest advances from Linked Data.

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Joint Collaboration Program: **Front-runner Smart Cities**
- to support the adoption of a reference architecture and compatible **common data models**
- Using FIWARE NGSI and TM Forum Open APIs
- Smart City Common Data Models will be public and royalty-free
- Initial cities: Vienna, Nice, Genoa, Utrecht, Porto, Santander, Valencia, Gothenburg, La Plata, Montevideo

**Existing CEF Building Blocks so far:**
- eDelivery
- eInvoicing
- eID
- eSignature
- eTranslation.
Implementation of OASC MIM 2:
A joint effort for the definition of common data models

FIWARE Foundation collaborates with relevant national and international organizations to realize the definition of common data models for multiple application domains (e.g. Smart Cities, Smart AgriFood, Smart Energy, Smart Manufacturing).

Defined data models rely on well-established “de-facto” standards (e.g. schema.org, SHAREF or IEC CIM in Energy).
Yes!
Many cities are already Efficient and Open ….

… but there is still a journey to travel to be where they SHOULD BE
Juanjo, as a general comment suggest to start with this
https://drive.google.com/file/d/1VgDzbHWeGHJFbLv51MJ1eJ-Q0SNOICnN/view?usp=sharing

Angeles Tejado, 8. 07. 2020
FIWARE: supporting cities in their digital transformation journey

Exploiting Data across verticals
- Breaking information silos through shared context data space with standard API
- Enabling Overall City-level Governance Solutions

Collaborating towards a sustainable market
- Common Info Models
- Full interoperability between cities and within the city
- Enabling portability of solutions across cities

Supporting Open Innovation
- Right-time context info published as open data to third parties
- Authorization and access control (API management)

Enabling the Data Economy
- City as a platform including also 3rd party data enabling innovative business models
- Open and commercial data enabling multi-side markets

Implementation of OASC MIM 1
Implementation of OASC MIM 2
Implementation of OASC MIM 3
+170 Partner Offerings already on the FIWARE MARKET PLACE

- Powered by FIWARE
  - Platforms
  - Solutions

- FIWARE-ready
  - IoT devices
  - Software enablers

- FIWARE Services
  - Training / Coaching
  - Systems Integration
Goal: Give awareness to city managers about exploitable data breaking the technological silos.

Target customers: Smart cities, Data providers, citizens

Main features:
• Discover data sources from the web
• Federate heterogeneous data sources (e.g. sensors, legacy, open data, etc....)
• Measure the quality of data and promote exploitation
• Enable communication among sensors
• Analyze and render data through user friendly dashboards
• Fast reuse of dashboards and apps for different customers
Cloud City Operations Centre

- **Goal:** City gets sustainable and smarter by various “Solutions for Society” on Unified Data analytics platform for City
- **Target customers:** smart cities
- **Main features:**
  - Manage & monitor city resources
  - Customized implementation
  - Cross-sectoral Smart City Platform
  - Easy integration with other applications
  - Data Security
  - Friendly user interface
▪ A mayor’s challenge in Eindhoven:
  - Eindhoven is a safe city but …
  - at **Stratumseind** too many incidents are reported
  - can technology help to reduce the number of incidents?
Stratumseind

Data analytics on …
- Detect walking patterns
- Sound analytics
- Social media analytics

... results in predictive services for the police
Benefits:

- Crime rate reduced by more than 50%
- Police resources focused where they are really required
- Business owners have lower repair and clean-up costs
- Less need for hospital and medical resources due to fewer alcohol-related incidents
- More business and tourism attracted to the city due to a fall in negative PR
CEF Success Story: Provincial Platform in Badajoz for Smart Public Services Management

Real time flood-warning

- Goal: Real-time warning in flood situations
- Target customers: Citizens, companies, authorities
- Main features:
  - Connection of sensors, SCADA systems, port management system to the FIWARE Smart City platform in Montevideo
  - Real-time alerts to users via push services and social media
Development project: Early warning system for floods

- Objective: Reduce the effects of urban floods by means of predictive flood models
- Target customers: Citizens, companies, authorities
- Main features:
  - Use of sensor data, soil hydrological and meteorological models and hyperlocal data from Citizen Apps/Twitter/Facebook
  - Creation of prediction models
  - Early personalized alerts for users with further development of the alert strategy based on user feedback and priorities
  - Integration into the Smart City platform
- Goal: Biosurveillance platform to manage all COVID-19 related data
- Target customers: Politicians, general practitioners, occupational doctors, operators of healthcare organizations, crisis units
- Main features:
  - Collection of all COVID-19 related data
  - Real time information
  - Relation based services
  - Identification of clusters at risk and georeferenced informations
  - Creation of epidemiological simulations
  - High level of data security and access limitations
FIWARE adoption on a global scale: More than 200 cities and regions. Most of them are also OASC members.

150 cities 31 countries

- Common APIs: ✔ FIWARE NGSI to start with
- Standard Data Models
- Platform for Open Data
- Driven by implementation approach

### Australia
- Brisbane, Gold Coast, Ipswich, Logan and Moreton Bay Region

### Austria
- Graz, Linz, Salzburg and Vienna

### Belgium
- Antwerp, Brussels, Ghent and Leuven

### Bosnia and Herzegovina
- Mostar, Sarajevo and Tuzla

### Brazil
- Anapólis (Goiás), Colinas do Tocantins (Tocantins), Cuiaba, Garanhuns, Nova Friburgo, Olinda (Recife), Parnamirim, Porto Alegre (Rio Grande do Sul), Recife, Rio das Ostras (Rio de Janeiro), Taquaritinga (São Paulo), Uberlândia and Vitória (Espírito Santo)

### Croatia
- Dubrovnik, Rijeka, Sibenik and Split

### Denmark
- Aarhus, Aalborg, Copenhagen, and Vejle

### England
- Bistol, Cambridgeshire, Leeds, London, Manchester, Milton Keynes and Stoke-On-Trent & Staffordshire

### Finland
- Espoo, Helsinki, Oulu, Tampere, Turku and Vantaa

### France
- Amiens, Arras, Issy-les-Moulineaux, Saint-Quentin, Soissons and Valenciennes

### Germany
- Delbrück, Heidelberg, Kiel, Paderborn, and Wolfsburg

### Greece
- Katerini, and Trikala

### Hungary
- Kaposvár, Nagykanizsa, Miskolc and Szolnok

### Ireland
- Cork, Dublin, Galway and Limerick

### Italy
- Ancona, Cagliari, Genoa, Lecce, Messina, Milan, Palermo, and Terni

### Mexico
- Cuautla, León

### Netherlands
- Almere, Amersfoort, Amsterdam, Drechtsteden, Eindhoven, Enschede, Rotterdam and Utrecht

### Norway
- Bode, Gjøsдал, Fredrikstad, Larvik, Sandefjord, Stavanger and Trondheim

### Poland
- Gdansk, Grudziadz and Poznan

### Portugal
- Águeda, Fundão, Lisbon, Oliveira de Azeméis, Palmela, Penela and Porto.

### Romania
- Botosani, Iasi, and Suceava

### Scotland
- Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth and Stirling

### Slovenia
- Idrija, Novo Mesto, and Koper

### Spain
- Alicante, Guadalajara, Las Palmas de Gran Canarias, Málaga, Murcia, Sabadell, Santander, Sevilla, and Valencia

### Sweden
- Örebro, Skellefteå

### Switzerland
- Carouge and Geneva
The Advantages of an Open Source Platform like FIWARE for Smart Societies

- The basic software (Platform and Generic Enablers) is available for everyone, for free, forever
- A large open source developers community is maintaining and further developing the basic software components
- A large group of start ups and global corporate companies are providing smart solutions and smart services based on FIWARE
- Lowest cost of ownership for the end users
- Standard, public, and royalty free data models and open APIs are avoiding a 'vendor-lock-in-effect'
This is FIWARE

The open source platform technology for our smart digital future!