Open APIs for Open Minds

FIWARE - Fueling city's growth strategies toward smart economies

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FIWARE

The new Digital Life will gravitate around Context Information. Context Information which describe <u>what</u> is going on, <u>where</u>, <u>when</u>, <u>why</u> …

CITIES AND CITIZENS WANT TO SHARE DATA

WITHOUT REGRET

Interoperability
Data Exchange
»Sharing Economy«
Data Centric Services

Data Ownership
Data Security
Data Value

DATA SOVEREIGNTY

is the ability of a natural or legal person to determin and technically enforce what someone who gets access to her/his data is allowed and able to do with the data.

INTERNATIONAL DATA SPACES ASSOCIATION

THE IDSA DEFINES...

1 *Reference Architecture*

2 *Interfaces (IDS Connector)*

3 *Contractual Framework*

4 *Sample Code*

...FOR AN OPEN DATA-ECOSYSTEM.

INTERNATIONAL DATA SPACES ASSOCIATION

DATA
AN ECONOMIC ASSET

Trading with data creates huge revenues for some focal companies in an ecosystem (so called hyper scaler), which tend to assume monopolistic attitudes.

Rarely, the creators of data are benefitting from this value in an adequate way.

Companies do not take advantage of the value.

Making data economy really a success, there is a need for a …

- *vendor independent data eco-system and market place*
- *connecting vendor-specific platforms*
- *open to all*
- *at low (transaction-) cost and*
- *easy to adopt and easy to use.*

GAIA-X will create a virtual hyper scaler based on European values using IDSA ingredients

Taking European values as staring point GAIA-X is guided by the following principles:

1. European data protection
2. Openness and transparency
3. Authenticity and trust
4. Digital Sovereignty and self determination
5. Free market access and European value creation
6. Modularity and interoperability
7. User-friendliness

Source:
German Ministry for Economic Affairs and Energy

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Today data are very often organized in silos

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**
- **An open source based implementation of IDSA concepts**

FIWARE: Standardization on a global scale

FIWARE Context Broker Technology has been chosen in 2018 as new CEF (Connecting Europe Facility) Building Block by all European member states.

Existing CEF Building Blocks so far:

- **eDelivery**
- **eInvoicing**
- **eID**
- **eSignature**
- **eTranslation.**

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

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.

A complete Reference Architecture for Smart Cities

FIWARE: supporting cities in their transformation journey

0 — 1 — 2 — 3 — 4

Becoming truly Smart

- 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

CEF Success Story: Provincial Platform in Badajoz for Smart Public Services Management

https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/2019/04/25/Badajoz+Is+More+-+the+journey+to+become+a+smart+province

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Atos City Pulse

- 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?

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Atos City Pulse

Stratumseind

Data analytics on …

- Detect walking patterns
- Sound analytics
- Social media analytics
-

… results in predictive services for the police

Atos City Pulse

Benefits:

- Crime rat reduced by more than 50%
- Police resources focussed 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

Open & Agile Smart Cities: Adoption on a global scale

140 cities
26 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), Cuiába, 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
Bristol, 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, 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
Bodø, Gjesdal, 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

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PAC Radar: FIWARE – The leading open source based IoT platform technology in Europe (September 2018)

teknowlogy | PAC

PAC RADAR
IoT Platforms
in Europe 2018

RADAR
IT SUPPLIER ASSESSMENT FROM PAC

FIWARE as the only Open Source based IoT platform technology ranked as ‚Best in Class‘

…
Today market research and strategic consulting company PAC has published the PAC RADAR IoT Platforms in Europe 2018. It is the biggest market analysis of the vendor landscape around all kinds of IoT platforms. PAC screened more than **120 platforms**, evaluated 43 of them in seven different segments and through this approach identified the best-in-class providers in different areas. **Across all seven segments only 12 players achieved a “Best in Class” ranking**: AWS, Bosch Software Innovations, **FIWARE**, GE Digital, Harman, IBM, Itron, Microsoft, PTC, SAP, Siemens and Software AG.
...
IoT platforms for smart cities are designed to cover all kinds of use case around the efficient use of existing city infrastructures and the delivery of the collected data to many different users across the city. **Leading providers in this space are FIWARE and Itron**, but the Urban Software Institute, too, has a very high competence here.
…

FIWARE

The Advantages of an Open Source Platforms like FIWARE for Smart Cities

- 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
- Data Sovereignty in it’s DNA
- Standard, public, and royalty free data models and open APIs are avoiding a ’vendor-lock-in-effect‘

This is FIWARE

The open source platform techno-logy for our smart digital future!

Thank you!

Visit us at booth #421

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