



SYNCHRONICITY

IoT Large Scale Pilot for Smart Cities

Connected Smart Cities

Brussels, 11th January, 2018



European
Large-Scale Pilots
Programme

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 732240





SYNCHRONICITY

- SynchroniCity is a genuine attempt to start building a Digital Single Market for IoT-enabled Smart City solutions where IoT device manufacturers, system integrators and solution providers can innovate and openly compete.
- SynchroniCity established a reference architecture for the envisioned IoT-enabled City platform with identified interoperability points and interfaces and data models for different verticals, including tools for co-creation & integration of legacy platforms.
- Piloting its foundation in 8 Reference Zones (RZs) in Europe



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- 34 partners, 11 countries, 33 months.
- Budget: 20m€ (15m€ EC) / 3m€ for open calls.
- Core cities: Antwerp (BE), Eindhoven (NL), Helsinki (FI), Manchester (UK), Milan (IT), Porto (PT), Santander (ES), Carouge (CH).
- Linked cities: León (Mexico), Seongnam (Korea), Portland (USA).
- Leveraging: OASC, AIOTI, EIP-SCC, FIWARE, FIRE.



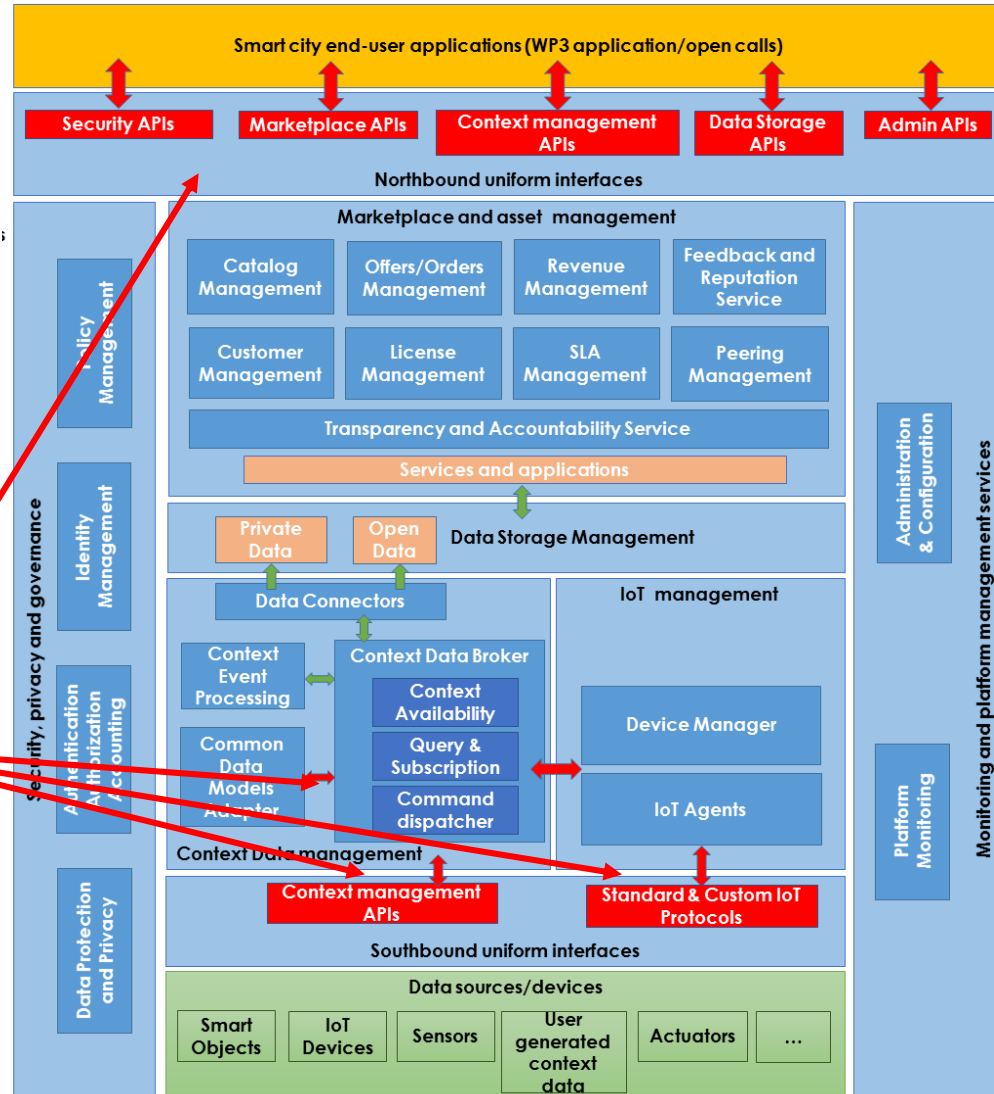
SYNCHRONICITY

- Principles driving the implementation and integration of the Synchronicity architecture in each RZ:
 - RZ should "enter" in Synchronicity ecosystem with the **minimum possible effort**
 - RZ can access to Synchronicity with **different level of maturity** and compliance
 - RZ are not obliged to change their existent system/services, integration **has to be modular and decoupled**
 - RZ are **not obliged to adopt specific technologies**. The focus is on API interfaces rather than concrete implementation
- One of the key concept of the architecture is the definition of interoperable points

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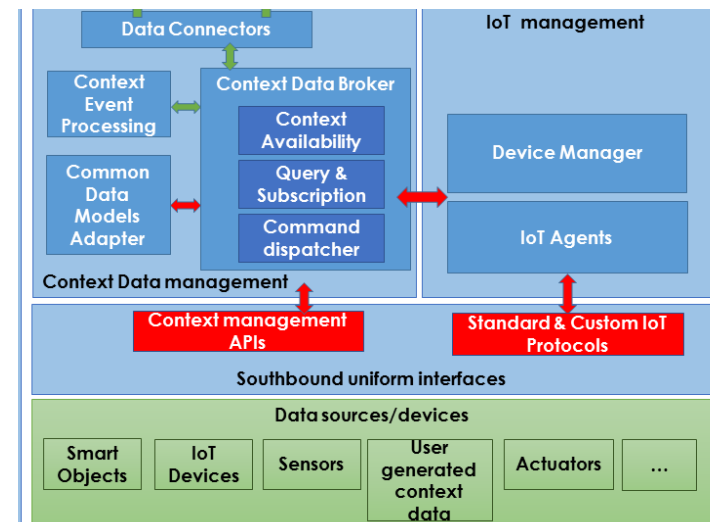
SynchroniCity Reference Architecture

Interoperability points



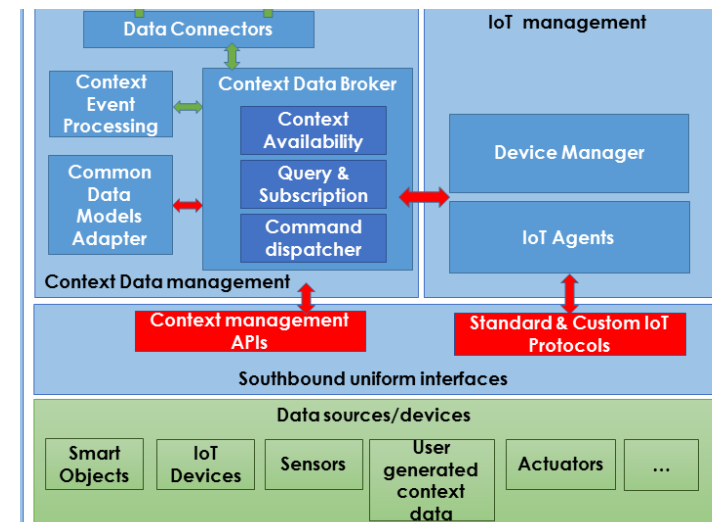
Interoperability points: Southbound – Context Management interfaces

- It is a standard way to communicate with the Context Data Management module that manages all the context information coming from IoT devices
- Implementing this API the RZ can share/publish their (real-time) data to SynchroniCity in order to be accessed by other application and services in a standard way without dealing with different device protocols
- The implementation of the API can be realised using several approach depending the specific deployment of the RZ.
- Synchronicity introduced in its architecture the IoT Management module as a mediator to enable/foster this integration with existing IoT infrastructure



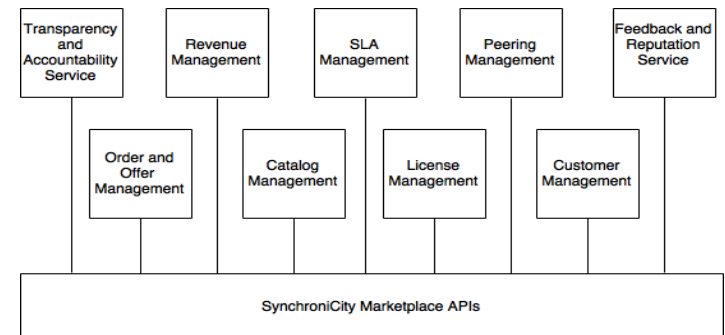
Interoperability points: shared data models

- The SynchroniCity framework will use a set of standard data models containing terms to use in the representation of context entities
- The use of common data models is fundamental to achieve a semantic interoperability among different entities in the RZ
- Common Data models will be defined for each domain related to the data provided by RZ (mobility, energy, environment etc..)
- Synchronicity architecture include the Common Data Models Adapter that will be in charge of converting the existing data representation and providing an editor to create data model mapping



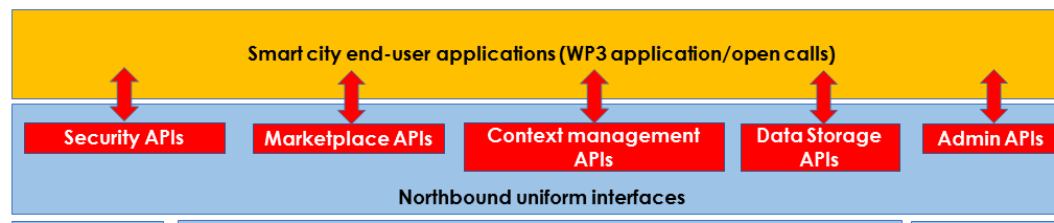
Interoperability points: Marketplace

- SynchroniCity provides a set of APIs aimed to lower the barriers for data sharing, while increasing the trust of data consumers and providers.
- The marketplace APIs provide a hub to enable digital asset exchange for urban data and IoT capabilities.
- Marketplace will provide digital asset catalogue, monetisation functionalities to buy, access and monitor resource usage
- Digital asset can be dataset or application and services that are compliant with the synchronicity specifications

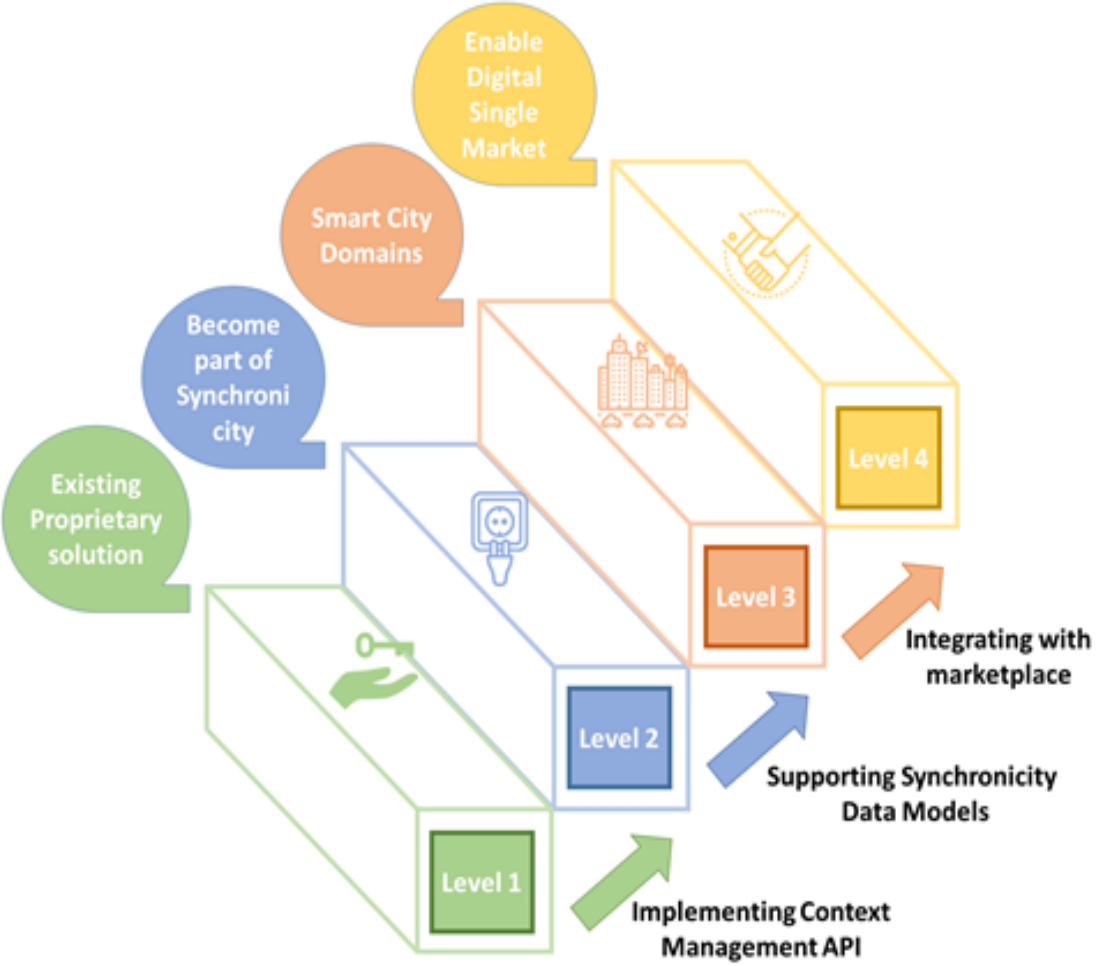


Interoperability points: Northbound API

- set of APIs that provides all the platform functionalities that will be used by the final Smart city end-users applications.
- this layer can be considered an interoperability point, because it is the main way, for external applications, to interact with the platform and to be part of the digital single market that will be technically enabled by SynchroniCity.
- The applications will be able to access to the RZ data with the same API and the same data models enabling their reuse in different cities



D2.1: SynchroniCity interoperability points & compliance levels



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