BACKGROUND DOCUMENT

for the

Open & Agile Smart Cities

collaboration initiative

This document contains a brief motivation and clarification of the Open & Agile Smart Cities initiative, complementing the Letter of Intent. It contains the main motivations for the initiative as well as some guiding principles and answers to frequently asked questions.

Motivation

Cities across the globe are looking for ways to spur open innovation. The reason is simple. Innovation is needed to overcome the digital transition of cities and communities, and it has to be open for two reasons: First, it must be open to include a variety of stakeholders, because services are increasingly connected to other systems and co-created with stakeholders outside the old verticals, and second, it must help to establish a competitive but attractive enough market for developers, thereby driving down cost, increasing quality and avoiding vendor lock-in and monopolisation.

Seen from a developer's perspective, one city is not a market. A number of countries or a continent is a sizable market. But global de facto standards for portability and interoperability are the only way to create a true global market for smart city services. In such a market, developers can start investing and specialising with an outlook of sustainable business models in public-private innovation partnerships.

Mechanisms

The Open & Agile Smart Cities (OASC) initiative aims to kickstart the use of a shared set of ways to develop systems once for multiple cities and make them interoperable between cities, and within a city. Simple, functional, minimal de facto standard ways of accessing and exchanging data have the potential to take smart city innovation beyond the limits of the current chicken-and-egg situation where no systems can scale and spread because there are no standards, and there are no standards because there is no widespread deployment.

As such, the initial proposed mechanisms are neither exclusive nor singular. For a city, it means that it is possible to implement the proposed mechanisms on top of and in addition to existing systems or future systems to be procured, without being intrusive in their internal architecture. Consequently, the cost associated with the implementation is very limited and the flexibility is high. On the other hand, security, safety and stability can be handled within existing procedures and reaching required levels in a publicly-facing production environment.

The specific mechanisms proposed are pragmatic and simple, intended to be powerful enough to support the exchange that is needed, yet simple, so that they do not create a considerable overhead in terms of resources, and based on free licenses, so that they do not tie city development to a specific vendor or technology.

The mechanisms, mentioned in the Letter of Intent, are: a driven-by-implementation approach, an initial, open API, an initial set of open data models and an open data/API publication platform. Furthermore, all data must be released with free licenses.

Approach: The adoption of a driven-by-implementation approach is the cornerstone of the OASC initiative. As opposed to design-by-committee approaches, the goal is that communities and developers can (1) co-create their services based on basic but commonly-defined APIs and data models, (2) influence the definition of new models by implementing and experimenting, and (3) help "curate" and evolve adopted APIs and data models based on results of implementation and actual usage. This will mean engaging organisations and communities, leveraging relevant initiatives, e.g. startups/SMEs selected through the FIWARE Accelerator Programme (projects focused on Smart Cities), the OrganiCity Experimentation-as-a-Service facility and open calls, Code for Europe and/or other relevant programmes, including national networks, that may help to engage wider communities of stakeholders and developers. It will also mean leveraging the FIWARE Lab, OrganiCity facility etc. as joint, major hubs for experimentation with the proposed APIs, data models and open data/API publication platform.

API: Within the OASC initiative, the FIWARE NGSI API[1] is adopted as a first open-license standard API targeted to provide the basic artifact for portability and inter-operability of smart city solutions. This API provides a lightweight and simple yet powerful means to gather, publish, query and subscribe-to in-time context information describing what is going on in a city. This information can be updated or accessed by the systems within a city dealing with the management of city services or from third-party applications when the information is publicly exposed. Integration with those systems and third-party applications is low cost and is not intrusive in their respective architectures. The FIWARE NGSI API supports the definition of procedures to control in-time access to data, including definition of different repositories and separate end points for different datasets when necessary, in order to preserve security and privacy requirements. It also comes with means to record historic context information that can be analyzed to extract useful insights that may help to introduce measures for the improvement of city services or the creation of new innovative services to citizens. Additional open standard APIs may be supported by the OASC initiative, but as far as their usage implies updates to the status/context of the city, those updates will become accessible using the FIWARE NGSI API.

Data model: The FIWARE NGSI API is agnostic to data models, therefore full portability and interoperability is achieved through the definition of standard city data models. Following the driven-by-implementation approach of the OASC, a first set of data models are adopted based on results of the CitySDK project[2]. Further curation of these data models can take place based on feedback from actual usage or experimentation. The combination of the FIWARE NGSI API and standard data models maps to the concept of City SDK for developers.

Platform: Last but not least, the OASC initiative goes for the adoption of an open, flexible and easily-distributable open data/API publication platform which any organisation can set up at a low cost if it is not already being used. Specifically, CKAN[3] will serve as the base standard platform for publication of static file datasets or NGSI API query resources. CKAN is already integrated and extended as part of the FIWARE Reference Architecture with add-ons easing the integration of NGSI-based dataset queries and the support to implement access control procedures when required.

The purpose of free licenses for data is two-fold: First of all, data is not free if there are no licenses attached, because with out a license, third parties cannot know the limits of use, commercially or otherwise, and hence risk unintended liability. Second, since the whole idea of open innovation is to share and pool data, if data were not shared, cities would not have control over the vast shared resource such a data pool would become.

Procedures

In order to join the first wave of Open & Agile Smart Cities initiative, presented at CeBIT 2015 (March 16-20), 2-6 cities from a country must, individually or as a network, do the following:

- State that they will sign the Letter of Intent no later than February 28, 2015 and return it signed no later than March 10, 2015.
- Back up their signing by pointing to specific current or future commitment to implement the mechanisms of the initiative within one year, e.g. by documenting the following:
    - a policy or plan in which the implementation will be included (e.g. a city open data initiative),
    - a tender which includes the implementation as a requirement,
    - a grant proposal which includes the implementation,
    - a similar concrete commitment.

More cities may join subsequently.

The initiative is overseen by the Connected Smart Cities Network Board, effectively by the Open & Agile Smart Cities Task Force, who will handle all requests and communications, and make the current and coming list of Open & Agile Smart Cities publicly available. The OASC Task Force consists of one national representative from each OASC country or territory, chosen among the active OASC cities in that country and three members appointed by the Connected Smart Cities Network Board. The Task Force can be supplemented by Expert Groups who are responsible for developing the OASC mechanisms further.

On behalf of the Connected Smart Cities Network Board,

Martin Brynskov, Chair
Jarmo Eskelinen, Vice-chair
Juanjo Hierro, member

[1] NGSI: http://wiki.fiware.org/FI-WARE_NGSI_Open_RESTful_API_Specification

[2] CitySDK: http://www.citysdk.eu

[3] CKAN: http://ckan.org