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OPEN & AGILE SMART CITIES

Representing over 150 cities in 30 different countries

SALAR principles and MIMs

A lot in common



Both initiatives are using city knowledge to build practical tools and guidance for cities.



Both are focused on enabling data driven innovation



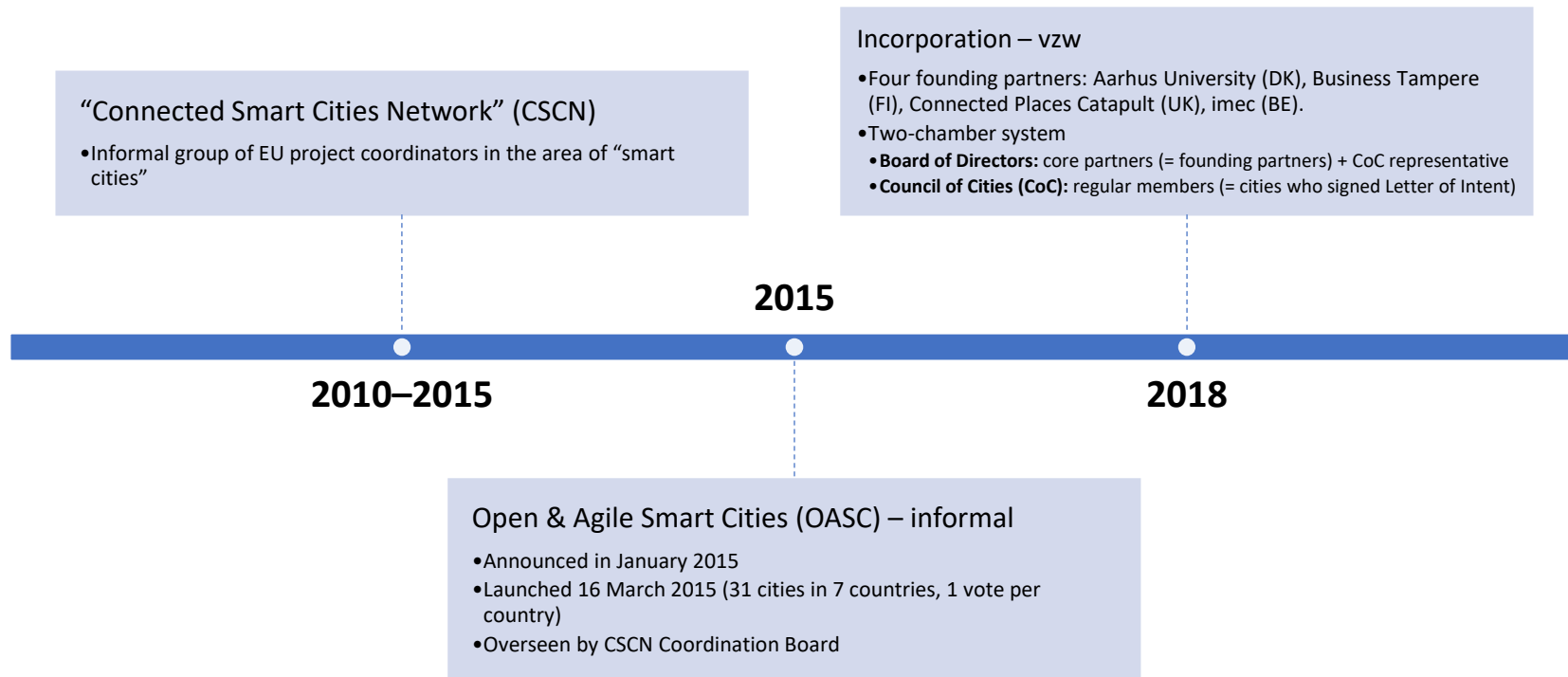
There is a complementary focus



There is a different structure, so it will be a challenge to integrate – but that can lead to useful learning

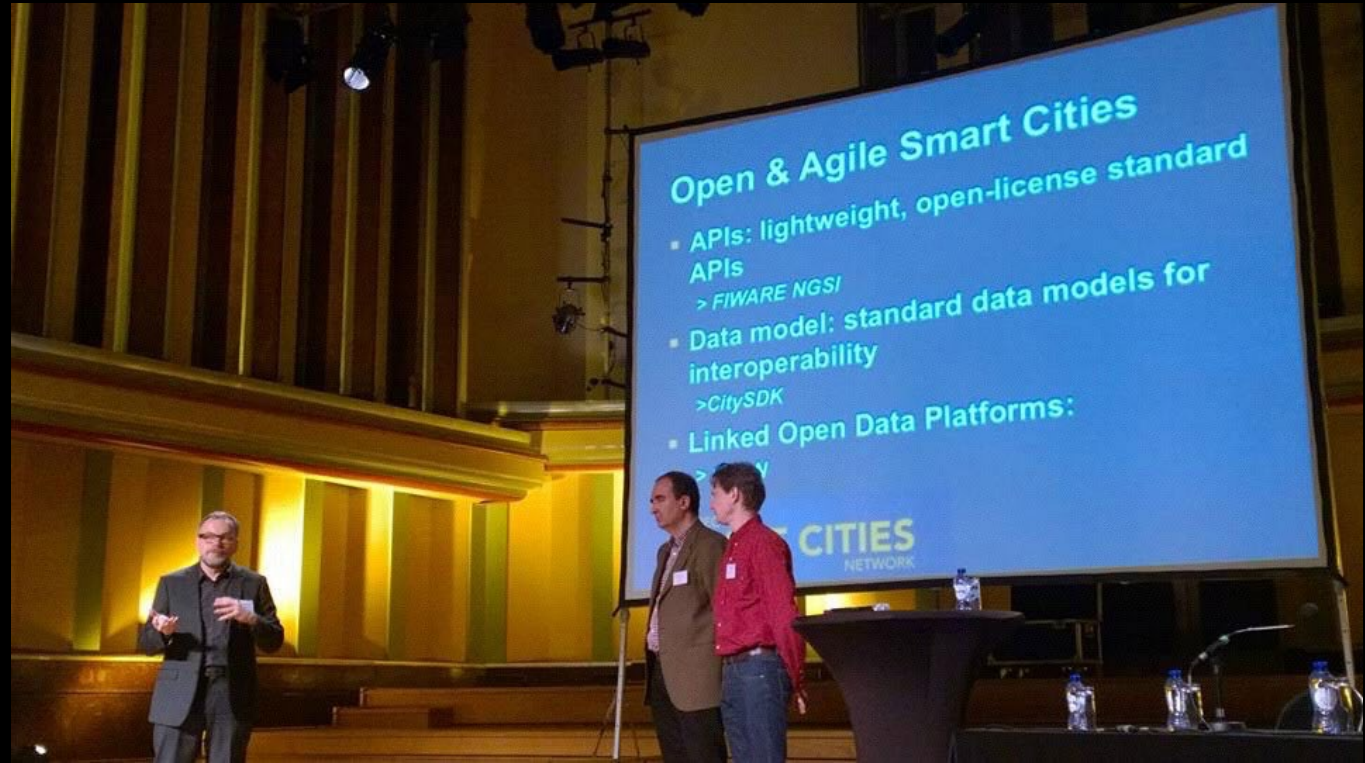


Brief history of OASC



OASC
announced
January
2015
Flagey, Brussels

Based on a set
of basic
interoperability
tools to support
data sharing



Our cities



Interoperability in data sharing

- **Interoperability** is one of the main challenges – and opportunities – in the development of smart sustainable cities and communities.
- The goal is to develop platforms which can allow key stakeholders including governments, businesses, knowledge institutions and citizens to communicate and work together across domains and support the development of scalable markets in smart city products and services.
- ITU defines **minimal interoperability** as: *The minimal sufficient degree needed to meet a certain requirement for data sharing, use and reuse* (ITU-T, 2019). It is an approach to establishing a set of modular mechanisms across multiple application domains and geographic territories, without having to specify everything in complete detail, and without requiring complete implementation of and compliance to the entire framework.

Why “Minimal”?

- Complete interoperability would require compliance with a large number of detailed standards – only possible for cities with significant resources.
- Minimal Interoperability is needed to enable the many small and medium sized cities and communities and those with limited resources to benefit from an open market.

Minimal Interoperability Mechanisms

Sufficient interoperability to allow:

- “Good enough” integration of systems
- Development of a viable market – cutting costs, minimising risk and preventing vendor lock-in

Minimal to ensure:

- no unnecessary complexity or time-to-implement
- Aim for cost for cities to implement (staff time, software, hardware) to be less than, say, €50,000

Clearly defined mechanism so that:

- It is easy to determine if a product or service is compliant
- It is easy to determine the steps to implement

The questions that the MIMs address

What are the sets of minimum capabilities needed for a city or community to set up an effective data-sharing ecosystem in a way that can be aligned with national and regional policies?



What are the minimum sets of specifications needed to address each of those capability sets that:

Will ensure that those capabilities are delivered

Will allow sufficient flexibility to allow different ways of delivering them

Will ensure that all the range of possible compliant solutions will be interoperable, or easily made interoperable

The 3 foundational MIMs

To set up a basic data sharing ecosystem a city needs to:

- Make it easy to find and use data from wherever it is hosted throughout the city – MIM 3
- Ensure that all entities used in datasets/streams are described using consistent and machine-readable data models – MIM 2
- Ensure that context data can be linked appropriately in datasets/streams – MIM 1

The MIMs – sets of specifications supporting all aspects of a local data ecosystem

MIM	Subject	Name	Status
MIM1	Context	Context Information Management	Governance
MIM2	Data Models	Shared Data Models	Governance
MIM3	Contracts	Ecosystem Transactions Management	Capability
MIM4	Trust	Personal Data Management	Capability
MIM5	Transparency	Fair Artificial Intelligence	Capability
MIM6	Security	Security management	Work item
MIM7	Places	Geospatial information management	Work item
MIM8	Indicators	Ecosystem indicator management	Work item
MIM9	Analytics	Data Analytics Management	Work item
MIM10	Resources	Resource Impact Assessment	Work item

Plus an overarching Architectural Framework



The state of the MIMs

- MIMs 1. 2 & 3 are already being specified by cities in procurements. They just need some polishing work.
- We have just started 3 Working Groups to develop MIMs 4, 5 & 7
- The aim is to get these to the stage where they can be tested within 6 months and then ready for roll out in another 6 months
- So – in 6 months we start work on the next three MIMs
- In the meantime we will be refining our reference architecture

The Architectural Framework

A local data ecosystem needs to be based on open APIs.

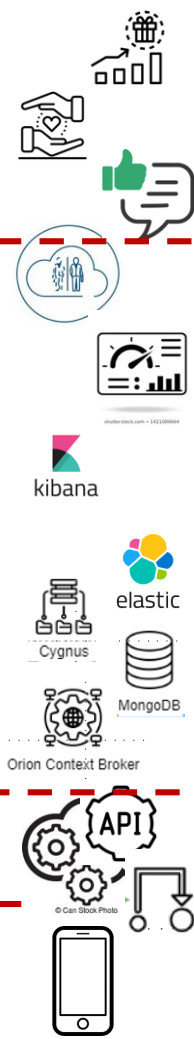
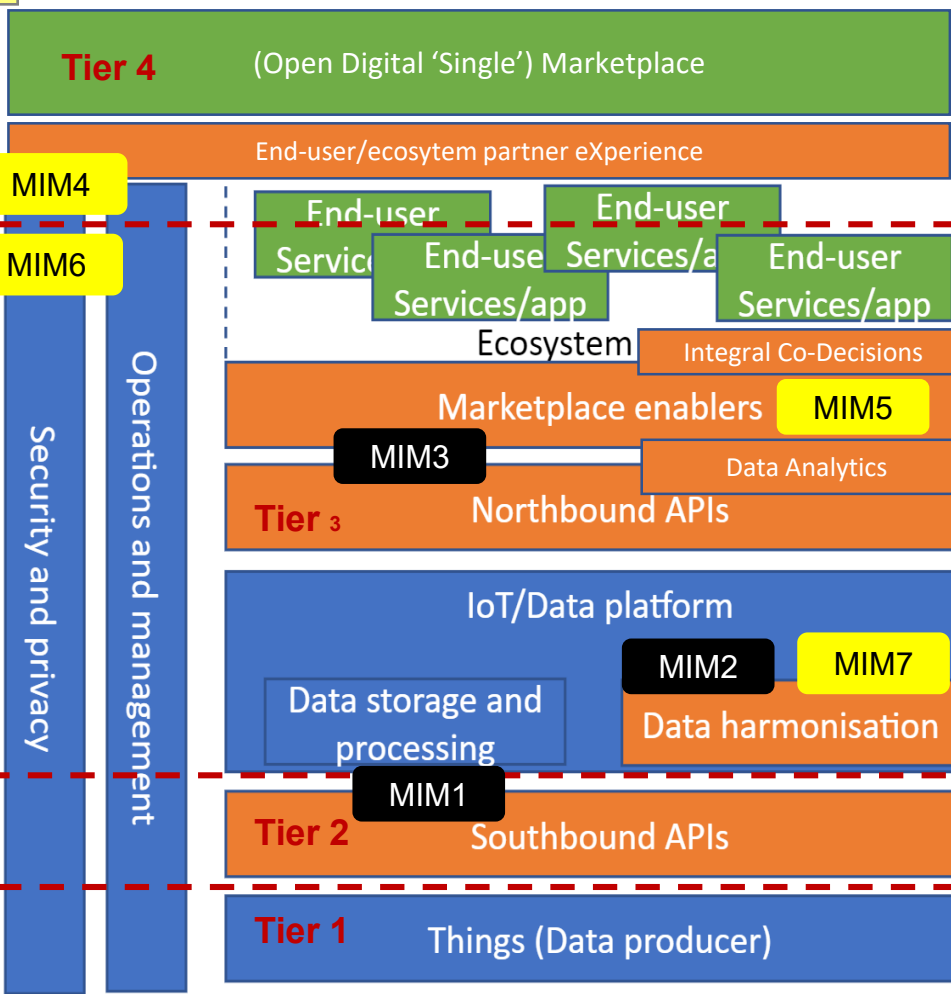
A city therefore needs to implement an architecture supporting an open, flexible and easily-distributable open data/API publication platform.

This is a basic requirement for all the MIMs



MIM4

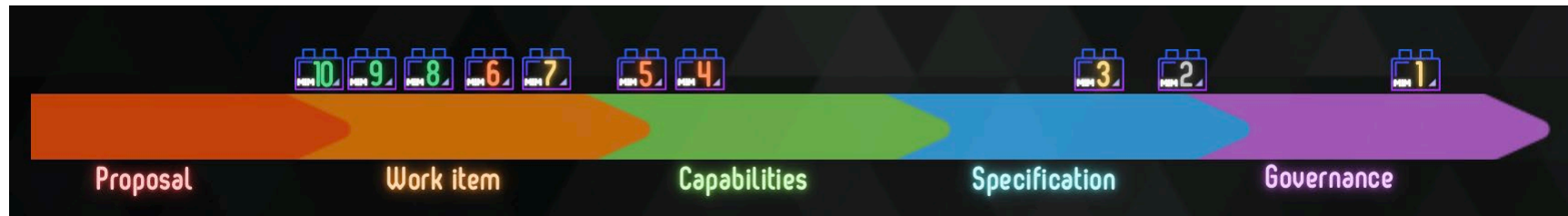
MIM6



- Societal impact with sustainable business models
- End-user incentives/loyalties
- End-user feedback/advices
- Digital twinning
- Data visualization (open source component)
- Data analytics (open source component)
- Data Processing (open source component)
- Data Pre-processing (using FIWARE component)
- Real Time Data Storage (using FIWARE component)
- Data Ingestion (using CEF building block, and MIM1)
- GPS data processing & API (proprietary App supplier)
- IoT Agent/Integration
- GPS Tracking on SmartPhone (end-user opt-in)

The development of the MIMs

STAGES



Governance process



Parallel process in Living-in.EU to develop MIMs Plus – setting the MIMs within the European Policy Context

Setting the MIMs in the Policy context

MIMs Plus = MIMs for EU Governed by the Living-in.EU Steering Board



MIMs

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Plus European initiatives and regulation

- EIF / EIF4SCC
- ISA² / EDGES
- CEF Digital
- INSPIRE, ELISE
- DESI / LORDI
- 100ICC, EIP-SSC
- National
- Regional
- Other sources



MIMs Plus version 4.0 DRAFT - 23 June 2021 -
<https://living-in.eu/groups/commitments/technical>

MIMs Plus: Living-in.EU Technical Specifications

1. Background

This document contains the technical specifications of the [Living-in.EU](#) (LI.EU) upscaling declaration¹ initiative, and is based on existing minimal interoperability mechanisms (MIMs) plus some additional fundamental building blocks – hence the name: MIMs Plus. It is one of three deliverables from the LI.EU Technical sub-group, the others being a *concept paper*², describing the scope and time plan for the work, and an *operational guide*, with practical guidance on how the technical specifications can be used in practice.

Overall, the LI.EU declaration has six guiding principles, of which number five and six are especially relevant from a technical perspective:

1. A citizen-centric approach;
2. A city-led approach at EU level;
3. The city as a citizen-driven and open innovation ecosystem;
4. Ethical and socially responsible access, use, sharing and management of data;
5. Technologies as key enablers;
6. Interoperable digital platforms based on open standards and technical specifications, Application Programming Interfaces (APIs) and shared data models.

In addition to the principles above, there are five commitments made by the LI.EU signatories³ and supporting parties⁴: Legal, Financing, Skills, Monitoring & Measuring, and Technical. The technical commitment has the following aims:

1. Use common standards and technical specifications;
2. Make key enablers (including data, infrastructure and services) available to all;
3. Establish a common market.

The first aim is covered by this MIMs Plus specification document, whereas the second and third aims are of a more operational nature, which are addressed in the Operational Guide.

<https://living-in.eu/groups/commitments/technical>

SALAR is different to MIMs

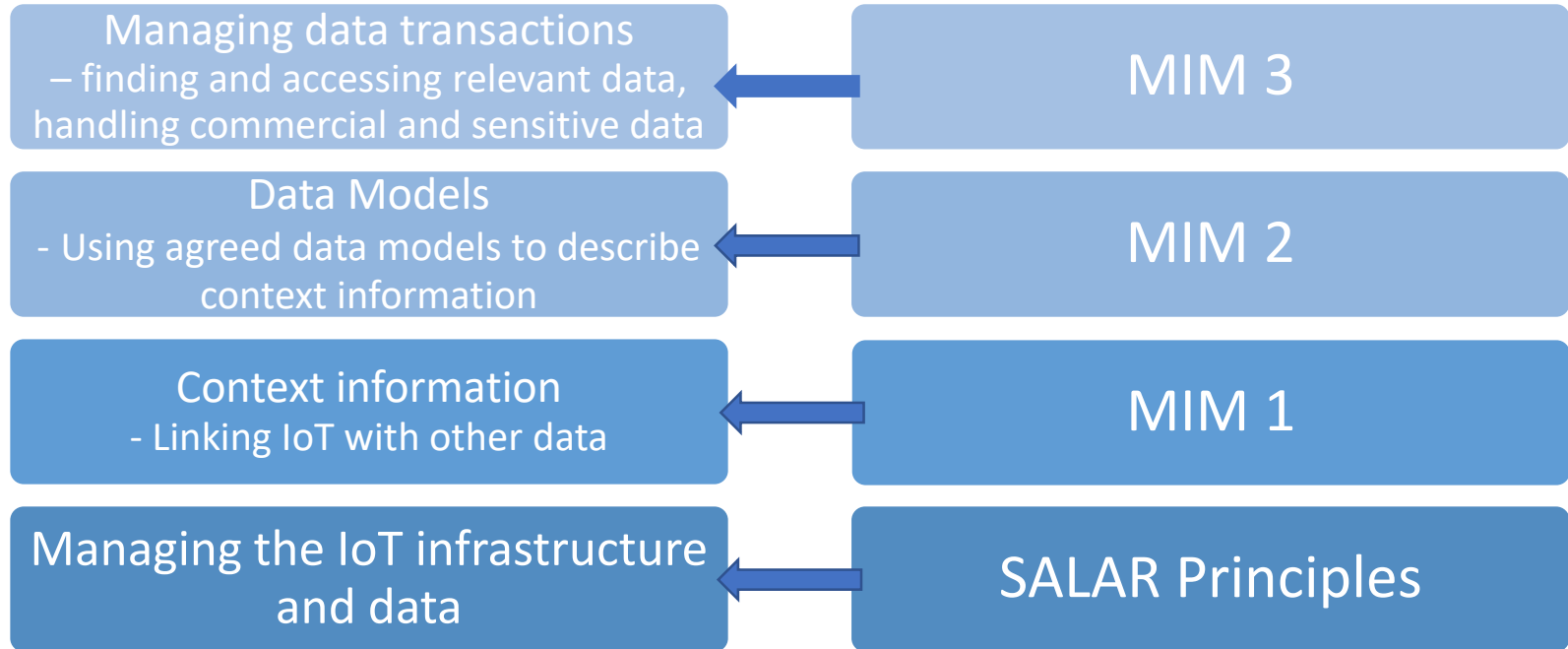
SALAR is Principles

- Principle
- Rationale
- Implications for procurement and IT management

MIMs are Mechanisms

- Objectives
- Capabilities
- Specifications
- Text to make the case to Mayors (and to provide rationale)

SALAR is complementary to MIMs



Linking the MIMs & SALAR

Clearly it makes sense to align our work in order to provide consistent and clear guidance to cities and communities and benefit from each other's work.

We need to make sure our architectural frameworks are consistent

Maybe we need to add some MIMs that build on the SALAR principles to develop mechanisms and “standards” regarding the IOT infrastructure

Living-in.EU will provide the opportunity to explore integration

We would appreciate involvement in our MIMs Working Groups

We could explore possible joint pilots of the SALAR principles and the MIMs

Looking forward to a
useful collaboration

