MIMs evolution

City x City roundtable

Minimal Interoperability Mechanisms

- 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.

- Minimal Interoperability Mechanisms (MIMs) are the minimal but sufficient capabilities needed to achieve interoperability of data, systems, and services between buyers, suppliers and regulators across governance levels around the world. Because the mechanisms are based on an inclusive list of baselines and references, they take into account the different backgrounds of cities and communities and allow cities to achieve interoperability based on a minimal common ground.

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 to benefit from an open market.

Minimal Interoperability Mechanisms

Sufficient interoperability to allow:	Minimal to ensure:	Clearly defined mechanism so that:
• "Good enough" integration of systems • Development of a viable market – cutting costs, minimising risk and preventing vendor lock-in	• 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	• It is easy to determine if a product or service is compliant • It is easy to determine the steps to implement

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 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?

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

Will ensure that those capabilities are delivered	Will allow sufficient flexibility to allow innovation	Will ensure that all the range of possible compliant solutions will be interoperable, or easily made interoperable

There may be other MIMs later

- The 10 MIMs are designed to cover what is needed for a local data ecosystem. However, one or two other ones may be needed to cover any gaps.

- The process of making sure we have the full list is underway. That is important as all the MIMs have dependencies on some of the other ones, and having the full list will enable those links to be put in place

The state of the MIMs

MIMs 1. 2 & 3 are already being specified by cities in procurements.
They need a review and some polishing work

3 Working Groups are developing 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 architectural framework
and reviewing what other MIMs might be needed

Building on existing work

These are not completely new pieces of work.

1. Where there are existing authoritative standards, the MIM will work with cities and standards bodies to identify the core requirements of those standards that a city could put in place as a first step to start to see immediate benefit in developing the local data ecosystem.

2. Where there are several standards initiatives that cover the same ground, the aim will be to identify the lowest common denominator (or the NIST Pivotal Points of Interoperability) that will make it easy to link products and services that comply with those different sets of standards.

3. Where policy or procurement requirements have been agreed, but there are no technical specifications to support these, then we may fill this gap.

MIM7- identifying core set of standards

- MIM1 supports context information management in data ecosystems. In local communities a key aspect of context for almost all data is location. Basic geospatial data can be handled well by, for instance, NGSI-LD, but increasingly cities need to use sophisticated geospatial data as they develop digital twins.

- MIM7 is therefore being developed to complement MIM1 by identifying the core standards and requirements needed for local data ecosystems to handle more sophisticated geospatial data.

- It also needs to integrate well with MIMs 1 & 2

MIM4 - Interoperability between different Initiatives

Personal Data Management means providing clear and easy to use ways for citizens/users to control which data sets/attributes they want to share with solution, application, or service providers under transparent circumstances, enabling trust between the different parties.

Many initiatives

Two major networks:

- MyData https://mydata.org/
- SOLID https://solidproject.org/

Many other initiatives:

- RUDI – Rennes Urban Data Interface https://uia-initiative.eu/en/uia-cities/rennes-metropole
- IRMA and Privacy by Design Foundation https://privacybydesign.foundation/en/
- DataVaults Horizon Project https://www.datavaults.eu/
- Kraken Project https://www.krakenh2020.eu/the_project/overview
- Japanese Information banks

Also relevant are Citizen Cards and national and European ID cards as well as the coming European Digital Identity Framework

Many solutions

Two main approaches:

- Providing the citizen with their own data pod to store their own data

- Providing the citizen with the ability to manage data about themselves held by different agencies

And a variety of technical solutions

For instance MyData solutions are not necessarily interoperable with each other

Aim of MIM4

To provide technical and other guidance to support cities and communities to put in place the products and services that will enable their citizens to be in control of their personal data within the local data ecosystem.

To do this in a way that will make it easy to integrate with whatever credible personal data management systems their citizens may wish to use

MIM 5 – Supporting policy and procurement needs

Strong Policy drive from the European Commission, mirrored internationally, for fair AI

Amsterdam has developed Fair AI procurement guidance that can be used by any city or community

How could a MIM help here?

Aims of MIM5

To provide guidance and a set of tools to enable cities and communities to take a common and effective approach to using algorithmic systems to make fair, trustworthy and transparent decisions about issues that affect the citizen.

- Specifically, to enable public administrations to have the guidance and tools they need to know:
    - How to ensure that any algorithmic decision-making system they procure is fair and transparent
    - How to record the algorithmic decision making systems they use, in order to support transparency

How can this be consistent with the other MIMs?

And how do we handle the other MIMs?

MIM6	Security	Security management
MIM8	Indicators	Ecosystem indicator management
MIM9	Analytics	Data Analytics Management
MIM10	Resources	Resource Impact Assessment

The huge potential of the MIMs

- They can help many cities and communities across the world quickly and easily put in place effective local data ecosystems to improve the lives of many millions of people
- They can build profitable markets and support new industries

We need the best thinking of all of us to help get this right