Enabling Seamless Integration for People Centred Cities

Cristina Bueti
Focal Point on metaverse and smart sustainable cities
ITU

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By 2025, global data creation is projected to grow to more than 181 zettabytes.

Cities that leverage digital technologies to enhance urban living, improve efficiency, and ensure sustainability.
With the evolving landscape of smart cities, they need:

- Data life cycle management by default
- Interoperability
- New Technologies
- Data-enabled cities and communities
- Data lakes and data spaces
- Local digital twin
This data can have a transformative impact on smart sustainable cities
With more data comes more challenges for cities

- The need to manage increasing complexity
- Siloed nature of city and community management
- Cities relying on incomplete, inconsistent and unreliable information
- The need for affordable and transformative solutions
- Challenges addressing privacy and security
- The nexus between processing power and GHG emissions
Why is interoperability important?

**Definition:** The ability of various systems, devices, applications, or products to connect and communicate effectively without user intervention.

**Types:**

- **Technical:** Compatibility of hardware and software.
- **Semantic:** Common understanding of data and terms.
- **Organizational:** Alignment of policies and procedures.
The importance of interoperability for cities

**Seamless Integration:** Ensures that diverse systems and services work together smoothly.

**Scalability:** Facilitates the integration of new technologies and services.

**Efficiency:** Reduces redundancy and improves service delivery.

**Innovation:** Promotes the development of new applications and solutions.
What challenges are cities facing in achieving interoperability?

1. Technical Barriers
   Diverse technologies and standards.

2. Data Silos
   Isolated data sources.

3. Regulatory Issues
   Varied policies and regulations.

4. Legacy Systems
   Integration with outdated systems.
What is the role of MIMs?

Minimal Interoperability Mechanisms to enable all communities, whether large or small, to put in place effective local data sharing ecosystems and to enable solutions to be shared between cities and communities around the world.
How MIM can be a practical tool for cities?

To be used by communities of any size to tackle challenges of a local data ecosystem

**Minimal to ensure:**
No unnecessary complexity or time-to-implement

**Sufficient Interoperability to allow:**
“Good enough” integration of systems

**Clearly defined mechanism so that:**
It is easy to determine if a product or service is compliant
**Minimal Interoperability Mechanisms for Cities**

**Work Item:**
- **Title:** Minimal Interoperability Mechanisms for Smart and Sustainable Cities and Communities
- **Status:** Under study
- **Type of work item:** Recommendation
- **Version:** Draft
- **Equivalent number:** 2023-04 (Medium priority)
- **Liaison:** ISO/TC 268, ISO/IEC JTC 1/SC 41, IEC SYC Smart Cities, OGC

**Summary:**
This draft Recommendation defines the concept, purpose, and structure of Minimal Interoperability Mechanisms (MIMs) that provide the requirements for implementing the minimal but sufficient capabilities needed to achieve interoperability based on a minimal common ground. The value of this approach is becoming widely recognised and several organisations and national and regional agencies are showing interest in the development of MIMs covering a range of different topics. This document uses the experience of developing and implementing MIMs to provide a clear definition, define a common format, and provide guidance as to how to develop a MIM.

**Contact:**
- **Miguel Alvarez Rodriguez,** Editor
- **Martin Brynlow,** Editor
- **Tania Marcos Paramo,** Editor
- **Michael MULQUIN,** Editor
The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies (ICTs).

193 Member states

companies, universities, research institutes and international organizations
How ITU supports cities and communities

01 Policies

02 Standards

03 Emerging Technologies
United for Smart Sustainable Cities

The United for Smart Sustainable Cities serves as the global platform to advocate for public policy and to encourage the use of ICTs to facilitate the sustainable digital transformation of cities.

U4SSC Thematic Group:
• Smart city platforms
• Building urban economic resilience
• Artificial intelligence in cities
• Enabling people-centered cities through digital transformation
• Procurement for smart sustainable cities
• Digital wellbeing
Building cities through interoperability

Redefining smart city platforms: eight easy steps

01 Develop a roadmap
02 Focus on data
03 Build interfaces
04 Secure interoperability
05 Keep an open mind when choosing tech
06 Prioritize partnership
07 Take complexity into consideration
08 Start small, think big
A smart city is an interoperable city

**ITU-T Y.4200**
Defines the requirements for the interoperability of SCP to ensure the correct functioning of city services

**ITU-T Y.4201**
Presents the high-level requirements and reference framework of SCPs

**TO**
Innovative and collaborative new models that connect these vertical silos

- INFORMATION SHARING
- INTEGRATION & CROSS-SECTOR COLLABORATION FOR USERS SERVICES
- INTERCONNECTION OF SYSTEMS
How standards can support interoperability at the city level

City of Valencia, Spain
Building cities through interoperability

Smart sustainable city maturity model

Recommendation ITU-T Y.4904: ‘Smart sustainable cities maturity model’
The importance of a maturity model for cities

Recommendation ITU-T Y.4904 standard and the associated maturity model are essential tools for cities striving to enhance their smart and sustainable capabilities.

Maturity models provide

- Benchmarking and Assessment
- Structured Progression
- Resource Allocation
- Continuous Improvement
- Stakeholder Engagement
New technologies – navigating the next digital frontier

Emerging technologies like the metaverse can be harnessed to create the 'citiverse,' where cities leverage virtual spaces to enhance urban planning, foster community engagement, and drive sustainable development.
Unleashing data insights beyond reality

As people are spending more and more time living virtually, municipal authorities around the world are harnessing the metaverse and virtual worlds for smarter data-driven insights.

**The Republic of Korea** aims to create its metaverse ecosystem. Metaverse Seoul: virtual municipal world

**Japan** is preparing for the spread of metaverse in cities and communities. Shibuya Ward Certified Virtual Shibuya

**Dubai** aims to be one of the world's top 10 metaverse economies as well as a global hub for the metaverse.
**ITU Focus Group on metaverse (FG-MV)**

**ITU-T FG-MV Meetings**

- **500+ Experts involved**
- Riyadh (ARB Region)
- Shanghai (AP Region)
- Geneva (EUR Region)
- Queretaro (AMS Region)

**Hosting in the metaverse**

- **4 Virtual exhibitions and FG-MV meetings held in the metaverse**

**ITU-T FG-MV Deliverables**

- **30+ Deliverables published including a definition of metaverse**

**7th and final FG-MV meeting**

- **(12-13 June 2024, Geneva)**
- **10+ New Deliverables are expected to be approved**

**Diverse events on the metaverse with groundbreaking attendance**

- **5 Forums** in Saudi Arabia, China, Tanzania, Mexico and Geneva
- **16,000+ Participants in attendance**
- **8 Webinars** Dedicated to the topic of metaverse on the Digital Transformation Dialogues
- **2 Special Sessions** in Arusha and Riga with call to actions

**5th Forum on Integrating virtual and physical worlds in the metaverse with digital twin**
UN Virtual Worlds Day
Harnessing the metaverse to advance the Sustainable Development Goals (SDGs)
14 June 2024
Geneva, Switzerland
itu.int/metaverse/un-virtual-worlds-day
Thank you!

Email
digitaltransformation@itu.int

Website
www.itu.int/cities
Slide 8: Solutions for Interoperability

• **Standardization**: Developing and adopting common standards.

• **Open APIs**: Application programming interfaces that allow different systems to communicate.

• **Data Governance**: Policies for data sharing and security.

• **Collaboration**: Partnerships between public and private sectors.
Towards people-centred cities and communities

Community
Empowering People

Digital Equity
Making access to technology equitable

Infrastructure
Responsibility managing data and digital infrastructure

Security
Building trust by securing digital assets

Capacity
Building multi-stakeholder capacity