WHAT EVERY CITY NEEDS TO KNOW?

Global Digital Citiverse Framework – *The Primer*

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itu.int/metaverse/virtual-worlds/

TRACK 7

Meet the Leaders of the Emerging Technologies Track

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TRACK 7

Emerging Technologies

OBJECTIVE

The objective of emerging technology track in the expanding realm and context of Virtual world is to:

Explore Transformative Potential
Of emerging technologies within virtual worlds context

Focus on Application
And adoption in cities worldwide

Uncover Innovative Solutions
For complex urban challenges

Stay Current on Technology
Track developments propelling virtual worlds

Serve as Dynamic Resource
Provide current insights for all stakeholders

Highlight Opportunities & Challenges
And challenges in expanding virtual realms

KEY TECHNOLOGIES

AR/VR/XR

Digital Twins

Artificial Intelligence

IoT

Blockchain

Rethinking how physical and digital worlds converge

to serve people, communities, and future generations?

- How can emerging technologies support city leaders in managing urban cities more effectively, while ensuring that these cities become more inclusive, resilient, and citizen-centered, especially in the face of emerging urban challenges?
- Can AI foster citizen's trust and bridge the digital divide in virtual cities and ensure inclusive participation in the Citiverse?
- *What is the roadmap for implementing City Digital Twin in cities?*
- *What Technology layers need to be considered in the Framework?*

our collective response

The Global Digital Citiverse Framework

Global Digital Citiverse Framework

The framework consolidates global knowledge into a *practical references* for cities worldwide, offering:

- A curated collection of standards, tools, and methodologies for applying emerging technologies
- A living resource that evolves with evidence and technological progress
- Support for both advanced and early-stage cities in their digital transformation

Core Principles

Standards-aligned

Adheres to global standards for interoperability and reliability

Human-centered

Focuses on improving quality of life for urban residents

Living Reference

Evolves and adapts to new technologies and urban needs

Non-prescriptive

Offers flexibility, allowing cities to tailor solutions to their unique contexts

Adaptable

Caters to cities at various stages of technological maturity

A Living, Evolving Framework

The Global Digital Citiverse Framework is designed to continuously adapt to technological advancement and diverse urban needs, ensuring its relevance and effectiveness for cities worldwide.

The Framework Guides Cities Through a Three-Step Journey

Why

Define Vision and Challenges

Sets the “why” as motivation and shared purpose

What

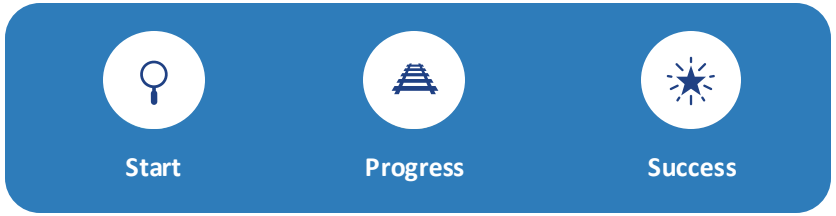
Building the Foundations

Practical and structured, emphasizes preparation

How

Bringing It to Life

Action-oriented, connects to implementation and results



The three-step journey provides a structured approach for cities at any stage of digital readiness. Each city can enter the framework at the appropriate stage and progress at their own pace, ensuring sustainable and meaningful transformation.

WHY: Understanding the Imperative

The strategic foundation of the Citiverse, articulating the context and purpose.

Vision & Rationale

- Defines the **purpose** and **ambition** of the Global Digital Citiverse.
- Frames the shift from smart cities to human-centred digital ecosystems.
- Moves beyond fragmented adoption to cohesive ecosystem.

Why cities need a new direction

Urban Challenges

- Maps climate, mobility, and social issues to digital solutions.
- Shows how AI, IoT, XR, and Digital Twins enable anticipation over reaction.
- Highlights evidence-based use cases driving real outcomes.

Real urban challenges

Data Governance & Ethical Stewardship

- Builds trustworthy and rights-based data ecosystems. *Handle data, responsibly, transparently and ethically*
- Outlines privacy-by-design, data sovereignty, and ethical AI.
- Embeds accountability and fairness in governance frameworks.

Ethics isn't an ***afterthought*** — it's the foundation

The "WHY" establishes the foundational purpose of the Citiverse framework, ensuring all technological solutions are purposefully aligned with human-centered outcomes and sustainable urban development.

WHAT: Building the Foundations of the Citiverse

The foundational pillars upon which smart, sustainable urban environments are built, outlining essential components for succe ssful implementation of the Citiverse.

Technical Backbone

- **Technological recommendations** required for implementing the Citiverse framework within city operations.
- Provides structured, phase-by-phase methodology for deploying the Citiverse.
- Provides actionable recommendations and technical guidance to city leaders.

Technical recommendations

Standards Landscape

- Maps the global standards **ecosystem** (ITU, ISO, OGC, IEEE, etc.) underpinning the Citiverse, inclusive of the Global South
- Provides a **reference catalogue** linking standards to inclusions, interoperability and data exchange needs.

Standards are the ***quiet*** infrastructure of trust

Infrastructure Readiness

- An engineering blueprint across layers.
- Readiness, Maturity & Diagnostic Toolkit aligned to **U4SSC**
- Practical tech requirements by platform
- Twelve Step Implementation Playbook for any city to deploy a Citiverse initiative

The *bridge* between **vision** and **execution**

The "WHAT" provides the essential technical foundations and standards framework that enable cities to build their Citiverse implementations on proven, interoperable technologies and measurement tools.

HOW: Bringing It to Life

The Citiverse framework focuses on practical implementation pathways, guiding cities on to achieve their urban development goals.

Citizen Experience & Inclusion

- Native Inclusive Citiverse Planning
- Tools for Inclusive Interaction in the Citiverse
- Human-centered approach prioritizing citizen needs
- Accessible digital platforms for civic engagement

Pilot Case Studies

- Blueprint for action from real-world implementations
- Insights & Global lesson learned
- Common pitfalls and proven best practices

"Learn from others' experiences to avoid redundant efforts."

Sandbox & Prototyping Ecosystem

- Not just digital simulations, but structured, policy-enabled ecosystems
- Practical guidance on designing and running sandboxes.
- Build and Operate Effective Sandbox

"Test before large-scale deployment."

These implementation pathways work together to ensure successful deployment of the Citiverse framework, with each stage building on the previous one.

full Circle

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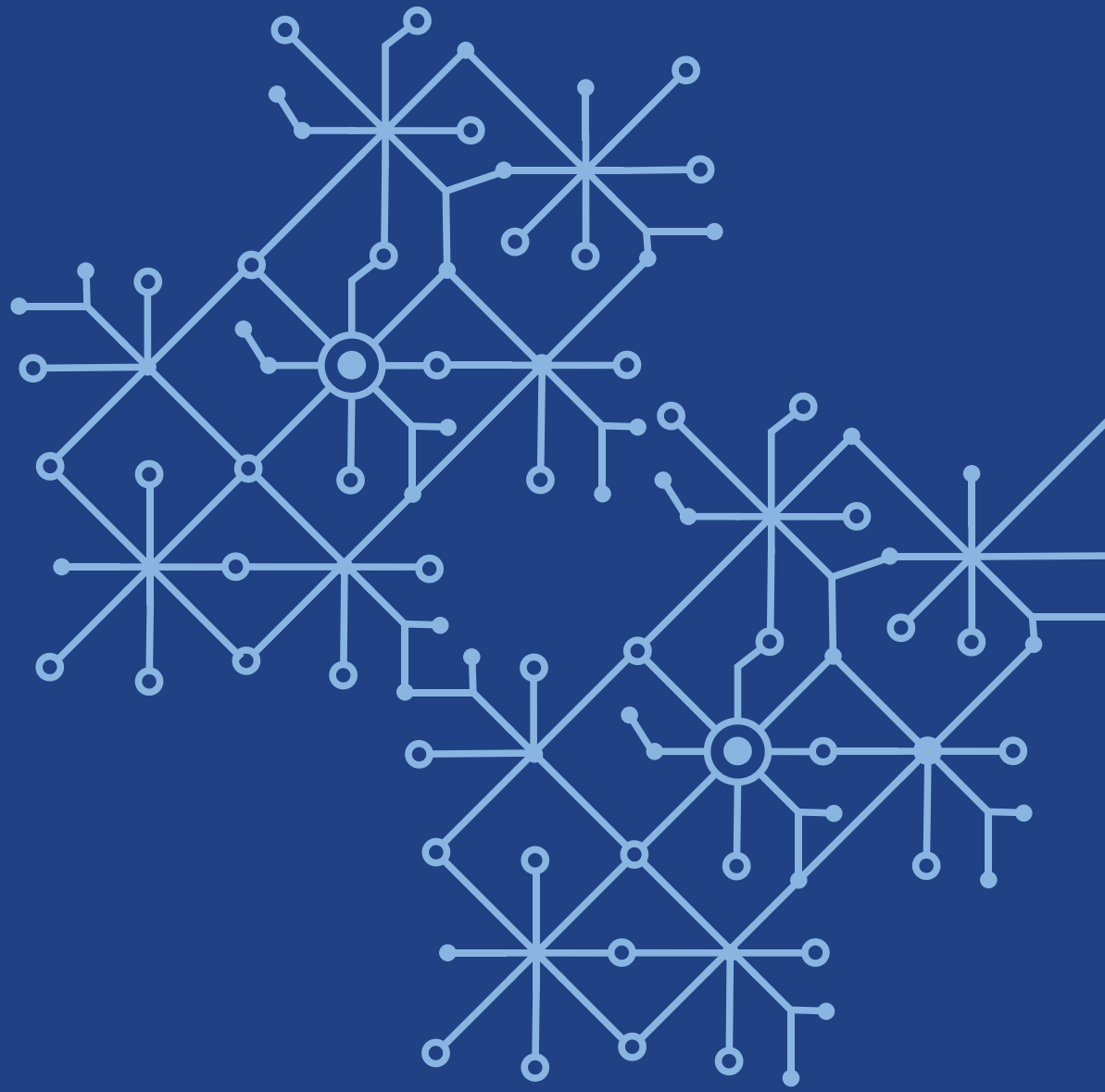
Thank you!



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For the UN family