Session Moderators

Wouter Heijnen

VNG

Ignacio García

Serendipity

European Commission

Agenda for Training Session:
The Netherlands

Phase 1:

Exploration Phase How to Start Your Digitalization Journey
- Introduction to Local Digital Twins
- Deep dive into the EU initatives and funding opportunities
- Supporting communities, introducing Living-in.EU
- Understanding the digital maturity of your city through assesment

📅 March 14th, 2024   🕐 15:30-17:00 (CET)

Phase 2:

Technology Phase How Urban Data Platforms Can Empower Cities
- EU Data Spaces, Open Data platforms, LDTs
- Open Architecture Framework Model for Digital ecosystem for cities and communities

📅 April 18th, 2024   🕐 15:30-17:00 (CET)

Phase 3:

Practical Phase Use Cases and Supporting Services
- Practical examples of LDTs to achieve the EU Green Deal goals
- Supporting services to set up the roadmap and procurement documentation to implement LDTs

📅 May 16th, 2024   🕐 15:30-17:00 (CET)

European Commission

Detailed Agenda Overview

Phase 3: Practical Phase - Use cases and supporting services

📅 May 16th, 2024   🕐 15:30 - 17:00 CET

TIME	TOPIC	SPEAKER
15:30	Introduction	Moderators: Wouter Heijnen (VNG) Ignacio Garcia Vega (Serendipity)
15:45	EU Green Deal	Chiara Venturini (Eurocities)
16:15	LDT Procurement Helpdesk and Digital Toolbox	Arthur Kenjora (Serendipity)
16:45	Open Discussion / Closing	Wouter Heijnen (VNG)

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Local Digital Twins and other digital tools to deploy the EU Green Deal

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The Role of Cities in the Green Transition

Cities play a pivotal role in achieving climate neutrality by 2050, the goal of the European Green Deal, accounting for:

75 % of EU citizens

65 % of the world's energy consumption

+70 % of global CO2 emissions

European cities can contribute to the Green Deal target of reducing emissions by 55% by 2030 and, in more practical terms, to offer cleaner air, safer transport and less congestion and noise to their citizens.

European Commission

Climate Neutral and Smart Cities Mission

- 112 climate-neutral and smart cities by 2030. 7 Dutch cities (Amsterdam Eindhoven & Helmond Groningen Rotterdam The Hague Utrech)

- Ensure that these cities act as experimentation and innovation hubs to put all European cities in a position to become climate neutral by 2050

100 EU cities   **12** cities from Horizon Europe associated countries

Cities from every Member State

Capital cities

Small, medium, large cities

Frontrunners and less prepared cities

European Commission

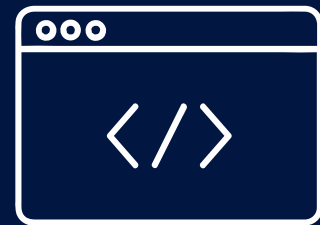# The Twin Green and Digital Transition Go Hand in Hand

- The digital transformation is taking place against a backdrop of rapid climate change

- The EU's policy agenda looks at digital twins as far-reaching technologies that can support smart cities in contributing to the European green deal strategy, enhancing energy efficiency, adaptation of society to climate change and resilience of urban centres.

- Placed into urban contexts, digital twins help smart cities to reassess their urban planning, transforming how cities are displayed, monitored and managed
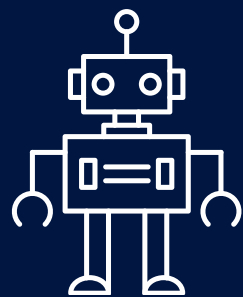
| Monitoring and tracking | Simulation and forecasting | System management | Virtualisation | Information and communication technologies |

European Commission

The Twin Green and Digital Transition

Monitoring and tracking can provide precise knowledge in real time

Digital technologies can enable the monitoring of emissions, the status of a given ecosystem, or material flows.

The combination of digital technologies such as smart connected sensors with data analytics provides a nearly real-time understanding of the state of the environment e.g. air or water quality.

The combination of datasets with digital infrastructure and AI-based solutions can also facilitate evidence-based decision-making.

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Source: JRC

Barcelona's Superilles (success story)

- The goal of the project is to create a healthy, greener, fairer and safer public space that promotes social relations and the local economy.

- Barcelona Supercomputing Centre revealed that while improving air quality, superblocks have also increased pollution in adjacent areas where traffic has been displaced.

Digital twins' technologies have permitted to measure and evaluate the impact of urban policies, and correct them if it was needed.

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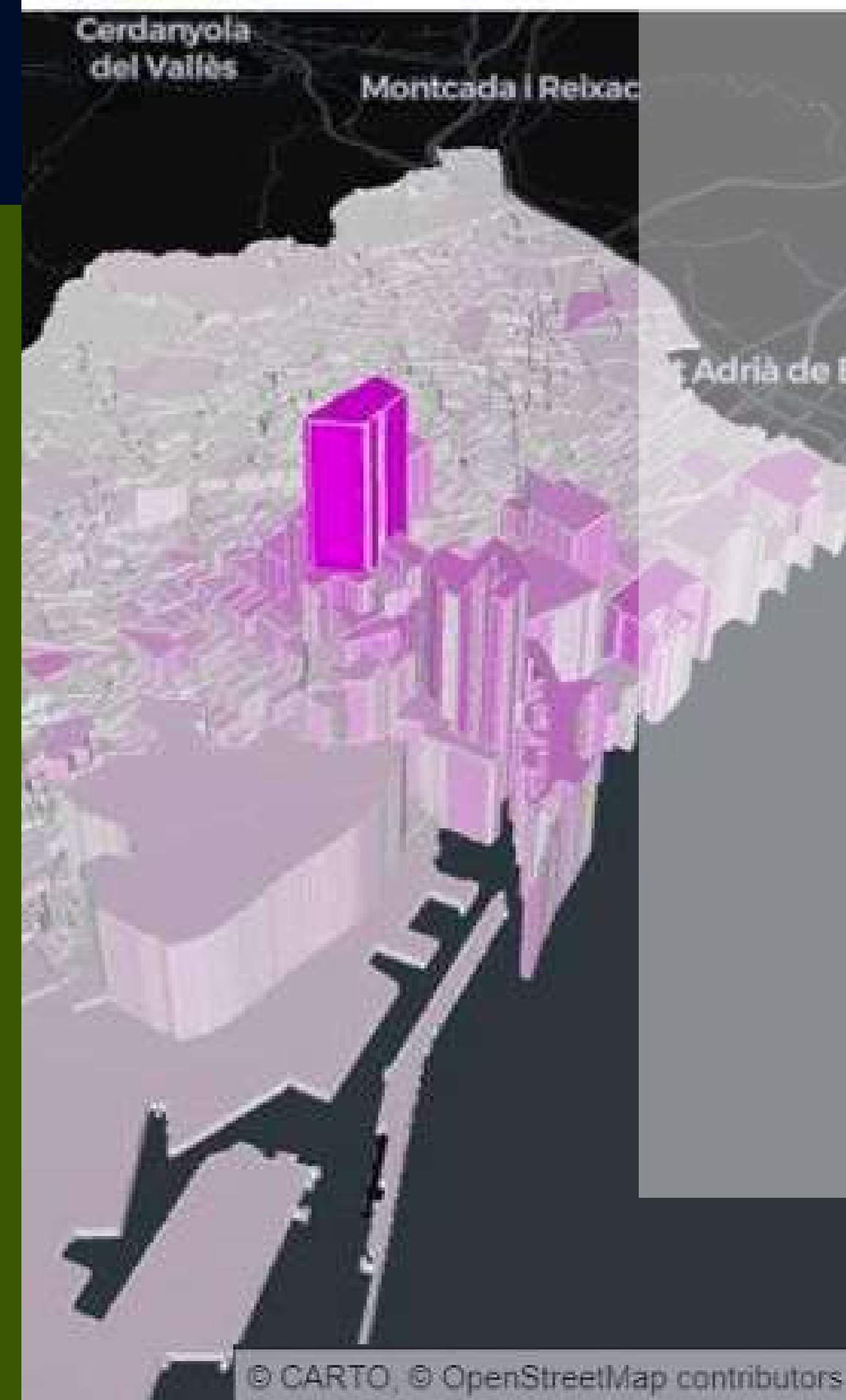
The Twin Green and Digital Transition
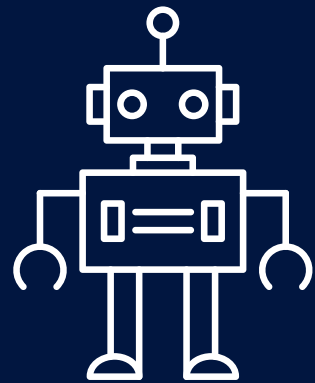
Simulation and forecasting can improve efficiency and allow for data-driven decision-making

Through digital simulation, cities can model various scenarios to assess their potential outcomes, aiding in the identification of optimal strategies for addressing complex challenges.

For example, urban planners can use simulation to evaluate the impact of different transportation systems on traffic flow and air quality, facilitating informed decisions on infrastructure development.

Similarly, forecasting models can predict future trends in population growth, enabling policy makers to anticipate needs and plan accordingly.

Source: JRC

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DUET Project in Flanders (success story)

- A traffic model calculates what traffic volumes can be expected at the same time in the surrounding streets when one or more streets are closed.

- The interaction between the traffic model and the air quality model allow to simulate the effects of traffic measures in the city on mobility and the environment.

Digital twins' technologies allow cities to test how different decisions will affect the city and its residents. The digital twins allows local governments to make mistakes in the virtual world, rather than reality, and avoid unexpected effects of policies.

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The Twin Green and Digital Transition
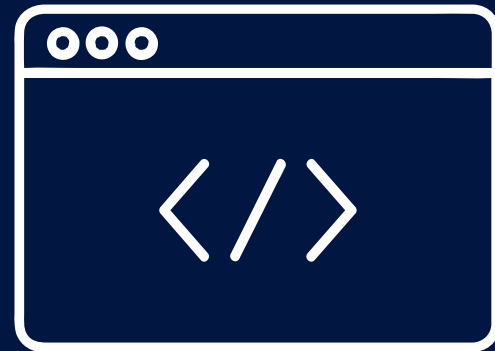
Systems management supported by digital technologies helps to cope with increasing complexity

Digital Twins working with real-life data can work as enablers for a more efficient management of machines and systems.

It is the interplay of different technologies, such as the Internet of Things and AI, which can foster better resource management.

In the energy sector, for instance, smart grids can optimise capacity through real-time response to increasing and falling demand, balancing electricity generation, storage, and usage.

European Commission

Source: JRC

RUGGEDISED Project in Rotterdam
(success story)

- The Ruggedised project aimed at transforming large districts or buildings into low carbon and resource efficient districts through smart interaction and integration of energy systems at district level.

- Ruggedised implemented 13 smart solutions to achieve maximum energy efficiency and CO_2 reduction, while having a social economic impact in terms of job creation, levels of participation of citizens and quality of life. One of the outcomes was building a "3-D city operations platform".

The platform discloses and visualises actual use of energy as well as its use over a period of time, it makes it possible to monitor and communicate different information, enabling endless applications and scalable solution to digital city level.

The Twin Green and Digital Transition

Virtualisation can also help reduce environmental impact.

Virtualisation covers a number of applications from e-books and videoconferences to virtual and augmented reality, and digital prototypes.

The success of dematerialisation in reducing environmental impact will also depend on behavioural changes.

For example, urban planners can create immersive simulations to visualise proposed developments, enabling stakeholders to better understand their potential impact on the environment

Source: JRC

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Utrecht and Amsterdam's 3D Platforms (Our cities story)

- The municipalities of Amsterdam and Utrecht are jointly developing an online platform for anyone to build their own 3D environment and provide it with their own data and various functionalities.

- The platform provides a 3D version of the city, allowing the local government to better discuss with local residents and stakeholders in the context of participation. Designers and project developers can add models to the 3D platform themselves.

The 3D platforms allows the municipality, residents and other stakeholders to visualise how changes will affect their environment. For example, placing solar panels in public buildings or monuments. This solution is available for other Dutch cities to use.

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The Twin Green and Digital Transition
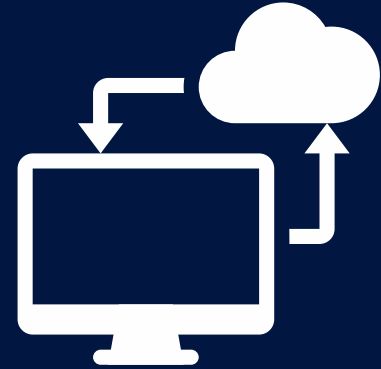
Information and communication technologies enable new levels of interaction.

Modern ICT provides opportunities for nearly unlimited information collection and dissemination, allowing individuals to make more informed spending decisions.
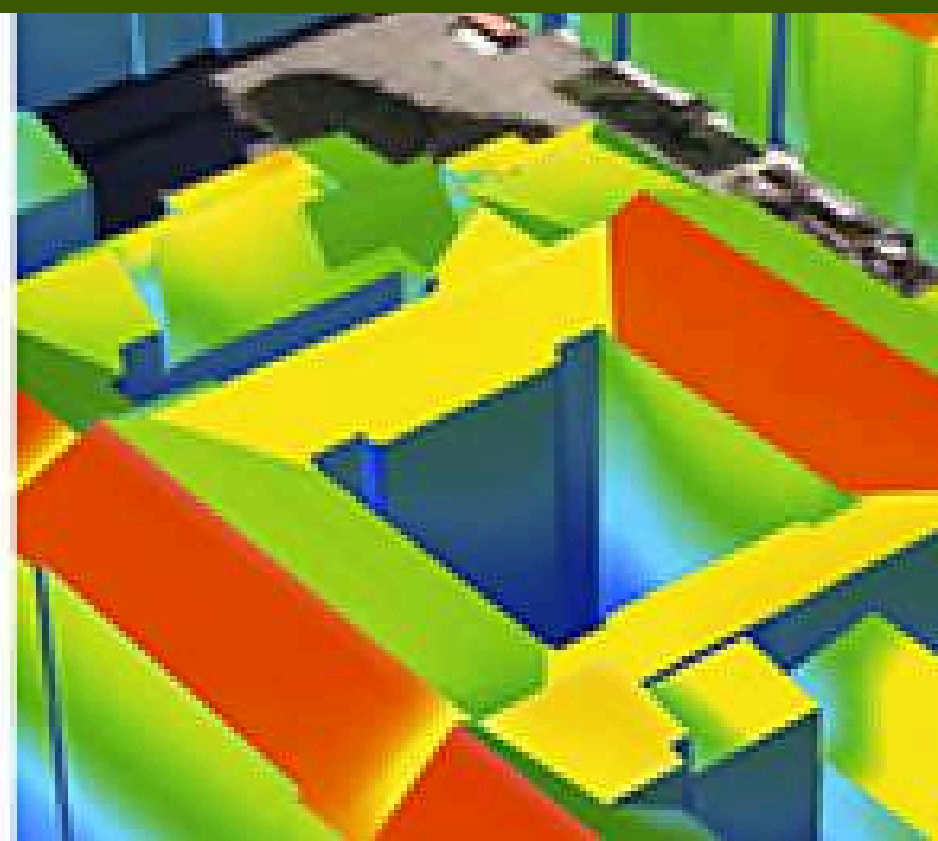
For example, digital labels and smart packaging can communicate the environmental footprint and 'full cost' of a product, while digital platforms support matchmaking for supply and demand of specific products.

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Helsinki 3D+ Energy and Climate Atlas

- The Helsinki Energy and Climate Atlas is a free browser service based on the 3D City Models, and it contains information about renewable energy and possibilities for energy renovations throughout the Helsinki region.

- It contains a large amount of building-specific information, energy and refurbishment information, as well as information about the consumption of water, district heating and electricity.

This technology allows the city and residents to see the indicative energy consumption estimate for nearly every building , and includes information about how much solar radiation energy the surfaces receive on an annual and monthly basis.

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EU Cities Mission: Pilot Cities Programme

EU CITIES MISSION
Pilot Cities Programme

A tailor-made learning programme
to accelerate climate neutrality

Cohort 1 53 Cities
25 Pilot

Cohort 2 26 Cities

Funded by
the European Union
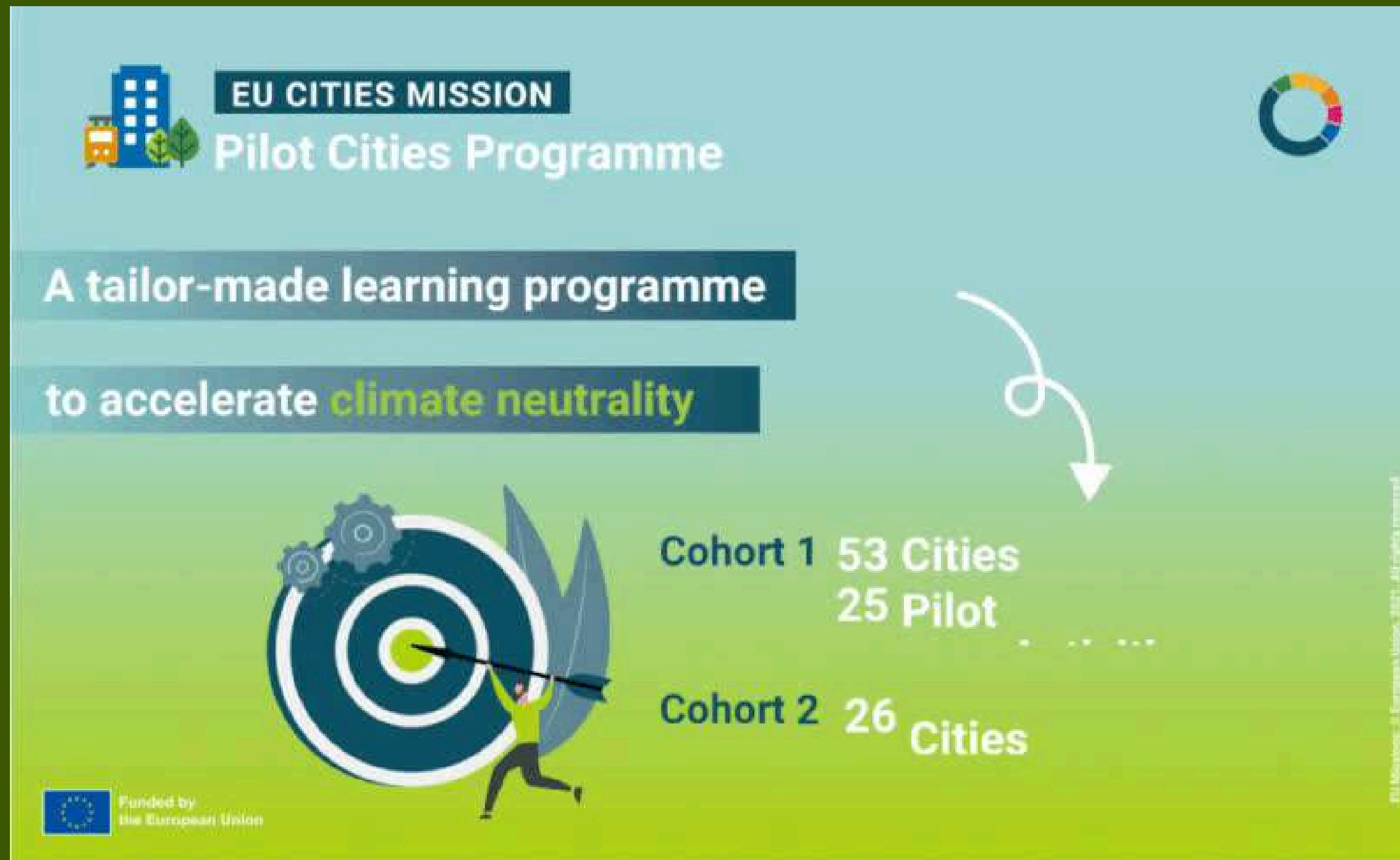
Pilot Cities test and implement innovative approaches to rapid decarbonisation over a two-year programme.

104 cities have been selected to become Pilot Cities so far.

European Commission

Pilot Cities with a Digital Focus

Lappenranta, Finland

73,000 inhabitants

Swedish and Finnish

To optimise and scale up digital ICT solutions in power distribution and district heating (DH) in residential and service buildings, to address peak loads of electricity and heat consumption.

European Commission

Pilot Cities with a Digital Focus

EU CITIES MISSION
Italy's Pilot Activity

Let'sGOv - GOverning the Transition through Pilot Actions

Bologna | Bergamo | Florence | Milan | Padova
Parma | Prato | Rome | Turin

Funded by the European Union

Bologna | 391,686 inhabitants

Bergamo | 119,993 inhabitants

Florence | 368,419 inhabitants

Milan | 1,374,582 inhabitants

Padova | 209,730 inhabitants

Parma | 195,998 inhabitants

Prato | 201,410 inhabitants

Rome | 2,770,226 inhabitants

Turin | 858,205 inhabitants

Reducing energy-related emissions through the exploration of enhanced governance models to agree on new forms of energy alliances, unlock financial resources and define the conditions for enhanced multi-level governance.

European Commission

Pilot Cities with a Digital Focus

EU CITIES MISSION
Slovenia's Pilot Activity

UP-SCALE – Urban Pioneers - Systemic Change Amid Liveable Environments

Kranj

Ljubljana

Velenje

Kranj | 56,639 inhabitants

Llujljana | 295,000 inhabitants

Velenje | 33,558 inhabitants

A data-driven solution will be used to comprehensively show the impacts of community and each individual has on co-creation of a more sustainable future. One-stop shops will be established in all three cities to support the transition and explore R&I potentials. City of Kranj will upgrade the existing digital platform with public transport and traffic related data.

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EU Cities Mission: Twin Cities Programme

The Twinning Learning Programme guides Twin Cities in their learning and replication efforts from Pilot Cities, with a practical focus on implementing the systemic transformation methodologies and innovative approaches demonstrated by the Pilot activities, on the journey to climate neutrality.

Apply to the EU Mission Cities: Twin Cities Programme

https://netzerocities.eu/twinning-learning-programme/

LDT Procurement Helpdesk
Introduction to Assessments, Roadmap, and Procurement

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LDT Procurement Helpdesk

After completing this training, I acquired the necessary knowledge and skills to:

- ✅ What is the LDT Procurement Helpdesk
- ✅ Understand the value and how it's focused on your city needs
- ✅ Explanation of its funding and tender opportunities
- ✅ Live helpdesk demo
- ✅ Guide to completing the assessment & roadmap journey
- ✅ Understand how to read the Roadmap in applying to your procurement activities

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DIGITAL TOOLBOX

Main Objectives

Increasing awareness and readiness, supporting EU communities that have not yet begun their digital transformation journey by providing resources, best practices, and training to develop digital strategies.

Scaling deployment of digital infrastructure, assisting communities with existing digital transformation strategies in deploying enabling digital infrastructures and tools based on commonly agreed standards.

Promoting Local Digital Twins, creating a European Local Digital Twin (LDT) toolbox that will facilitate the deployment of digital twins for innovative urban planning and sustainable solutions.

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ACTIVITY: What digital transformation concepts are you interested in or pursuing for your city?

Adaptability
APIs
Authentication federation tool
Automatic Storage Management
Backup Solution
Bandwidth
Business Continuity Plan
Cameras/Image Sensors
Capacity
Cloud
Cloud Compute
Cloud Storage
Compute
Compute Cleanup
Compute Policies & Procedures
Compute Provisioning
Computing Adv. Technologies

Data Governance
Data Governance Framework
Data Governance Tool
Data Retention and Backup
Data Strategy
Disaster Recovery
Containers
Cybersecurity Policy
Cyerbsecurity Strategy
Data
Data Analysis
Data Analysis Tools
Data Backup & Retention Tools
Data Centralisation
Data Collection & Management
Edge Computing
Effectiveness
Fiber Optic
General Data Protection Regulation (GDPR)

ICT Infrastructure
Infrastructure Security
IoT
IoT Devices
IoT Sensor
IT Infrastructure
Key Performance Indicator (KPI)
Local Digital Platform
Local Digital Twin
Low Latency
Monitoring
Network
Network Adaptability
Network Capacity
Network Capacity & Effectiveness
Network Connectivity
Network Coverage
Network Redundancy
Network Reliability
On-Premises Compute

Open Source Software
Open Standards
Plan, Monitor & Test
Privacy Compliance
Privacy-Enhancing Tech (PETs)
Private Subnet
Public Wi-Fi
Real-time Data Collection
Redundancy
Reliability
Scalability
Security
Security Advanced Measures
Security Patch
Security Segmentation
Serverless Computing
Smart City Office
Storage
Storage Cleanup
Storage Provisioning

System / Application
SWOT Analysis
Trade-off
Virtual Machines (VMs)
Virtualisation
Vulnerability Assessments
5G Readiness

European Commission

Code: 67190934
http://menti.com

Value of Completing the Journey

Structured tools & assets for facilitating execution of your smart city specific objectives

- Tailored support and consultancy as well as tools to guide your digital strategy development and realisation
- Online advisory services to help your city assess technological readiness for implementing MIM-compliant local data platforms

Customised Digital Transformation Roadmap and guidance on procurement needs

- Assess your city's digital and technical maturity for a customised digitalisation roadmap
- Identify procurement needs and build technical capacity towards MIMplus alignment

Participation to a European peer network pioneering the advancement of local data platforms and AI-powered digital twins

- Your city gains a first mover advantage and contributes to shape the design of the initiative
- Boost city's visibility, sharing best practices, successes and recommendations to leverage on learnings and peer exchange

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Why is it Useful for your City?

LORDIMAS

Strategy Assessment

IT Infrastructure Assessment

Procurement Support

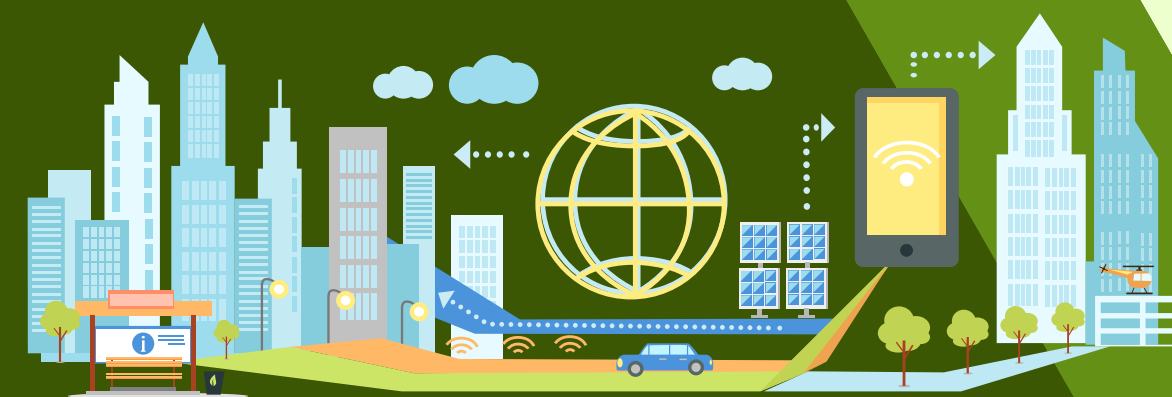Equivalent of 100+ days consulting services

+

Strategy and decision making

IT/Data/Architecture

Thematic experts in function of priorities

=

Structured tools & assets for facilitating execution of your smart city specific objectives.

Customised digital transformation roadmap and guidance on procurement needs.

European Commission

Why is it Useful for your City?

Financial Commitment

Fully funded by the European Commission, this initiative covers all expenses related to support activities and assessments. It's important to note that while the costs for these preparatory stages are fully covered, **there isn't direct funding available for the actual implementation of the solutions.** Cities and communities looking to fund the implementation phase are **advised to explore the DEP (Digital Europe Programme) grants and funding opportunities.**

Required Actions

Assemble a multidisciplinary team to efficiently respond to assessment questions and invest an estimated 2-4 days. This should include Innovation Managers (like Chief Innovation, Digital, or Technology Officers), key strategic city departments, the PMO, and specialists in IT, data, and architecture such as Data Managers, ICT Managers, IT Architects, alongside IT Procurement and Infrastructure Providers. This **comprehensive team composition ensures a well-rounded approach to addressing the assessments' requirements.**

Recommended expertise

Strategy & decision-making
- Innovation Manager (Chief Innovation, Chief Digital or Chief Technology Officer, Smart City Manager or similar)
- Relevant city departments with strategic and decision-making capacity
- Project management office (PMO)
- Thematic experts

IT/Data/Architecture
- Data Manager (Chief Data Manager, IT manager, Data Steward, or similar)
- ICT Manager and Systems Specialist
- IT Architect

IT Procurement
- Infrastructure Provider

Funding & Grants

While cities participating in the project will transition into the execution phase with a solid foundation for success, it should be noted that the project does not include direct funding.

Instead, the acquisition of services and the broad implementation of local digital platforms, which may later extend to Local Digital Twins, arlimited to the European Regional Development Fund (ERDF) and the Recovery and Resilience Facility (RRF).e expected to be supported by alternative national or EU financial mechanisms, including but not

- [Digital Europe Programme (DIGITAL)](#)
- [Funding for cities](#)
- [Recovery and Resilience Facility](#)
- [Eruopean Investment Bank](#)

Journey for Participating Cities

KICK OFF ACTIVITIES

1:1 sessions between cities and the *CGAs, or to a common Info Session

***LORDIMAS**

Get to know your overall digital maturity

STRATEGY ASSESSMENT

Assess in more detail your overall digital vision and strategy

IT INFRASTRUCTURE ASSESSMENT

Evaluate the technical maturity of the IT infrastructure

DIGITALISATION ROADMAP

Get your digital transformation roadmap tailored to your city/community needs

PROCUREMENT SUPPORT

Receive support to identify procurement needs and templates

APRIL 2024

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Activities take place from April to August; a city's journey may progress faster or slower depending on its specific constraints.

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*CGAs (City Guiding Agents)
*Local and Regional Digital Maturity Assessment

Procurement Helpdesk Live Demo
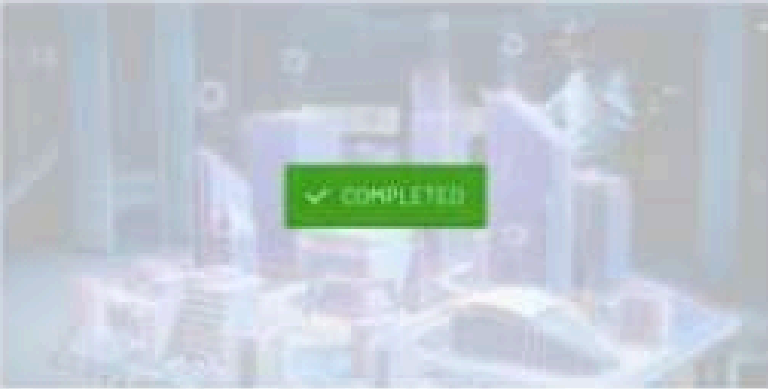
LORDIMAS

LORDIMAS

Dimensions of the tool
7 self-assessment dimensions

Governance
Service Design
Networking
Data Management
Technology
Service Delivery
Interoperability
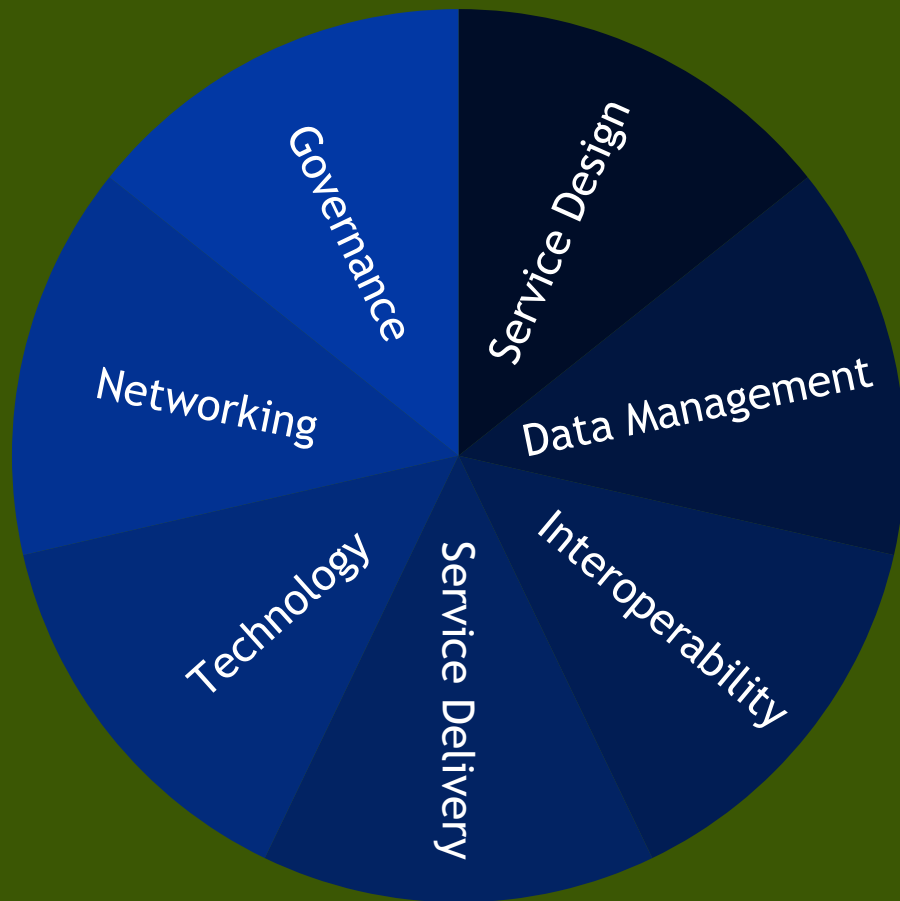
6 levels of maturity

Digital Native	*Digitally Optimized*	*Digitally Purposeful*
Digitally Emerging	*Digitally Emerging*	*Digitally Nascent*

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Functionalities

Evaluate: A tool to help you assess your digital maturtiy and monitor progress made towards digital transition.

Compare: An interactive dashboard to benchmark your city to other similar cities.

Share: A repository of good practices to showcase your initiatives and results and to draw inspiration from other cities.

Learn: Learn about emerging topics and receive policy advice.

Questions it Helps Answer

- Is my city above/below the EU median?
- How do I rank compared to other cities of similar size, urban/rural cities, cities in my country?
- Are there dimensions that my city over/under performs compared to the median?
- What are my city's progresses towards digital maturity?

Facilitates

- Review of achievements and plans for continuation of transformation effort
- Assessment of local enablers
- Identification of opportunities, areas for improvement and how the ecosystem could work together to achieve goals

We invite your city or community to learn more here:

At lordimas.espon.eu

LORDIMAS
LIVING-IN.EU

LORDIMAS

The LORDIMAS can be filled in around 30 minutes:

* It may take longer and require additional inputs from several profiles, depending on the structure, competences, and distribution of responsibilities within each city

We recommend from you city/community teams the following profiles to provide inputs:

- Innovation Manager (Chief Innovation, Chief Digital or Chief Technology Officer, Smart City Manager or similar)

- Data Manager (Chief Data Manager, IT manager, Data Steward, or similar

- ICT ManageR

- International Affairs Manager

- Communications Manager

YOUR NEXT STEPS:

1. Before you start, please consult the Dashboard to check whether your city/community has already participated in LORDIMAS this year to avoid duplications.
2. We advise you to first save or print out the offline version of the LORDIMAS Digital Maturity Assessment to better prepare your inputs and to avoid any data loss due to connectivity or other technical issues. The assessment results will be published on the Dashboard. Your contact details will not be published and will be treated according to the LORDIMAS privacy policy.
3. The Assessment can be completed once you press the "Submit" button. If you have additional questions or you wish to make any changes to your submission, please send an email to lordimas@espon.eu.
4. Use the Maturity Assessment tool and submit your good practices in the different categories through this link.

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STRATEGY ASSESSMENT

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Strategy Assessment

The main goal of this Assessment is to understand a city/community' strategic priorities on digitalisation as well as the key investment areas in terms of services and sectors

Business and strategic vision

- Identify city/community's goals for implementing a local digital platform (and later an LDT)
- Identify sectors that the city wants to invest in and that may benefit from the implementation of a digital platform or LDT
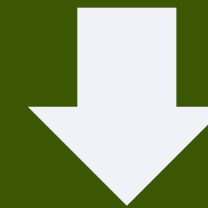
Valuable insights for strategic roadmap initiatives

- Will allow for a more focused roadmap on the capabilities and enablers the city/ community really needs to invest in to progress towards a local digital platform and LDT

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Strategy Assessment

The assessment is designed to be concise, estimated to take between 15 to 30 minutes.

* It may take longer and require additional inputs from several profiles, depending on the structure, competences, and distribution of responsibilities within each city

We recommend from you city/community teams the following profiles to provide inputs:

- Chief Technology Officer or similar

- Chief Innovation Officer or similar

- Relevant city departments with strategic and decision-making capacity

YOUR NEXT STEPS:

1. Before submitting any data, consult the instruction file displayed at the beginning of the form. This document presents an overview of the key information that support the process of answering this assessment, by presenting the assessment sections, the possible types of questions and the glossary.
2. We advise you to first save and review the excel version of the Strategy Assessment to better prepare your inputs and to avoid any data loss due to connectivity or other technical issues.
3. Coordinate with the city officials/team to gather comprehensive strategic input.
4. Proceed to the online form and submit your answers.

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IT INFRASTRUCTURE ASSESSMENT

European Commission

IT Infrastructure Assessment

Evaluate IT infrastructure to better infer about technical maturity, through core infrastructure capabilities that enable the development of a Local Digital platform (and an LDT).

This Assessment will be composed of two main sections:

DIGITAL PLATFORM(S)

Aims to characterise the current maturity level of digital platforms/ verticals and their interoperability. It will also contribute to a better understanding of which data process mechanisms are in place and how data collection is handled.

INFRASTRUCTURE

Aims to understand the infrastructure that the city/ community has in place, namely the physical and technological backbone that could support (or is already supporting) the operation of Smart City solutions.

Tailored roadmap initiatives fundamental to the development of a Local Digital Platform and later a Local Digital Twin, according to the maturity of capabilities found at this stage.

European Commission

IT Infrastructure Assessment

The assessment is designed to be concise, estimated to take between 15 to 30 minutes:

* It may take longer and require additional inputs from several profiles, depending on the structure, competences, and distribution of responsibilities within each city

We recommend from you city/community teams the following profiles to provide inputs:

- Chief Technology Officer or similar

- Chief Innovation Officer or similar

- Relevant city departments with strategic and decision-making capacity

YOUR NEXT STEPS:

1. Before submitting any data, consult the instruction file displayed at the beginning of the form. This document presents an overview of the key information that support the process of answering this assessment, by presenting the assessment sections, the possible types of questions and the glossary.
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DIGITALISATION ROADMAP

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Digitalisation Roadmap

Based on the technical maturity level of a given city/community resulting from the previous assessments, the project team will propose a roadmap composed of initiatives that will enable the gradual build-up of capabilities that are essential to the creation of a local digital platform and/or a digital twin.

PHASES	ENABLERS & CAPABILITIES	INITIATIVES
A city/community that is in the beginning of its digital transformation will receive a roadmap composed of three **main phases:** • Discover & Design • Minimum Viable Product of local digital platform • Expand & Accelerate	**Enablers** facilitate and support the implementation of local digital platforms and later LDTs. Example: *Strategy Design* **Capabilities** in the roadmap will address the gaps of a city/community so that efficient city management and data-driven decision-making become possible. Example: *Data capability*	For each capability and enabler, **a list of initiatives** will be provided. These are the areas in which the city/community will need to invest in and improve over time.

Tailored Phases, Enablers, Capabilities and Initiatives according to the needs and gaps identified in the previous assessments

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Digitalisation Roadmap

The validation process of the roadmap will be a collaborative effort, and while we expect it to be thorough, the duration will vary depending on the depth of engagement and feedback.

We recommend from you city/community teams the following profiles to provide inputs:

- Chief Technology Officer or similar

- Chief Data Manager or similar

- Relevant city departments with strategic oversight

YOUR NEXT STEPS:

The results derived from the scoring assessment, which will lead to the creation of the roadmap, will be reviewed, and presented during a dedicated session with your city.

Prior to this session, we will share the results with you, allowing time for your initial review and the collection of any questions you may have.

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Digitalisation Roadmap

Absent   Embryonic   Foundation   Seeker   Growth

ASSESSMENTS SCORE

Technical Maturity
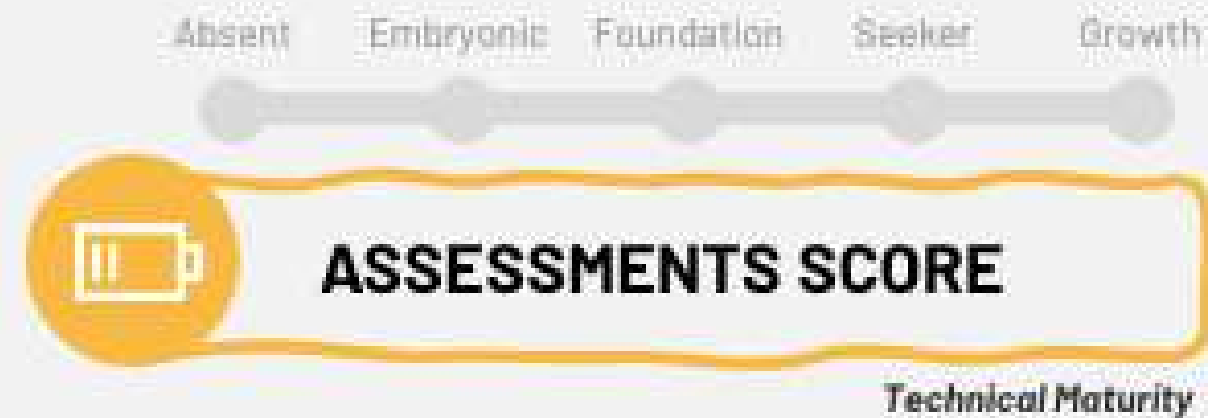
This indicates the overall **technical maturity level** that the community **obtains as a result of the LORDIMAS, Strategy and IT Infra Assessments**. These are five possible levels:

- **Digital Absent |** a community that is in a digital absent state and shows poor technological capabilities. However, there is willingness and/or political commitment to start its digital transformation journey including the adoption of smart solutions;
- **Digital Embryonic |** a community that grapples with inadequate technological capabilities to effectively fulfil its willingness and/or political commitment to embark on a digital transformation journey;
- **Digital Foundation |** a community that is in a digital foundation state and shows basic technological capabilities. All capabilities need to have started their development or exploration, and Integration/ Interoperability and Data should already be in use within the community;
- **Digital Seeker |** a community with a digital strategy, IoT devices or services and advanced technological capabilities in place, possibly already with a local digital platform in place or at development;
- **Digital Growth |** a community that has implemented a local digital platform and already displays more mature technological capabilities, but that needs to continuously evolve towards a local digital twin;

Digitalisation Roadmap

Each community will get its own reference digitalisation roadmap, based on their current maturity scores.

This roadmap will present the key enablers and capabilities that the community needs to work on towards the development of a Local Digital Platform (LDP), and later a Local Digital Twin (LDT)

For that, a set of initiatives and a reference timeline will be proposed

Overview of capabilities and enablers and correspondent reference timeline
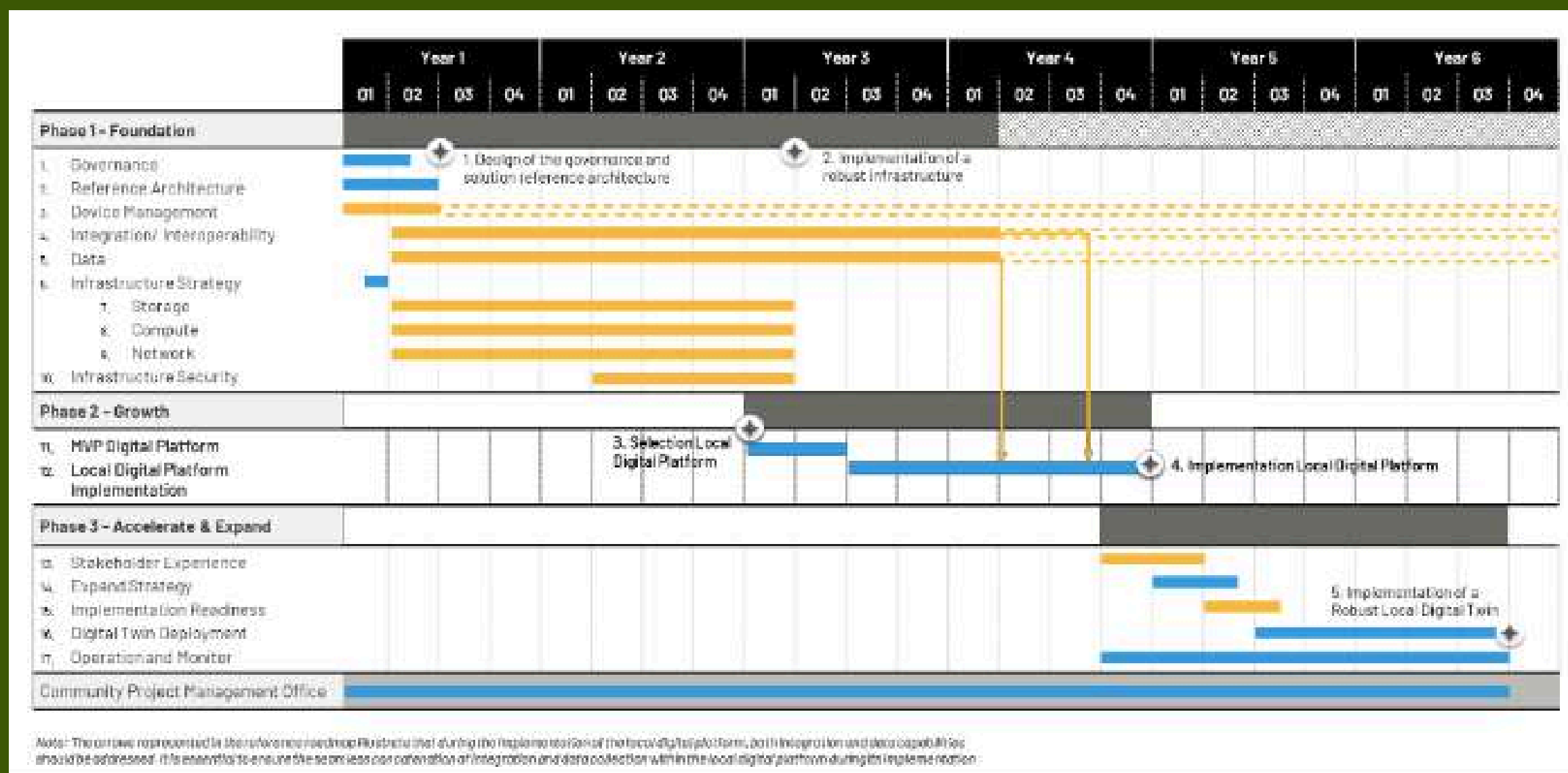
Digitalisation Roadmap

List of initiatives for each capability and/or enabler

Foundation	Growth	Accelerate & Expand

③ Device Management

The Device Management capability entails efficient deployment, maintenance, and integration of IoT devices to enhance overall operational efficiency within the smart community ecosystem.

Calendar Estimate

Year 1				Year 2				Year 3			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Year 4				Year 5				Year 6			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

☰ Main Initiatives

Device Management Strategy

1| Review the device management strategy, including lifecycle management framework, protocols and APIs, and the KPIs

2| Review your current IoT devices, and see if they are a good fit based on the strategic priorities and identified requirements

Device Installation

1| Review current IoT devices and check their integration the current network and compliance with the policies based on your device management strategy and IT Infrastructure strategy

Device Platform

1| Acquire and implement the chosen IoT Platform based on the IoT strategy, strategic priorities and IT Infrastructure strategy

Procurement Objects*

- IoT devices
- IoT platform

*The procurement objects provided are preliminary versions and subject to further refinement

Interdependencies

Not applicable

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Digitalisation Roadmap

Roadmap's Critical Considerations Highlights

Reference Roadmap

The **reference roadmap outlines key milestones and best practices for a project**, providing a standardized framework for development and implementation, applicable to various scenarios as it remains use-case agnostic

The **time presented in the reference roadmap is an estimation**, but can vary depending on the general administration of each city

The **roadmap does not consider the time needed for contract negotiations** and RFP discussions

In the reference roadmap overlaps occur, because certain capabilities and enablers, **while having interdependencies, don't strictly rely on each other's conclusion** since they allow for simultaneous development

Device management, integration and data capabilities can be extended and enhanced whenever new devices or applications are introduced into the network

Whenever starting a new phase in the roadmap, there should be **a time to revisit and review the city's Overall Digital Strategy** to ensure the alignment with the community's current objectives and adaptability to evolving market dynamics

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PROCUREMENT

Procurement

Identification of objects of procurement

After assessing your digital maturity levels and receiving the digital transformation roadmaps, your city will receive guidance to identify the objects of procurement needed to implement the digitalization roadmap.

Future access to procurement templates

Your city will have access to the procurement templates that will be published in the Online Procurement Helpdesk for Smart Communities.

Your city will be invited to participate in a Procurement Workshop to shape the procurement support material that is being prepared according to your needs.

Future access to procurement guidelines and dedicated support

Your city will have access to procurement guidelines that will orient you in understanding the objects of procurement and utilising the procurement templates.

Dedicated support will help you with specific ad hoc questions regarding the content of the templates.

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Procurement

Template (Outline Example)

OUTLINE (1/2)

1. FOREWORD
2. Tender documents, requests for clarification and communication
3. SCOPE AND DESCRIPTION OF THE PROCUREMENT
   - 3.1 Contracting authority: who is the buyer?
   - 3.2 Subject: what is this call for tenders about?
   - 3.3 Lots: is this call for tenders divided into lots?
   - 3.4 Description: what do we want to buy through this call for tenders?
   - 3.5 Place of performance: where will the contract be performed?
   - 3.6 Nature of the contract: how will the contract be implemented?
   - 3.7 Volume and value of the contract: how much do we plan to buy?
   - 3.8 Duration of the contract: how long do we plan to use the contract?
   - 3.9 Options and renewals
   - 3.10 Price revisions
4. GENERAL INFORMATION ON TENDERING
   - 4.1 Legal basis: what are the rules?
   - 4.2 Entities subject to restrictive measures and rules on access to procurement: who may submit a request to participate/tender?
   - 4.3 Registration in the Participant Register: why register?
   - 4.4 Ways to submit a request to participate/tender: how can economic operators organise themselves to submit a request to participate/tender?
     - 4.1.1 Joint requests to participate/tenders
     - 4.1.2 Subcontracting
     - 4.1.3 Optional inspections
5. EVALUATION AND AWARD
   - 5.1 EVALUATION OF OFFERS
     - 5.1.1 Step 1: Exclusion criteria of technical offer
     - 5.1.2 Step 1: Selection criteria of technical offer
     - 5.1.3 Step 1: Exclusion criteria of economic offer
     - 5.1.4 Step 1: Selection criteria of economic offer
     - 5.1.5 Method for the calculation of scores

OUTLINE (2/2)

- 5.2 AWARDING OF OFFERS
  - 5.2.1 Committee for evaluation and awarding
  - 5.2.2 Step 2: Compliance with the conditions for participation and minimum requirements specified in the procurement documents
  - 5.2.3 Step 2: Award criteria
  - 5.2.4 Award (ranking of tenders)
6. FORM AND CONTENT OF THE SUBMISSIONS
   - 6.1 Form of the submissions: how to submit the request to participate/tender?
   - 6.2 Content of the submissions: what documents to submit with the request to participate/tender?
     - 6.2.1 Administrative offer
     - 6.2.2 Technical offer
     - 6.2.3 Economic offer and duration (warranty extension - if applicable)
     - 6.2.4 Verification of anomalies of the offers
     - 6.2.5 Tender awarding and contract signing
   - 6.3 Signature policy: how can documents be signed?
   - 6.4 Confidentiality of tenders: what information and under what conditions can be disclosed?
   - 6.5 Code of Conduct
   - 6.6 Access to the records
   - 6.7 Settlement of disputes
   - 6.8 Personal data processing

APPENDIX: LIST OF REFERENCES
ANNEXES
Annex 1.1 List of documents to be submitted with the request to participate or during the procedure (step 1)
Annex 1.2 List of documents to be submitted with the tender (step 2)
Annex 2. Declaration on Honour on exclusion and selection criteria
Annex 3. Agreement/Power of attorney
Annex 4. List of identified subcontractors and proportion of subcontracting
Annex 5.1. Commitment letter by an identified subcontractor
Annex 5.2. Commitment letter by an entity on whose capacities is being relied
Annex 6. Financial tender form
Annex 7. Technical Specifications *[Consult separate dedicated document]*

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Journey for Participating Cities

KICK OFF ACTIVITIES

1:1 sessions between cities and the *CGAs, or to a common Info Session

*LORDIMAS

Get to know your overall digital maturity

STRATEGY ASSESSMENT

Assess in more detail your overall digital vision and strategy

IT INFRASTRUCTURE ASSESSMENT

Evaluate the technical maturity of the IT infrastructure

DIGITALISATION ROADMAP

Get your digital transformation roadmap tailored to your city/community needs

PROCUREMENT SUPPORT

Receive support to identify procurement needs and templates

APRIL 2024

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Activities take place from April to August; a city's journey may progress faster or slower depending on its specific constraints.

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*CGAs (City Guiding Agents)
*Local and Regional Digital Maturity Assessment

What We Covered Today

- The LDT Procurement Helpdesk is a tool for you to define your list of digital transformation concepts into a focused strategy based on the Roadmap where the investments you make into your city are of value today and future proof in achieving an LDT.

- The helpdesk is live and you can express your interest in participating starting today!

- You will have a City Guiding Agent supporting you throughout your Procurement Helpdesk journey with a Roadmap within as little as 2 weeks with only a handful of hours effort.

Call to Action: Reminder

1. Prepare your strategy to implement Local Digital Twins

2. Join the Living-in.EU movement here

3. Evaluate your digital maturity with LORDIMAS here

4. Follow your local ecosystem: Dutch Societal Innovation Hub

5. Discover the MIMs Plus to start building your Open Data Architecture Framework here

6. Apply to the EU Mission Cities: Twin Cities Programme here

7. Express your interest to participate to the Online Procurement Helpdesk here

8. Stay tuned to the next events for smart communities in the EU: 26 Member States are left! Here and Living-in.EU LinkedIn

We appreciate your feedback: link

DON'T FORGET!

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2030 DIGITAL DECADE

POLICY PROGRAMME:
A PATH TO THE DIGITAL DECADE

APPENDIX

Digital Transformation Roadmap Glossary A-Z

Concept	Definition/Explanation	Capability/Enabler(s)
A Adaptability	Adaptability refers to the component's ability to easily integrate new technologies, respond to technological advancements, and accommodate changes in requirements or standards	Infrastructure Strategy; Storage; Network; Compute
APIs	APIs, or Application Programming Interfaces, are sets of rules and protocols that enable different software applications to communicate with each other. They define the methods and data formats applications should use to request and exchange information, facilitating seamless integration and interaction between diverse systems and services	Device Management; Integration/ Interoperability
Authentification Federation Tool	An authentication federation tool is a software solution or platform designed to facilitate and manage authentication federation in a secure and efficient manner. It enables seamless authentication and authorization across multiple systems, applications, and domains. Some market examples are Azure Active Directory, OneLogin, among others	Infrastructure Security
Automatic Storage Management	Database storage management solution that simplifies storage administration by automating tasks such as disk configuration, provisioning, and maintenance in a database environment	Storage
B Backup Solution	Operationalises the business continuity plan by providing detailed processes and resources related to data backup, storage, recovery, etc	Security
Bandwith	The capacity at which a network can transmit data	Network
Business Continuity Plan	A proactive and strategic approach to ensure the community can continue critical operations and services in the event of a disruptive incident or disaster	Security
C Cameras / Image sensors	Cameras and image sensors capture visual data and images. For example, autonomous vehicles rely on cameras to detect objects and monitor their surroundings. Image sensors function to capture images to be digitally stored for processing. License plate readers are an example, as well as facial recognition systems	Device Management; Data
Capacity	The maximum number of resources that a system or infrastructure can handle effectively without compromising performance, responsiveness, or functionality	Infrastructure Strategy; Network; Implementation Readiness; Digital Twin Deployment

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Digital Transformation Roadmap Glossary A-Z

C

Concept	Definition/Explanation	Capability/Enabler(s)
Chief Digital Officer	The highest-ranking officer leading the strategic and operational management of digital policies in the public authority. A chief digital officer is a leader who combines business acumen with digital expertise to help organisations drive digital transformation via an enterprise-wise digital vision and strategy	Governance
Cloud	A model for delivering computing resources, such as virtualised servers, storage, and applications, over the internet	Infrastructure Strategy; Storage; Network; Compute; Implementation Readiness
Cloud Compute	Cloud compute involves accessing and utilising computing resources, including servers and storage, over the internet through cloud service providers, offering scalability and flexibility	Compute
Cloud Storage	Cloud storage involves storing and managing data on remote servers accessed over the internet, providing scalable, flexible, and easily accessible storage solutions	Storage
Compute	The processing power and capabilities of a system or network, including the hardware and software components responsible for performing calculations, running applications, and handling data	Device Management; Infrastructure Strategy; MVP Digital Platform; Implementation Readiness
Compute Cleanup	The removal of computing resources that are no longer needed or are underutilised, aiming to optimise the efficiency of the compute infrastructure	Compute
Compute Policies + Procedures	A set of rules and configurations that define how computational resources are provisioned, managed, and utilised within an IT infrastructure	Compute
Compute Provisioning	Involves allocating and configuring resources to meet specific computing needs, ensuring that the required resources are available for running applications and handling workloads	Compute
Computing Adv. Technologies	Cutting-edge innovations and methodologies that leverage the capabilities of computing systems, such as virtual machines, containers, serverless computing or edge computing	Compute

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Digital Transformation Roadmap Glossary A-Z

	Concept	Definition/Explanation	Capability/Enabler(s)
C	Containers	Lightweight, standalone, and executable software packages that include everything needed to run an application, such as code, runtime, libraries, and system tools	Compute; Implementation Readiness; Integration/ Interoperability
	Cybersecurity Policy	Guidelines, rules, and procedures related to cybersecurity	Security
	Cybersecurity Strategy	A cybersecurity strategy covers a wide range of guidelines, rules and procedures related to cybersecurity	Security
D	Data	Communities generate large amounts of data which can be examined to uncover hidden patterns, correlations and insights. This capability helps communities and organisations within them to harness their data and use it to identify new opportunities	Governance; Device Management; Integration/ Interoperability; Data; Network; Compute; Security; MVP Digital Platform; Local Digital Platform Implementation; Implementation Readiness; Digital Twin Deployment; Operation & Monitor;
	Data Analysis	Process of examining, transforming, and interpreting large volumes of data to derive meaningful insights and identify patterns to make informed decisions	Data; Implementation Readiness;
	Data Analysis Tools	Data analysis tools are software applications or platforms designed to process, interpret, and derive meaningful insights from data. Some examples are the use of SAS Analytics, R, Python, MS Power BI among several others	Data
	Data Backup and Retention Tools	Creating copies (backups) of important data to safeguard against data loss. Some market tools examples are Veeam, Druva, Rubrik, Windows BackupAssist, among others	Data
	Data Centralisation	Refers to the practice of community data being stored in a single location or database, making it easily accessible and manageable from a central point	Data
	Data Collection and Mgmt	The processes and practices of gathering, organising, and utilising data from various sources within the community's infrastructure	Data

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Digital Transformation Roadmap Glossary A-Z

Concept	Definition/explanation	Capability/Enabler(s)
Data Governance	Establishment and enforcement of policies, standards, and practices to ensure the quality, security, and responsible management of data throughout its lifecycle	Governance; Data
Data Governance Framework	Sets guidelines for how data is handled across the community's various departments and systems	Data
Data Governance Tool	Designed to facilitate and support the implementation, management, and enforcement of data governance processes	Data
Data Retention and Backup	Systematic preservation of information, ensuring its long-term storage and creating duplicates to safeguard against loss or system failures	Data
Data Strategy	Systematic planning and implementation of policies to acquire, manage, analyse, and leverage data effectively for informed decision-making and sustainable urban development	Data
Device	A device refers to a physical tool equipped with sensors and communication capabilities to collect, process, and transmit data for various applications. Examples include IoT sensors, cameras, and other connected gadgets that contribute to data-driven decision-making and community management	Device Management
Device Management Platform	An IoT device management platform is an integrated application that simplifies IoT device management by allowing you to manage and monitor the entire lifecycle of devices and sensors in one place—from planning and onboarding, to monitoring and maintenance, through to retirement.	Device Management
Device Management Strategy	The systematic approach and set of processes used to control, monitor, and optimise the deployment, operation, and maintenance of a large number of interconnected devices within the IoT ecosystem	Device Management
Digital Strategy	A comprehensive plan outlining how an organisation or community leverages digital technologies to achieve its goals	Integration/ Interoperability
Disaster Recovery	Strategic planning and implementation of measures to swiftly restore and resume critical systems and data in the aftermath of a disruptive event or disaster	Security

D

Digital Transformation Roadmap Glossary A-Z

	Concept	Definition/explanation	Capability/Enabler(s)
E	**Edge computing**	A distributed computing paradigm where data processing and analysis occur closer to the data source or "edge" of the network, rather than in centralised data centres or cloud environments	Network; Compute
	Effectiveness	The degree to which each component successfully fulfils its intended purpose and contributes to the overall goals and objectives of the smart community. For example, in the context of network, it evaluates how well the network meets the operational requirements and demands of the community	Governance; Device Management; Data; Infrastructure Strategy; Storage; Network; Compute
F	**Fiber Optic**	High-speed internet connections delivered via optical fibbers	Network
G	**General Data Protection Regulation (GDPR)**	A comprehensive data protection and privacy regulation governing the processing of personal data in the European Union (EU) and the European Economic Area (EEA)	Security
I	**ICT Infrastructure**	ICT infrastructure, or Information and Communication Technology infrastructure, refers to the combined hardware, software, networks, and facilities that enable the processing, storage, transmission, and management of information in an organisation or across a network	Reference Architecture
	Infrastructure Security	Secure the entire infrastructure which includes all hardware and software	Security
	IoT	The network of interconnected devices and sensors that can collect and exchange data	Reference Architecture; Device Management; Network; Digital Twin Deployment
	IoT Devices	IoT Devices are physical objects with embedded sensors, software, and connectivity for data collection and exchange over the internet. These devices can range from household appliances to industrial machinery and smart community infrastructure. The key feature is their ability to communicate, enabling data sharing, remote monitoring, and automation. IoT Services support seamless device operation and management	Reference Architecture; Device Management; Network; Digital Twin Deployment

European Commission

Digital Transformation Roadmap Glossary A-Z

	Concept	Definition/explanation	Capability/Enabler(s)
I	**IoT sensor**	An IoT sensor is any sort of mechanism or tool, such as a camera or air quality monitor, integrated into a device. These sensors gather information related to the environments (e.g., air temperature and traffic patterns) in which they are deployed and transmit it to the cloud via Wi-Fi, Bluetooth, 5G or other mobile network	Device Management
	IT Infrastructure	The foundational components and systems that enable the processing, storage, and transmission of information within the community/community. To support the creation and operation of local digital platforms and digital twins, IT infrastructure includes the network, computing power, data processing, storage, and security	Device Management; Integration/ Interoperability; Compute
K	**Key Performance Indicator (KPI)**	Quantifiable measure of performance over time for a specific objective	Governance; Device Management; Data; Operation & Monitor; City/Community Project Management Office
L	**Local Digital Platform**	Local Digital Platforms are the beating hearts of the urban digital transformation as they connect, analyse and visualise all data from the urban fabric. It serves as a centralised system for collecting data from various systems, applications, and IoT devices, fostering interoperability and collaboration across different domains. The platform plays a crucial role in supporting smart community initiatives by providing a unified and accessible data repository for decision-making, planning, and optimising urban services and operations	Expand Strategy; Implementation Readiness; Digital Twin Deployment; Operation & Monitor
	Local Digital Twin	Local digital twins are a virtual representation of a community's physical assets, using data, data analytics and machine learning to help simulation models that can be updated and changed (real-time) as their physical equivalents change. Source: https://living-in.eu/groups/solutions/local-digital-twin	Expand Strategy; Implementation Readiness; Digital Twin Deployment; Operation & Monitor
	Low latency	Minimal delay or lag time between the initiation of a process or request and the receipt of the corresponding response	Storage; Network; Compute
M	**Monitoring**	Involves the systematic and continuous observation, measurement, or tracking of a process, system, or activity to assess its performance, progress, or behavior over time	Governance

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Digital Transformation Roadmap Glossary A-Z

Concept	Definition/explanation	Capability/Enabler(s)
Network	The interconnected system of communication pathways that allow various components, devices, and systems to exchange information and data	Device Management; Infrastructure Strategy; Network; Compute; Security; MVP Digital Platform; Implementation Readiness
Network Adaptability	Flexibility and responsiveness of a system to accommodate changes, upgrades, or evolving technological requirements within a connected environment	Network
Network Capacity	Capacity refers to the maximum amount of resources that a system or infrastructure can handle effectively and efficiently without compromising its performance, responsiveness or functionality. In this context, it refers to the maximum amount of data that a network can handle within a given period of time	Network
Network Capacity and Effectiveness	Ability of a network to efficiently handle data traffic, ensuring optimal performance, reliability, and responsiveness for connected devices and users	Network
Network Connectivity	Ability of devices, systems, or networks to establish and maintain communication, facilitating data exchange and collaboration within an interconnected environment	Network
Network Coverage	The extent or reach of the network signal or connectivity in different geographical areas of the community	Network
Network Redundancy	Involves the implementation of backup systems and duplicate components to ensure uninterrupted operation, mitigate failures, and enhance the reliability of a network	Network
Network Reliability	Network reliability includes the consistent and trustworthy performance of a system, ensuring uninterrupted connectivity and minimal downtime for users and devices	Network
On-Premises Compute	Deployment of computing resources, such as servers and infrastructure, within an organisation's own physical location or data centre	Compute
On-Premises Storage	On-premise storage refers to the localised hosting and management of data within an organisation's own physical infrastructure, providing direct control and accessibility to stored information	Storage

N

O

Digital Transformation Roadmap Glossary A-Z

	Concept	Definition/explanation	Capability/Enabler(s)
O	**Open Source Software**	Refers to computer programs whose source code is made available to the public, allowing users to view, modify, and distribute the software freely. This collaborative and transparent development model encourages community involvement, fosters innovation, and typically results in software that is accessible and customisable for a wide range of users	Integration/ Interoperability
	Open Standards	Open standards are publicly available specifications and protocols that are developed collaboratively and are not owned or controlled by any single organisation. They facilitate interoperability and ensure that different systems and products can work together seamlessly, fostering compatibility and reducing dependence on proprietary technologies	Integration/ Interoperability
P	**Plan, Monitor & Test**	Plan, Monitor & Test Security entails the strategic development, ongoing surveillance, and systematic testing of security measures, including patch management, event monitoring, investigation protocols, and vulnerability assessments, to safeguard against potential threats and ensure a resilient cybersecurity framework	Security
	Privacy Compliance	Adhering to legal and regulatory standards to safeguard individuals' personal information, ensuring responsible and lawful data handling practices	Security
	Privacy-Enhancing Technologies (PETs)	Digital solutions that allow information to be collected, processed, analysed, and shared while protecting data confidentiality and privacy	Security
	Private subnet	Private subnet is a portion of an IP network that is isolated from the public internet, which provides an extra layer of security as resources can only be accessed via a gateway, such as a firewall or a Virtual Private Network (VPN)	Security
	Public subnet	Public subnet is a network segment where devices have public IP addresses and can be directly accessed from the internet	Security
	Public Wi-Fi	Wireless internet connectivity provided in public spaces to allow individuals to access the internet using their Wi-Fi-enabled devices	Network
R	**Real-time data collection**	Real-time data collection involves the continuous and immediate capture of data as it is generated or becomes available	Data; Implementation Readiness

Digital Transformation Roadmap Glossary A-Z

	Concept	Definition/explanation	Capability/Enabler(s)
R	**Redundancy**	The level of backup or duplicate systems, components, or processes in place to ensure continuity and reliability in the event of a failure or disruption	Infrastructure Strategy; Storage; Network; Compute
	Reliability	The system's ability to consistently perform its intended functions without failures or disruptions	Infrastructure Strategy; Network
S	**Scalability**	The ability of a component or system to efficiently handle increased demands or workloads without compromising performance or reliability	Device Management; Integration/Interoperability; Infrastructure Strategy; Storage; Network; Compute; Implementation Readiness
	Security	The community's ability to address potential threats and risks, ensure compliance with regulatory requirements, and foster resilience against cyberattacks	Device Management; Data; Infrastructure Strategy; Compute; Security; MVP Digital Platform; Implementation Readiness
	Security Advanced Measures	Security advanced measures encompass sophisticated and proactive strategies, technologies, and protocols implemented to fortify defences, detect and respond to cyber threats, and ensure robust protection of digital assets	Security
	Security Patch	A security patch is a software update specifically designed to fix vulnerabilities or weaknesses in a computer system, application, or firmware. It aims to enhance security by addressing known vulnerabilities and protecting against potential threats or exploits	Security
	Security Segmentation	Security segmentation involves dividing a network into distinct segments, such as public and private subnets, to enhance security by restricting access and isolating sensitive information from the public domain	Security
	Serverless computing	Serverless computing is a cloud computing model where developers write and deploy code without managing the underlying infrastructure. Applications are broken down into small functions triggered by events, scaling automatically and charging only for resources used	Compute

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Digital Transformation Roadmap Glossary A-Z

	Concept	Definition/explanation	Capability/Enabler(s)
S	**Smart City Office**	Dedicated body within the community administration that will focus on planning, implementing, and overseeing initiatives related to making the community/community smarter through digital technologies and data-driven solutions	Governance
	Storage	Storage refers to the community's ability to securely and reliably store various types of data. This includes the physical and virtual components such as servers, databases, cloud storage, and other technologies that facilitate the retention and management of data	Governance; Device Management; Data; Infrastructure Strategy; Storage; MVP Digital Platform; Implementation Readiness
	Storage cleanup	Storage clean-up involves the process of identifying, reclaiming, and managing storage space that is no longer needed storage provisioning is the process of allocating and configuring storage resources to meet the data storage requirements of applications, users, or systems used inefficiently	Storage
	Storage provisioning	The process of allocating and configuring storage resources to meet the data storage requirements of applications, users, or systems	Storage
	System/ Application	A system/application is a purposeful arrangement of hardware, software, and data designed to address urban challenges or enhance community functions. It often involves collecting and utilising data from diverse devices and sensors across the community. Examples include systems or applications for intelligent traffic signals, smart surveillance, waste collection route optimisation, and smart streetlights	Reference Architecture; Strategy; Compute; Local Digital Platform Implementation; Digital Twin Deployment
	SWOT Analysis	Strategic planning tool that assesses an entity's Strengths, Weaknesses, Opportunities, and Threats to make informed decisions and formulate effective strategies	Strategy
T	**Trade-off**	Decision to give up or compromise one thing in exchange for another, often involving competing factors or objectives, where improving one aspect may come at the expense of another	Strategy

Concept	Definition/explanation	Capability/Enabler(s)
Virtual Machines (VMs)	Software-based emulations of physical computers, enabling multiple operating systems to run on a single physical host or server, each within its own isolated environment (e.g., VMware, Hyper-V, KVM)	Compute; Implementation Readiness
Virtualisation	Virtualisation is the process of creating a virtual version of computing resources, such as hardware, storage, or operating systems. It allows multiple virtual instances to run on a single physical system, improving resource utilisation, flexibility, and scalability	Compute
Vulnerability assessments	Systematic process of identifying, evaluating, and prioritising potential vulnerabilities or weaknesses in the community	Security
5G readiness	5G, or fifth generation, refers to the latest standard in mobile telecommunications technology. It represents a significant advancement over its predecessor, 4G LTE. Key features of 5G include faster data transfer speeds, lower latency, increased capacity to support more devices, and improved connectivity for mobile devices, Internet of Things (IoT) devices, and various applications	Network

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INCREASING DIGITALISATION AWARENESS & READINESS OF DUTCH COMMUNITIES

THANK YOU