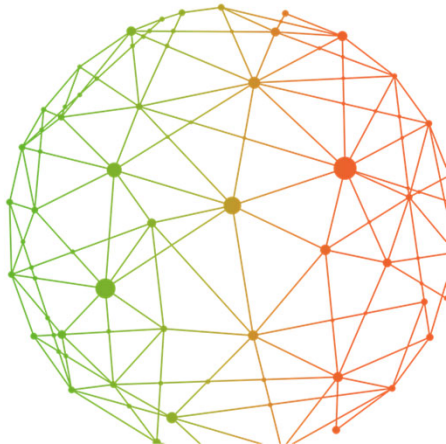
Data Spaces Symposium

13:30

Societal impact of data spaces: addressing local challenges, deliverering better services to citizen

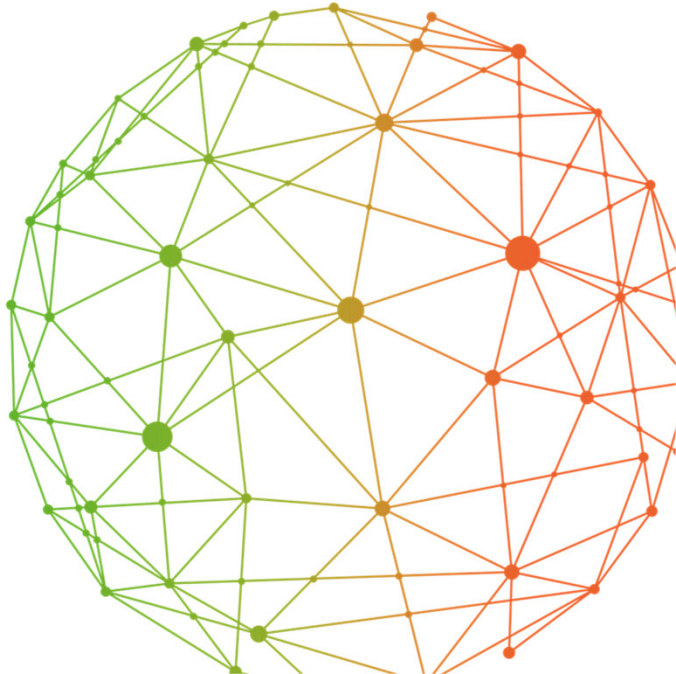
Domain session [smart cities & communities]



Data Spaces Symposium

The EU data space for smart communities: federation approach and overview of pilots

Sophie Meszaros

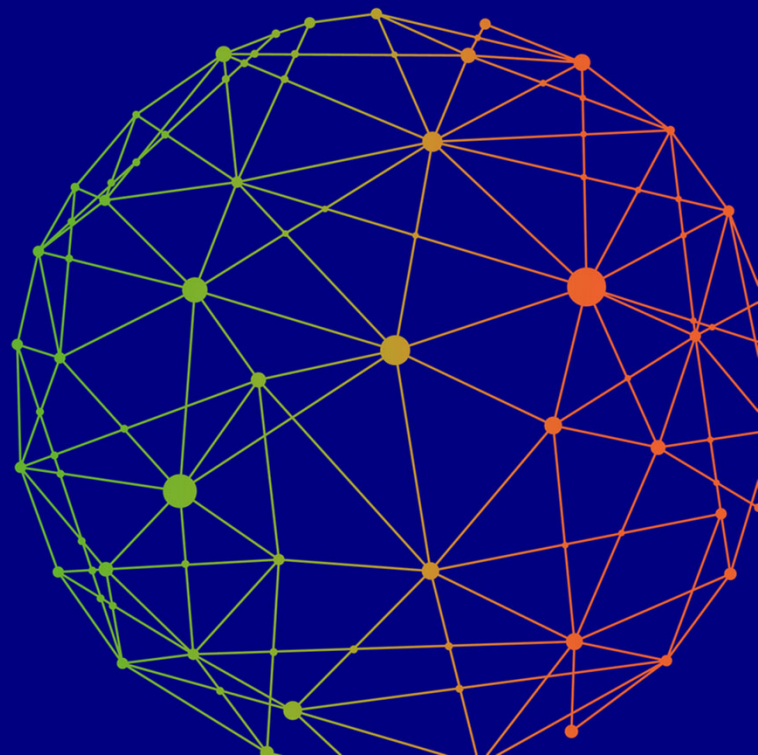


EU Data Space for Smart Communities

Smart Communities Session

Data Spaces Symposium 2025

Sophie Meszaros



Funded by the European Union

The Data Spaces Support Centre receives funding from the European Union Digital Europe Programme under grant agreement n° 101083412

The European Data Space for Smart Communities & EU Legislation

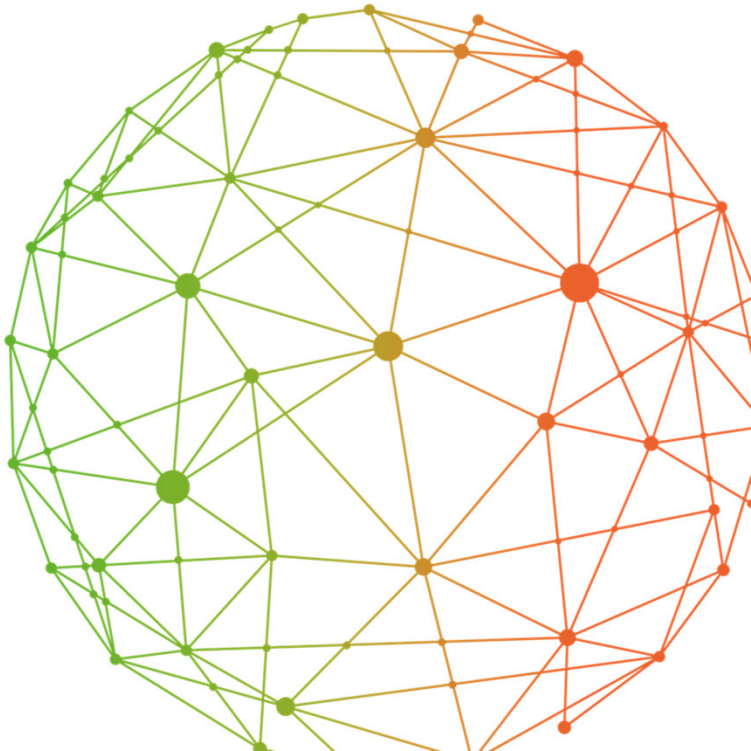
Fragmented Data Landscape
Dependence on Non-EU Tech Giants
Lack of Trust & Interoperability
Need for Data-Driven Innovation

European Strategy for Data (2020)

a single market for data across the EU

European Data Act, Digital Europe Programme

European data space

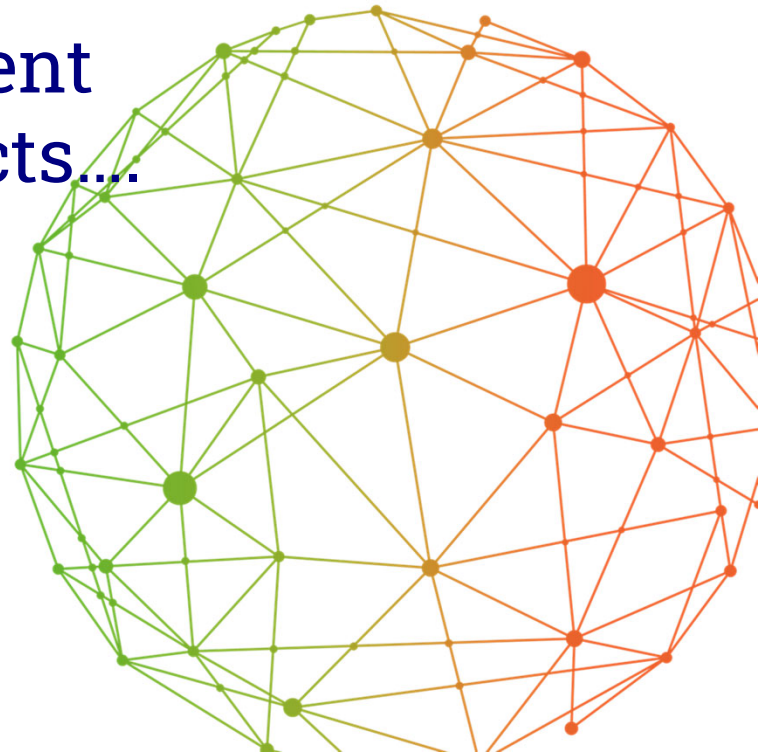


Why Data Space for Smart Communities?

a local government creates a data-driven service to benefit their citizens.

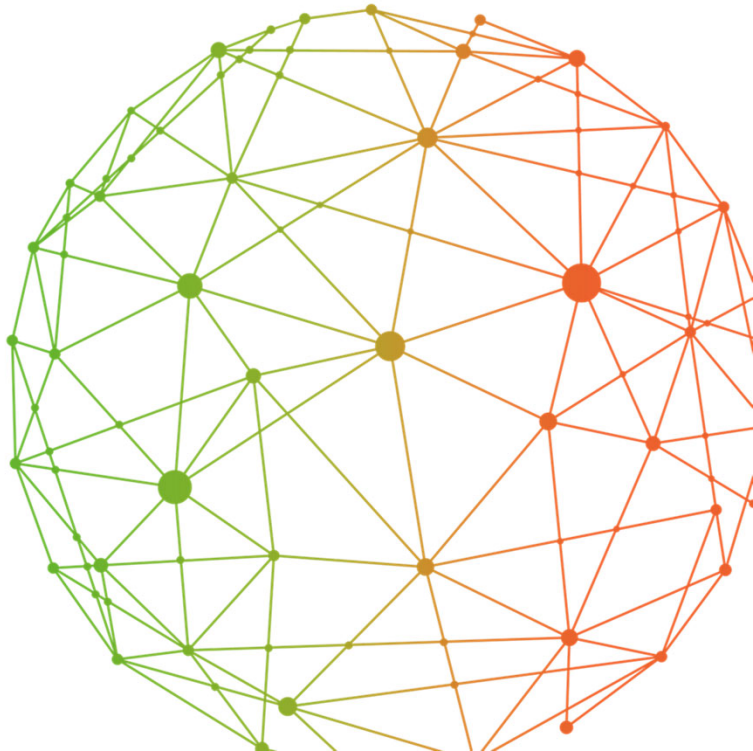
the service requires data sets from different sectors: interoperability, security, contracts....

European data space



The European Data Space for Smart

- ✓ multi-stakeholder environment
  - technical differences
  - business objectives
  - organisational challenges
  - legal challenges
- ✓ interoperability
- ✓ data sovereignty
- ✓ transparency



Message from Helen Koepman, DG CNECT

Timeline

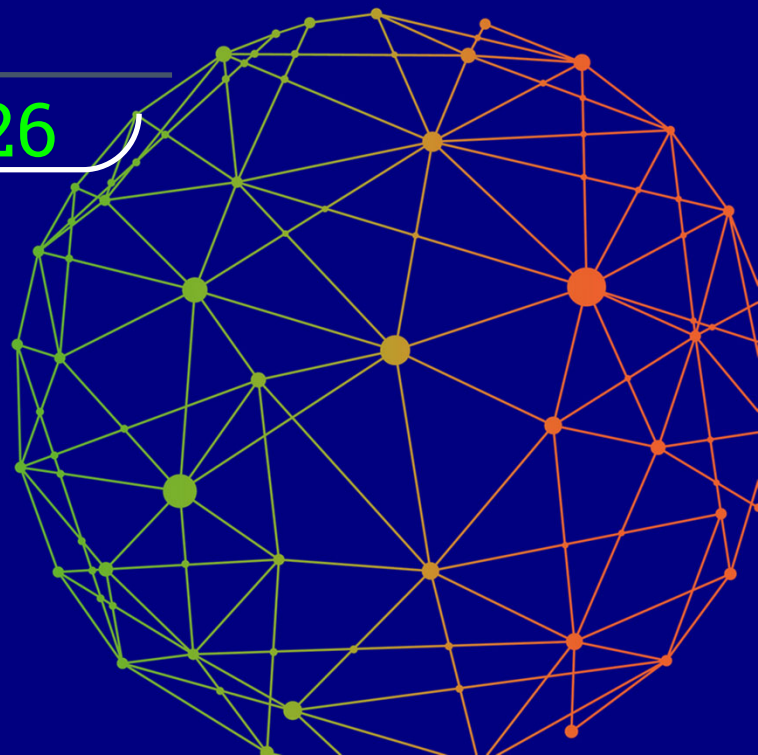
Data Space Blueprint

2022

2023

2026

Data Space Deployment



The Blueprint

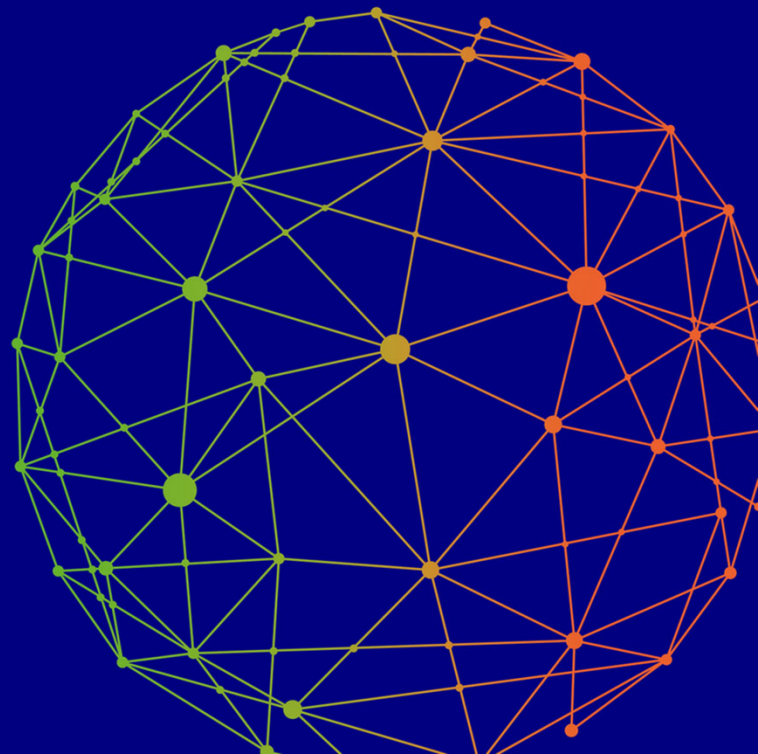
Non-Technical Blueprint

- Multi-stakeholder data governance scheme
  - Business (to be further developed)
  - Legal (see Code of Conduct)
  - Organisational (see Code of Conduct)
- Data Cooperation Canvas

Technical Blueprint

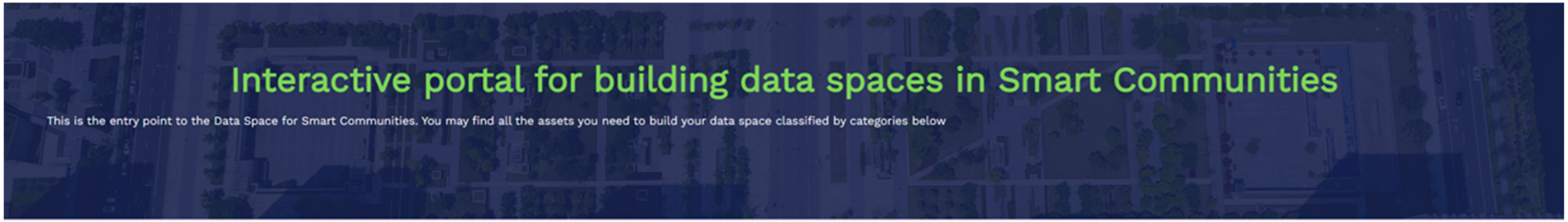
- Catalogue of Data Space Building Block Specifications
- Reference Architecture Model
- CookBook

Capacity Building Resources



Roadmap to deploy a data space

www.ds4sscc.eu



Multi-stakeholder Governance Scheme

Discover

Catalogue of Specifications

Discover

Reference Architecture

Discover

Priority Datasets

Discover

Collected Use Cases

Discover

Roadmap for implementing DS4SSCC

Discover

Blueprint & Data Space Provisioning

Blueprint

Feedback:

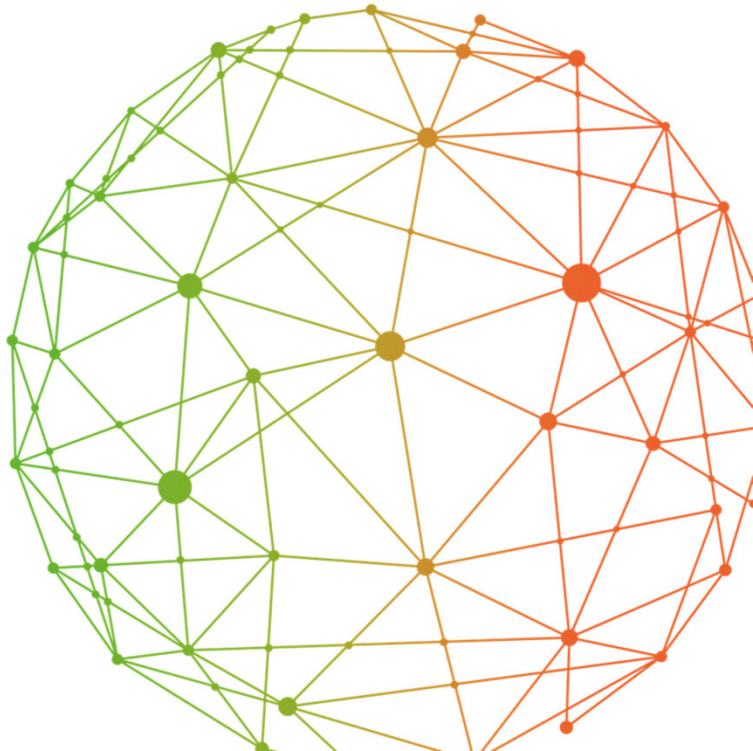
- Interviews
- Surveys

Open call for cross-sectorial Pilots

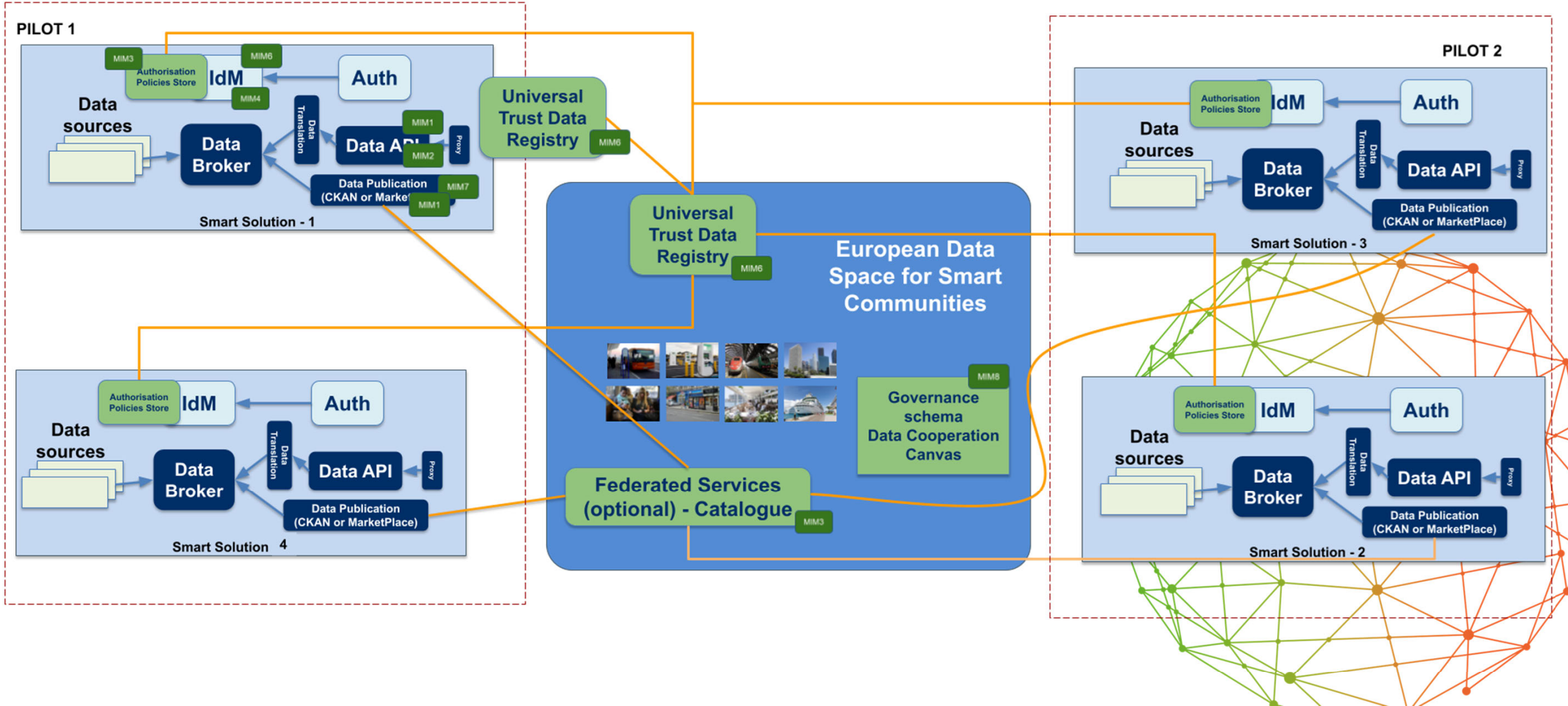
10-12 Pilots:

- mentoring
- monitoring
- training
- expert support

Federation



The potential for an EU-wide Data Space



The Pilots

6 awarded pilots (more to come)

- Urban Minds (Kranj, Pula)
- Traffic Flow Data Space (Porto, Helsinki, Amsterdam)

- STIDS (Szeged, Timișoara)
- Beat The Heat (Cartagena, Naples, Taranto)
- DS4PED (Sofia, Rubi)
- CitizenCity (Eindhoven, Oulu, Province of Álava

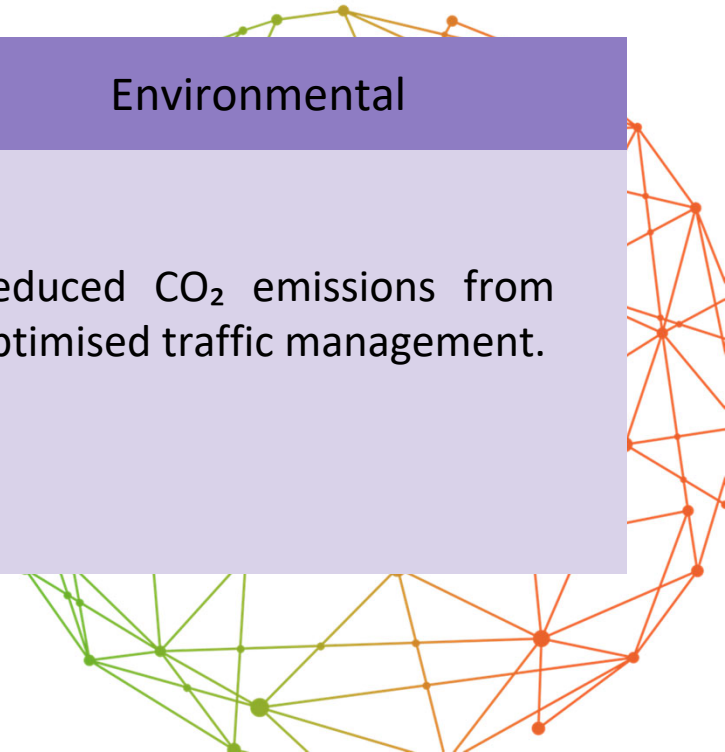
TRAFFIC FLOW DATA SPACE - (Porto, Helsinki, Amsterdam)

IDEA TECHNOLOGY: near real-time updates on roadworks by using real-time floating car data (FCD) and other sources

expanding capabilities to include unplanned roadworks, tunnel closures, and speed limits.

- **scale across borders**
- **private public partnerships**

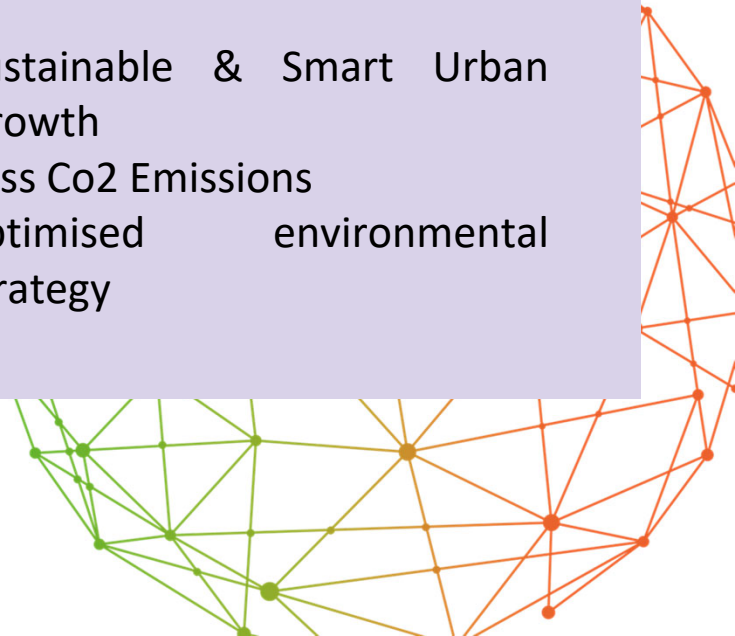
Mobility	Social	Environmental
Short-Term: Enhanced traffic flow for vehicles in Amsterdam, Helsinki, and Porto. **Mid-Term:** Scalability to all EU countries. **Long-Term:** Improved mobility for various transport modes.	Reduced disruption and nuisances for citizens due to real-time data sharing and better infrastructure planning.	Reduced CO_2 emissions from optimised traffic management.



STiDS - (Szeged, Timișoara)

- **key challenges in mobility and air quality: lack of real-time data, demand for better multimodal mobility solutions.**
- **Using data from IoT sensors to support evidence-based decisions for urban mobility planning.**
- **Exploring AI-supported traffic analysis to assess potential improvements in public transport and congestion management.**

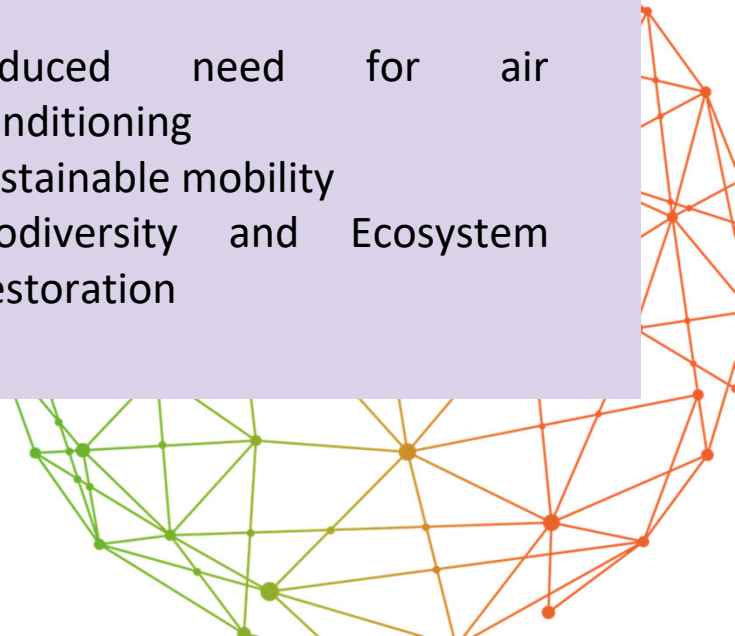
Economic	Social	Environmental
More Efficient City Services Boosting Local Innovation Attracting EU & Private Investments	Improved Quality of Life Citizen Engagement Cross-Border Collaboration	Sustainable & Smart Urban Growth Less Co2 Emissions optimised environmental strategy



Beat The Heat - (Cartagena, Naples, Taranto)

- **addresses urban heat islands, urban health and thermal comfort: factors such as shadow generation, relative humidity, attenuation of UV radiation, or pavement emissivity.**
- **domains covered: mobility, and urban planning**

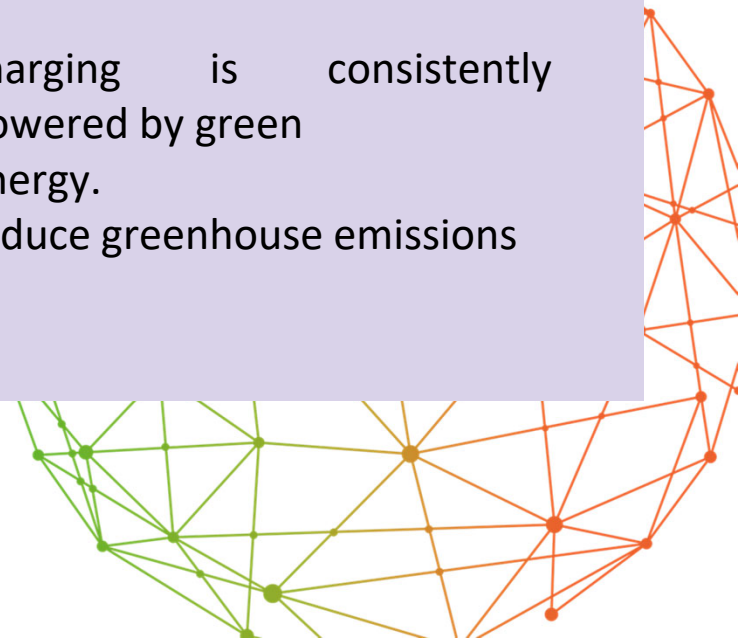
Economic	Social	Environmental
optimised allocation of Green Deal resources Impact on individuals' resources	Improved health conditions Improved quality of life	reduced need for air conditioning sustainable mobility Biodiversity and Ecosystem Restoration



DS4PED - (Sofia, Rubi)

- **key challenges in energy, mobility, and environmental planning**
- **provides proof that the energy used to charge EVs comes from renewable sources with a traceability system**
- **the pilot will enable modelling and prediction of these impacts, enabling targeted interventions. Quantifying the effects of energy use, traffic patterns, and urban density will empower urban planners to design greener spaces.**

Economic	Social	Environmental
cost-effective and efficient charging provides a scalable solution for other PED applications (tokenising)	addresses energy poverty cost inclusiveness	charging is consistently powered by green energy. reduce greenhouse emissions



CitizenCity - (Eindhoven, Oulu, Province of Álava)

Build on existing resources: municipal Woningbouw monitoring app, Mobility Lab Vitoria-Gasteiz, "Oulu data space (ODS)" model for public service data

data from: waste, weather, traffic, water

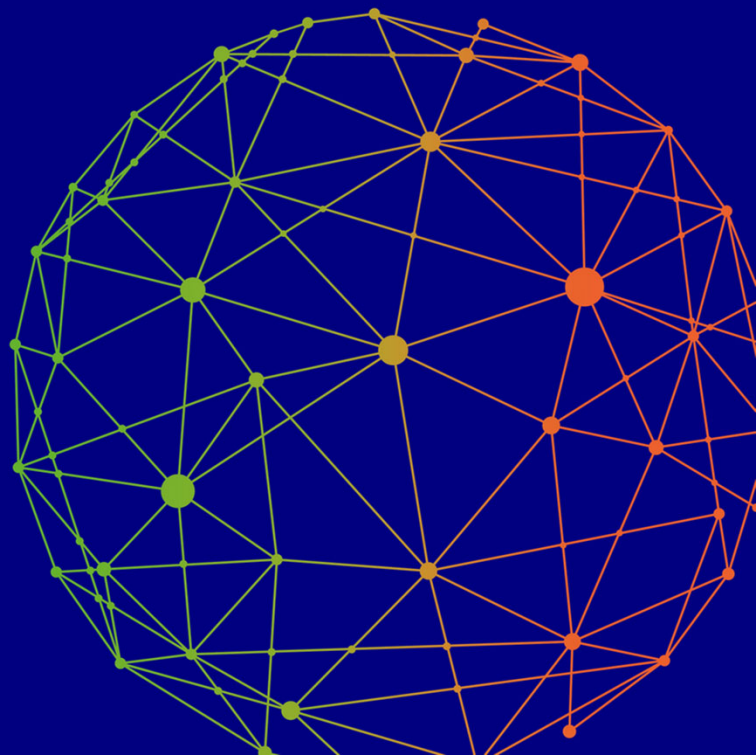
Mobility	Social	Environmental
how to use optimized traffic information in times of hazardous road conditions	living in a new development smart district citizen participation	a positive energy district

EU Data Space for Smart Communities

Smart Communities Session

Data Spaces Symposium 2025

QUESTIONS?
sophie@oascities.org



DSBA ■ BDV BIG DATA VALUE ASSOCIATION FIWARE FOUNDATION gaia-x INTERNATIONAL DATA SPACES ASSOCIATION

DATA SPACES SUPPORT CENTRE

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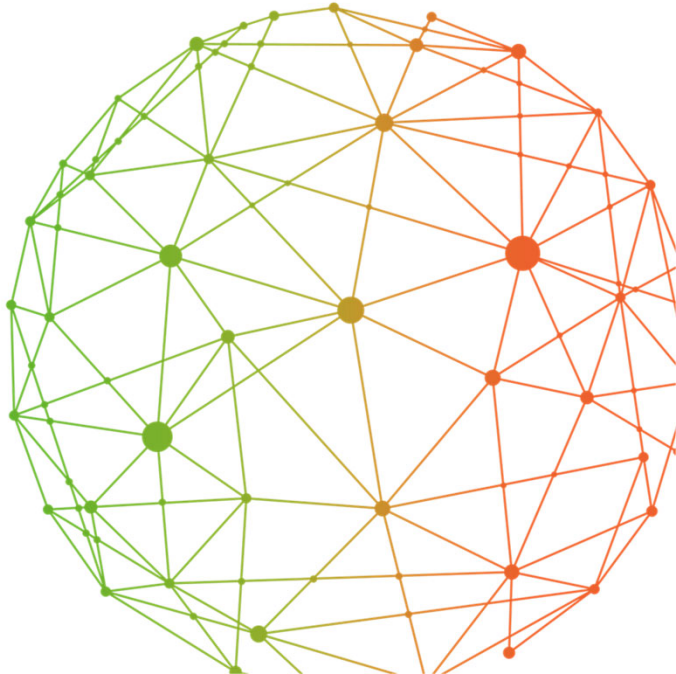
Data Spaces Symposium

Showcase pilot: Urban Mind

Tomaž Lanišek



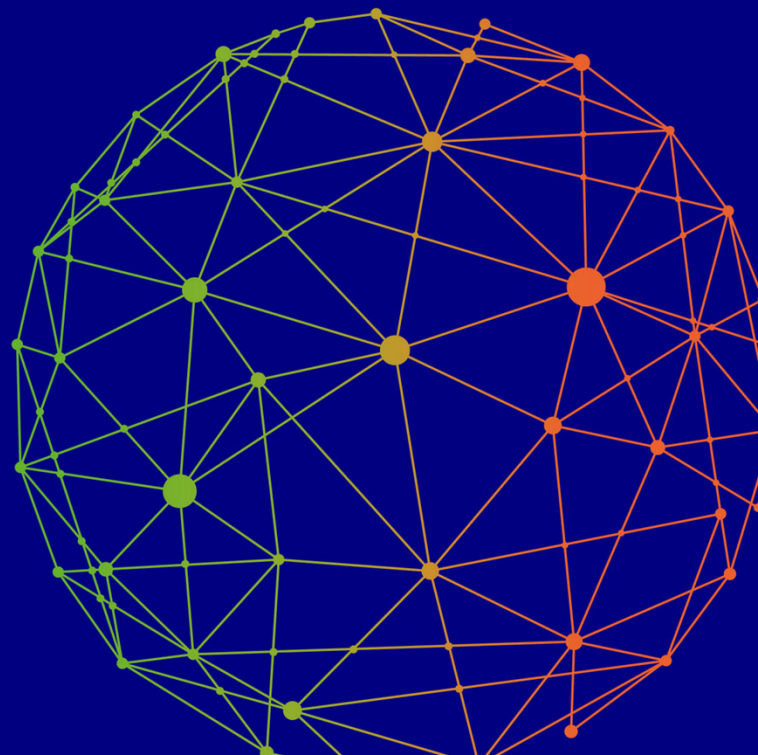
Showcase Pilot - UrbanMind

Smart Cities & Communities

Data Spaces Symposium 2025

Tomaz Lanisek,
City of Kranj, Slovenia

12 March 2025



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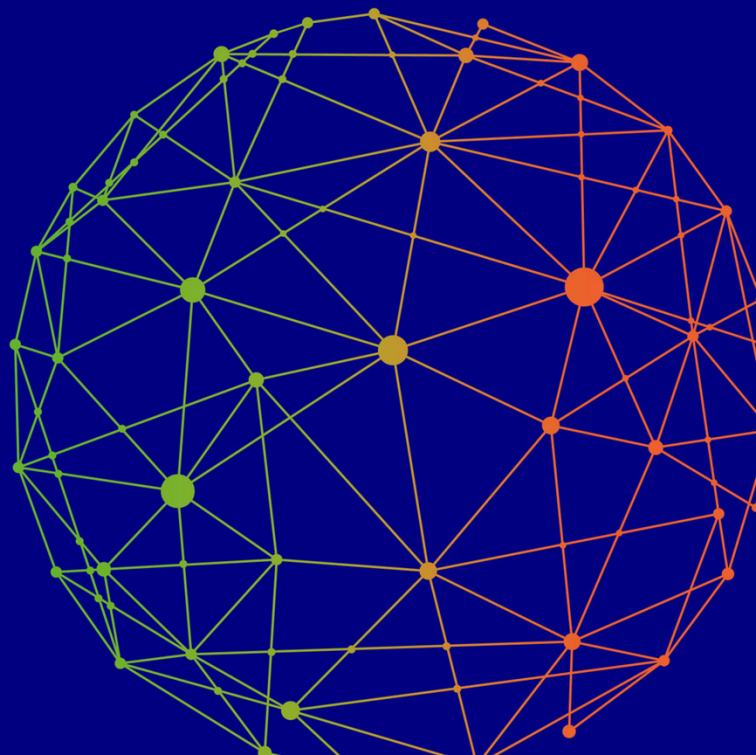
Basic pilot info

- Title: UrbanMind (DS4SSCC-DEP) Pilot 2024-1-A
- Involved cities: Kranj (SLO), Pula (CRO)
- Dates: 1 November 2024 – 30 April 2026
  (duration: 18 months)
- Budget: 3 MIO EUR
- Related domains:
  - Predictive traffic management / sustainable mobility planning
  - Data-services related to weather, climate and extreme weather events

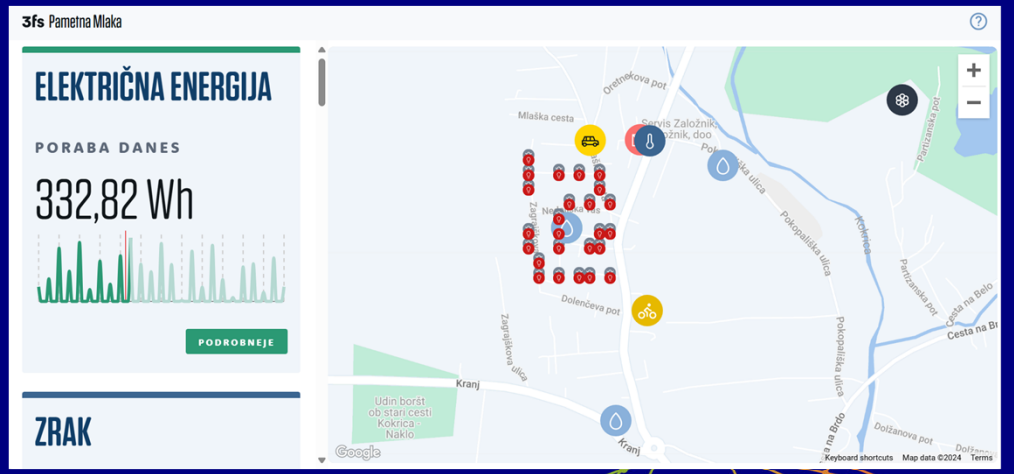


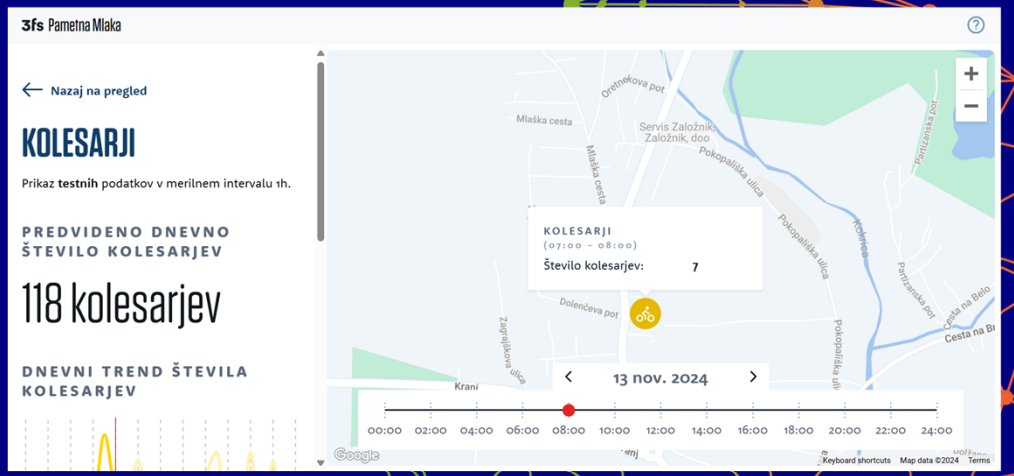
Motivation

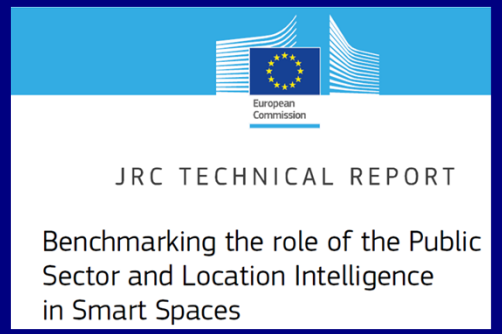
Pametna Mlaka (Smart Mlaka) emerging data space:

- Identified by the European Commission as one of the 4 selected best practices in the field of smart cities.
- Disseminated by the Mayor Matjaž Rakovec at the Mayors' Forum in Switzerland.

Goal: Build Pametna Mlaka into a full data



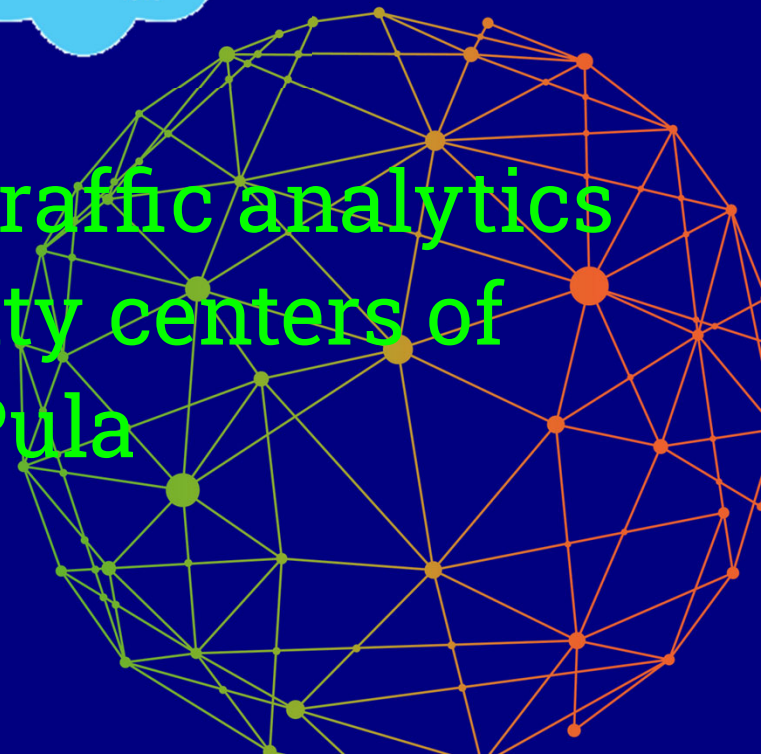




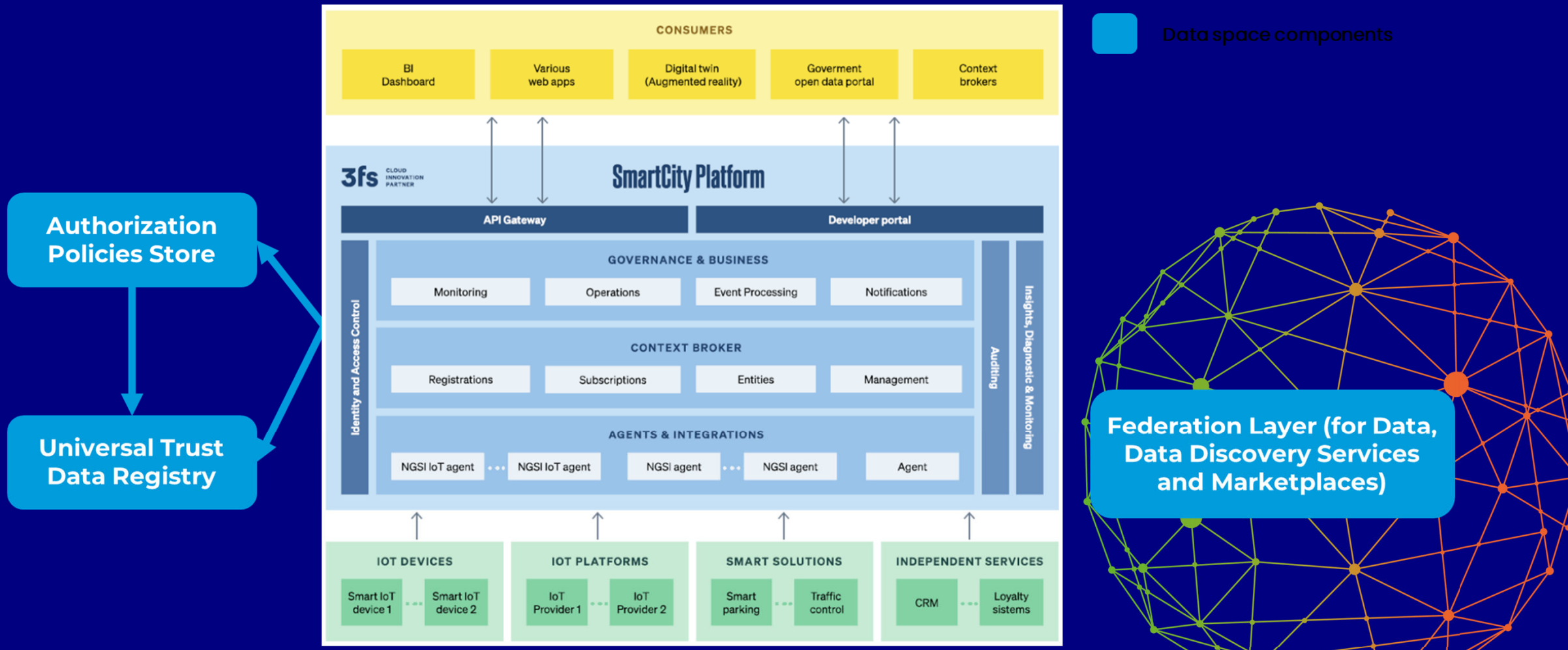
Use Case description

Micro-location based environmental monitoring (sensors on buses or other moving infrastructure)

Predictive traffic analytics in the old city centers of Kranj and Pula



Data Space infrastructure and governance



How to use MIMs and Blueprint proposal

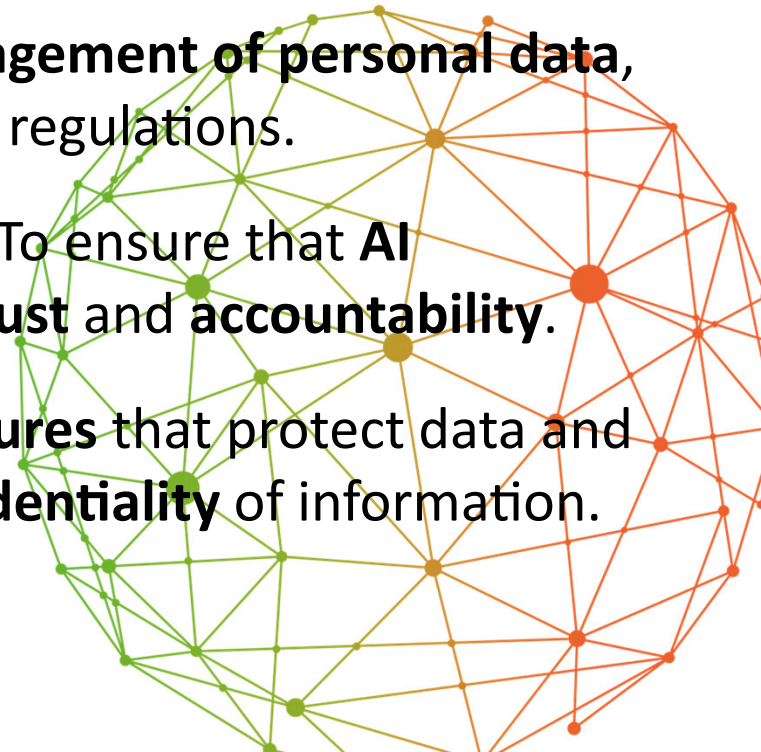
MIM1 - Context Information Management: To manage context information in a standardized way, allowing **seamless integration** and **real-time data exchange** across different systems.

MIM2 - Shared Data Models: To use **standardized data models** that ensure consistency and understanding of **data across** various **platforms** and **services**.

MIM4 - Personal Data Management (Trust): To ensure **secure management of personal data**, fostering **trust** among participants through **compliance** with privacy regulations.

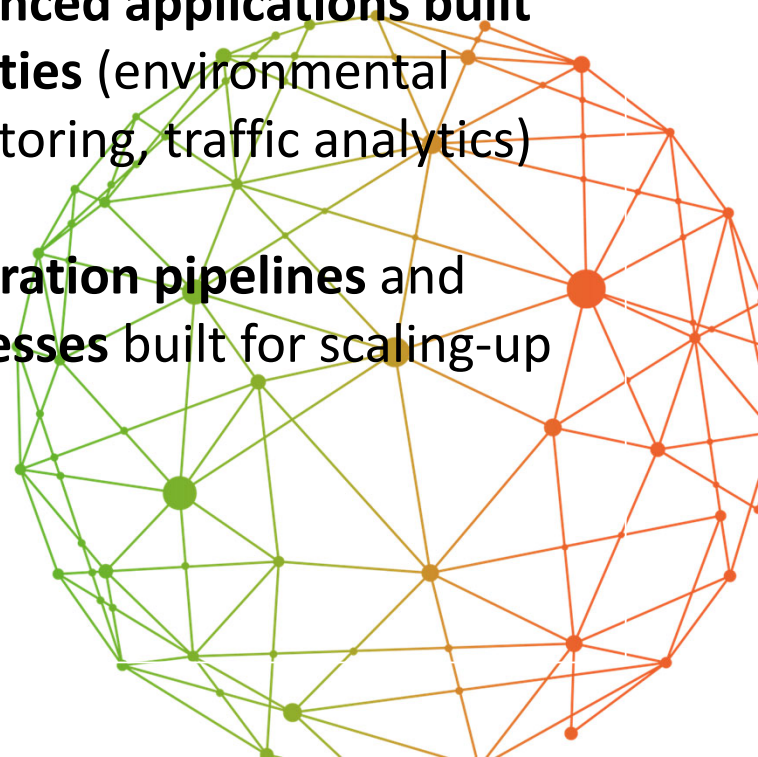
MIM5 - Fair and Transparent Artificial Intelligence (Transparency): To ensure that **AI algorithms used** are transparent, fair, and explainable, promoting **trust** and **accountability**.

MIM6 - Security Management: To implement **robust security measures** that protect data and services from unauthorized access, ensuring the **integrity** and **confidentiality** of information.

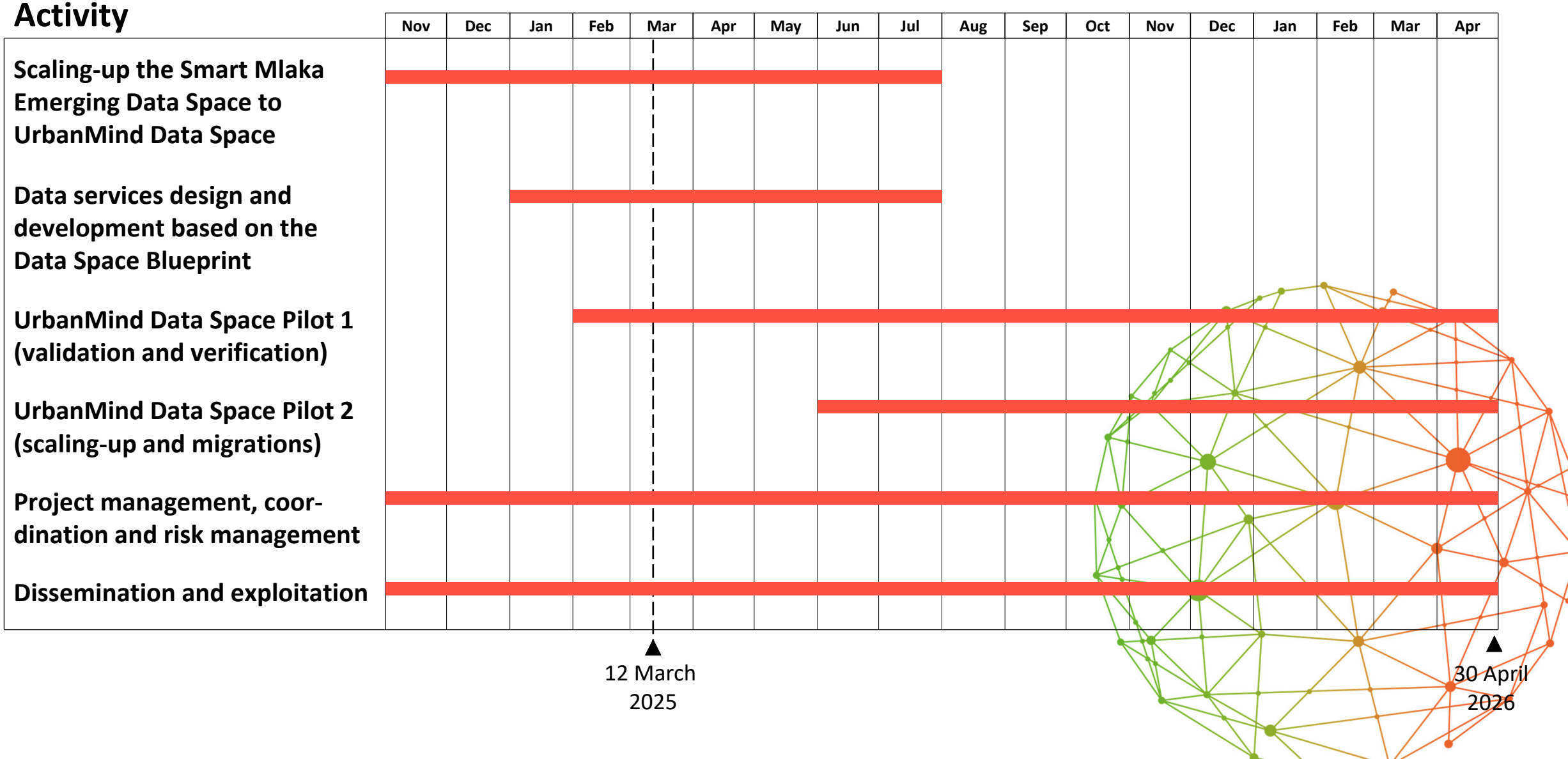


Expected added value

Social	Economical	Technical
Sustainability: - Reduction of traffic-related CO2 emissions by 10-25%, - Decrease in congestion levels by up to 30%, - Increase in resource productivity by 15-25%. **Social:** - Integration into decision-making processes (urban planning, event planning), - Information leading to just urban development.	**Streamlined data space setup** (Pula as the second pilot), reducing implementation and integration costs **Integrated developer platform** for outside developers to build applications on top of UrbanMind	**Smart city data space pilot**, compliant with reference architecture and MIMs **Advanced applications built for cities** (environmental monitoring, traffic analytics) **Integration pipelines** and **processes** built for scaling-up



Timeline


Activity
Nov
Dec
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Scaling-up the Smart Mlaka Emerging Data Space to UrbanMind Data Space
Data services design and development based on the Data Space Blueprint
UrbanMind Data Space Pilot 1 (validation and verification)
UrbanMind Data Space Pilot 2 (scaling-up and migrations)
Project management, coor-dination and risk management
Dissemination and exploitation
12 March 2025
30 April 2026

Project Partners

CITY OF KRANJ

GRAD PULA
CITTÀ DI POLA

Project Website:

3fs

RIKO®
Global engineering
for people's happiness

Project Video:

Happy to Exchange

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3fs

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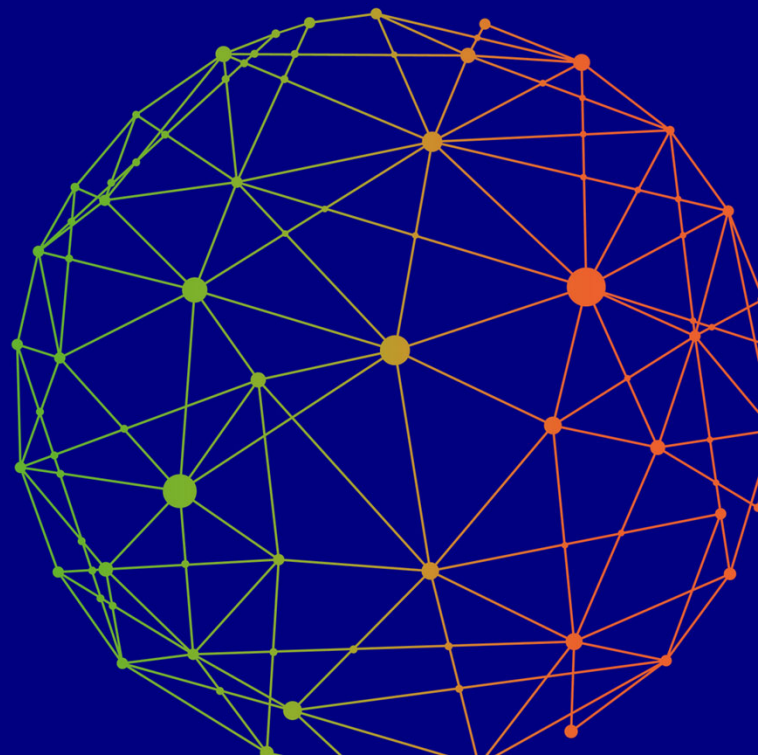
Showcase Pilot - UrbanMind

Thank you!

Tomaz Lanisek,
City of Kranj, Slovenia



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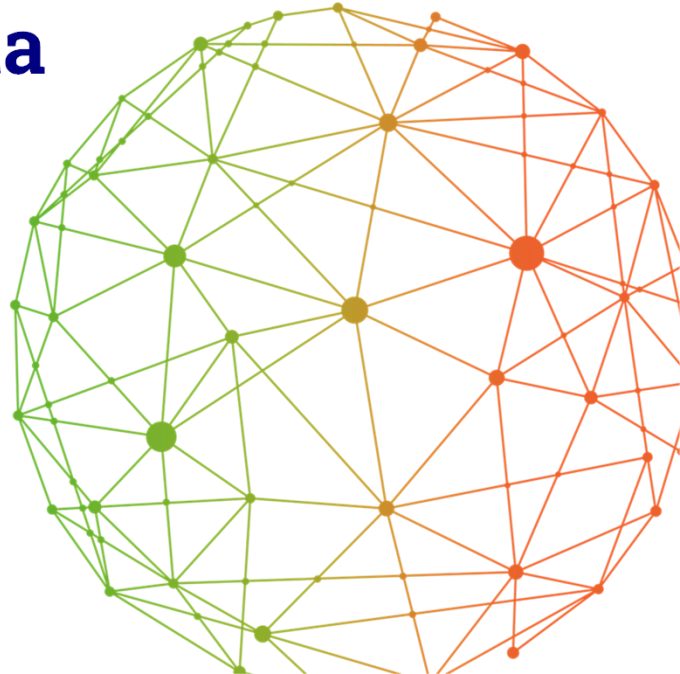
Data Spaces Symposium

Assessment of the value of the European Data Space for Smart Communities: process and data

Nuria de Lama



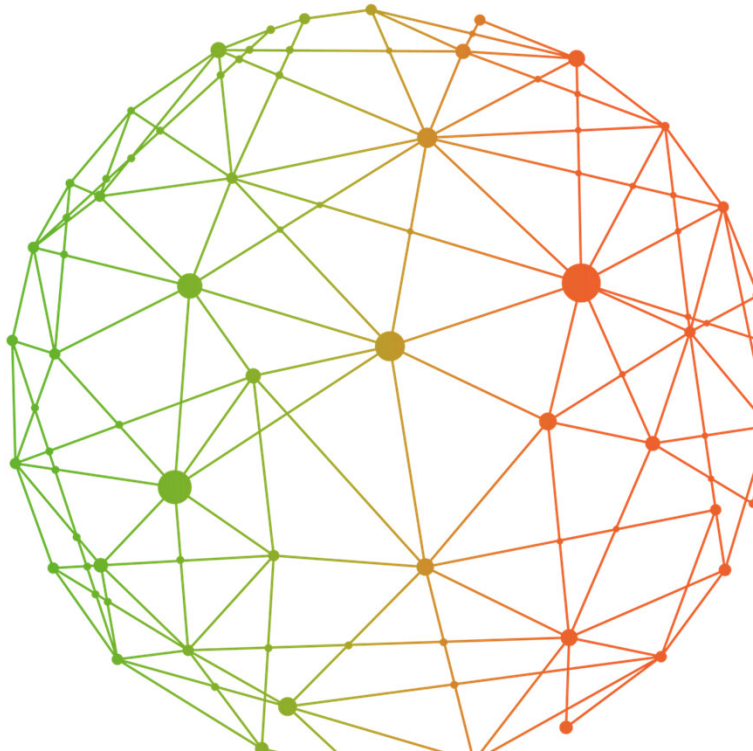
European data space for smart communities

“Assessment of the value of the European Data Space for Smart Communities: process and data”

Nuria de Lama, Consulting Director IDC

Session: Societal impact: addressing local challenges, delivering better services to citizens

Data Spaces Symposium 2025



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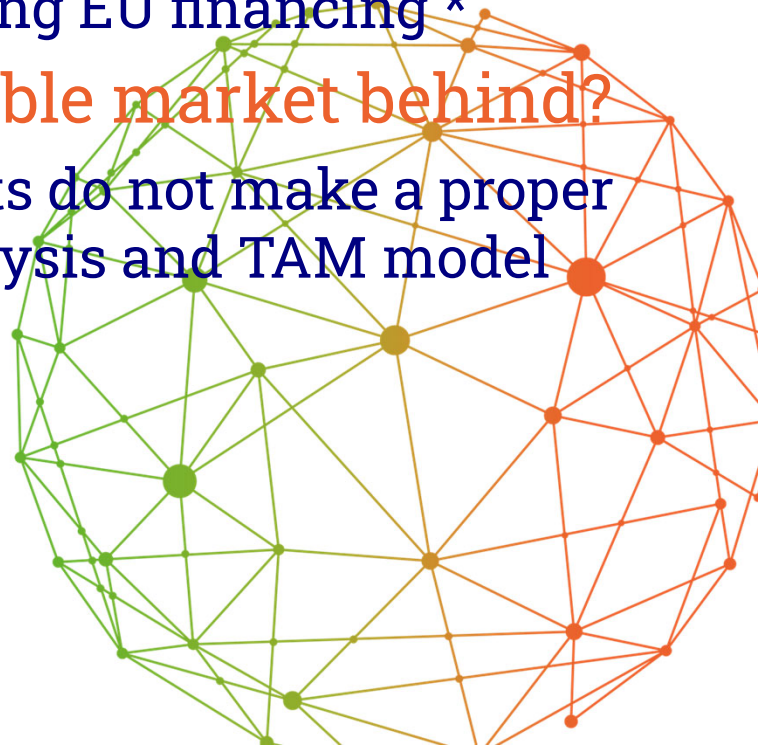
Impact approach for data spaces

- The problem/need may be clear
  - E.g. Exposure to deadly pollution remains the status quo in Europe's cities and results in the deaths of at least 250,000 EU residents annually (European Court of Auditors*)

- But is the proposed solution making a real impact?
  - When analysing selected projects with an EU-funding component… it is often impossible to assess their effectiveness and therefore that of the corresponding EU financing *
- Is there a viable market behind?
  - Most projects do not make a proper market analysis and TAM model



*Source; European Court of Auditors, special report 02/2025: "Urban pollution in the EU – Cities have cleaner air but are still too noisy", Publications Office of the European Union, 2025

Impact Assessment Framework

Alignment with Stakeholders across the ecosystem

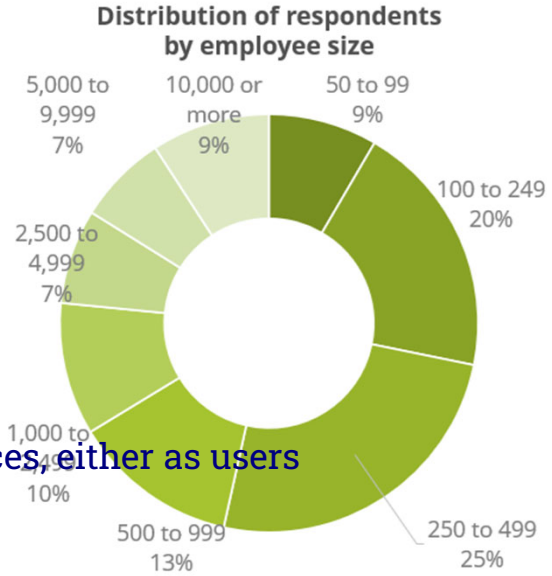
IMPACTS						
SHIFT						
OUTCOMES	CITIZEN CENTRICITY	LIVABILITY	OPERATIONAL EFFICIENCY	REGULATORY COMPLIANCE	ECONOMIC DEVELOPMENT	
SHIFT						
OUTPUTS	TRUST & TRANSPARENCY	DATA AVAILABILITY & USABILITY	USER EXPERIENCE	ECOSYSTEM ENGAGEMENT	INTELLIGENCE	FINANCIAL SUSTAINABILITY
SHIFT						
INPUTS	DATASETS	FUNDING	TECHNOLOGY CAPABILITIES	EXPERTISE/SKILLS	LAWS/STANDARDS METHODOLOGIES	LEARNINGS FROM PREVIEWS PROJECTS
CONTEXT	POLITICAL	ENVIRONMENTAL	SOCIAL	TECHNOLOGICAL	LEGAL	

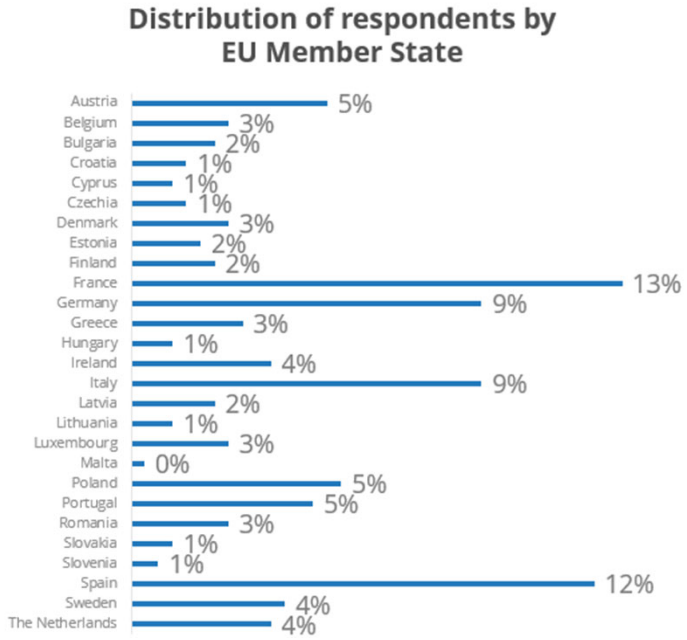
DS4SSC output categories	Definitions	Examples of mandatory indicators
Trust and transparency	The data space governance processes, policies and architectural capabilities to ensure data meets security standards, regulatory compliance and transparency, and accountability and ethical principles.	• Ethics readiness • % of ethics issues resolved • Number of open standards used
Data availability and usability	The data space governance processes, policies and architectural capabilities ensure data availability, quality, searchability and interoperability	• Higher score in LORDIMAS • Data sets available • Number of implemented MIMs
User experience	User experience ensures data is accessible, personalized, responsive and enabled for immersive visualization for stakeholders.	• User satisfaction score e.g. NPS or equivalent • Adoption of international accessibility standards • Integration of feedback mechanisms for data users/ providers
Ecosystem engagement	The data space governance processes, policies and architectural capabilities ensure that the number of ecosystem participants is increasing, the variety of participants is increasing by size and	• Number of data providers • Number of data users • Number of events where results are disseminated
Intelligence	The data space governance process, policies and architectural capabilities ensures that users can access not only raw data but extract intelligent insights to support evidence-based decision making.	• Number of reusable services • Number of AI-enabled services available • Number of newly developed applications
Financial sustainability	The data space governance processes, policies and architectural capabilities ensure that a clear data cooperation model has been established to generate an RoI, based on expected costs and revenues, considering the distinctive capabilities, user requirements, partners and competitors.	• Business models piloted for data space • Business models piloted for data-enabled services • Revenue generated
Domain specific	Each pilot has the option to add their own domain specific output indicators to measure over the duration of the pilot.	

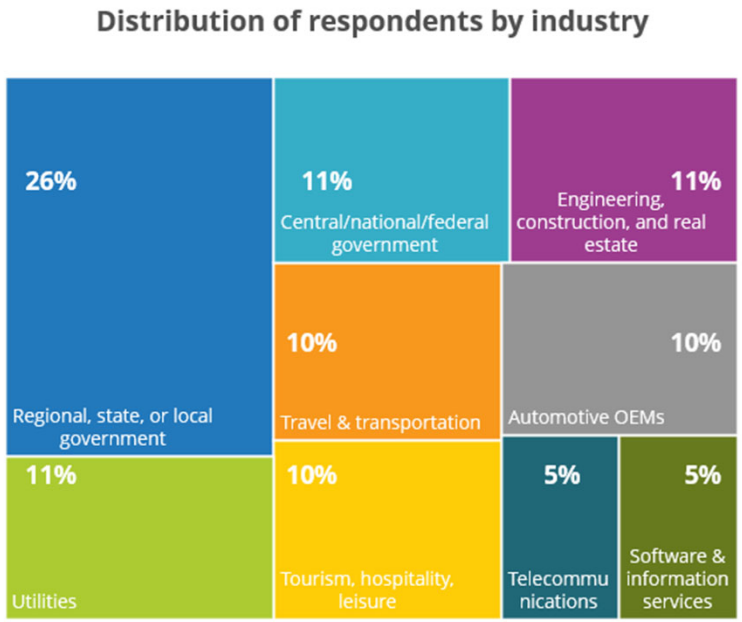
Market analysis: methodology

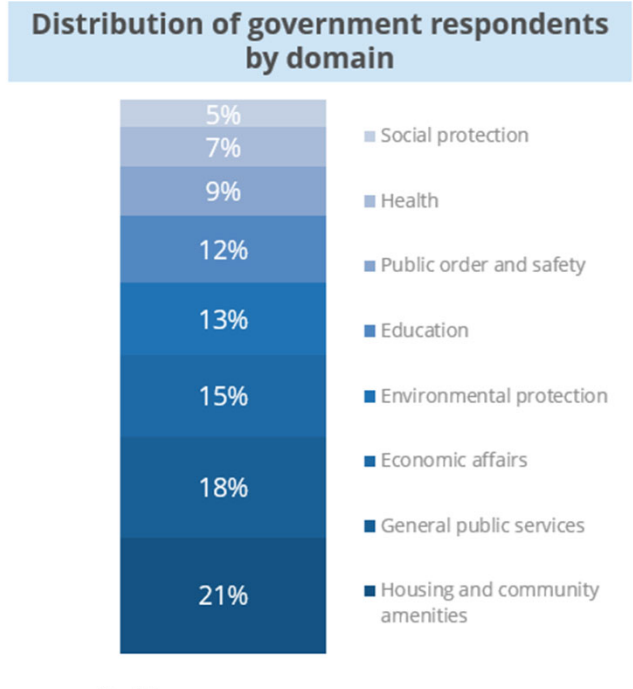
Data Space for Smart and Sustainable Cities & Communities Survey

- Data collection method: Computer-Aided Telephone Interview - CATI
- Company size: 50+ employees
- Target respondents: Director level or above – 70% IT; 30% Business/Operations
- Screening criteria: Decision makers or influencers for their organization's participation in common data spaces, either as users or as providers of data spaces-related services
- Target sample: 280 – these results include 273 respondents, 97% of the sample





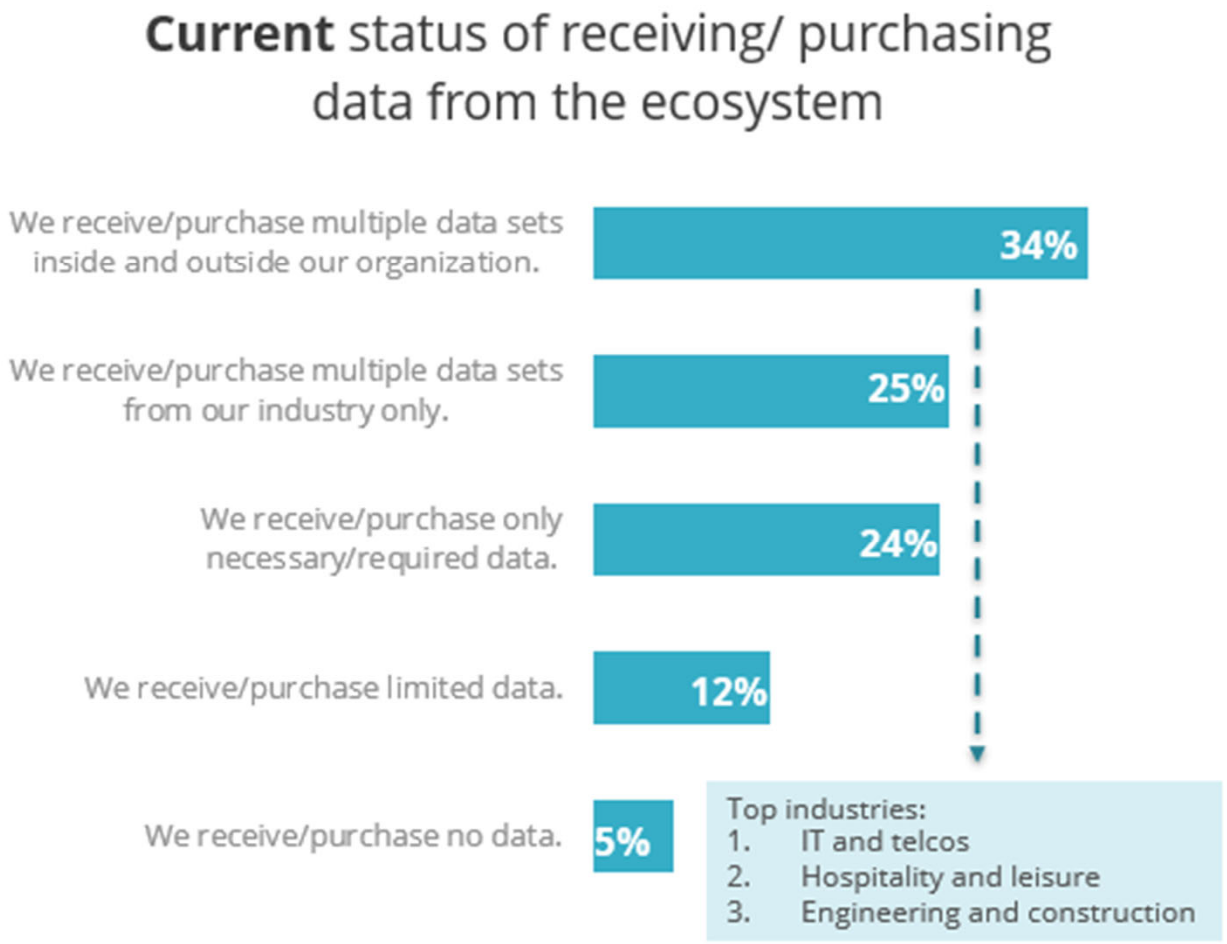


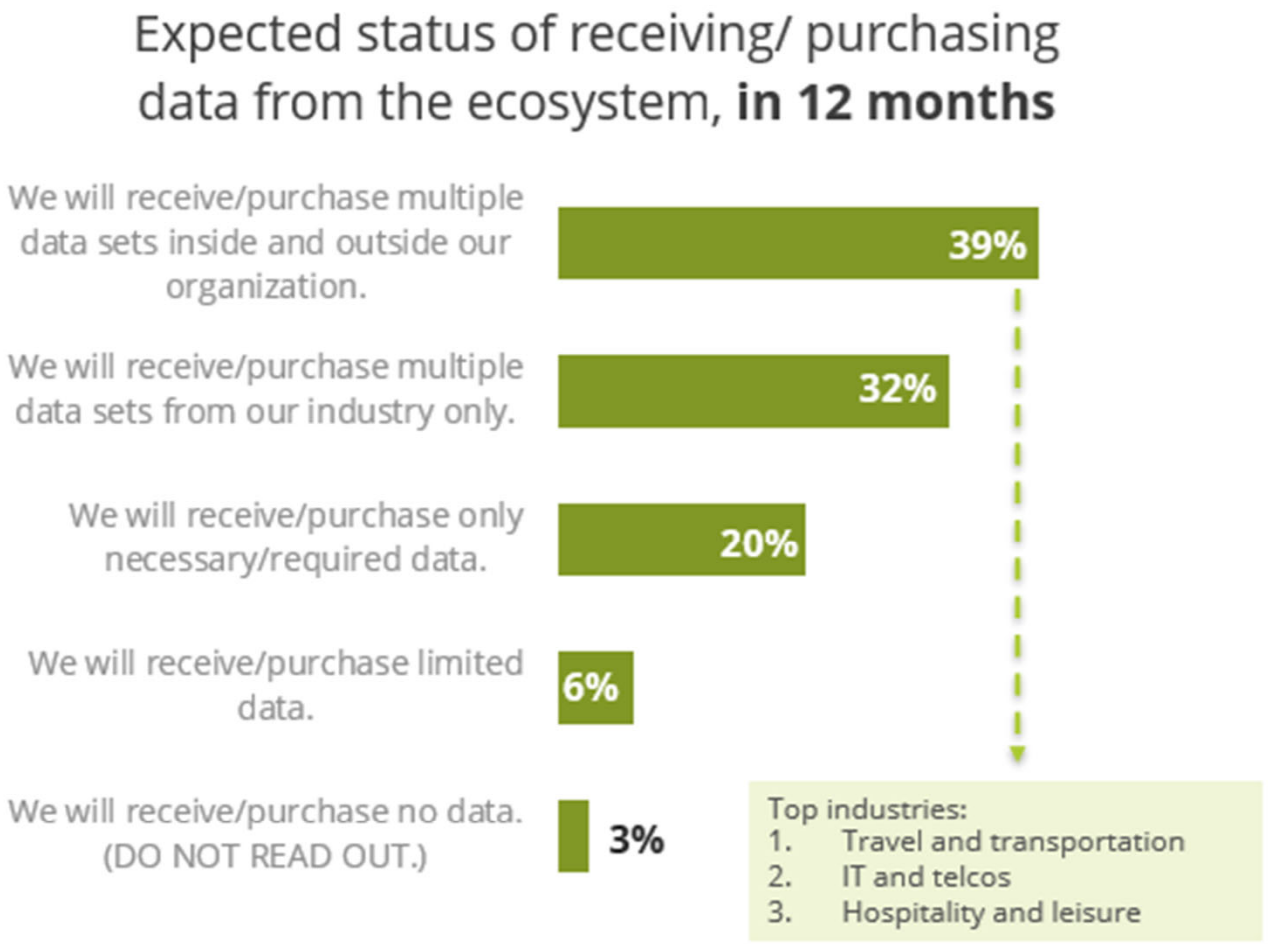


N = 273

Source: *Data Space for Smart and Sustainable Cities and Communities Survey*, January-February 2025 (IDC)

European public and private sector organizations are planning to acquire/ purchase more data from ecosystem partners

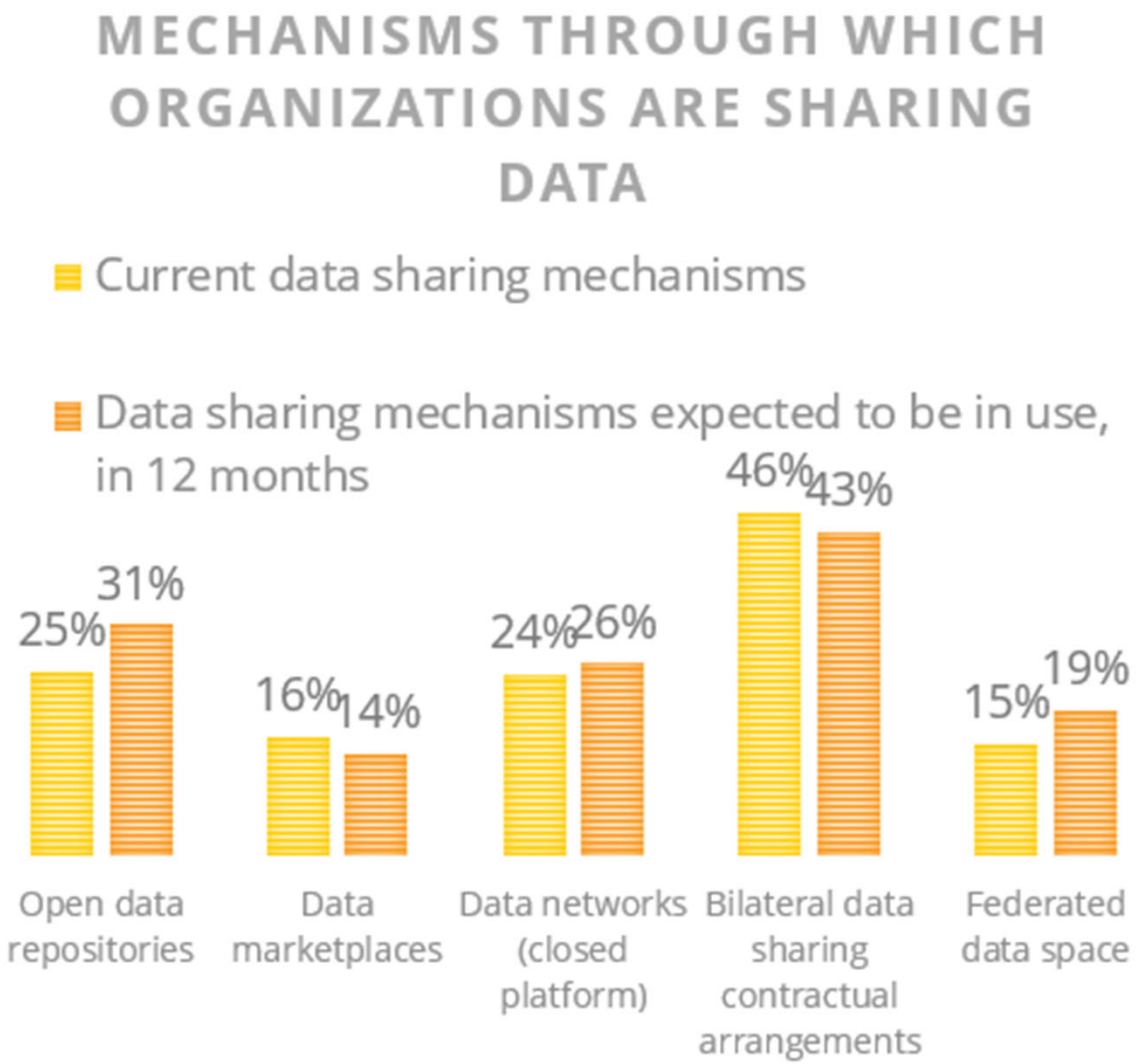


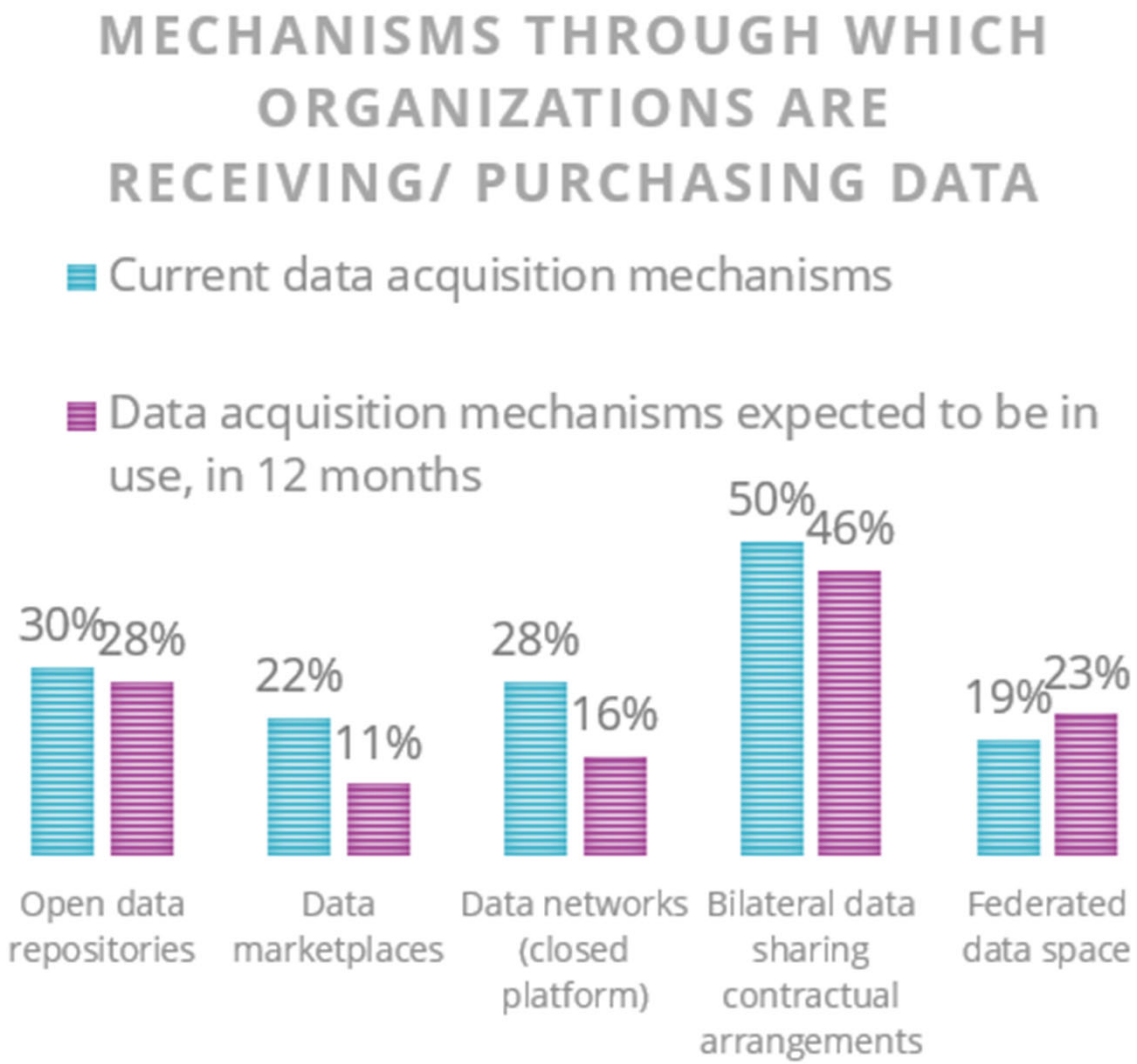


N = 273

Source: *Data Space for Smart and Sustainable Cities and Communities Survey*, January-February 2025

Despite the wide variety of data sharing architectural and governance mechanisms, bilateral data sharing still dominate the European market





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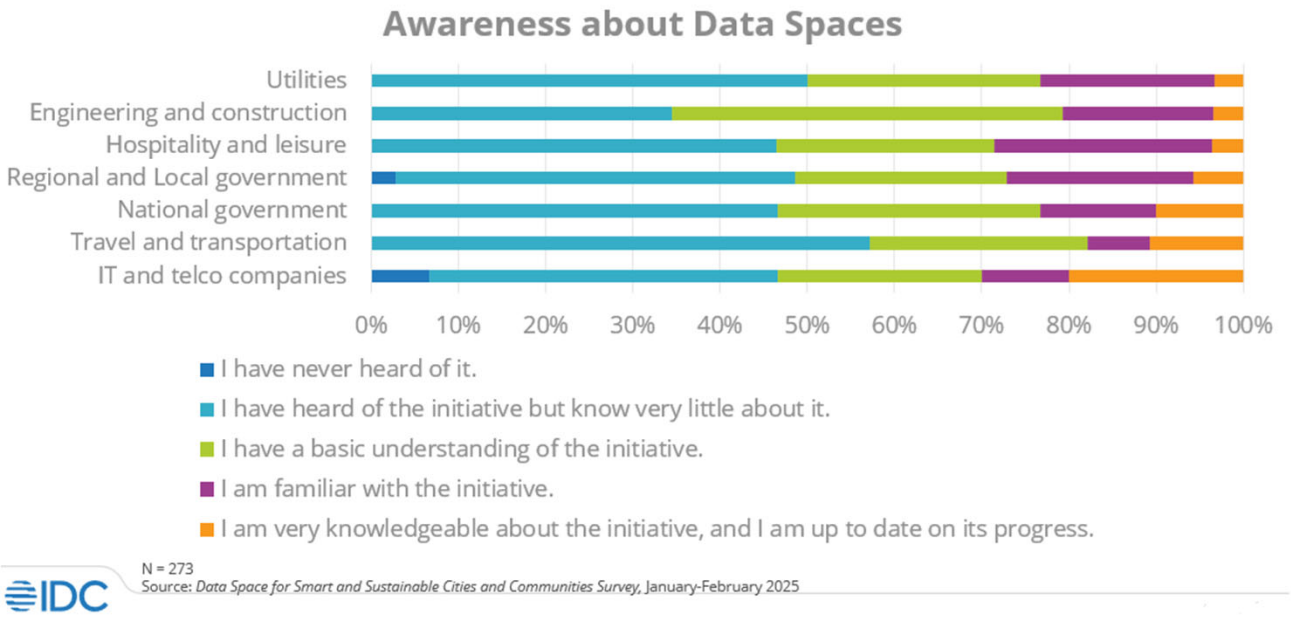
Source: *Data Space for Smart and Sustainable Cities and Communities Survey*, January-February 2025

Appetite for Data Spaces?



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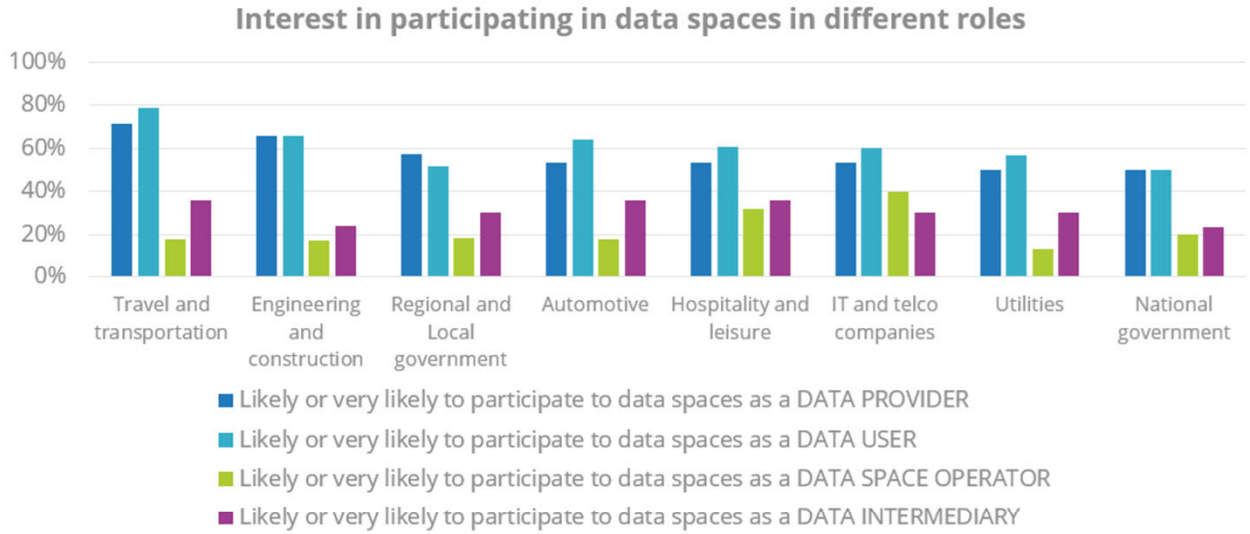
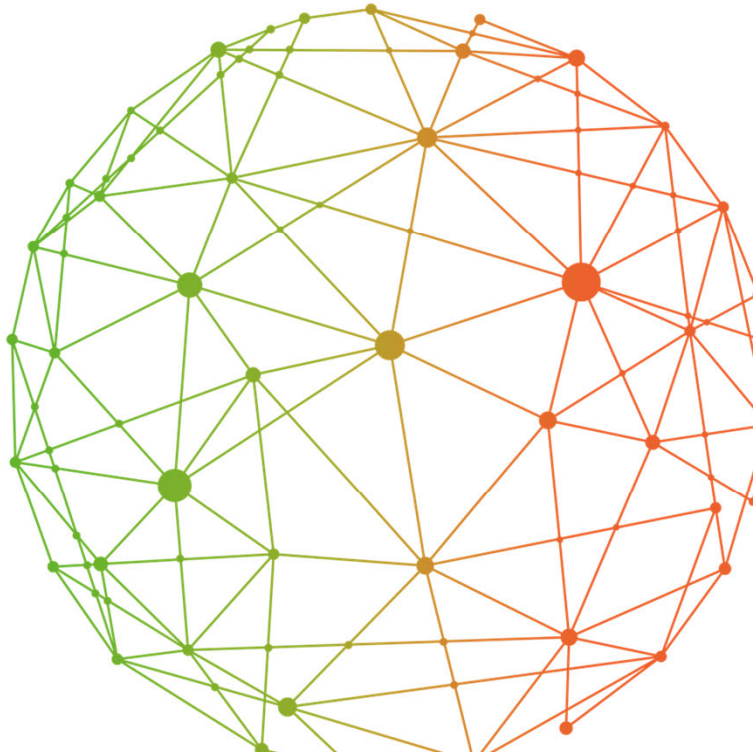


- There's an awareness gap about Data Spaces, across all industries!
- Many are interested in being data providers or users. Few are interested in being intermediaries. Only IT and telco companies show some interest in becoming data space operators.



Potential data users and data providers are driven by the same expected outcomes and slowed down by the same challenges

Top Value Drivers of DATA PROVIDERs

1. Improved citizen/ customer experience
2. Increased operational efficiency
3. Faster product and service innovation

Top Value Drivers of DATA USERs

1. Improved citizen/ customer experience
2. Increased operational efficiency
3. Faster product and service innovation

Top Challenges of DATA PROVIDERs

1. Privacy and regulatory concerns
2. Cybersecurity risks
3. Data quality and management

Top Challenges of DATA USERs

1. Privacy and regulatory concerns
2. Cybersecurity risks
3. Data quality and management

N = 273
Source: *Data Space for Smart and Sustainable Cities and Communities Survey*, January-February 2025

The most valuable data sets vary by industry

Top 3 most valuable datasets	Survey respondents by industry: National Govt	Regional and Local Govt	Travel and Transport	Utilities	AEC	IT and Telcos	Automotive	Hospitality and Leisure
Mobility	2nd		1st			1st	1st	1st
Planning		3rd	2nd		1st	3rd	3rd	2nd
Earth observation and environmental		3rd						
Geospatial		3rd	2nd		1st	2nd	2nd	
Meteorological				2nd			3rd	3rd
Water and soil	1st	2nd		1st		3rd		
Individual/ commercial Land use	2nd	1st		2nd	2nd			3rd

N = 273

Source: *Data Space for Smart and Sustainable Cities and Communities Survey*, January-February 2025

Thank you!

European data space for smart communities

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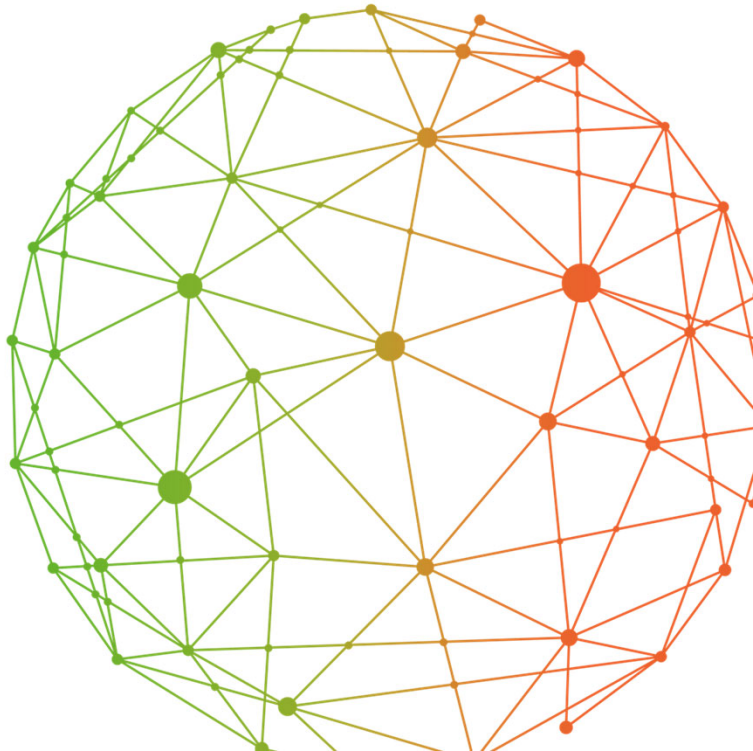
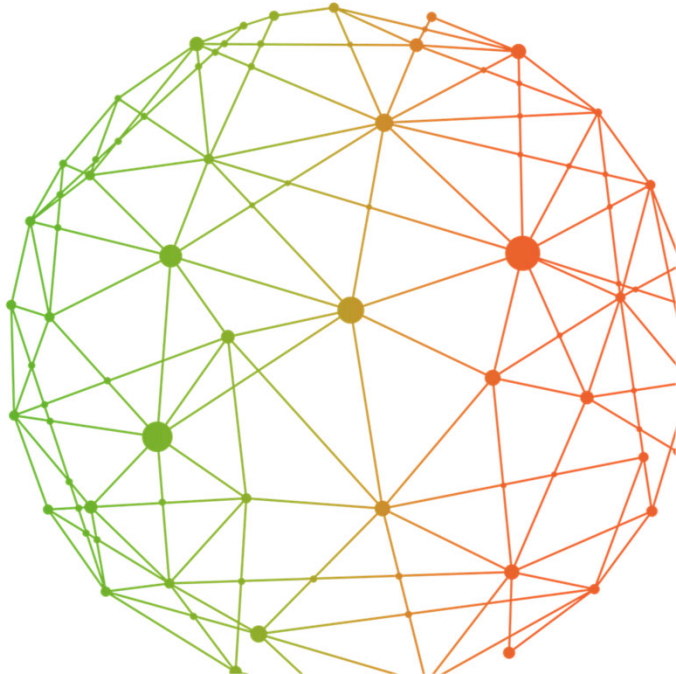
Forum



Data Spaces Symposium

The data space in the surrounding ecosystem

Sille Sepp

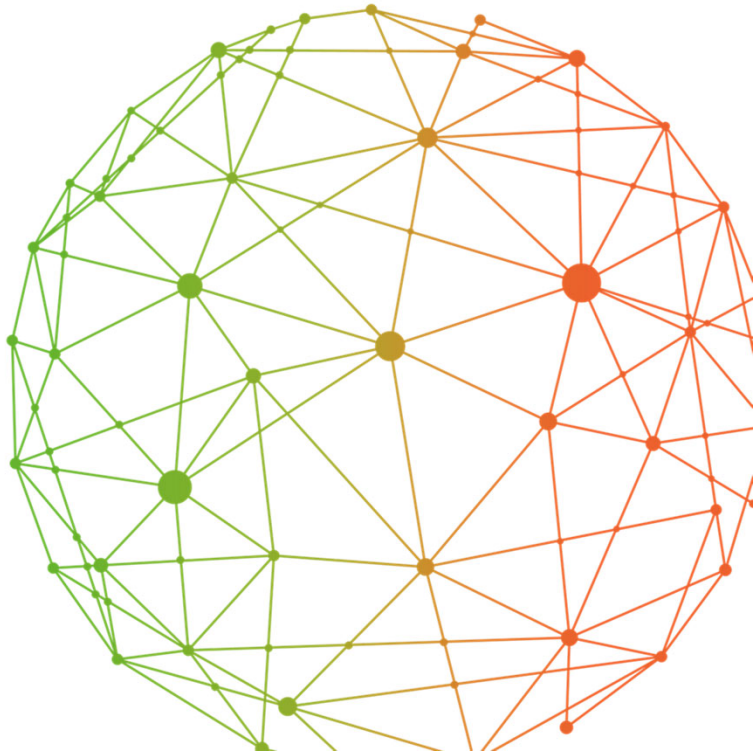


Ecosystem view - are we playing together?

Sille Sepp | FinEst Centre for Smart Cities

Data Spaces Symposium 2025

Session: Smart cities & communities



DSBA ■ BDV BIG DATA VALUE ASSOCIATION FIWARE FOUNDATION gaia-x INTERNATIONAL DATA SPACES ASSOCIATION

DATA SPACES SUPPORT CENTRE

Funded by the European Union

The Data Spaces Support Centre receives funding from the European Union Digital Europe Programme under grant agreement n° 101083412

Taking a “Multi-level perspective”

LANDSCAPE

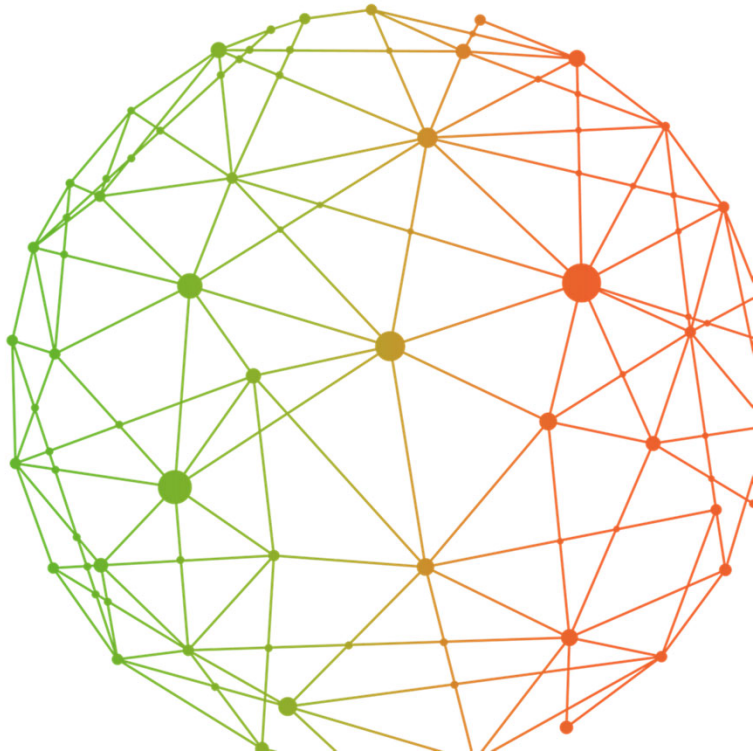
Climate | Geopolitics
Desire for Data and Tech Sovereignty

REGIME

(Legacy) systems and processes |
Prevailing market dynamics |
Procurements

NICHE

Data spaces | AI services



European data space for smart communities

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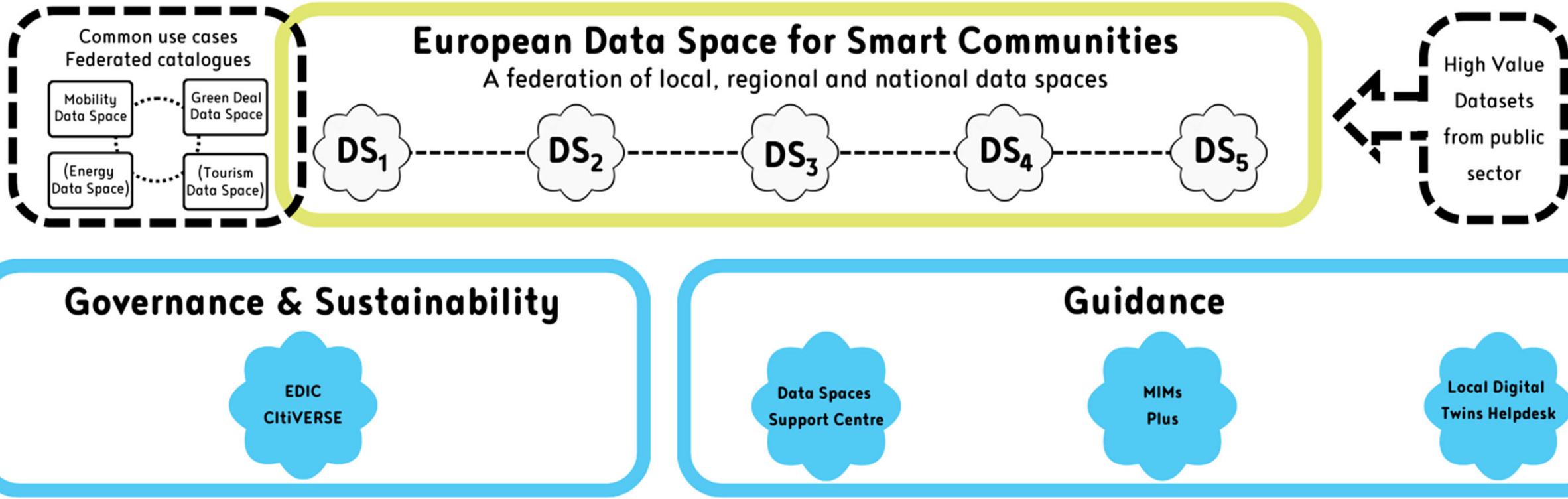

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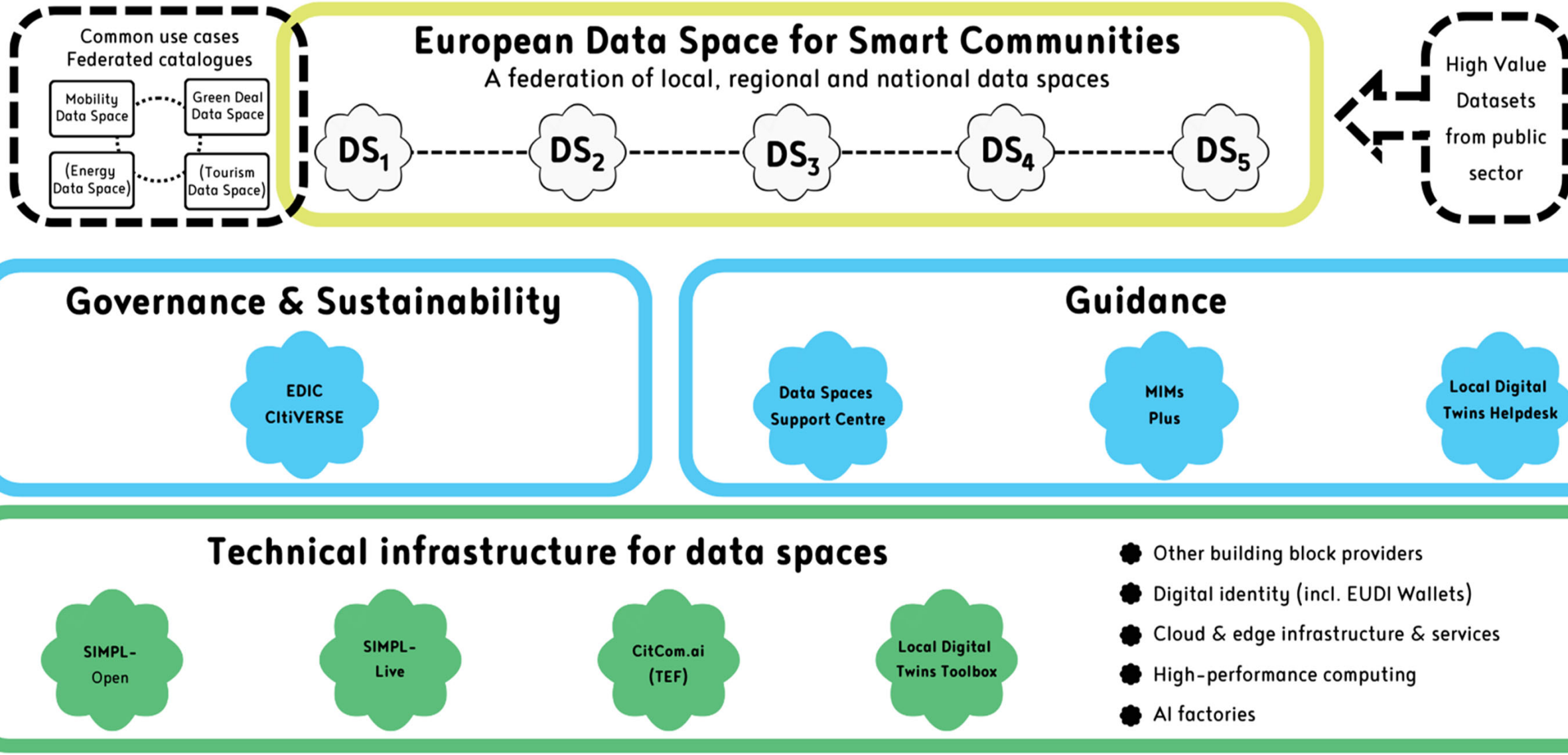
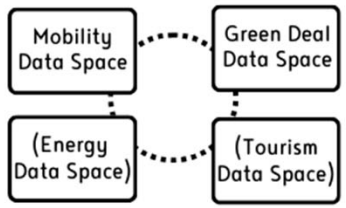

Common use cases
Federated catalogues
Mobility Data Space
Green Deal Data Space
(Energy Data Space)
(Tourism Data Space)
European Data Space for Smart Communities
A federation of local, regional and national data spaces
DS1
DS2
DS3
DS4
DS5
High Value Datasets from public sector
Governance & Sustainability
EDIC CitiVERSE
Guidance
Data Spaces Support Centre
MIMs Plus
Local Digital Twins Helpdesk
Technical infrastructure for data spaces
SIMPL-Open
SIMPL-Live
CitCom.ai (TEF)
Local Digital Twins Toolbox
Other building block providers
Digital identity (incl. EUDI Wallets)
Cloud & edge infrastructure & services
High-performance computing
AI factories

Living-in.EU movement

EU communities' general commitment to align to MIMs Plus and drive data spaces' developments

Common use cases
Federated catalogues



European Data Space for Smart Communities

A federation of local, regional and national data spaces

DS_1 DS_2 DS_3 DS_4 DS_5

High Value Datasets from public sector

Governance & Sustainability

- EDIC CitiVERSE

Guidance

- Data Spaces Support Centre
- MIMs Plus
- Local Digital Twins Helpdesk

Technical infrastructure for data spaces

- SIMPL-Open
- SIMPL-Live
- CitCom.ai (TEF)
- Local Digital Twins Toolbox

- Other building block providers
- Digital identity (incl. EUDI Wallets)
- Cloud & edge infrastructure & services
- High-performance computing
- AI factories

DRAFT

Data Spaces Support Centre

Generic guidance to build the DS

Provide feedback & insights, align

Local Digital Twins Helpdesk

Non-technical tools for helping municipalities to develop a DS

MIMs Plus

Recommendations for MIMs Plus

Feedback & insights from DS deployment

EDIC CItiVERSE

Future operations of the DS?

Sustainability model for DS operations

European Data Space for Smart Communities

A federation of local, regional and national data spaces

DS_1 ------- DS_2 ------- DS_3 ------- DS_4 ------- DS_5

OS components to build the DS

Feedback & validation

SIMPL-Open

Feasibility study & support to deploy (TBC)

Contextual information-requirements & needs

SIMPL-Live

Test DS onboarding to gather data for AI services

CitCom.ai (TEF)

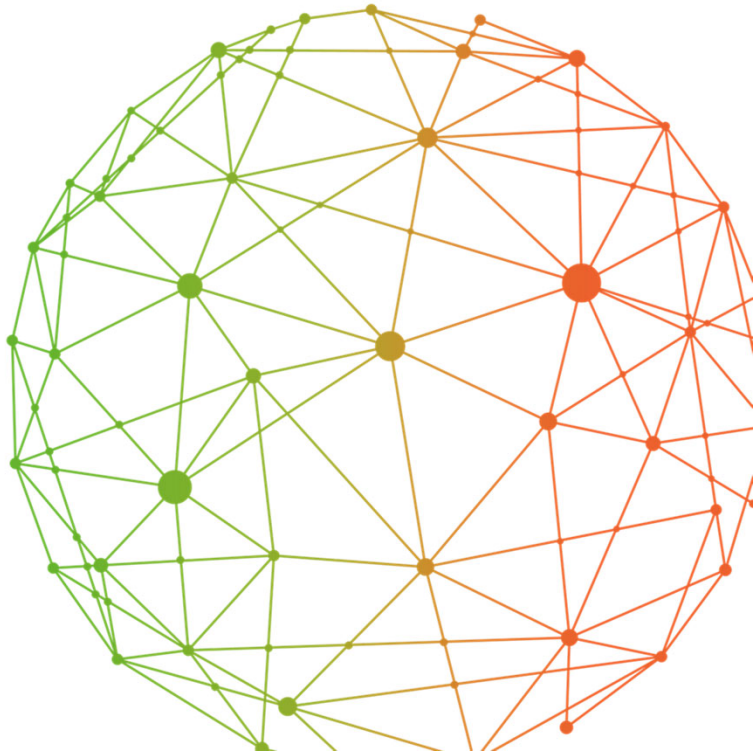
Technical tools for helping municipalities to develop a DS

Local Digital Twins Toolbox

Observations and the road ahead

Focus on the ecosystem

- “Fit for purpose”: How to ensure that the initiatives undertaken are fit for purpose?
- Alignment: What concrete steps can be taken to align different initiatives related to European Data Spaces in terms of technology, governance and policy?
- Leadership: Who is responsible for ensuring that federated data spaces evolve in a coordinated and sustainable way amid shifting regulations and timelines?



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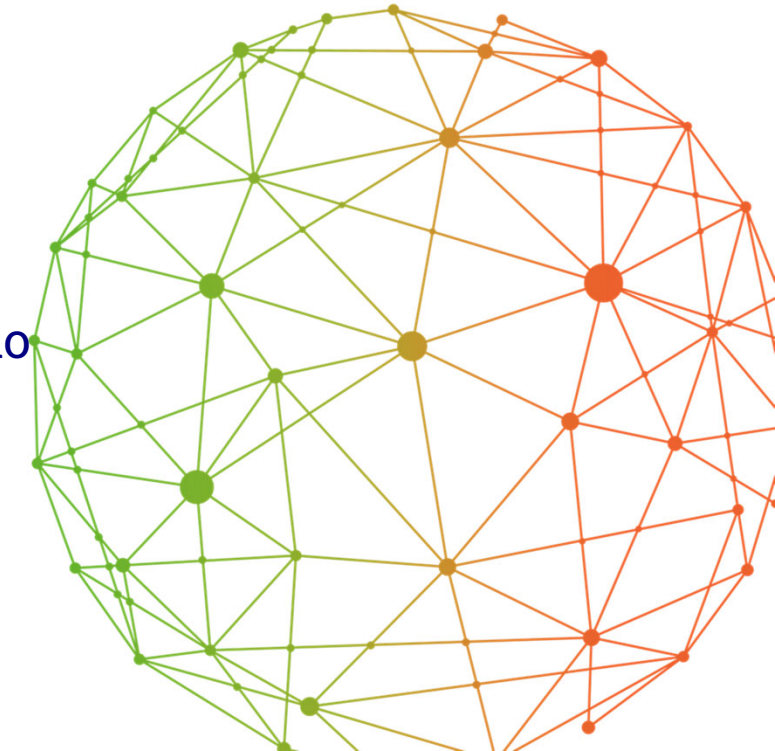
- Alignment: What concrete steps can be taken to align different initiatives related to European Data Spaces in terms of technology, governance and policy?
- Leadership: Who is responsible for ensuring that federated data spaces evolve in a coordinated and sustainable way amid shifting regulations and timelines?

Focus on the users

- Value: What's needed to enable stakeholders to create real value from shared data?
- UX / UI: How can cities and communities seamlessly access and interact with multiple federated data spaces without creating new silos?
- "Nobody left behind": How do we ensure that data spaces developments are accessible also for less advanced cities and communities?



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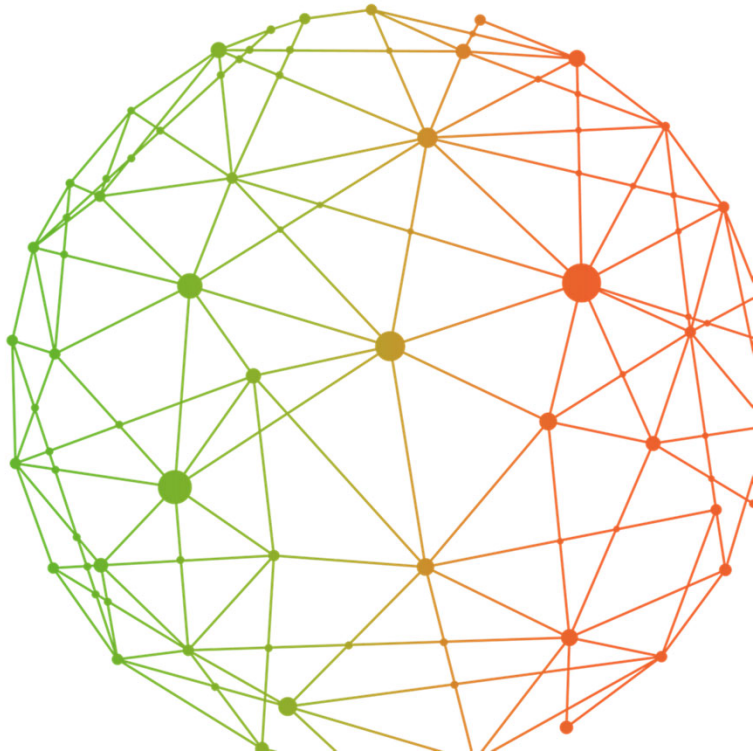
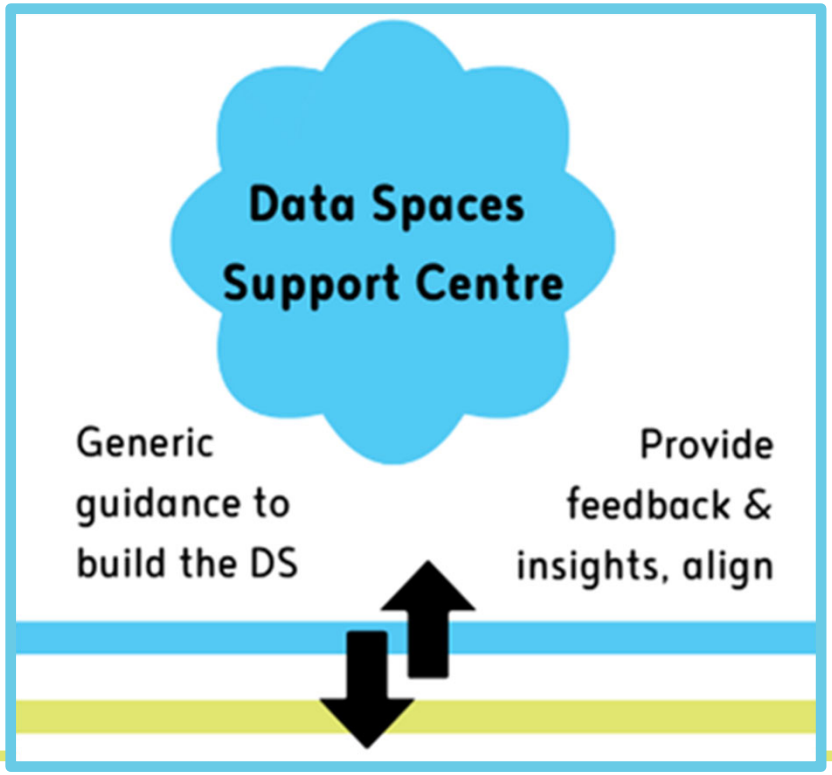
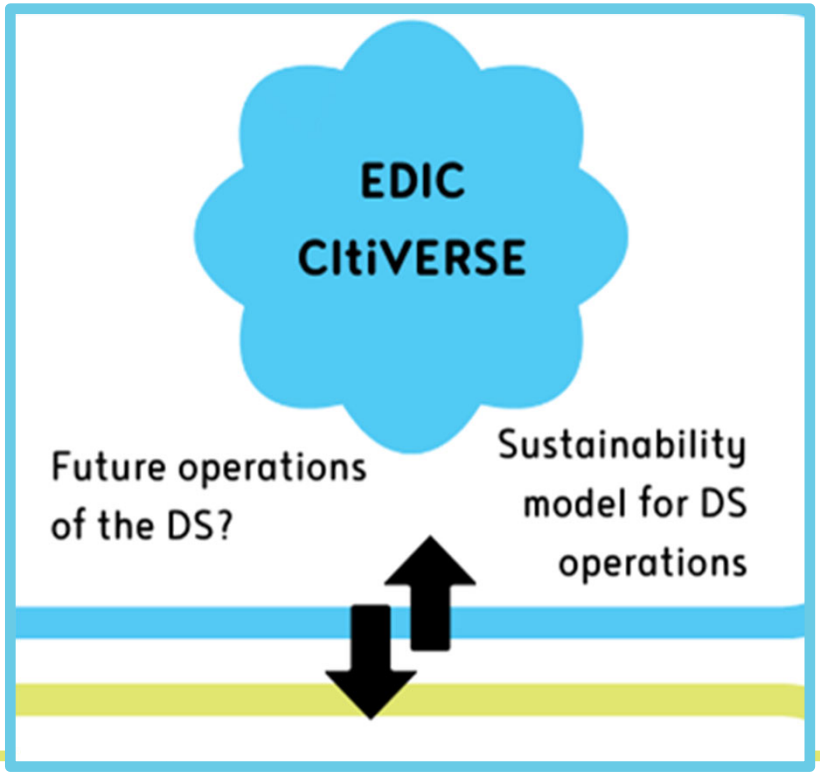






European Data Space for Smart Communities

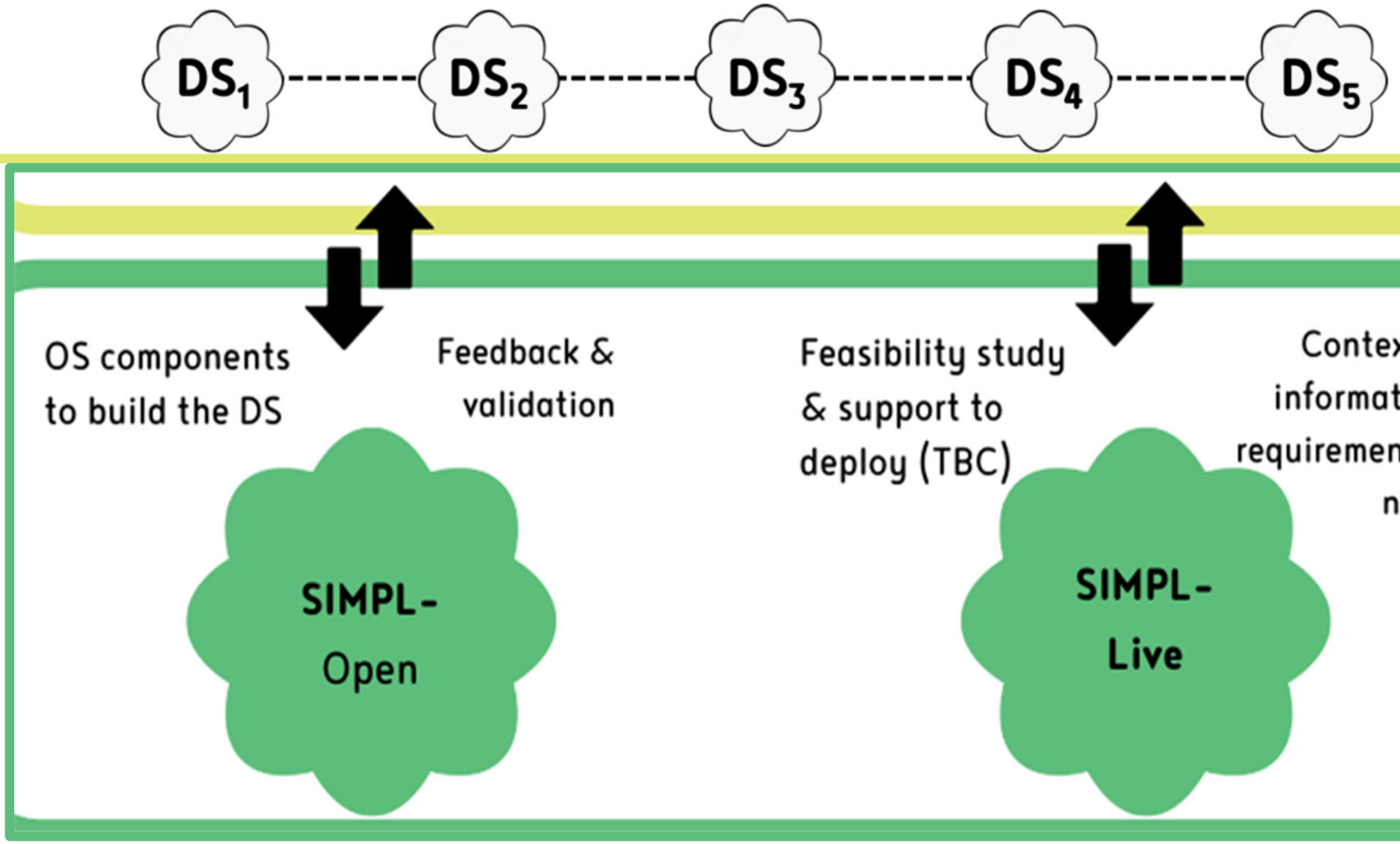
A federation of local, regional and national data spaces

European data space
for smart communities

Funded by
the European Union

European Data Space for Smart Communities

A federation of local, regional and national data spaces



European data space for smart communities

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European Data Space for Smart Communities

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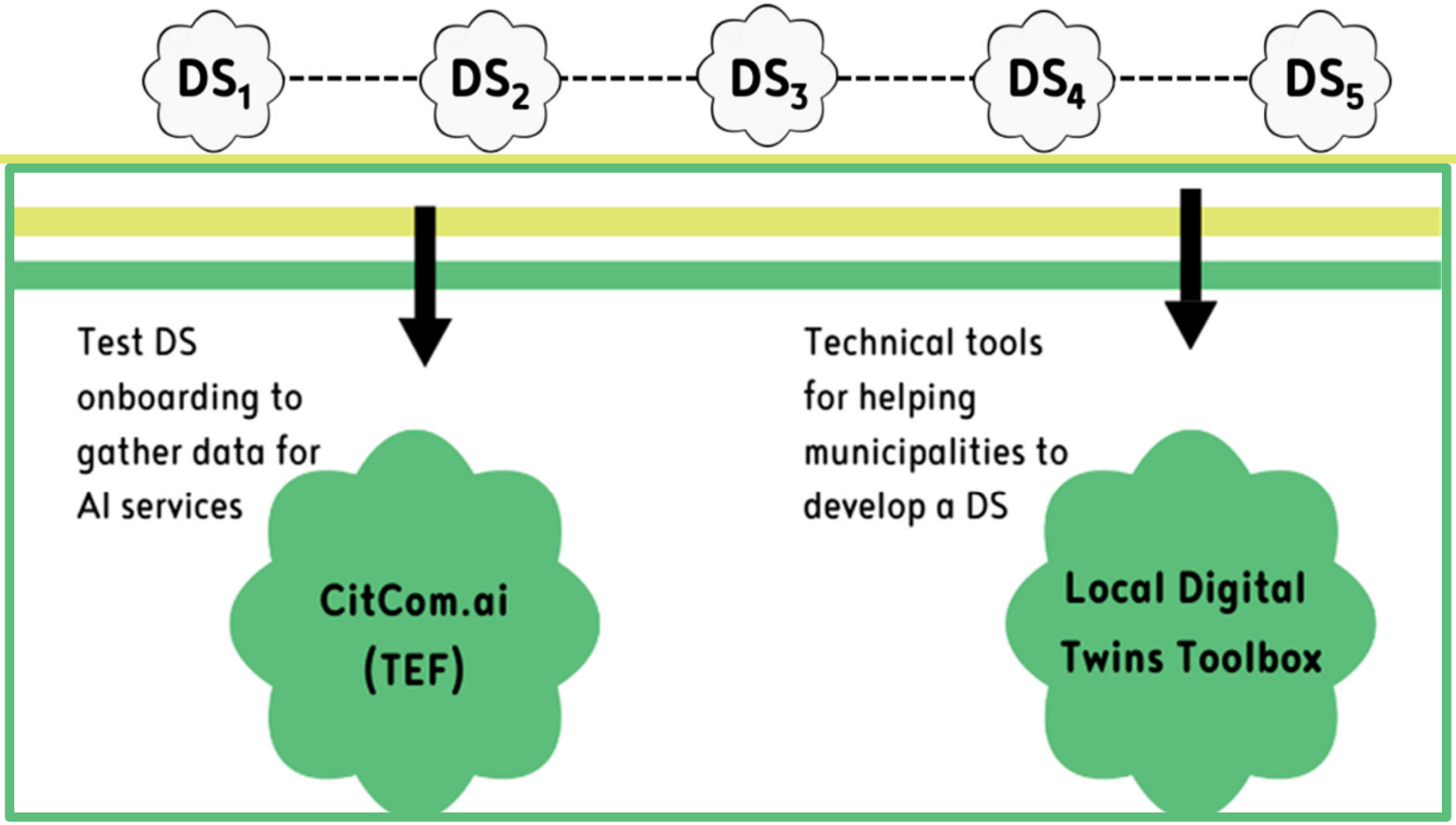

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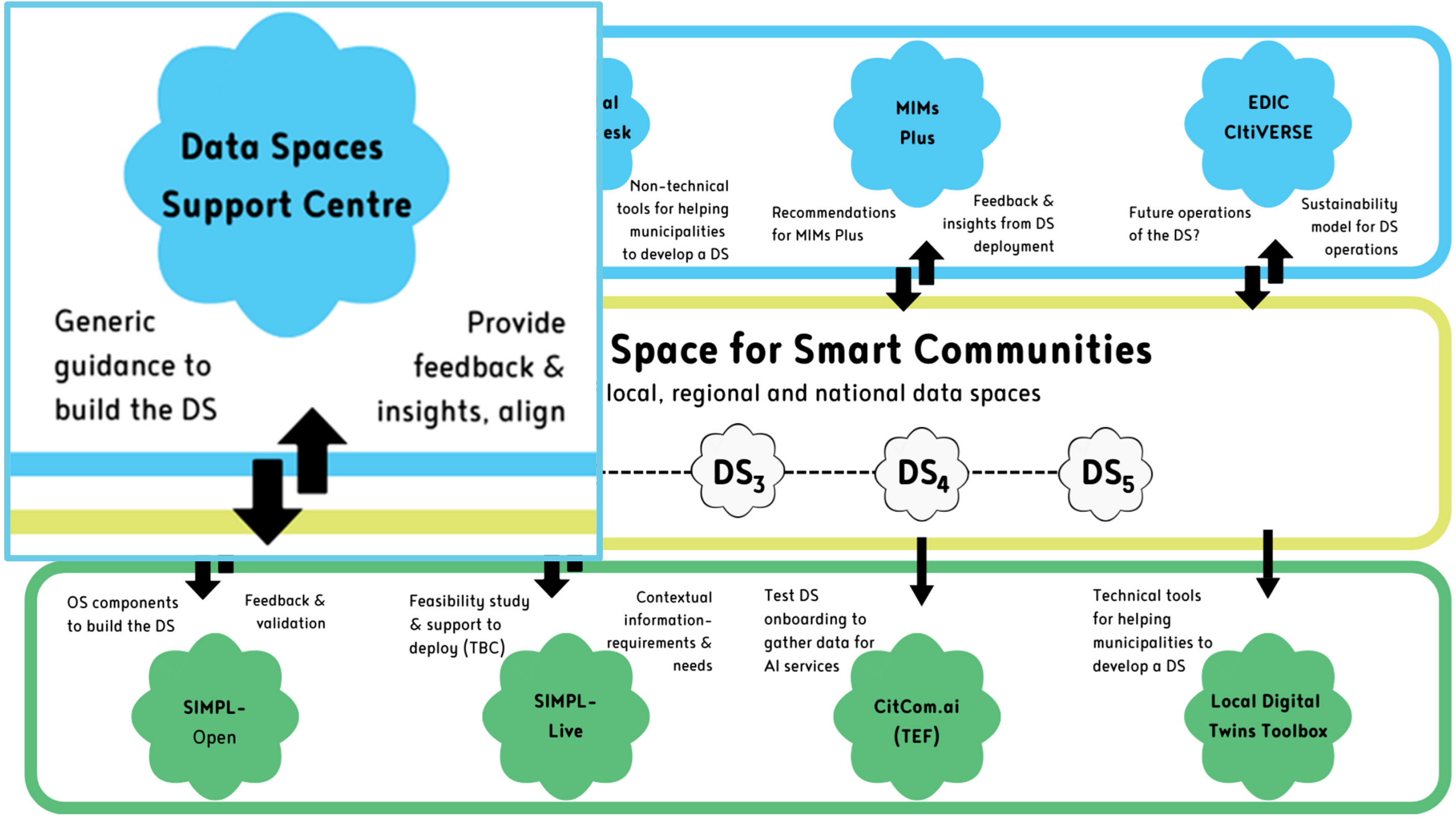
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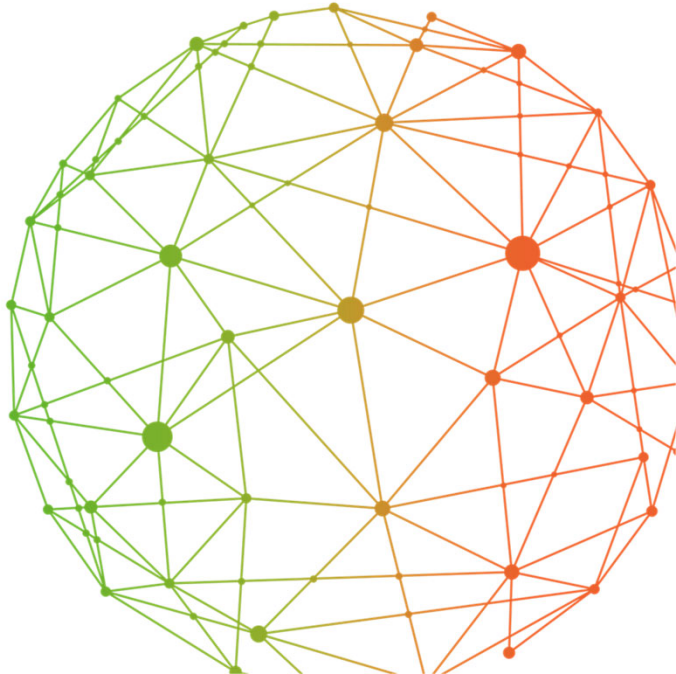
Data Spaces Symposium

Panel discussion | How does the ecosystem nurture itself?

Karl-Filip Coenegrachts, Agnieszka Wendland, Elena Mengual, Jordi Ortuño



Data Spaces Symposium

Share data. Unlock value. Boost impact.

Societal impact of data spaces: Addressing local challenges, deliverering better services to citizens
Panel discussion | How does the ecosystem nurture itself?

Karl-Filip Coenegrachts
OASC | moderator

Jordi Ortuño
City of Barcelona

Agnieszka Wendland
Warsaw University of Technology (Citcom.ai)

Elena Mengual
Nunsys

Data Spaces Symposium

Break | Last chance for a cup of coffee and networking