‘Data spaces: experience from the common European mobility data space’
Rules of the game

- The webinar will be recorded

- For questions, please use the ClickMeeting chat.

- Please reserve 3 min after the webinar to help us improve by filling in our feedback form
Introduction

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Creation of a common European mobility data space (EMDS)
Digitalisation of transport

• Digital technologies and networks are key enablers for an efficiently functioning, affordable, sustainable and safe mobility and transport

Road Transport
• Revised ITS Directive
• Smart tachograph
• Revised Directive on electronic tolling (EETS)

Rail
• European Railway Traffic Management System (ERTMS)
• Register of railway infrastructure (RINF)
• Technical specifications for interoperability (TSIs)

Waterborne
• European Maritime Single Window environment (EMSWe)
• Revision of the river information services (RIS) Directive
• Vessel Traffic Monitoring Directive

Aviation
• Data4Safety
• Single European Sky ATM Research (SESAR) project
• Drone Strategy 2.0

Multimodal mobility and logistics
• Alternative Fuels Infrastructure Regulation (AFIR)
• Revised Delegated Regulation on multi-modal travel information (MMTIS)
• Multimodal digital mobility services (MDMS)
• Electronic Freight Transport Information Regulation (eFTI)
• Digital Transport and Logistics Forum (DTLF)
Challenges of mobility data sharing

- Reluctance to share data: security, competition concerns, lack of trust
- Heterogeneity and diversity of stakeholders, transport modes, data types, etc.
- Fragmentation, lack of access and interoperability
At the crossroads of two EU strategies

Data Strategy
Establish a single market for data. Enable data sharing and establish fair and clear rules on data use and access.

Sustainable and Smart Mobility Strategy (SSMS)
Ensure that the EU transport sector is fit for a clean, digital and modern economy.

➔ A common European mobility data space (EMDS) facilitating access, pooling and sharing of data from existing and future transport and mobility data sources.
Objectives

1) Identify crucial data and increase their availability

2) Help users in the discovery of available data sources

3) Facilitate data access and re-use

4) Enable technical, organisational and legal interoperability between public and private actors

5) Optimise data collection and reduce administrative burden

6) Facilitate interoperability with other common European data spaces
Other relevant common European data spaces and initiatives

- Data Spaces Support Centre
  Coordination and governance

- SIMPL
  open-source cloud-to-edge middleware platform
It outlines the Commission’s proposed way forward for the creation of a common EMDS, including its objectives, main components, supporting measures and milestones.

The Commission is seeking to promote the exchange of information on this topic, as well as collaboration more generally.
Use cases and their added value for the mobility transition ahead

- Increasing the efficiency of the logistics sector
- Implementation of urban vehicle access regulations (UVARs)
- Boosting cross-border passenger & freight multimodality
- Facilitating access to electromobility data
EMDS framework

- EU mobility data domains and initiatives (e.g. DTLF, ITS NAPs)
- Public & private mobility data ecosystems and initiatives (e.g. German MDS, Eona-X)
- Sectoral data spaces (e.g. Green Deal, energy and tourism)

EMDS technical infrastructure and governance framework

- Interlinking layer
- Building blocks
- Standards

EMDS participants (e.g. data providers, data users, marketplaces and service providers)

- data access/sharing
- metadata flows
Actions supporting the common European mobility data space (1/2)

Preparatory action
Digital Europe Programme
12 months coordination & support action: PrepDSpace4mobility
Oct 2022-Sept 2023
→ Map existing mobility data ecosystems
→ Recommend first common building blocks

Deployment action
Digital Europe Programme
36 months deployment action: deployEMDS
Kick-off Nov 2023
→ Deployment of mobility data sharing use cases related to traffic and urban mobility indicators

Technical assistance
Connecting Europe Facility
12 months study
Kick-off Jan 2024
Followed by a deployment action in 2025 (TBC)
→ Focus on the governance, interlinking layer and further definition of building blocks and interoperability

• Building on the Data Spaces Support Centre and SIMPL
Actions supporting the common European mobility data space (2/2)

**Proof-of-Concept**
Digital Europe Programme

- **6 months PoC**
  - **Jan - June 2024**
  - Focus on how personal data are managed in the EMDS framework, through a multimodal use-case
  - Looking for local authorities and transport operators to test the PoC

**Multi-country projects**
Digital Europe Programme

First call will be:
- **published** Feb 13, 2024
- open Feb 29-May 29, 2024

- Support the establishment of a lasting collaboration structure
- Support the deployment of cross-border use cases in different areas

- Building on the Data Spaces Support Centre and SIMPL
PrepDSpace4mobility - Mapping of ecosystems

- Looked at 426 initiatives, ecosystems and platforms.
- 272 data ecosystems matched the relevance criteria and are included in the inventory of data ecosystems.

https://mobilitydataspace-csa.eu/inventory/
PrepDSpace4mobility - Building blocks

1. Business and Funding Models
2. Governance
3. Legal

Technical Grounding & Ref. Architectures
4. Data Interoperability
5. Data Sovereignty and Trust
6. Data Value Creation
EMDS technical assistance study

• **12 months** (Jan 2024 – Dec 2024)
• **EUR 500,000** (funded under the CEF)
• Consortium with **3 partners**
• Tasks:
  • 1 – analysis of the *technical and governance dimension* of the EMDS framework
  • 2 – analysis with specifications and recommendations for the creation of an *interlinking layer*
  • 3 – specifications and recommendations for potential *participants to interlink and exchange data through the EMDS framework*
Stakeholder interaction during study

Workshops:

1. **Feb 23, 2024**: Governance and technical dimension of the common EMDS

2. **Apr 16, 2024**: Preliminary results of the analysis of the options for the governance and technical dimension, and of the interlinking layer desk study

3. **May 29, 2024**: Initial specifications and preliminary recommendations regarding the interlinking layer and participation to the common EMDS ecosystem

4. **Sept 10, 2024**: Validation of the draft recommendations
Mobility and Logistics Data EDIC

European Digital Infrastructure Consortium (EDIC): new mechanism to implement Multi-Country Projects (MCP) created by the Digital Decade Policy Programme 2030

Ongoing preparation of a possible Mobility and Logistics Data EDIC to ensure long term sustainability of common data infrastructure and promote large scale adoption. Proposed scope:

- Allowing the coordination and alignment on common standards among its members.
- Support the implementation of cross-border use cases under a coherent approach.

Preparation of an application by the Netherlands (host), Germany, Finland, Spain, Austria, Slovakia, Italy (new), France (observer), Luxembourg (observer - new) and closely followed by the EC. Other Member States, regions and organisations showed interest.

Application planned by the Members States for Q3 2024.
Next steps

• Evaluation and award of the DIGITAL WP 2024 proposals (Q3-Q4 2024)
• Review Mobility and Logistics Data EDIC material and application (ongoing)
• Review of the EMDS technical assistance study deliverables (ongoing)
• Review of the deployEMDS preliminary deliverables (ongoing)
• Define terms of reference for the deployment action of the interlinking layer (Q4 2024-Q1 2025)
Thank you

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Useful links

European data strategy

Sustainable and smart mobility strategy

DIGITAL Work Programme 2024
Funding & tenders (europa.eu)

Deployment call - Funding and tenders portal
DIGITAL-2022-CLOUD-AI-03-DS-MOBILITY

PrepDSpace4Mobility (mobilitydataspace-csa.eu)

Staff working document on data spaces

Consultation – Communication on common European mobility data space
Have your say - creating a common European mobility data space
Zooming into the railway sector and the ERA ontology

19 July 2024 | data.europa.eu academy
 Assets scattered all over the railway network and in motion
• Realtime traceability of rail data assets is crucial for effective maintenance and operations
Railway "data" ecosystem

- Multiple use cases using the same data assets
- Heterogeneous data models
- Lack of common definitions
- Lack of common identifiers
- Low reusability
- Huge $$ on N2N data transformations
Context

common European Data Space

Sectorial Data Spaces (e.g. common European mobility data space)

Public and Private Initiatives

Railway Regulation generating data stores

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<th>Interoperability of the rail system</th>
<th>Safety Directive</th>
<th>Single European Railway Area SERA</th>
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<td>TSI (CCS, Telematics, OPE...)</td>
<td>Registers (ERATV, RINF, ERADIS, SRD, OC)</td>
<td>Information Sharing System</td>
<td>Network statements &amp; Capacity path allocations</td>
<td>Rail Facilities Portal</td>
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Law as Code and...Code as Law

Ontology as an instrument to harmonize law glossary terms and taxonomies in the legal texts

Linked data is not a technology is a mindset, an enabler towards data centricity towards knowledge management
What about ... ?

A standard ..

in use ...

human and machine readable

and .. legally binding!!!

ERA ontology & ERA Knowledge Graph!
Some numbers ...

- More than 36 million triples (statements)
- More than 31k lines of mappings
- More than 100 shacl shapes – business rules
- +270k track segments described
- +50k stations described
- +50k geo-referenced objects (lat/lon)
- +2k Vehicle Types described
- 27 countries covered
Zooming... IN @ Data Interoperability

FAIRification at scale @ERA

1. Vision and Principles
2. Use Case Tree
3. Building the data architecture blocks and artefacts, pipeline
4. Data Assets Management
5. Data Culture
6. Data Governance
Reusability and Interoperability

Data generated by one part of the system can be effectively utilized by other parts.

a) G2G

b) B2G

data provision to Register of Infrastructure models semantically lifted

c) B2B  i.e. harmonized Data Prep

70% of the cost of ERTMS deployment engineering hours is data transformation
Rail Ontologies in bloom

2019

Alone in the desert

2024

Rail Ontologies blooming as Mushrooms
Rail Ontologies in bloom
THANK YOU

Moving Europe towards a sustainable and safe railway system without frontiers.

Follow us:  

Twitter  Linkedin  YouTube
deployEMDS

Towards a common European mobility data space

Data spaces: experience from the common European mobility data space

19 July 2024
Dr. Stefanie Federl

This project has received co-funding from the Digital Europe Programme under grant agreement no. 101123520.
From theory to implementation

PrepDSpace4Mobility

17 European partners

Map existing data ecosystems

analyse and recommend common building blocks for a future EMDS.

45 European partners

build a decentralised technical infrastructure and common governance mechanisms

for urban mobility use cases in 9 cities and regions across Europe.

Oct 2022 – Sep 2023

Oct 2023 – Oct 2026
1. Coordination and project management

2. Common technical infrastructure

3. Governance: Organisational, legal & market structures

4. Deployment through real-life implementation projects
   Cities, public transport authorities, operators, research institutes

5. Communication, dissemination, exploitation

- Advisory Board (+ Security Advisory Board)
- "Innovation & Scaling Group" Industry, SMEs, data innovators
- Steering Committee
- "Innovation & Scaling Group"
- Common infrastructure
- Common governance
- Common technical infrastructure
- Common infrastructure
- Common governance
- Cross-cutting evaluation
- Gain insights, evaluate, improve

- "Trainings"
- "Network of follower cities"
- "Innovation & Scaling Group"
- "Network of follower cities"
- "Local and transversal use cases"
- SUMI | RTTI & MMTIS
- Industry, SMEs, data innovators
- Reviews & strategic advice
- Common governance
- Common infrastructure
- Common infrastructure
- Cross-cutting evaluation

- Steer, train, engage
- Evaluate, improve
- Cross-cutting evaluation
- "Innovation & Scaling Group"
- "Network of follower cities"
16 use cases in 9 cities & regions

Mobilising Europe through interlinked data sharing ecosystems

Focus:
- multi-modal travel information
- real-time traffic information
- Sustainable Urban Mobility Indicators

deployEMDS.eu/deployment/
Local Use Cases in 4 Clusters, 2+ Transversial Use Cases

**TRANSVERSAL 1:**
Multimodality (Open PT Ticketing, Integration of Shared Mobility in PT Apps, Multimodal Mobility Management and Data Reporting to Authorities)

**TRANSVERSAL 2:**
Data Reporting for Sustainable Urban Mobility Indicators (SUMI)

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<th>Data for Mobility Planning</th>
<th>Multimodality</th>
<th>Speciality Travel Information</th>
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<td>BAR 02: Forecasting system to optimize traffic</td>
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<td>BUD 02: Mobility as a Right for people with reduced mobility</td>
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<td>FLA 01: Optimizing the re-use of traffic measurement data</td>
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<td>MIL 02: MaaS based mobility scenarios</td>
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<td>SOF 01: Connected, Green and Shared Journeys</td>
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<td>IDF 02: Optimization environment for journey planner providers</td>
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Get involved

1. **Innovation & Scaling Group**
   - Industry, SMEs, data innovators

   Aims to foster **collaboration** between deployEMDS stakeholders and **external entities**, mainly from the **private sector**.

   Its objective is to
   - develop innovative use cases
   - promote knowledge exchange
   - ensure technical and governance developments meet private actors’ needs.

2. **Network of follower cities**

   Aims to engage with **external local and regional public entities** interested in shaping the future of the EMDS by supporting the development of the deployEMDS project.

   Establish a space for local and regional public authorities to
   - engage in peer-learning with deployEMDS cities
   - Allow knowledge exchange on EMDS developments
   - contribute to the development of future policies and standards within the EU
   - collaborate with industry players and platforms represented in ISG
Contact

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/deployEMDS

www.deployEMDS.eu

Co-funded by the European Union

Restricted Use
The Flanders case: Traffic Measurements Data Space

Dr. Steven Logghe
Data Space Concept

**AS-IS**
Many different ways (and standards) to exchange data, both on publisher side and consumer side

Data publisher A
Data publisher B
Data publisher C

Data consumer 1
Data consumer 2
Data consumer 3

**TO—BE**
Standardisation: publishers publish their data following the same standard that make consumer able to use one standard ‘socket’ to consume the data, regardless their origins

Data publisher A
Data publisher B
Data publisher C

Data consumer 1
Data consumer 2
Data consumer 3
- Traffic Measurements -

Measuring the amount and speed of vehicles, bikes, walking on a specific location

A wide range of technics, each with own strong points
A lot of data protocols
Operated and used by + 500 stakeholders in Flanders region
Immature data culture
A wide range of use cases

Mobility domain:

- **Control** systems: eg traffic lights, lane signalisation, parking route guidance
- **Monitoring and evaluation**: statistics, policy KPI’s, evolutions, impact of measures
- **Visualisation**: view on current traffic state, using dashboards and map applications
- **Simulations**: transportation modelling, digital twins and scenario analyses.

Outside mobility domain:

- **Environment**: emission modelling and calculations
- **Spatial planning**: impact assessment during permit processes
- **Retail and economic policy**: monitoring locations and modelling retail sales areas
- **Tourism**: monitoring and analyses
- **Advertisement**: measuring audience of out of home billboards
The value chain of traffic measurements

If you need traffic measurements, you need to buy them

- Sensor producer
- Import / reseller
- Installation / service
- Data platform
- Data application
- Data analysis

linear closed value chain

Can we change this and re-use traffic data?
Introducing a data space

Introduction of a data space leads to re-use of traffic measurement data

- Sensor producent
- Import / reseller
- Installation / service
- Data platform
- Data Space
- Data platform
- Data application
- Data analysis

Publish your data → Data Space → Consume all data
- Our approach -

Understandable => Standardization

Exchangeable => Interface

Re-Usable => Ecosystem

Future proof => Governance
Traffic Measurements Data Space

A minimal viable data space:
• Open data
• No control plane yet: no contracts

⇒ Ecosystem leads to additional onboardings, new consumers coming up!
⇒ Bottom up during a project => in search for the governance authority

Goal: further interlink with other regions within DeployEMDS
Your opinion is important to us
Thank you