



NAPs in the European Mobility Data Space

NAPCORE Mobility Data Days 2024

Turin, Italy



Co-funded by
the European Union

NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including you!)
Interactive discussion – esp. on the NAP/NAPCORE perspective

NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including you!)
Interactive discussion – esp. on the NAP/NAPCORE perspective



Creation of a common European mobility data space (EMDS)

European Commission

NAPCORE mobility data days, November 6-7 2024

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.

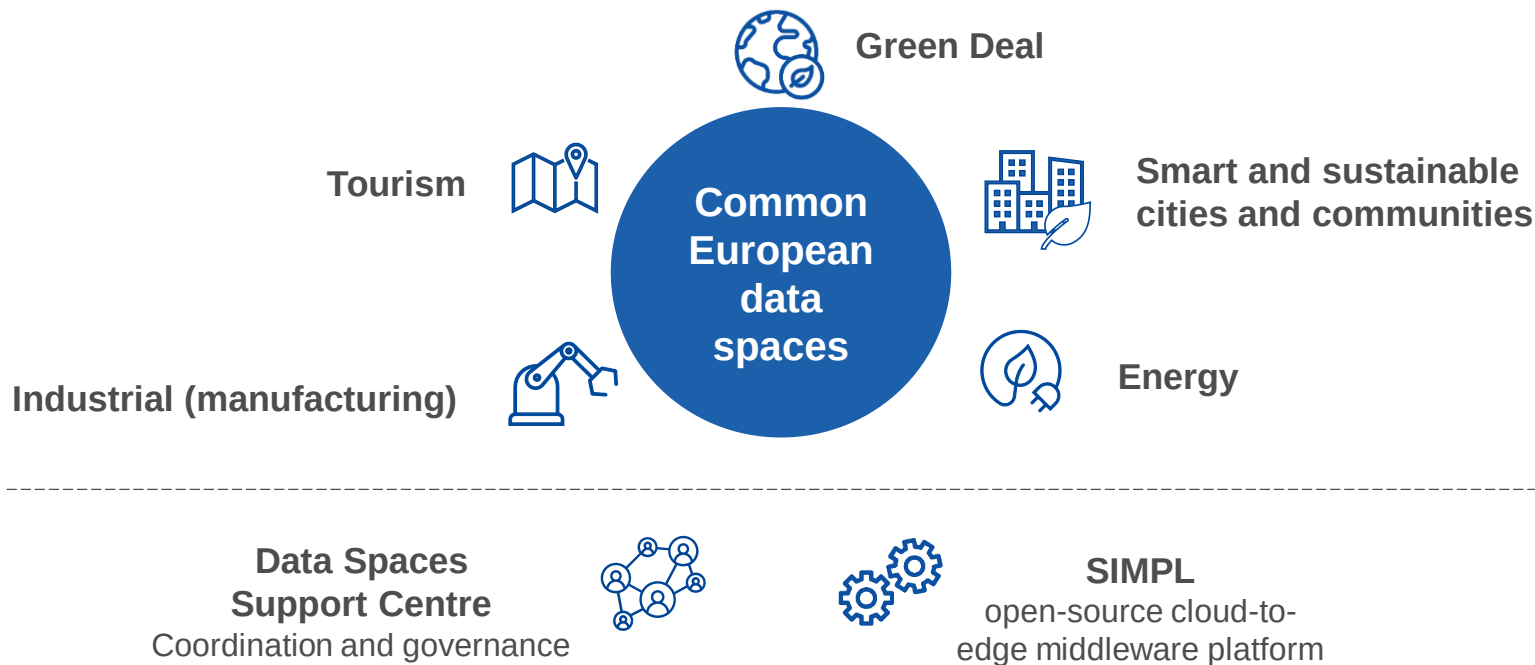
Sustainable and Smart Mobility Strategy (SSMS)



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.

Other relevant common European data spaces and initiatives



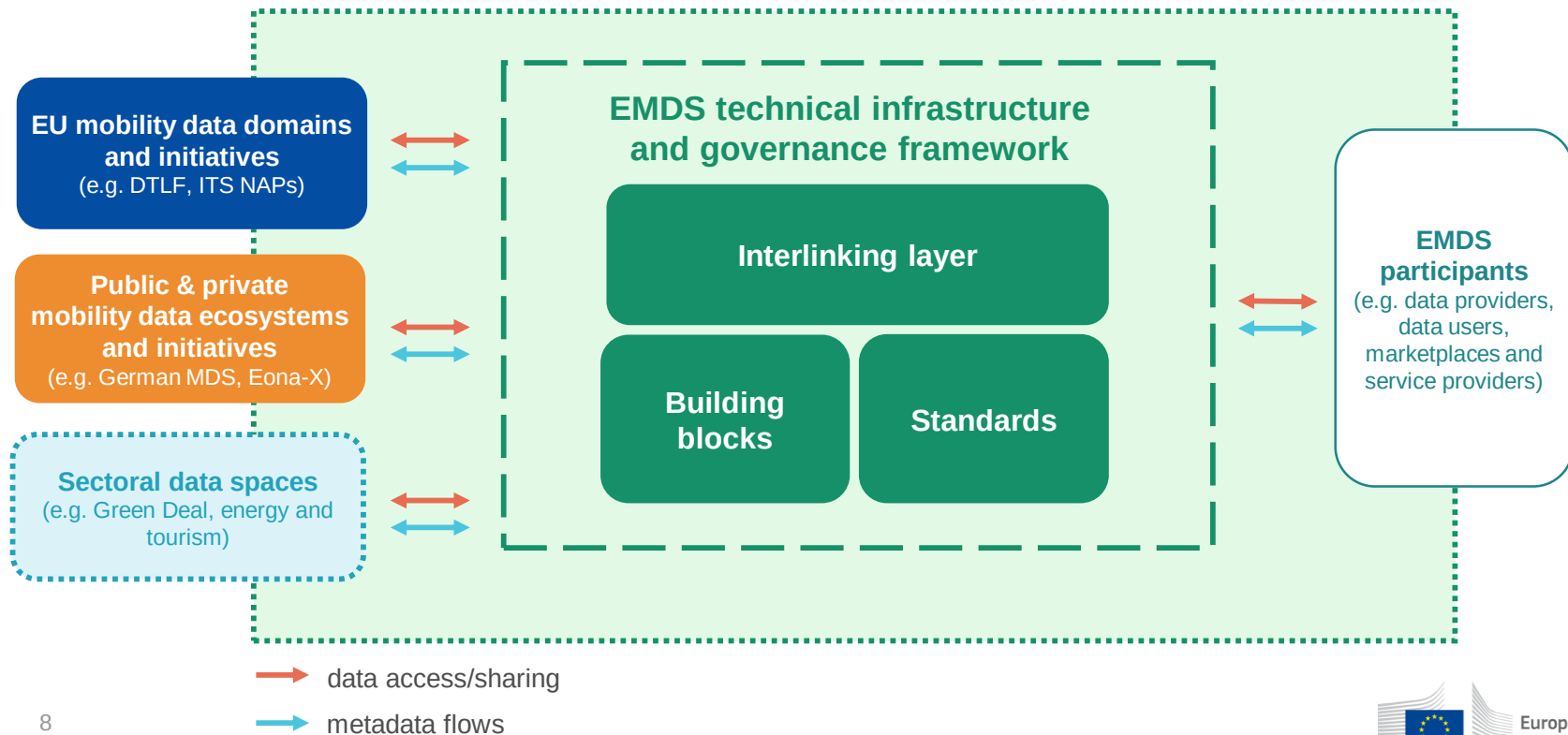
EMDS Communication (COM(2023) 751 - adopted Nov 29, 2023)

- 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.



EMDS framework

Envisioned
concept



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 buildi



PrepDSpace4Mobility

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 (planned Q1)

→ 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

- [published](#) Feb 13, 2024



- open Feb 29-May 29, 2024



- planned kick-off Q1 2025

→ Support the establishment of a **lasting collaboration structure**

→ Support the deployment of **cross-border use cases** in different areas

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** (suggested host), **Germany, Finland, Spain, Austria, Slovakia, France, Italy, Luxembourg, Lithuania.** and closely followed by the EC. Other Member States, regions and organisations showed interest.

Next steps

- Finalise grant agreement of the **DIGITAL WP 2024 proposal** (Q4 2024), planned kick-off Q1 2025
- 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

Contacts:

dimitrios.gkatzoflias@ec.europa.eu

gilles.carabin@ec.europa.eu

kristof.almasy@ec.europa.eu

© European Union 2020

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Useful links

European data strategy

https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en

Sustainable and smart mobility strategy

https://transport.ec.europa.eu/transport-themes/mobility-strategy_en

DIGITAL Work Programme 2024

[Funding & tenders \(europa.eu\)](https://europa.eu/europa/en/funding-tenders)

Deployment call - Funding and tenders portal

[DIGITAL-2022-CLOUD-AI-03-DS-MOBILITY](https://digital-strategy.ec.europa.eu/en/library/staff-working-document-data-spaces)

[PrepDSpace4Mobility \(mobilitydataspace-csa.eu\)](https://mobilitydataspace-csa.eu/)

Staff working document on data spaces

<https://digital-strategy.ec.europa.eu/en/library/staff-working-document-data-spaces>

Consultation – Communication on common European mobility data space

[Have your say - creating a common European mobility data space](https://ec.europa.eu/info/consultations/consultation-creating-common-european-mobility-data-space_en)

NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including you!)
Interactive discussion – esp. on the NAP/NAPCORE perspective

deployEMDS

@NAPCORE Mobility Data Days

Lucie Kirstein, Team Lead, acatech

31 October, 2024



Co-funded by
the European Union

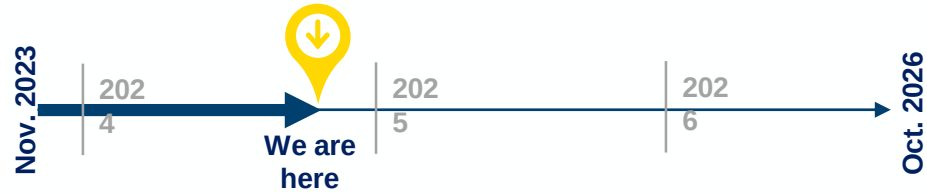


The project

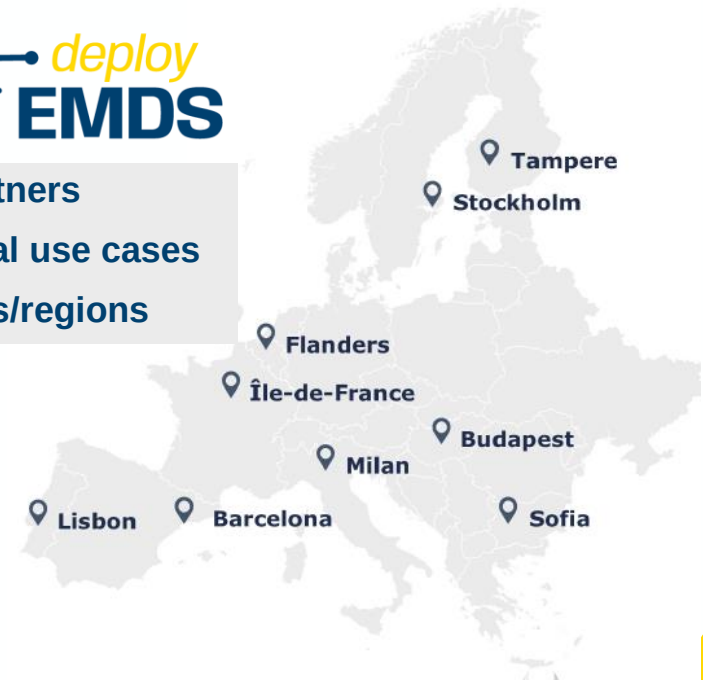
36-month deployment action

Budget: ~16 EUR million

50% funded by EC



- 45 partners
- 16 local use cases
- 9 cities/regions





16 use cases in 9 cities & regions

Mobilising Europe through interlinked data sharing ecosystems



Flanders



Sofia



Barcelona



Tampere



**Île-de-France
region**

Focus:

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



Budapest



Milan



Lisbon



Stockholm

[deployEMDS.eu/
deployment/](https://deployEMDS.eu/deployment/)





Approach

- One common infrastructure following the DSSC Blueprint
 - Testbed and technical specifications coming Jan 2025
 - Data space + Connector-as-a-Service provided to partners for realising their use cases
- One common governance with subsidiarity mechanisms
 - Policy labs with participating cities and regions
 - Analysis and guidance on applicable regulations
- Realising interoperability via a **win-win** for participating cities/regions
- Long-term aim to provide a metadata “interlinking layer” and possibly also provide/maintain an infrastructure for local or cross-border use,
- ...together with a framework governing interoperability of various local ecosystems via a future “EMDS reference framework”
- Parallel initiative by and for Member States co-investing in digital infrastructure:
EDIC Mobility & Logistics Data



Co-shape transversal
European use cases



[About](#) [Deployment](#) [Get Involved](#) [Knowledge Hub](#) [News & Events](#) [Contact us](#) [Q](#)

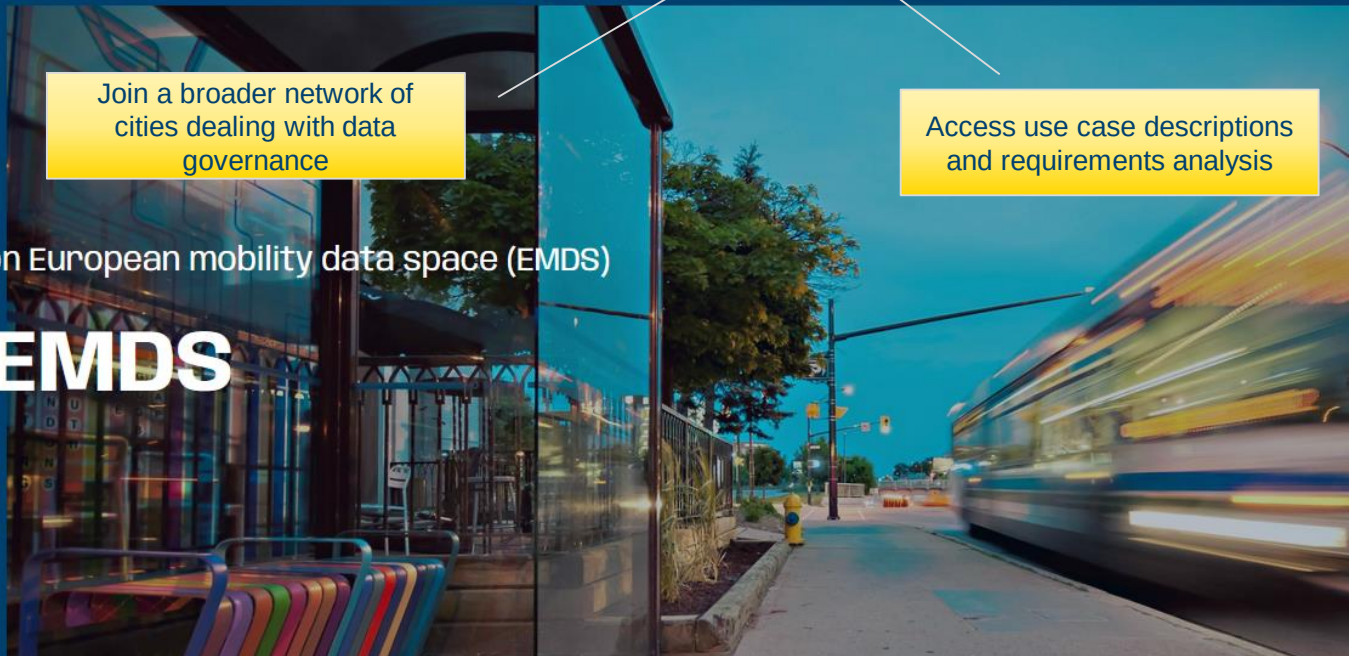
Join a broader network of
cities dealing with data
governance

Access use case descriptions
and requirements analysis

Towards a common European mobility data space (EMDS)

deploy**EMDS**

DISCOVER MORE





Cross-border mobility pain points

Fragmented Urban Vehicle Access Regulations (UVAR)

- Cities across Europe apply different UVAR schemes (e.g., Low Emission Zones), which can be confusing for travellers and transport operators trying to comply with diverse rules.

Lack of coordination on road safety data

- Road safety data is often fragmented across regions and countries, making it difficult to implement cohesive safety policies or react swiftly to safety issues.

Multimodal transport not sufficiently integrated

- Data for different modes of transport (e.g., buses, trains, bikes) is often siloed, making it hard to plan seamless, efficient multimodal journeys.

Inconsistent real-time travel information across borders

- Travellers often face a lack of real-time information (delays, accidents, etc.) when crossing borders, which affects journey planning and operational efficiency for transport providers.

Traffic congestion in border regions

- Lack of coordination in traffic management across borders often leads to congestion and inefficiencies, especially in regions with high cross-border traffic flows.

Limited cross-border EV charging infrastructure information

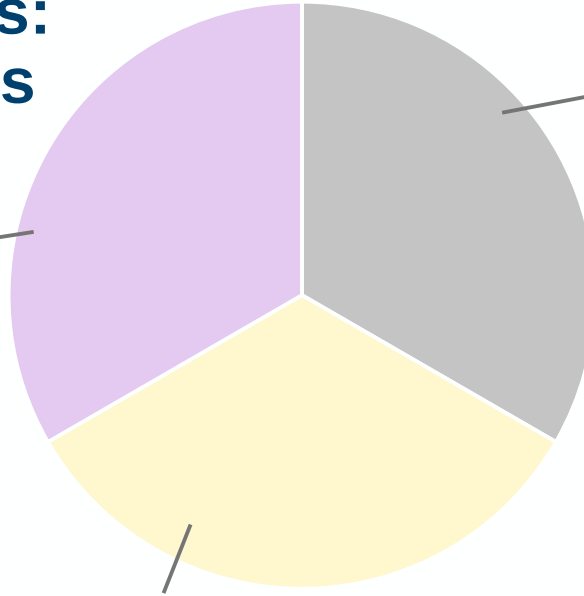
- EV users face challenges finding and accessing charging points across borders due to lack of harmonised data on charging availability and locations.



Data sharing/access: Common challenges

Business and organisational challenges

- **Lack of awareness** of strategic value of data
- Underdeveloped data sharing culture (**sil mentality** and fragmented data management)
- **Capacity constraints** (limited competences and specialised skills to leverage data)
- **Inadequate data governance** practices and lack of streamlined processes, resulting in high data acquisition and transaction costs
- **Reluctance to share** data due to trust, reputation, unclear ROI or competition concerns
- **Missing good practices** for cross-border, cross-organisational data sharing in mobility



Legal and regulatory challenges

- Navigating **complex and fragmented regulatory frameworks** across different jurisdictions
- **Legal uncertainty** around what data can be shared, with whom, and how (privacy, trade secrets, data sovereignty)
- Insufficient good practice examples and **standard templates** for efficient and compliant data sharing with other actors

Technical challenges

- **Fragmented data landscapes** and missing ability to search across datasets, limiting discoverability
- **Lack of interoperability** and standard protocols, making it difficult and costly to exchange, understand and use data
- Outdated, proprietary and often incompatible **IT systems**
- Still emergent and dynamically evolving **data space technology** landscape, creating uncertainty and delaying adoption
- Poor and inconsistent **data quality**, and lack of tools to assess quality



Learnings so far

- Research and practice highlight the critical need for a **data strategy at local level**, developed through policy dialogue with all relevant stakeholders.
- A data space is particularly suitable for facilitating **complex, multi-stakeholder data sharing** and addressing discoverability and integration challenges across various departments and entities. It also helps when trust is missing between stakeholders and additional safeguards to ensure sovereignty are needed.
- Implementing a data space does not replace the **need for investing in data governance and management capabilities within public institutions**. Substantial “back office” efforts are required on data processes, practices and quality to enable efficient sharing and leverage the potential of data.

Strategic perspectives on EMDS (draft)



- 01 To enable harmonisation and seamless data sharing across Europe, the EMDS framework will consist of a **federated network of interoperable mobility data spaces developed in local nodes** (city/region) – and other mobility subsectors like aviation, rail, logistics.
- 02 A set of **technical infrastructure components need to be common** across all local data spaces to ensure interoperability under the EMDS framework. These could be A) developed centrally and made available for local implementation or B) developed locally following a reference architecture.
- 03 The EMDS framework must align EU harmonisation goals with **tangible benefits** for local parties and industry actors and develop a **compelling long-term vision** to convince all relevant stakeholders that participation is a worthwhile and sustainable investment.
- 04 **Transversal use cases** are essential to demonstrate the **value of interoperability** enabled by the EMDS framework.

Contacts

deployEMDS coordinators

acatech – National Academy of Science & Engineering

Lucie Kirstein

kirstein@acatech.de

Christopher Newman

newman@acatech.de



/deployEMDS



www.deployemds.eu



Co-funded by
the European Union

NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including you!)
Interactive discussion – esp. on the NAP/NAPCORE perspective

EMDS study status and overview of the deployEMDS local implementation site Tampere

Johan Scholliers

11/11/2024 VTT – beyond the obvious

Contents

- Study in support of the common EMDS
 - Objectives
 - Status and recommendations

- deployEMDS Tampere deployment site
 - Objectives
 - Draft architecture

Study in support of the creation of the common European mobility data space

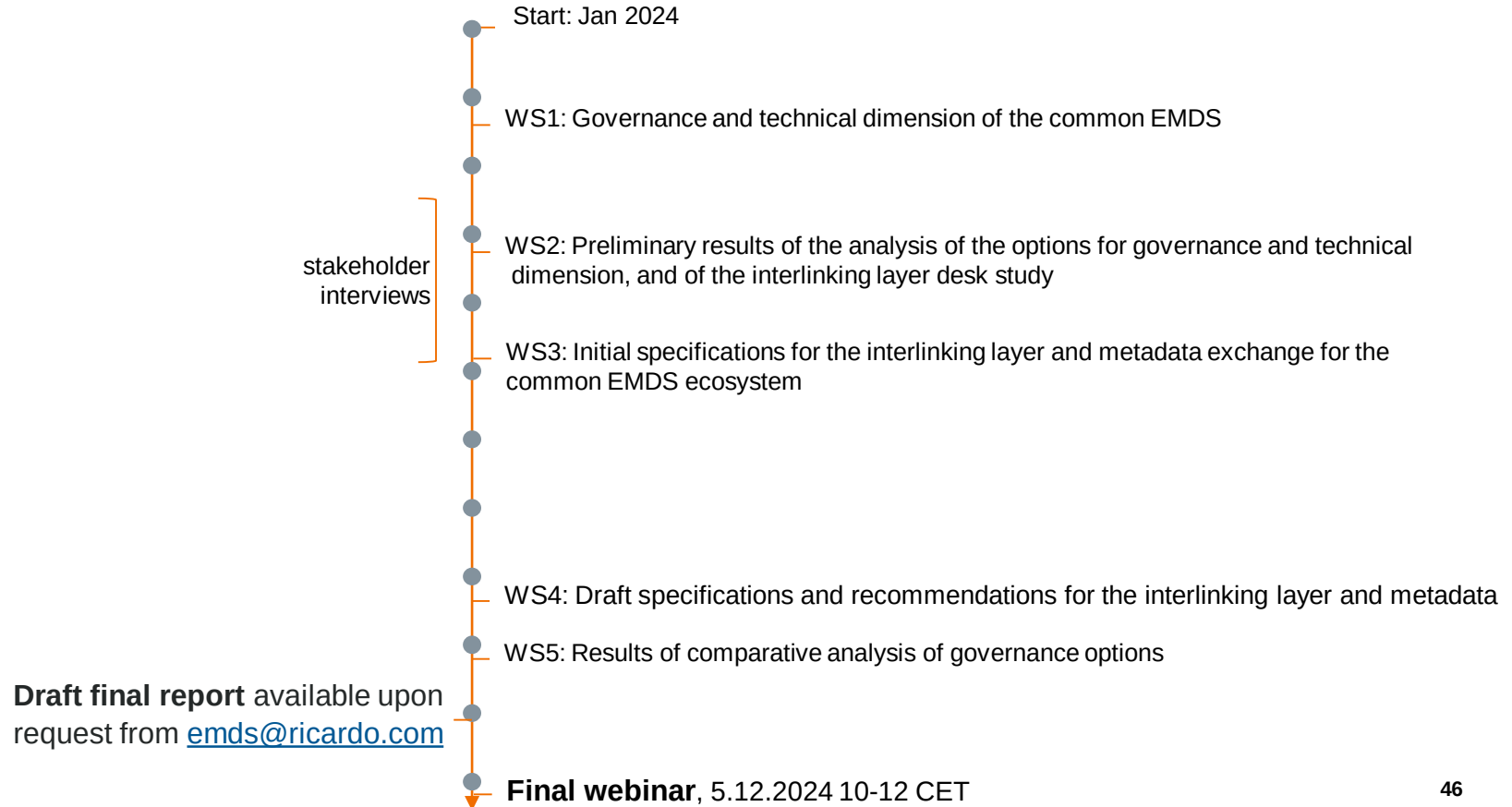
Overview of the EMDS Study

The ***Study in support of the creation of the common EMDS*** is currently carried out by VTT, Ricardo and Wavestone on behalf of the European Commission's Directorate for Mobility and Transport (DG MOVE)

Objectives

1. Support the definition of the technical and governance dimension of the common EMDS framework, building on the analysis of the recommendations of the PrepDSpace4Mobility project and other initiatives.
2. Assist the development of specifications and recommendations for an interlinking layer, with the goal to interlink and facilitate the discovery and access of data from existing and future transport data ecosystems and initiatives.
3. Provide specifications and recommendations to allow existing and future mobility and transport ecosystems interlinking and exchanging data through the common EMDS framework.

Study Timetable



Potential scenarios for governance model

1. EU-entity
2. Member State driven European Digital Infrastructure Consortium (EDIC)
3. European association of mobility data spaces
4. EU regulatory framework
5. Expert working group

A Comparative analysis has been discussed in workshop 5

Recommendations for the interlinking layer

#2.6 Based on the comparison of the different interlinking layer architecture options and the feedback received, a **hybrid model** is proposed for the interlinking layer architecture, combining the “Centralised scenario, version A” with aspects of “Centralised scenario, version B” and the “Federated scenario”.

#2.1 The interlinking layer should offer a single point of access to find data ecosystems, participants, and offerings.

#2.2 The interlinking layer should support a sustainable and stable technology platform, **based on mature technologies**, and able to support new data formats and standards.

#2.3 The interlinking layer should **complement and build upon existing solutions**, such as NAPCORE, and seek compromise between supporting existing legacy data ecosystems and upcoming data spaces.

#2.5 The interlinking layer should provide a **low threshold for integration of participant data ecosystems**.

#2.12 The interlinking layer should enable a **phased development cycle**, starting from an MVP corresponding to “Centralised scenario, version A” and gradually evolving towards the recommended hybrid architecture.

#2.4 The interlinking layer should, in a first phase, **only provide access to metadata and not the actual data**.

#2.7 In the first phase, the interlinking layer should have its **own identity management system** (e.g., compliant with eIDAS). In later

phases, this system should be extended to support identities inherited from participating data ecosystems, provided that these identities are compatible with the interlinking layer’s identity framework.

#2.8 Individual members of participating data spaces should not need a separate registration process for the interlinking layer.

#2.9 The interlinking layer should provide **connectivity for participant data spaces**.

#2.10 The interlinking layer should allow the data provider to select if the metadata is published to the interlinking layer or only to the participant data space.

#2.11 The interlinking layer operation model should ensure that quality is maintained throughout the whole metadata life cycle.

#3.1 **mobilityDCAT-AP** is suggested as the foundation for the common metadata model for the EMDS, though its use for logistics requires further analysis.

#3.2 **ODRL** is recommended for refining commercial data information.

#3.3 **Trust framework and identity management system** information should be included in metadata.

#3.4 **JSON-LD** is suggested as the encoding format.

#3-5 **OAI-PMH** is recommended as the data harvesting protocol for legacy systems.

Recommendations for the interlinking layer architecture model

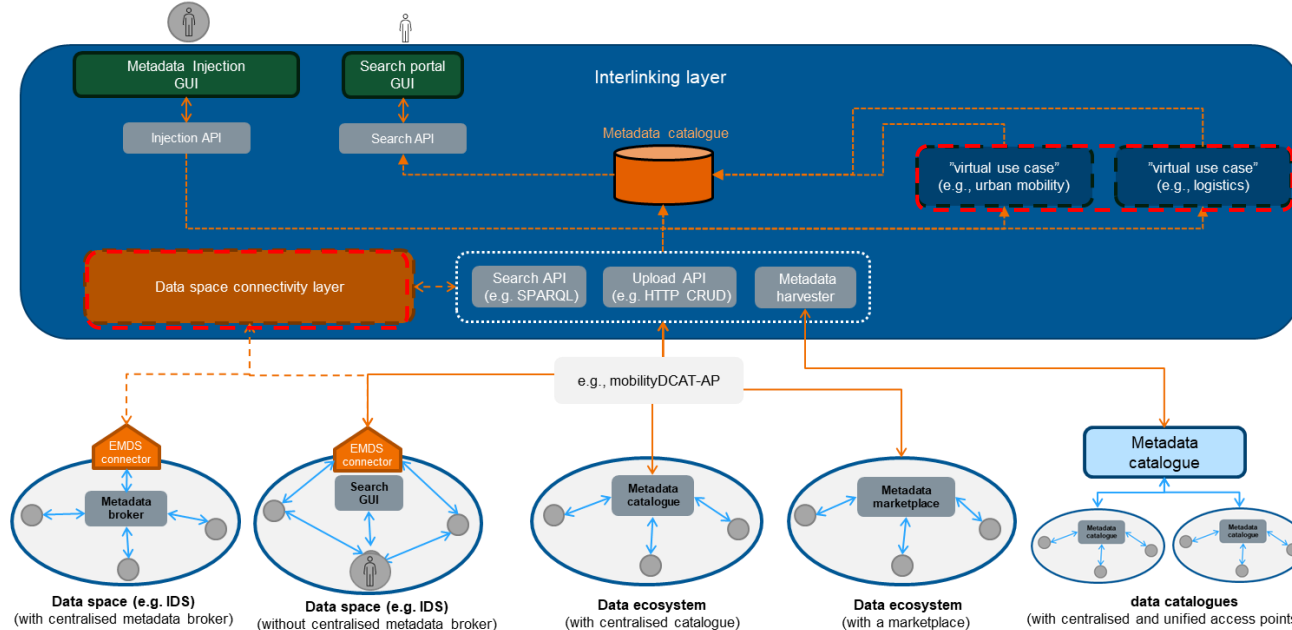


Recommendation #2.6

A hybrid model is proposed for the interlinking layer architecture, combining the “Centralised scenario, version A” with aspects of “Centralised scenario, version B” and the “Federated scenario”.

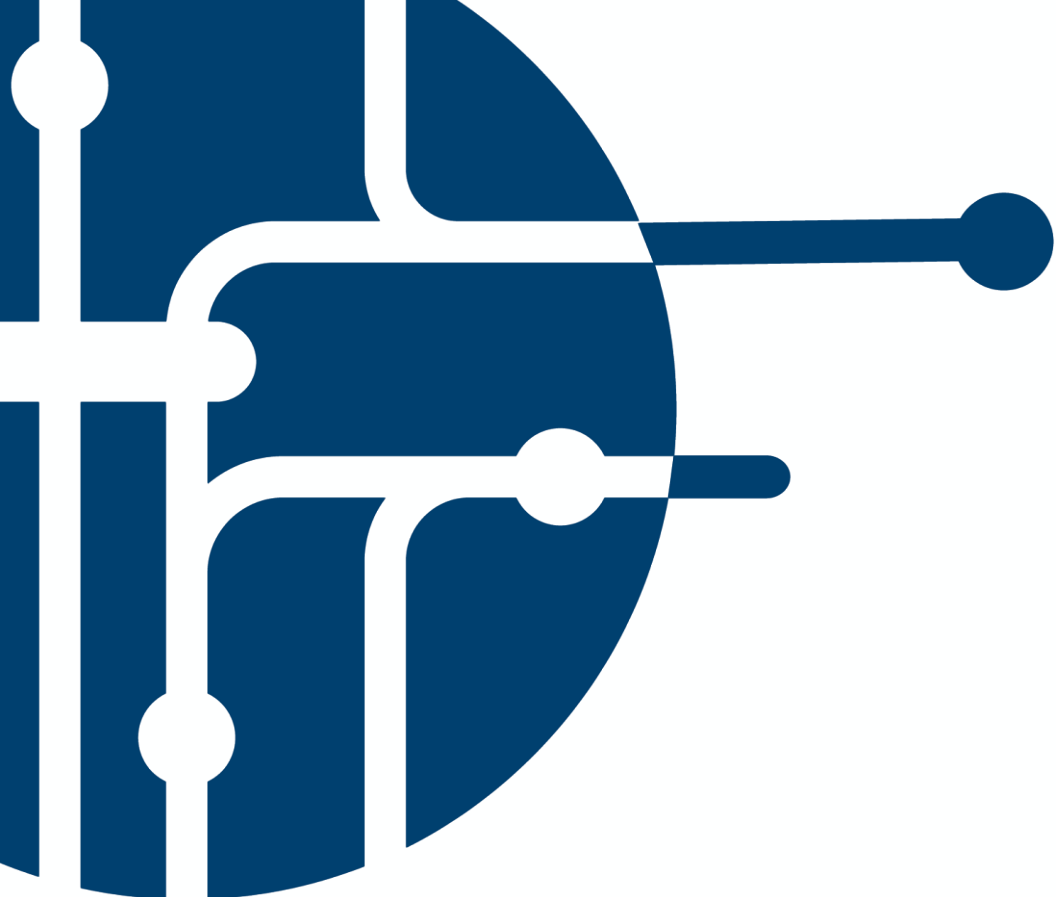
- ↔ Metadata flow (EMDS format)
- ↔ Metadata flow (data space specific format)
- ↔ Data space protocol connection

 = additional functions in Version 1.1



mobilityDCAT-AP as basis for metadata model

- **Data interchange model based on mobilityDCAT-AP** for enhancing exchanging information between interlinking layer and participant data spaces/ecosystems
 - Information on the terms and condition should be included, e.g. model in a structured format by using ODRL
 - Data on data provider needed for improving trust, through foaf:Agent
 - Foaf:workplaceHomepage from recommended to mandatory
 - Org:memberOf: from optional to mandatory
 - Foaf:mbox: mandatory
- **Interlinking layer internal data model** that responds also to information queries related to ecosystems/dataspaces and interlinking layer participants (**extended mobilityDCAT-AP**)
 - Information on participating dataspace, trust framework,...

A large, abstract blue graphic on the left side of the slide, consisting of thick white lines forming a circuit-like pattern with circular nodes, set against a dark blue background.

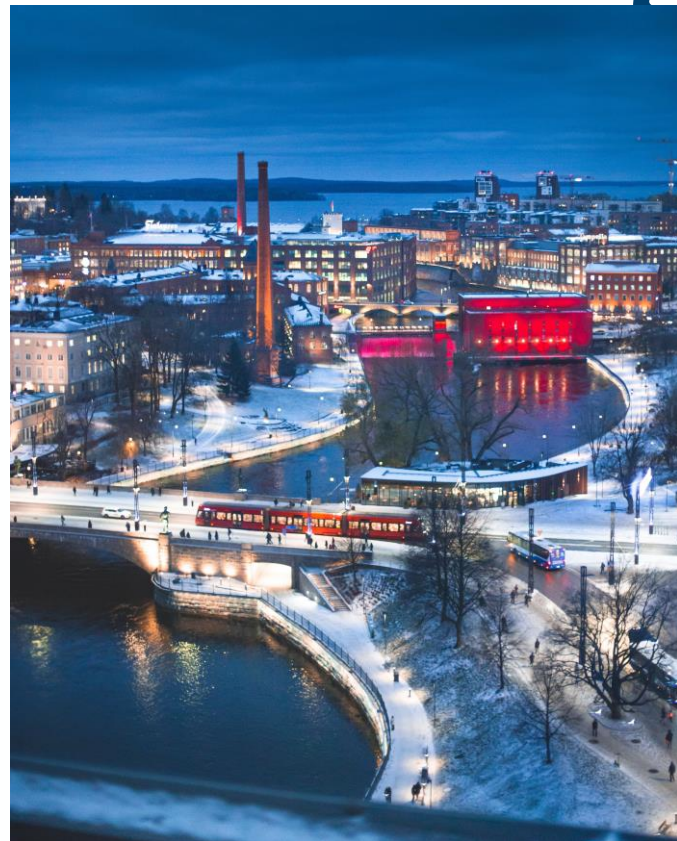
Overview of the deployEMDS local implementation site Tampere



Use cases: Tampere

- Collection of data, which are mandated in the ITS directive, and interface to Finnish NAP
- Improve monitoring of real-time traffic information, in order to strengthen the city's ability to assess the impact of the actions taken towards optimising the transportation system, related emissions and calculation of SUMI indicators

TAMPERE.
FINLAND



© Visit Tampere

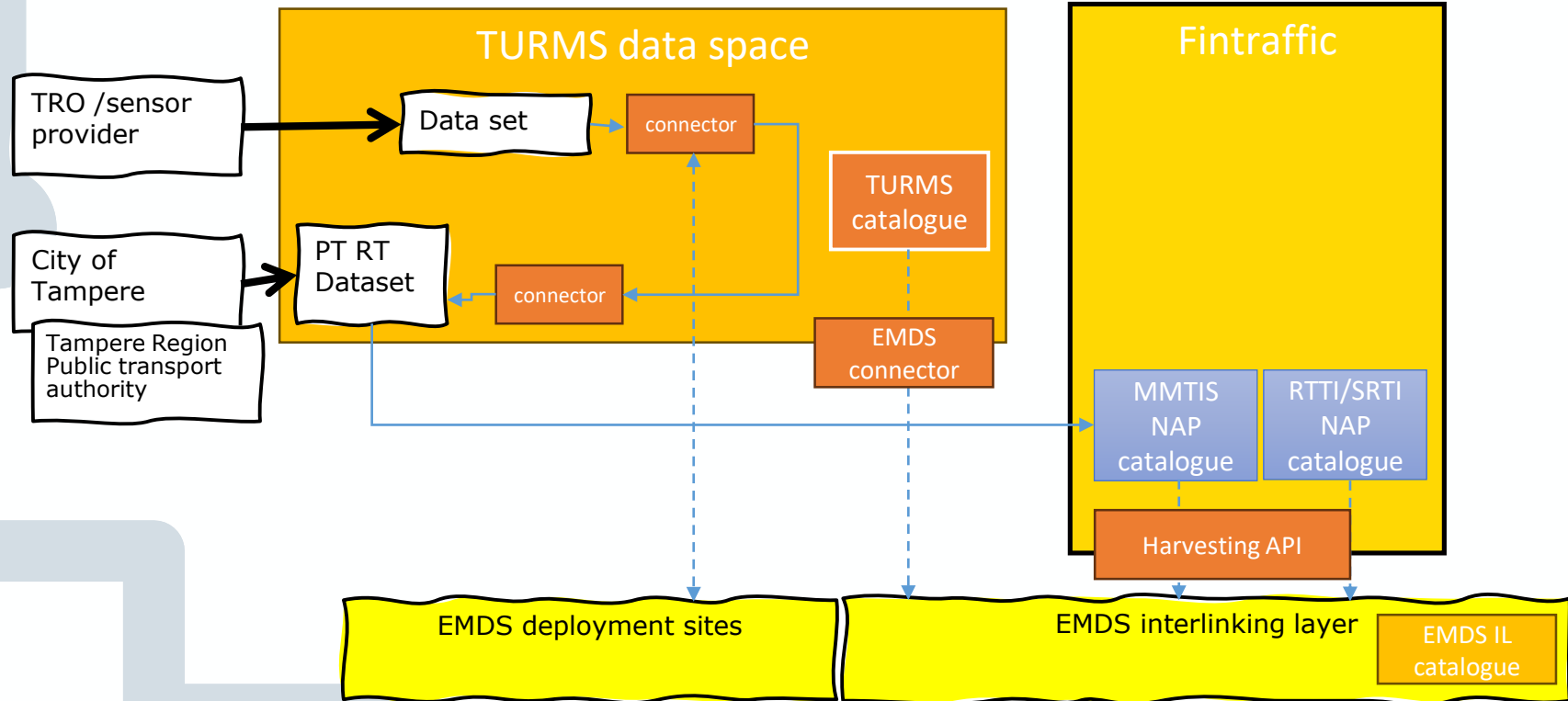


Activities in Finland

- NAP @Fintraffic
 - mobilityDCAT-AP catalogue (RTTI), Q3/2024
- Finnish Traffic Data Ecosystem
 - Governance based on SITRA's Rulebook
- TURMS research environment
 - Development of cross-sectoral dataspace
 - Aligned with deployEMDS



Plan for interaction between NAP and other actors



bey⁰nd

the obvious

Thank you!

Johan.scholliers@vtt.fi

vttresearch.com

NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including you!)
Interactive discussion – esp. on the NAP/NAPCORE perspective

The Flanders case: Traffic Measurements Data Space

Casper Van Gheluwe - imec

2024-11-06 – NAPCORE MDD'24



Co-funded by
the European Union

 imec

DIGITAAL
VLAANDEREN



Vlaamse
overheid

Traffic measurements



Temporary



Campaigns



Bike counting



ANPR



Counting pole



Induction loop



Access control



- Wide range of techniques & providers
- Varying data formats & protocols
- >500 stakeholders in Flanders
- Immature data culture

Wide range of use cases



Mobility domain

- Control systems
- Monitoring & evaluation
- Visualisation
- Simulations & modelling
- Digital twins



Other domains

- Environment
- Spatial planning
- Retail & economic policy
- Tourism
- Advertising





Value chain of traffic measurements

If you need traffic measurements, you need to buy them..



linear closed value chain

Can we change this and **re-use** the traffic data?



Value chain of traffic measurements

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



Publish **your** data

Consume **all** data

Understandable →
Standardization

Exchangeable → Interface

Re-usable → Ecosystem

Future proof → Governance

1

2

3

4



Further developments to the traffic measurements data space

Upgrade VSDS

Metadata management
(via mobilityDCAT-AP)

Functional interface
(via OSLO)

Technical interface
(via LDES)

Onboarding
extra publishers

Integrate EMDS

Vocabulary hub

Integration of EMDS data
and control planes

Integration with EMDS
central services

Cross-border data
harmonization

Cross-border use case

Low/no-code user
interface

SUMI indicators analysis

Transfer learning

Contacts

Implementation site coordinators

steven.logghe@movias.eu – Digitaal Vlaanderen

laure.decock@imec.be – imec

Solution architect

casper.vangheluwe@imec.be – imec



/deployEMDS



www.deployemds.eu



Co-funded by
the European Union

NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including you!)
Interactive discussion – esp. on the NAP/NAPCORE perspective

deployEMDS in Île-de-France - Overview

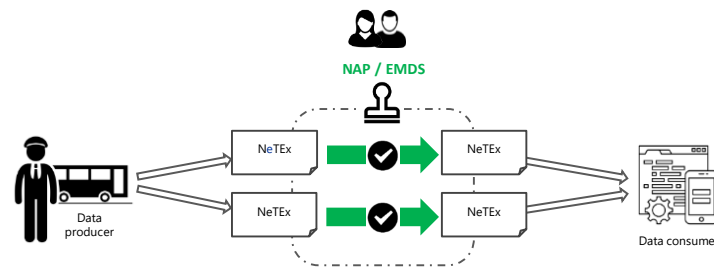
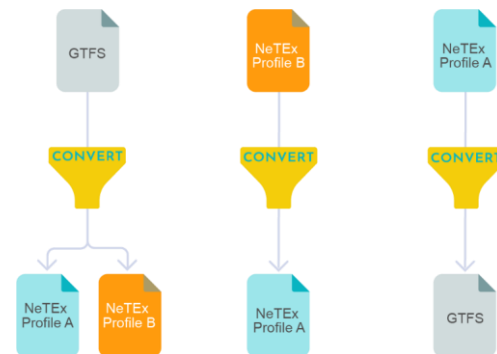
- What we are looking to solve: more sustainable commute options for all
- How we are trying to solve it
 - Increase the diversity of datasets included in journey planners / MaaS solution
 - Increase the *perceived* quality of travellers' information (i.e. pragmatic quality)
- How NAPs & EMDS are complementary
 - NAP: mostly MMTIS data
 - EMDS: potential access to privately-own data

deployEMDS in Île-de-France - Deep-dive

- One of our main use-case: Increase the **diversity** of datasets included in journey planners / MaaS solution
- What we are exploring: the description of charging stations
 - Is there any existing specifications used across several NAPs / providers?
 - How to use NeTEx & SIRI and facilitate their integration in MaaS
 - Would local / national authorities get involved in the topic?

deployEMDS in Île-de-France - Learnings

- We are facing the same challenges
 - Standardisation
 - Data quality based on
 - Compliance to standards
 - Comprehensiveness (i.e. depth of the dataset)
 - Pragmatism (i.e. matching real-life)
- We are solving them the same way
 - Standardisation: facilitating the use of standards
 - Tooling: control & validation of datasets



NAPs in the European Mobility Data Space

AGENDA

- Timo Hoffmann (BAST, NAPCORE)
Welcome remarks, agenda, moderation
- Dimitrios Gkatzoflias (DG MOVE)
Setting the scene from the European Commission perspective
- Lucie Kirstein (acatech, deployEMDS)
deployEMDS – current status of deployEMDS
- Johan Scholliers (VTT)
EMDS study status and overview of content/results & deployEMDS local implementation site Tampere
- Casper Van Gheluwe (IMEC)
deployEMDS local implementation site Flanders
- Tu-Tho Thai (enRoute)
deployEMDS local implementation site Île-de-France
- All (including **you!**)
Interactive discussion – esp. on the NAP/NAPCORE perspective