



OPEN DATA FOR BETTER URBAN MOBILITY

TRA 2024 Dublin
DATA4PT and NAPCORE Projects

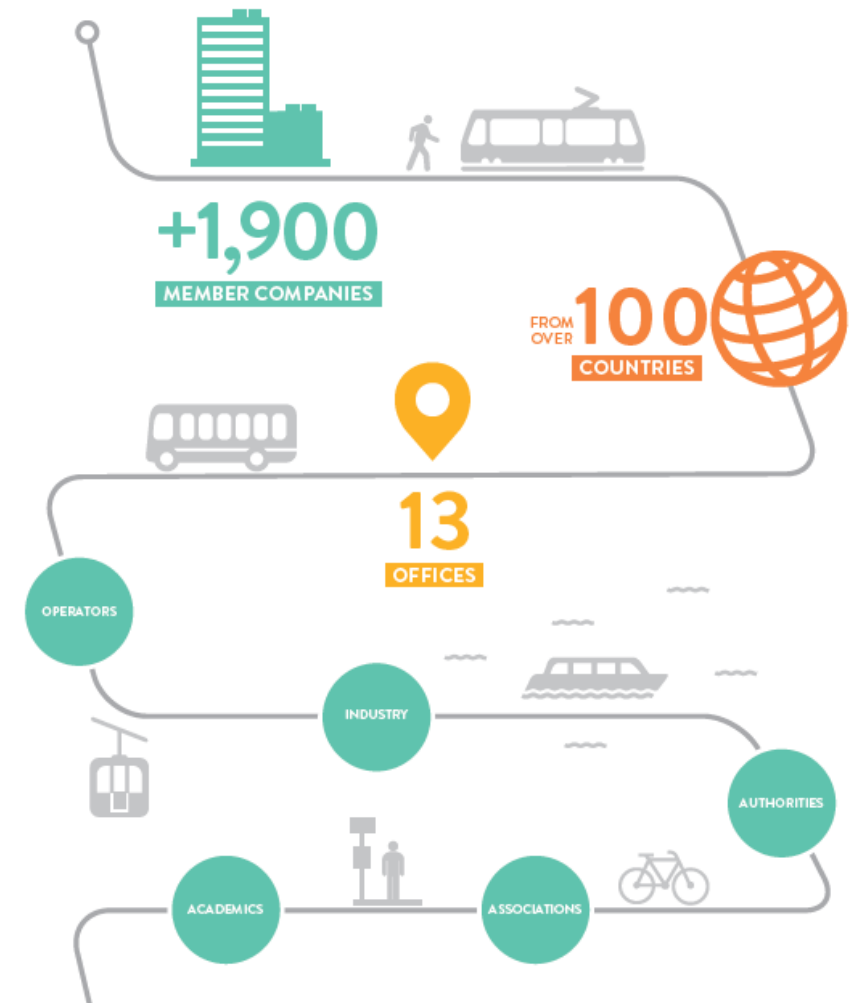
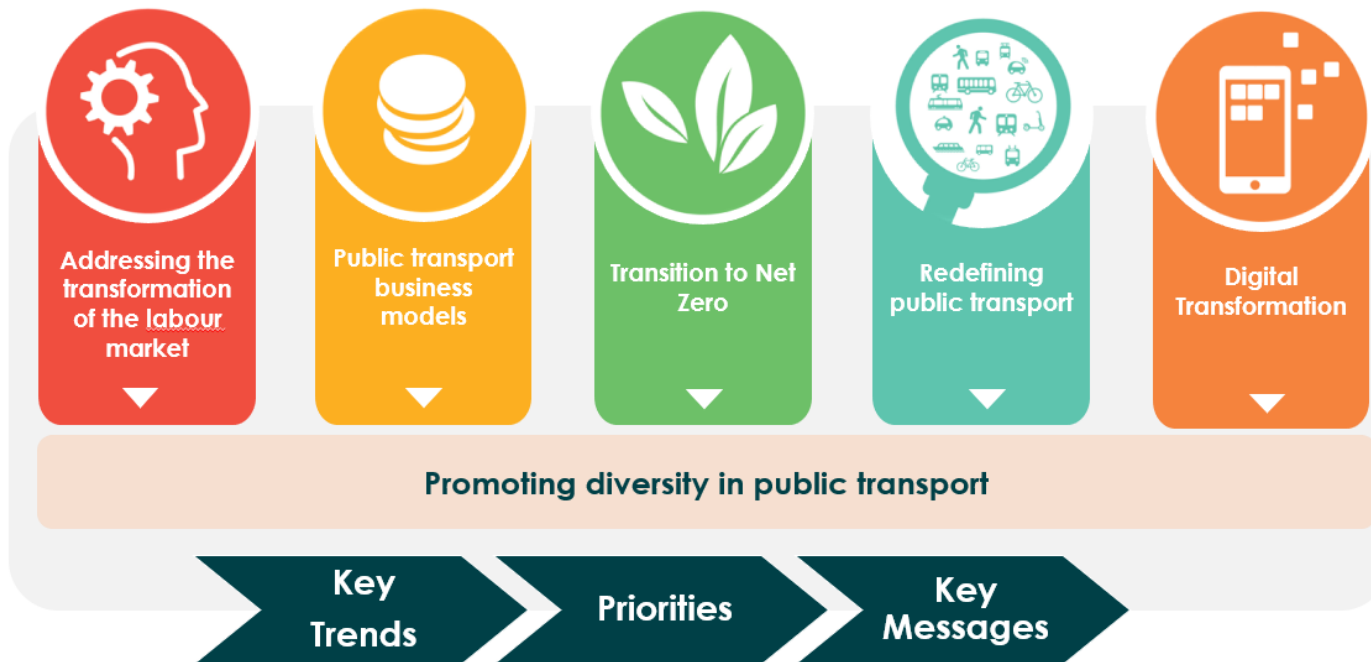
Efe Usanmaz, Manager IT and Digitalisation
Knowledge and Innovation at UITP
efe.usanmaz@uitp.org





UITP at a glance

We are the only worldwide network to bring together all public transport stakeholders and all sustainable transport modes.



www.uitp.org





A **unique support platform** for **Public Transport stakeholders** to comply with the **MMTIS Delegated Regulation** using the full potential of **EU CEN Data Standards (Transmodel ecosystem: NeTEX and SIRI)** to fulfill ITS Directive.

Vision:

- ✓ To facilitate and speed up the implementation of EU standards to achieve Multi-modal and cross-border travel

Offers:

- ✓ Capacity building, knowledge sharing and technical toolboxes

To empower and align:

- ✓ Public Transport Authorities, Operators, Ministries, National Access Points

Budget: 2,423,200 €

Funding: 1,998,560 €

Timespan: 2020-2024 (4.5 years)



Different ways to provide support

Training

Knowledge base
Wiki page...



Technical support Validation Tools



Exchange of
experiences and best
practices
Stakeholders fora ...



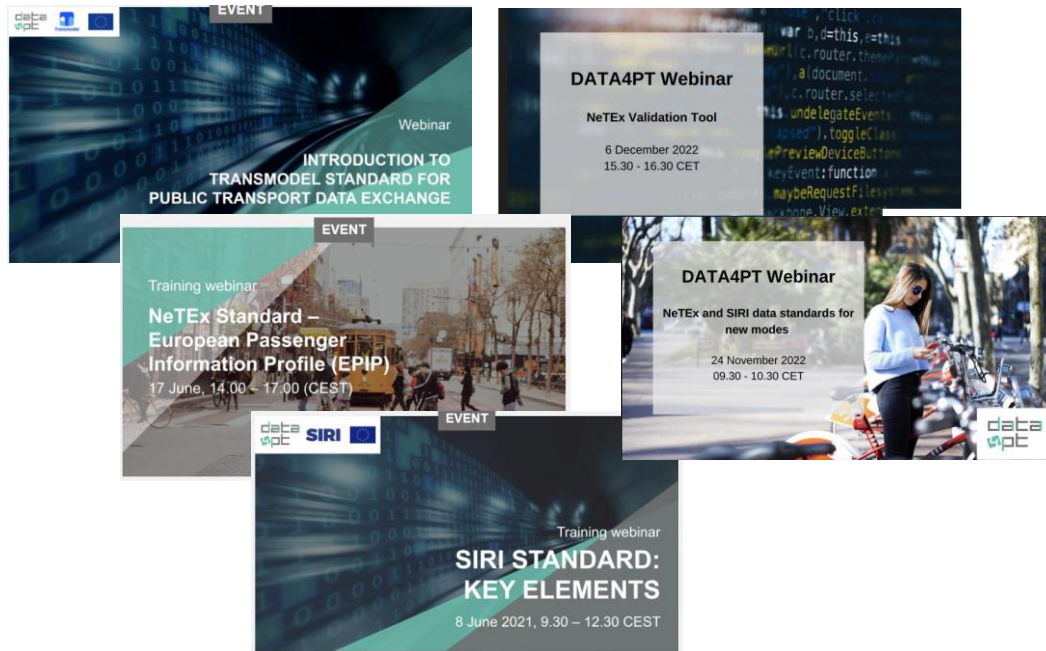
Support beyond project duration



dataapt



Trainings



3 APRIL 11:45 CEST

data4pt
10-minute
tutorial series

HOW TO MANAGE & SHARE
PUBLIC TRANSPORT
DATA
IN ONE GO

DATA4PT series

ITxPT
3 videos · 22 views · Last updated on 22 Mar 2024

Play all Shuffle

Get more with these 10-minute tutorials focusing on topics such as NeTEx, SIRI, Transmodel applications

1. NeTEx for Public Transport operations
ITxPT · 83 views · 3 days ago
10:27
3. SIRI Benefits for travelers
ITxPT · · Premieres 30/04/2024, 12:45
UPCOMING
1. The functional overview of NeTEx
ITxPT · 900 views · 1 year ago
12:51

SCAN ME



WEBSITE: data4pt-project.eu

ITxPT Youtube playlist

Webinars

Videos

Presentations



Technical support

Technical requests

What kind of technical requests can you submit to the DATA4PT team?

Implementation support: related to "day to day" operation where DATA4PT related topics are implemented. It includes artefacts maintenance, standard use-cases, national profiles etc. Some examples are:

- ✓ System interface specifications with operational system
- ✓ Support on NAP implementation
- ✓ SIRI support and bug report
- ✓ Question related to profile definition
- ✓ Use of NeTEx for ERP (accessibility of public places)
- ✓ Support for NeTEx implementation

Tools: support for the use of existing tools or to build extra tools to support implementation. Some examples are:

- ✓ How to use NeTEx/SIRI with MS Tools ?
- ✓ Question around the implementation for Chouette

SUBMIT A REQUEST

Requirements

There might be additional requirements for you to be able to implement NeTEx, Transmodel and SIRI. The DATA4PT team is happy to provide you with additional tools such as:

Training: our expert team will assess any requirements for training events/webinars and training material development. These can be trainings on for example:

- ✓ Explanation of the Transmodel Ecosystem
- ✓ General questions and questions about fares

Public Transport Standards update: for example standards to include car-sharing, bike-sharing, mobility on demand... etc.

External exchanges: Our expert team will assess any requirements and consider proposing liaison exchange / dialogue with related bodies.

SUBMIT A REQUIREMENT



WEBSITE: data4pt-project.eu





Greenlight NeTEx validator

Web interface

Using the online version may apply limitations. For regular use, download and install the tool for free from Docker or GitHub. You can read more about requirements [here](#).

Data4PT

The DATA4PT project aims to advance data-sharing practices in the public transport sector by supporting the development of data exchange standards and models, to fulfill the needs of multimodal travel information service providers.

By supporting EU Member States in deploying a set of harmonised European public data standards (Transmodel, NeTEx and SIRI), DATA4PT wants to enable union-wide multimodal travel information services and contribute to a seamless door-to-door travel ecosystem across Europe that covers all mobility services.

Validation tool

Key activity of DATA4PT project is the development of validation tools for NeTEx and SIRI datasets. As NeTEx and SIRI are the EU standardised formats for public transport data in National Access Points (NAPs), the purpose of validation is to ensure a certain level of quality of the published data. The quality dimension is aligned with the overall objective of the project to enable the implementation of ITS Directive Delegated Regulation EU 2017/1926 and therefore the interoperable exchange of travel and traffic data across Europe.

If you have feedback, questions or bug reports please do not hesitate to send them our way through [GitHub](#) or [Email](#).

Start validating

<https://greenlight.itxpt.eu/>

Core tool

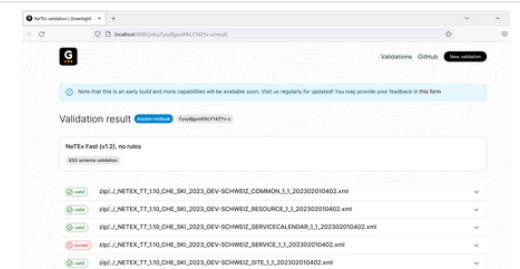
Greenlight - The Data4PT Validation tool

GO VERSION **>= 1.17** DOCKER PULLS **59** DOCKER STARS **0**

[Web](#) · [CLI](#) · [Source](#)

The minimal, customizable, NeTEx validation tool

- **Customizable:** configure what you see and how you see it.
- **Scripting** write your own validation rules using JavaScript
- **Fancy** shows relevant information at a glance.
- **Easy quick to install** – start using it in minutes.
- **Try it yourself** <https://greenlight.itxpt.eu>



<https://github.com/ITxPT/DATA4PTTools>



Standardisation work

Contribute to standards development and updates with Transmodel (NeTEx and SIRI) requirements

Specification of National “Profiles” for accessibility and real time data

CEN/TC XXX
Date: 20XX-XX
prEN XXXXX: XXXX
Secretariat: XXX

Public transport — Service interface for real-time information relating to public transport operations — Part 7: European Real-Time Passenger Information Profile

Einführendes Element — Haupt-Element — Er ergänzendes Element
Élément introductif

CEN/TC 278
Date: 2022-03
prTS16614-6:2022
Secretariat: NEN

CCMC will prepare and attach the official title page.

Public transport — Network and timetable exchange (NeTEx) — Part 6: European Passenger Information Accessibility Profile

Öffentlicher Verkehr — Netzwerk- und Fahrplan Austausch (NeTEx) — Teil 6: Europäisches Profil für barrierefreie Fahrgastinformation

Transport Public — Echanges des informations planifiées (NeTEx) — Partie 6: Profil Européen d'Information Voyageur pour l'Accessibilité

ICS:

CCMC will prepare and attach the official title page.

BEFORE DATA4PT

Many EU MS had no published multi-modal data at all

→ Nowhere to start

Most of the published data across EU claiming the NeTEx format **had errors**

→ Not useful or interoperable data



AFTER DATA4PT

Croatia, Czech Republic, Slovenia and Portugal built their multimodal NAP using DATA4PT resources

Austria, Denmark, France NAPs improved publishing static data (NeTEx) and introduced **the DATA4PT validation tool** in their processes

Italy uses NeTEx and SIRI data gathered in the NAP for improving MaaS services

Sweden publishing and using NeTEx data for Swedish National Distribution System for multimodal ticket bookings



Challenges Ahead..

- Great increase since DATA4PT in the published data in NeTEx format (static) and also SIRI (real-time) data are now available
→ Next challenge is to improve **data quality** for published data
- To improve **cooperation** between NAP operators and mobility actors who are producing and using data **to increase the usefulness of data**
- The added value adopting EU data exchange standards should be highlighted with more use cases: integrated multimodal ticketing, MaaS services, **adopters to share best practices**
- Not all EU MS are at the same level: capacity building, stakeholder cooperation and awareness raising activities in the adoption of EU data exchange standards should continue



Stakeholder engagement

Stakeholder engagement has been vital for DATA4PT

- Capacity building
- Support via website
- Trainings, tutorial videos
- Exchange of best practices

Central message: how can DATA4PT support you in creating better mobility services?

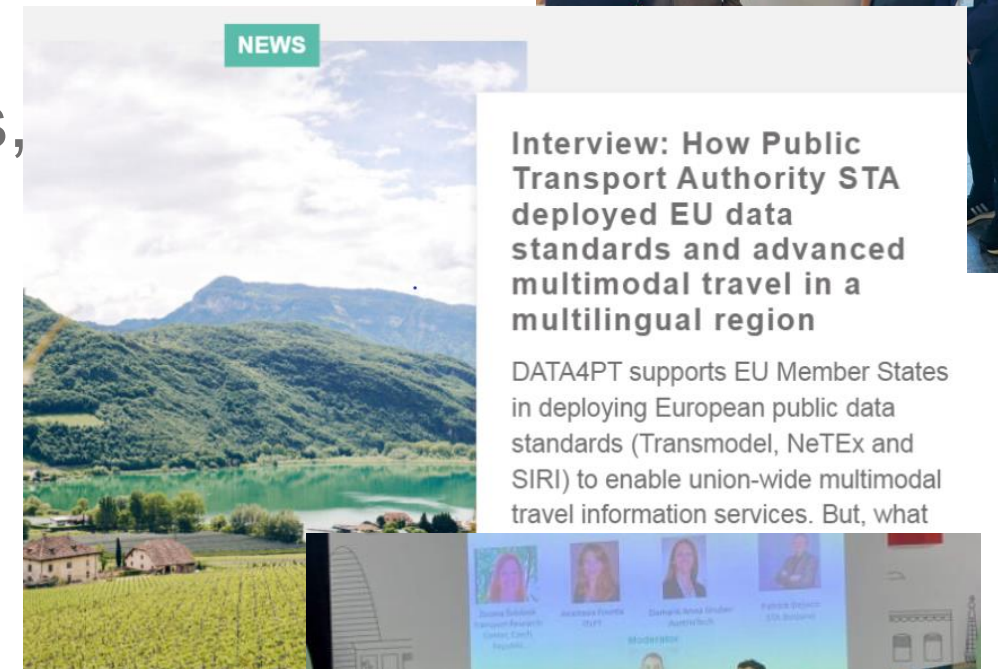
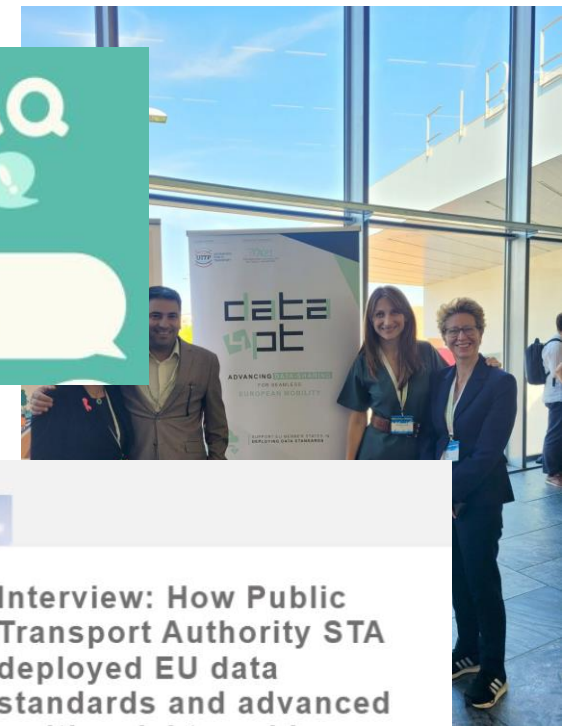
DATA4PT created a strong, engaged community that has taken a central place in discussions on the value of data in public transport



DATA4PT Community

Dissemination activities

- Coherent identity
- Multi-channel approach (web, mailings, events, YouTube, press, social media)
- Interviews/case-studies with key stakeholders: sharing concrete examples
- Active partner networks, experts as ambassadors
- Events: from large sector events to small-scale workshops to online focus (pandemic)





15 MAY 09:30-12:30 CEST

FINAL EVENT & STAKEHOLDER FORUM

📍 IT-TRANS, KARLSRUHE, DE



Intelligent Urban Transport Systems



Thank you for your attention!



@Data4PT



info@data4pt-project.eu



[ITxPT/DATA4PTTools](https://github.com/ITxPT/DATA4PTTools)



[company/data4pt-project/](https://www.linkedin.com/company/data4pt-project/)



data4pt-project.eu



NAPCORE

National Access Point Coordination Organisation for Europe

17 April 2024

Timo Hoffmann, German Federal Highway Research Institute
NAPCORE General Secretary

NAPs – the (revised) ITS Directive and Delegated Regulations

(a) DR No. 2017/1926 (rev.)
Providing EU-wide multimodal travel information services

(b) DR No. 2015/962 → 2022/670
Providing EU-wide real-time traffic information services

(c) DR No. 886/2013
Data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users

(e) DR No. 885/2013
Provision of information services for safe and secure parking places for trucks and commercial vehicles

data categories
data standards
quality requirements
validity criteria
affected actors

Establishing
National Access Points



- NAPCORE is a pan-European initiative to coordinate the NAPs in Europe
- All Member States incl. Norway, Switzerland, England and 3 international organisations
- EC funded via Connecting Europe Facility (CEF)

NAPCORE – National Access Point Coordination Organisation for Europe

Point of departure

- Each NAP provides (information on) data and data services differently
- Different NAP architectures
- Different data descriptions, (re-)use options and data quality
- Little interoperability of NAPs & mobility data



Objectives of NAPCORE

- facilitate **EU-wide coordination of NAPs and NBs** for the harmonisation of the implementation of the European specifications on the ITS Directive
- **increase interoperability** by (further) establishing standards (esp. DATEX II, TN-ITS, NeTEx, SIRI) and recommendations for data exchange formats, content, access and data availability in the mobility domain in Europe
- empower the NAPs as the **backbone for ITS digital infrastructure** and mobility data exchange in Europe
- address existing and upcoming developments and challenges with **a joint European strategy, vision, and voice**

Harmonisation activities and (some) current achievements

- Stable governance structure and strategy towards external stakeholders (e.g. Advisory Board & Cooperation Agreements)
→ **new Cooperation Agreements with POLIS and on safety related message sets**
- Generating common understanding of delegated regulations, data categories, definitions and requirements
→ **data dictionary to be published soon**
- Standardized data descriptions via metadata catalogue
→ **mobilityDCAT-AP published**
- Definition of **data quality & service quality criteria**
- Common use of standards, data exchange formats and data profiles
→ **DATEX II & TN-ITS fusion**
- Common description of NAP functionalities (e.g. interface definitions, core functionalities, ...)
→ **NAP Reference Architecture**



Cooperation Agreement

between the
Traveller Information Services Association (TISA)
 and the
National Access Point Coordination Organisation for Europe (NAPCORE)

DATEX II com

Data fo

Car-2-Car C

C-R



WHEREAS, TISA, NAPCORE, is in sharing and exchanging knowl
 WHEREAS, the partners listed her
 organizations will be partners in it
 WHEREAS, the partners listed her
 the activities to be facilitated and
 NOW, THEREFORE, TISA, NAPC
 formed to as the "Parties" and into
 the harmonization of Safety Plans

The revision of the Delegated Regulation (EU) on the provision of EU-wide multimodal travel information services (2017/1930) as well as the provision of EU-wide real-time traffic information services (2020/2070) foresees the expansion of the mandatory provision of multimodal travel information services and real-time traffic information services to the general road network. Hence, also cities and regional actors gradually move into NAPCORE's field of activities. The topic of data provision in urban and regional settings, however, proves to be challenging, since the field is characterized by a great number of stakeholders with varying needs, highly diverse structures and modes of data and service provision.

In discussions at both the EU and national levels, cities and regions often find themselves overlooked, despite being directly affected by legislative regulations developed at these higher levels. This disparity underscores the pressing need for these entities to have a more influential role in shaping discussions and decisions that directly impact their unique needs and concerns.

Recognizing the mutual interest in addressing the complexities of data provision in urban and regional settings, NAPCORE and POLIS seek to establish a cooperative framework. The cooperation agreement aims not only to comprehend the structures, needs, and requirements of data and service providers at the urban level but also to bridge the gap between the different levels of action, fostering a collaborative environment that facilitates efficient data provision in cities and regions.

In general, the Cooperation Agreement aims to enhance the dialogue with data and service providers operating on the urban level in order to foster efficient data provision in cities and regions. The ITS Directive and its respective Delegated Regulations as well as the new EU Urban Mobility Framework will serve as legal and strategic frameworks for the development of the Cooperation Agreement.

Agreement Objectives

- Specifically, the Cooperation Agreement between NAPCORE and POLIS aims to:
- Assess structures, requirements and needs of cities in order to support efficient data provision in urban areas and regions.
 - Develop a strategy on how to get access to urban stakeholders and reach on their needs.
 - Increase the level of dialogue with new stakeholders (data and service providers) operating on the urban level and create synergies in terms of data provision.
 - Create and disseminate information and training material, e.g. on data formats such as DATEX II, SII, DATEX II.
 - Ensure that cities and regions affiliated with POLIS have improved access to NAPCORE customers and resources.



Future of NAPCORE

- Prolongment and follow-up funded project planned for the time 2025-2028
- Short term tasks (among others):
 - Further work on the Mobility Data Dictionary (focus MMTIS)
 - Roadmap for data exchange standards harmonization including a list of actions
 - Defining the role of NAPs in a European Mobility Data space
- Some adaptations are currently being discussed
 - Increase flexibility
 - Move from project setup to organization governance
 - Stronger multimodal focus
 - More work on MMTIS and MaaS topics
 - Inclusion of DATA4PT for data standardization work
 - Partner setup change to include representation from the multimodal domain

NAPCORE Mobility Data Days

6. – 7. November 2024, Turin, Italy

Join us!

Contact: hoffmannt@bast.de





MMTIS IMPLEMENTATION IN AUSTRIA

Martin Russ | Managing Director of AustriaTech

April 17, 2024

austriatech





DATA4PT in Austria

The Role of AustriaTech in DATA4PT

- **General support for national stakeholders**, e.g. through workshops
 - Explain data standards
 - Inform about legal obligations of providing mobility data
- **Specific support actions:**
 - Requirements for data standards, Cooperation with National Standardization body
 - Testing of validation tool(s), providing test data sets
 - Addressing small and medium PTOs and sharing service providers
 - Cooperation with Austrian NAP and Austrian ITS contact point (nominated body)
 - Display and analyzing of the national mobility data system landscape concerning public transport mobility data and stakeholder

austriatech

data4pt



EU data exchange standards

MMTIS-Status of implementation in Austria

Implementing MMTIS standards leads to various activities:

- **Austrian-wide:** NeTEx: national PTA (MVÖ) provides data per export interface (Service Level 1 and 2, covering all Austrian area)
- **Vienna:** Wiener Linien (Vienna's PTO) already implemented SIRI & NeTEx
- Support of **national initiatives**/projects that will develop national SIRI profile
- Cooperation with local **data portals** like Opendataportal.at and Data.gv.at
- **OpenAPI** for distributed Journey Planning (OJP): parallel to DATA4PT: work on “proof-of concept” and User-tests (Project LinkingAlps); OJP Profile, Use-cases and now Beta Phase of OJP service in progress

Public Transport Data Pool in Austria



Salzburg Verkehr verbindet



PT Authorities



Niederösterreich Bahnen



ZILLERTALBAHN
zug · bus · dampf



StB



mbs



Recherbahn



GRAZ LINIEN

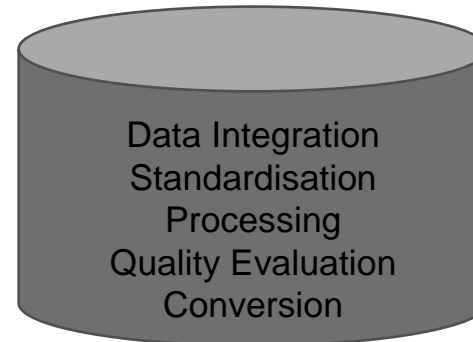


PT Operators

Timetable Information

Static timetable data
Real-time data
Incident messages

MOBILITÄTS
VERBÜNDE
ÖSTERREICH
Public Transport
Data Pool



Basemap Integration
Spatial referencing
PT lines to rail and road
infrastructure/network

Daily / immediate data supply



ÖBB timetable
information



Multimodal journey planner applications

MOBILITÄTS
VERBÜNDE
ÖSTERREICH
PT Data Platform

Data Service
Data Exports

↔ **austriatech**
National Access Point
(NAP)



Austrian NAP

- **Austrian NAP** has been established in 2016 and is in operation - “**data directory**”
- The NAP platform (mobilitaetsdaten.gv.at, mobilitydata.gv.at) operated by AustriaTech, a
- 2018 NAP was extended to MMTIS and continuously adapted (technically and semantic) due to the revised DR and new requirements
- NAP covers national territory, 80 data sets, 23 data provider (public and private)
- MMTIS related data rises 2020-2023 from 3 to 46 data sets, beside MMTIS Standard formats data also available in e.g. in GTFS

Safe and Secure Truck Parking (SSTP)	Safety Related Traffic Information (SRTI)	Real Time Traffic Information (RTTI)	Multimodal Travel Information Services (MMTIS)	EU National Access Point
Delegierte Verordnung 885/2013 (e)	Delegierte Verordnung 886/2013 (c)	Delegierte Verordnung 2015/962 (b) and update	Delegierte Verordnung 2017/1926 (a) update in progress	Delegierte Verordnung 885/2013 (e)



Results/Outcome / usefulness of DATA4PT for implementing standards (1/2)

- *Rising awareness for harmonized European applications on national level → leads to increased compatibility!*
- *Detailed knowledge about the status of national landscape of traffic data, operative systems, stakeholder and their strategic implementation activities → setting the overall MMTIS frame is important for predictability of national financial support and stakeholder investments*
- *Acknowledgment for the need to cooperate and exchange information when implementing technical specifications!*
- *Applying harmonized data standards enable*
 - *Mapping of time-table data & infrastructure data, providing real-time data in focus*
 - *Standardized transmission form for all channels*
 - *Merging data from several systems*
 - *Is the backbone and requirement for high-level services to the end user*



DATA4PT in Austria

Results/Outcome / usefulness of DATA4PT for implementing standards (2/2)

- *Indications about DATA4PT project outcome for Austria:*
 - *Validation tool enhanced work on data quality, reliable data are the solid ground for reliable services!*
 - *Technical advise and knowledge base are available, now application scenarios and use-cases need to demonstrate the benefit for PTO and end user!*
 - *How can Austrian stakeholder realize sharing and booking implementations?*
 - *How can application of technical specifications support transparency of pricing and accounting of costs?*
 - *How can the standards being effectively used to develop integrated traffic management?*

→ *A lot achieved, still a lot to do!*

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data4pt



Thank you for your attention!



@Data4PT



info@data4pt-project.eu



[ITxPT/DATA4PTTools](https://github.com/ITxPT/DATA4PTTools)



[company/data4pt-project/](https://www.linkedin.com/company/data4pt-project/)



data4pt-project.eu



TRA2024 – DUBLIN PORTUGAL MMTIS (DATA4PT) IMPLEMENTATION

Ricardo Tiago





Agenda



- **IMT – Who we are**
- **DATA4PT – Our MMTIS Partners**
- **NAP – (Roads) + MMTIS**
- **1. Bilhete**



IMT – Who we are



We are:

- A public institute
- Integrated in the indirect administration of the State
- Endowed with administrative and financial autonomy and its own assets.

We pursue attributions of the (past Government):

- Ministry of Infrastructure
- Ministry of Internal Administration
- Ministry of the Environment and Climate Action
- Ministry of Economy and Sea



What do we do (in short):

- Technical Regulations
- Licensing
- Coordination
- Supervision and planning

Road transport
Road infrastructure
Rail transport
Rail infrastructures
Inland Waterways transport
Maritime Transport
Port infrastructures

We do:

Define objectives
Define guidelines

Implementation
of ITS
(national level)

The exercise of the functions of **technical regulation, licensing, coordination, supervision and planning** in the sector of inland and river transport and respective infrastructures and in the economic aspect of the commercial ports and maritime transport sector;

The **management of contracts and concessions** in which the State is the grantor, in the said sectors or in other sectors, namely regarding air transport and airport infrastructures [if and when delegated by the Government], in order to **meet the mobility needs of people and goods.**

To contribute to meeting the needs of
mobility
of people and goods

Portugal Stakeholders / Implementing Bodies

Type of Stakeholder	Organisation	Type of involvement
MS / National Institute	IMT Institute for Mobility and Transport	Coordination General dissemination events
PTA	AMP Metropolitan Area of Oporto	Pilot General dissemination events
PTA	TML Lisbon Metropolitan Transports	Pilot General dissemination events
PTO	Carris	Training / Pilot
Tech. Enterprise	Armis	Training / Pilot



Portugal NAP

nap PORTUGAL

Home Search Information Members About Search Multimodal

EN Register/Login

Welcome to National Road Information Access Point

ACTIVE ROAD SUPPLIERS 15	PROCESSED DATA 18,9 M	USERS 178	MULTIMODAL RECORDS 130
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About NAP

Within the scope of Directive 2010/40/EU (ITS Directive), of the European Parliament and of the Council and the various Delegated Regulations (Actions):

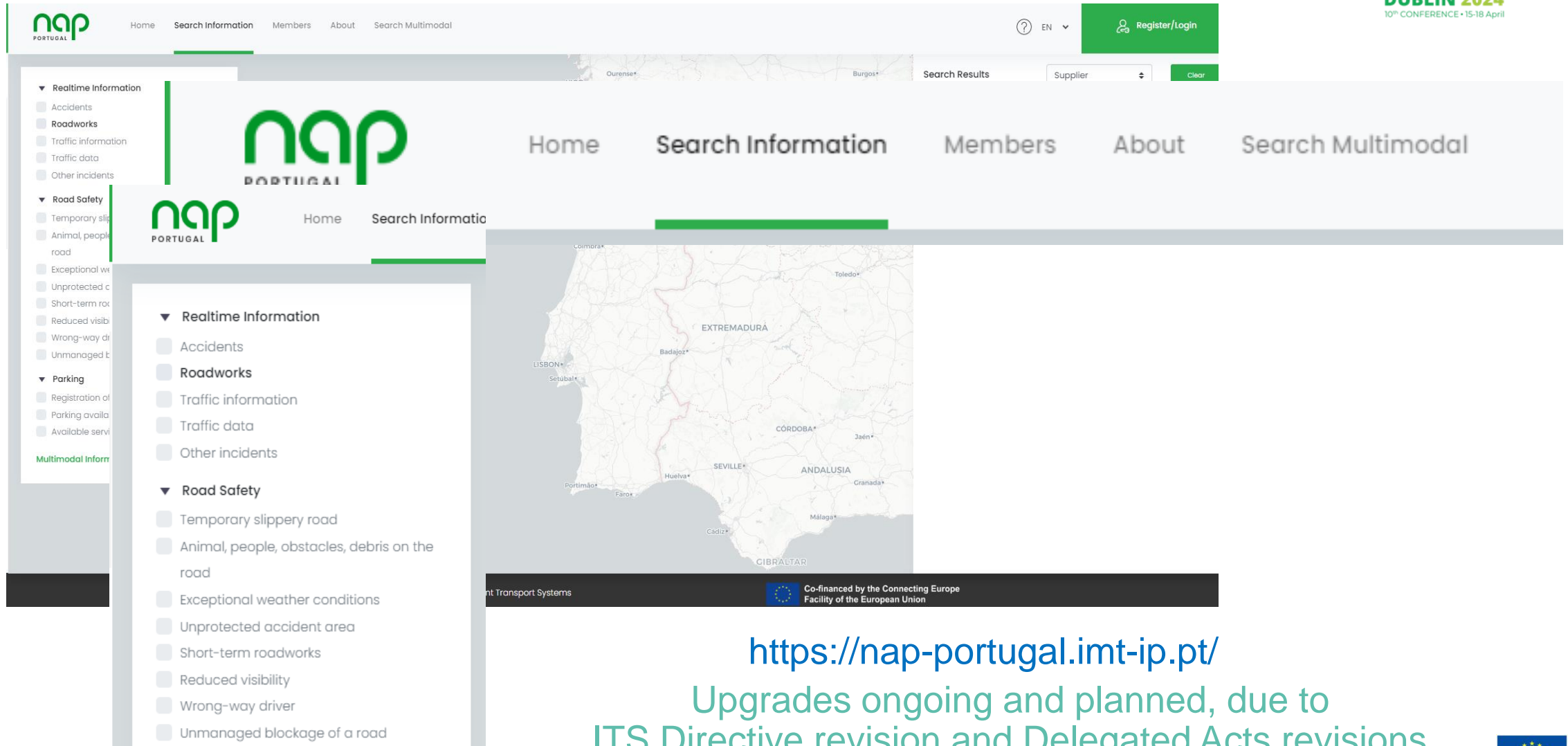
- Delegated Regulation 1926/2017 (31.MAY.2017) – concerning the

Same “front office”
different “back office”

Roads – Data Warehouse
MMTIS – Data Registry

Spec B, Spec C
Spec A

Portugal NAP (Roads)



nap PORTUGAL

Home Search Information Members About Search Multimodal

EN Register/Login

Search Results Supplier Clear

nap PORTUGAL

Home Search Information Members About Search Multimodal

nap PORTUGAL

Home Search Information

Realtime Information

- Accidents
- Roadworks
- Traffic information
- Traffic data
- Other incidents

Road Safety

- Temporary slippery road
- Animal, people, obstacles, debris on the road
- Exceptional weather conditions
- Unprotected accident area
- Short-term roadworks
- Reduced visibility
- Wrong-way driver
- Unmanaged blockage of a road

Parking

- Registration of parking
- Parking availability
- Available services

Multimodal Information

Co-financed by the Connecting Europe Facility of the European Union

<https://nap-portugal.imt-ip.pt/>

Upgrades ongoing and planned, due to
ITS Directive revision and Delegated Acts revisions



Portugal NAP (MMTIS)

nnp PORTUGAL

Home Search Information Members About Search Multimodal

EN Register/Login

Welcome to National Road Information Access Point

ACTIVE ROAD SUPPLIERS 15	PROCESSED DATA 18,9 M	USERS 177	MULTIMODAL RECORDS 130
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About NAP

Within the scope of Directive 2010/40/EU (ITS Directive), of the European

- Portuguese MMTIS NAP has a data register
- 130 multimodal records (Road, rail, cycling, location search, refueling and recharging stations)
- Metadata catalog
- Discovery services based on metadata

Portugal NAP (MMTIS)

- Date >
- Name of Dataset / Description >
- Organisation >
- Resource Type >
- Network Coverage >
- Transportation system >
- Data Model >
- Geographical coverage >

Data set

Network Coverage >

Transportation system >

Data Model >

Geographical coverage >

- Portugal
 - Mainland
 - Azores
 - Madeira

Search

Multimodal Records

Search

Toponímia de Portugal Continental

Toponímia de Portugal Continental na escala 1:200 000 da Direção-Geral do Território (DGT), nomes dos relevos submarinos na escala 1:1 000 000 do Instituto Hidrográfico (IH) e Lugares do Instituto Nacional de Estatística (INE).



Organisation

Direção-Geral do Território

Data Model

INSPIRE data specification (according to Delegated Regulation (EC) No 1089/2010)

Publishing Date

07/10/2022

Data Access

Dados dinâmicos da Rede de Postos de Carregamento Portuguesa (Rede MOBI.E)

Serviço que contém os dados relativos à informação em tempo real do estado da infraestrutura de carregamento de veículos elétricos



Organisation

MOBI.E S.A

Data Model

DATEX II

Publishing Date

07/09/2022

Data Access



Portugal NAP (MMTIS)

- Date >
- Name of Dataset / Description >
- Organisation >
- Resource Type >
- Network Coverage >
- Transportation system >
- Data Model >
- Geographical coverage >

- Portugal
 - Mainland
 - Azores
 - Madeira

Search

Multimodal Records

Toponímia de Portugal Continental

Toponímia de Portugal Continental na escala 1:200 000 da Direção-Geral do Território e Lugares de Interesse na escala 1:1 000 000 do Instituto Hidrográfico (IH) e Lugares de Interesse



Dados dinâmicos da Rede de Postos de Carregamento

Serviço que contém os dados relativos à informação em tempo real dos veículos elétricos



Localização das ciclovias (Município do Porto)

Metadata information

Date

2022-06-30T10:14:45.19

Metadata Language

por - Portuguese

Contact Point

Município do Porto - Intermodal

cstreets@cm-porto.pt

Porto.

Content information

Description

Dados em geojson com a localização de ciclovias dentro do Município do Porto

Resource Type

Data set

Variant A: logical clustering

Variant B: strict reference to EC Delegated Regulations

Dataset Type Category

Cycle network data

Dataset Detailed Type

Network geometry and lane character
Network detailed attributes

Dataset Language

por - Portuguese



Direção-Geral do Território

Delegated Regulation (EC) No 1089/2010

07/10/2022

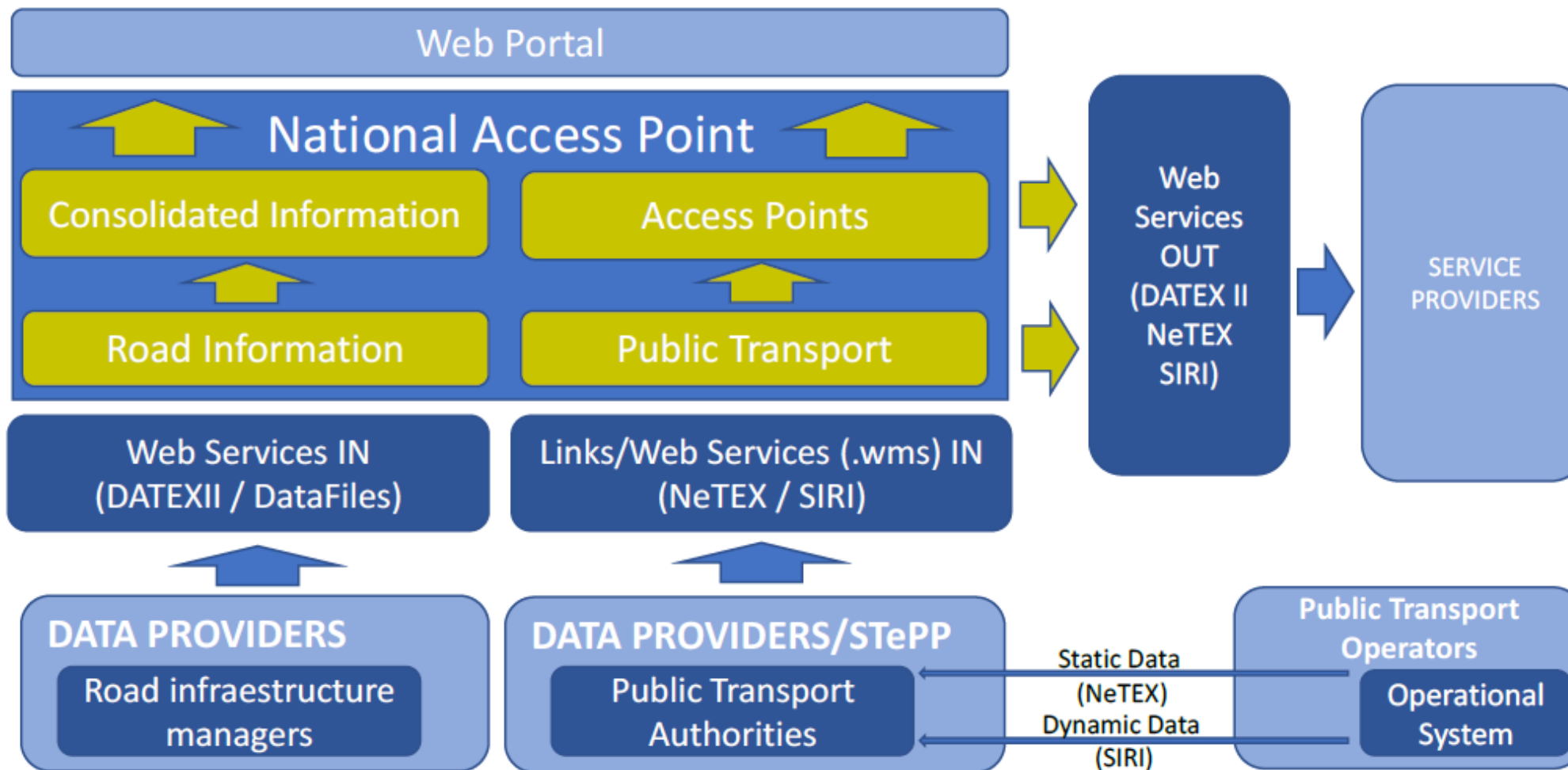
MOBI.E S.A

DATEx II

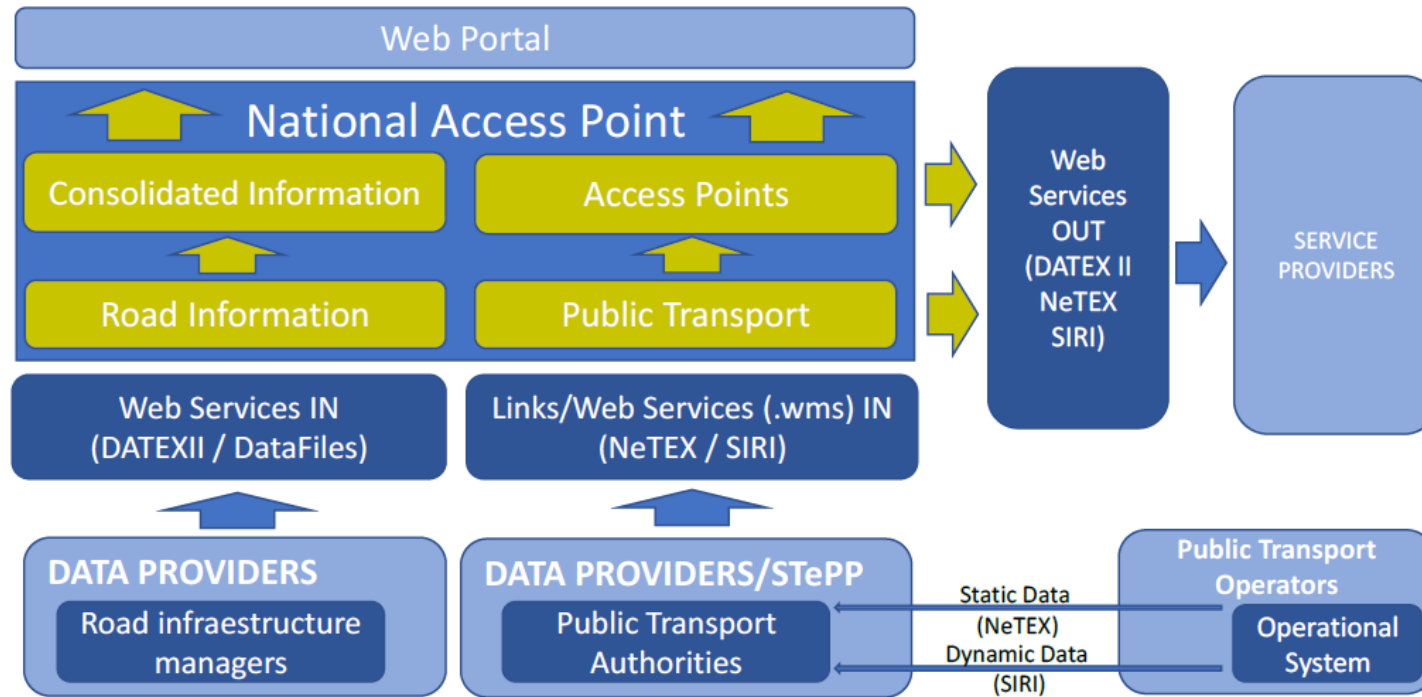
07/09/2022



Portugal NAP (architecture)



Portugal NAP (architecture)



Standardization
is the will
to cooperate

Enhances
interoperability

Contribution European Projects – planned framework



Status of MMTIS NAP implementation and next steps

Recent data in NAP (Multimodal)

Carris Metropolitana API:

Users can **already** consult data on the bus network for 15 of the 18 municipalities that make up the Lisbon metropolitan area.

Data is available on the planned network (stops, timetables and routes) as well as real-time data (location of vehicles and estimated times of arrival at each stop).

Delegated Regulation 2017/1926, Annex, DYNAMIC DATA, LEVEL OF SERVICE 1

- **Porto Municipally** (Delegated Regulations 2017/1926 and 2022/670):-

Zones of Conditional Automobile Access (UVAR)

Loading and unloading

Scooter parks- Parking lots

Cab ranks

BUS lanes- Passenger drop-off and pick-up zones

Motorcycle parks

Cycle paths

- **Lisbon Municipally**

EMEL (Parking and bicycles, in Lisbon) and

- **CP** (Rail transport, nationwide) - you can **already** consult all the network.

As part of the C-Streets project, around 20 national partners, including municipalities and metropolitan areas, are producing ITS Directive data, which will be published on the NAP in 2024 via the respective metadata sheets.

The strategy adopted is to **closely monitor** the **NAPCORE** project, analyzing and adapting to our reality the results that have been revealed in the various working groups.

We plan to carry out a major development of the NAP, after the end of the NAPCORE project, with the expectation that we will benefit from a new European project in this field, which will give it continuity.



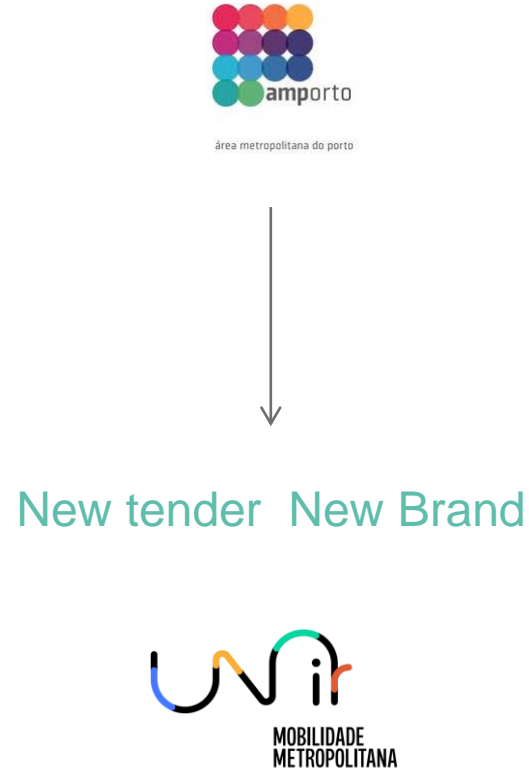
Status of Transmodel/NeTEx/ SIRI/ standards adoption



- NeTEx being tested in AML
- NeTEx and Siri are used in AMP
- GTFS still an important standard for many operators
- Plans to:
 - Expand the number of Transmodel/NeTEx/ SIRI users
 - NeTEx module on the National Transport database (STePP) – connected to NAP
 - Expand the NeTEx National Profile (started in How2Go)



Status of Transmodel/NeTEx/ SIRI/ standards adoption



AMP infrastructure model is based on two independent application blocks: the SMT (the planning and design component) and the PLIM (the monitoring, control, and real-time information component).

The Netex format is used to pass data between them.

AMP conducted the tasks necessary to meet their needs

- Development of internal model
- Conversion model from internal model to NETEX
- Service to export NETEX from SMT
- Service to import NETEX to PLIM
- Service for the operators get information in NETEX from PLIM (Siteframe & ServiceFrame)
- Service for the operators post information in NETEX to PLIM (Calendarframe & TimeTableFrame)
- Service to receive real time information from the buses in SIRI-VM

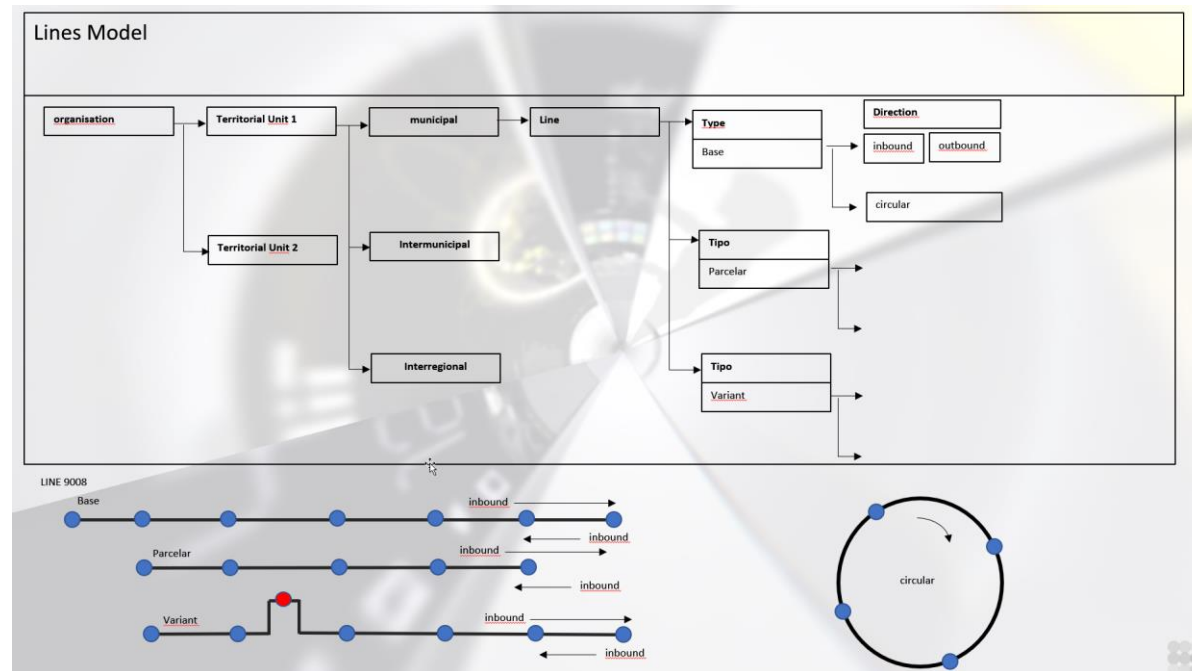
Status of Transmodel/NeTEx/ SIRI/ standards adoption



área metropolitana do porto



New tender New Brand



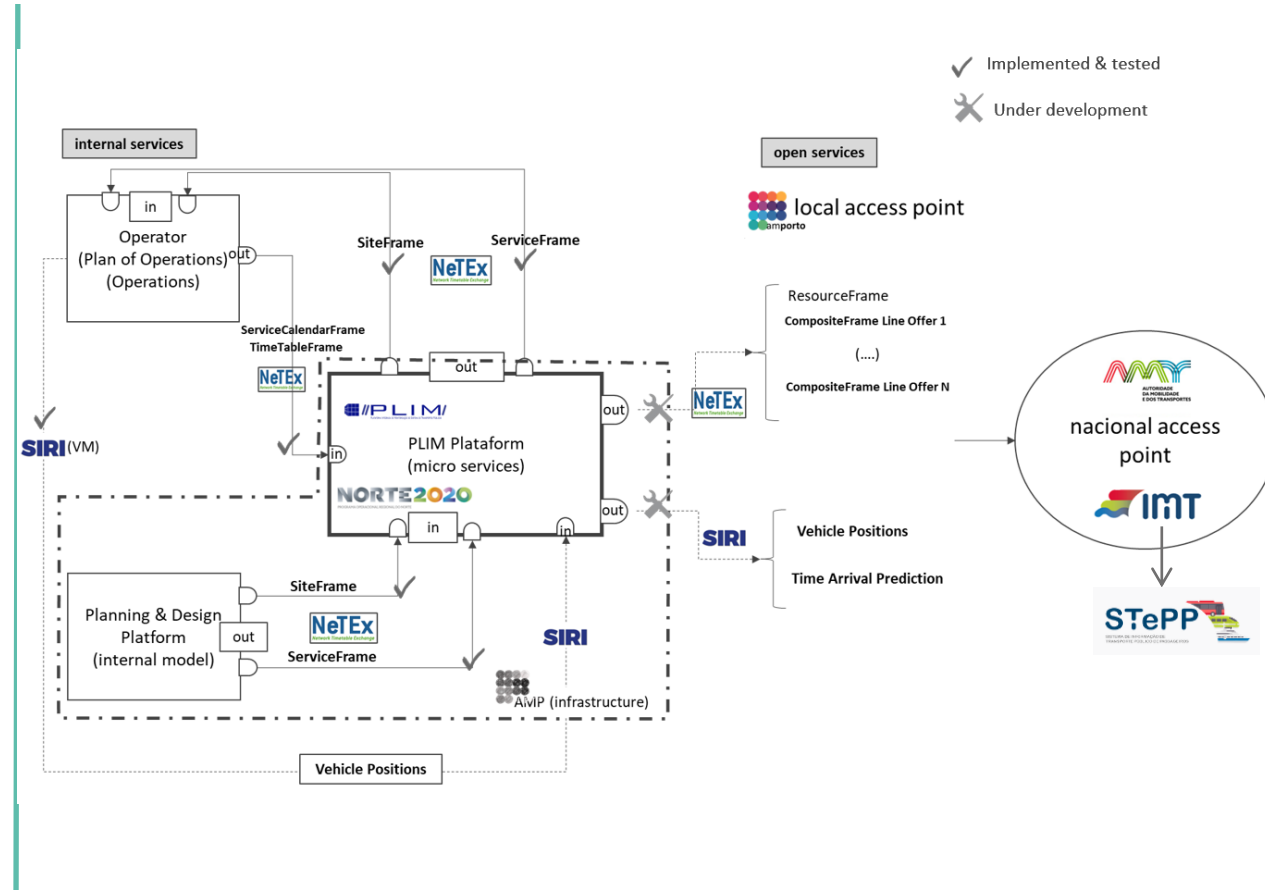
Status of Transmodel/NeTEx/ SIRI/ standards adoption

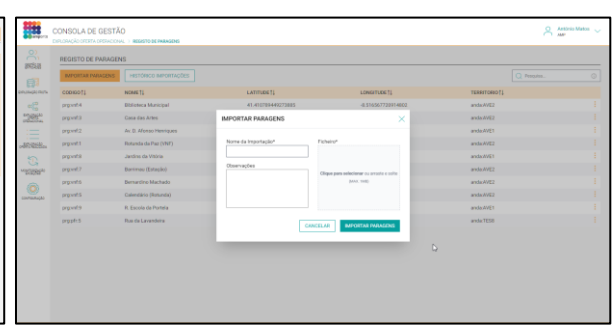
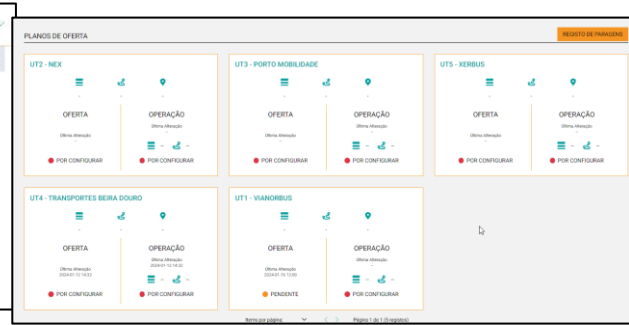
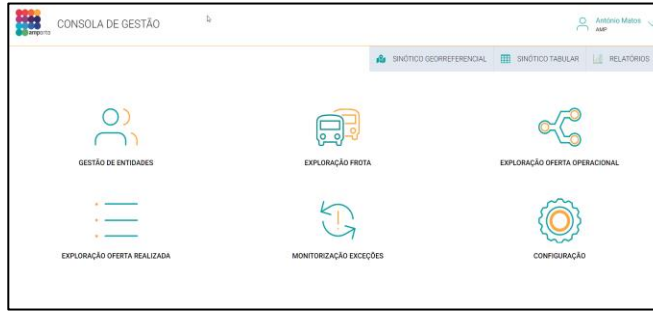


área metropolitana do porto



New tender New Brand

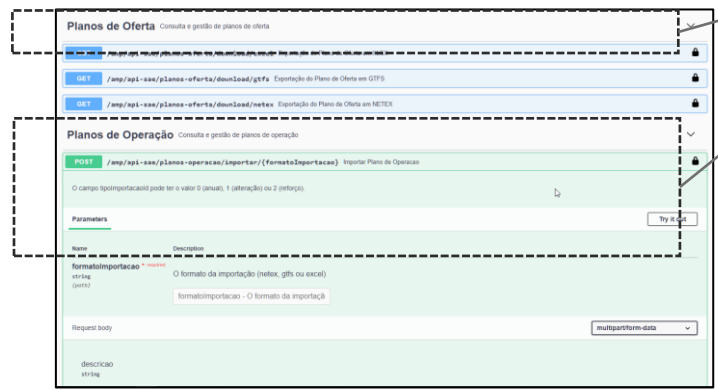




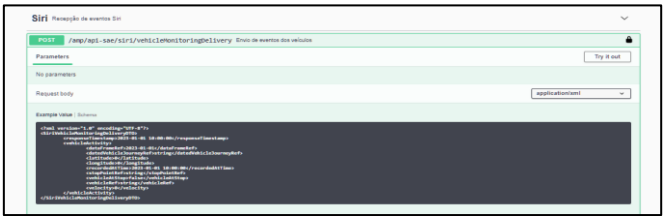
Importing Netex files



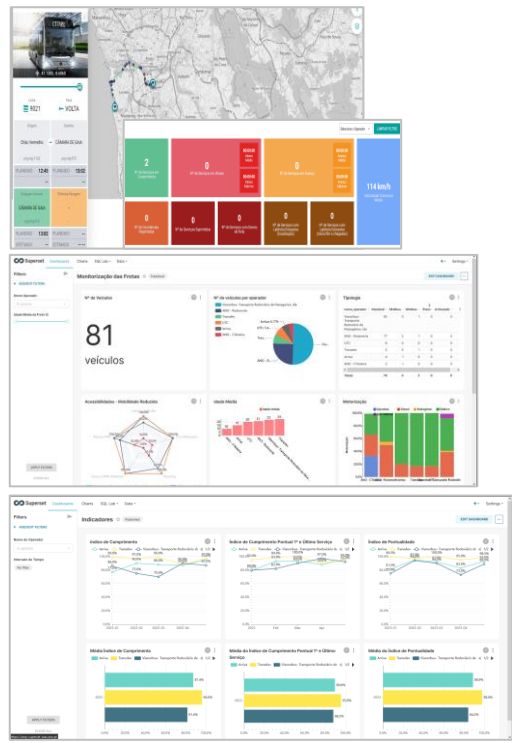
Endpoints of POST and GET services



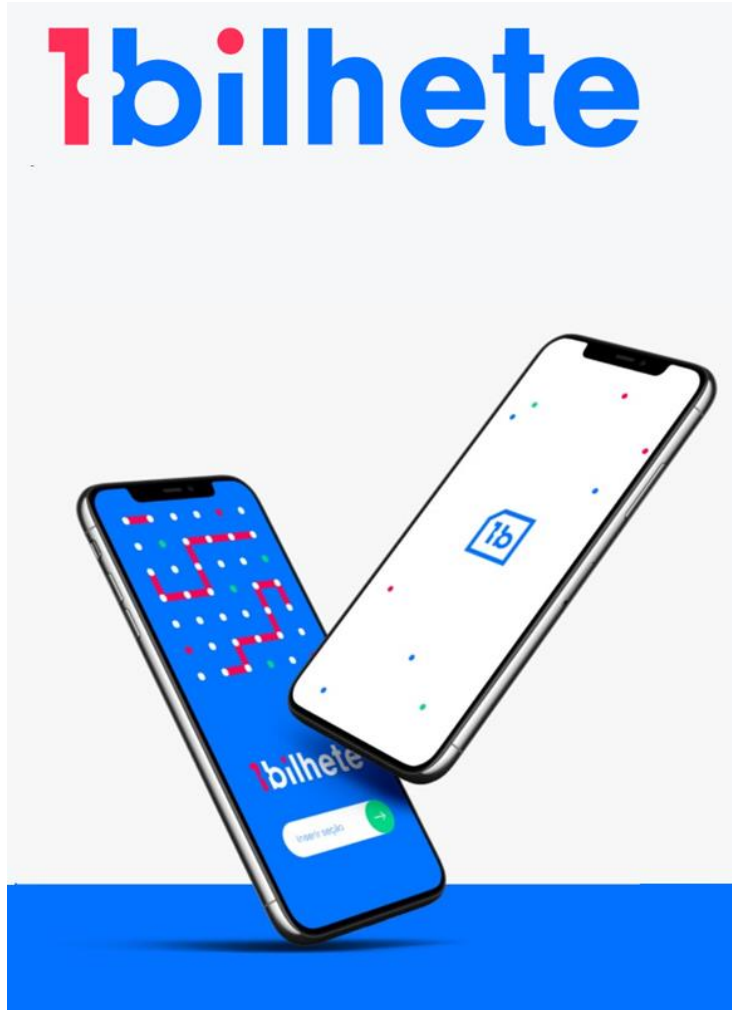
Endpoints the POST the buses positions SIRI-VM



Sinoptics - monitoring, control, and real-time information

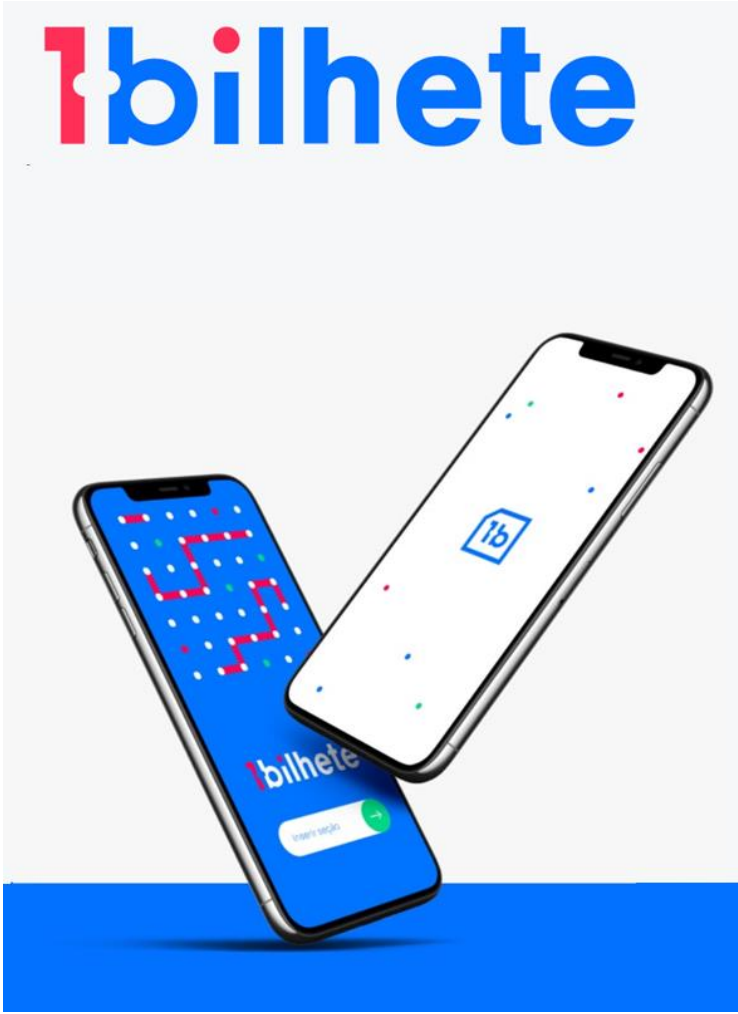


Other forms of dissemination

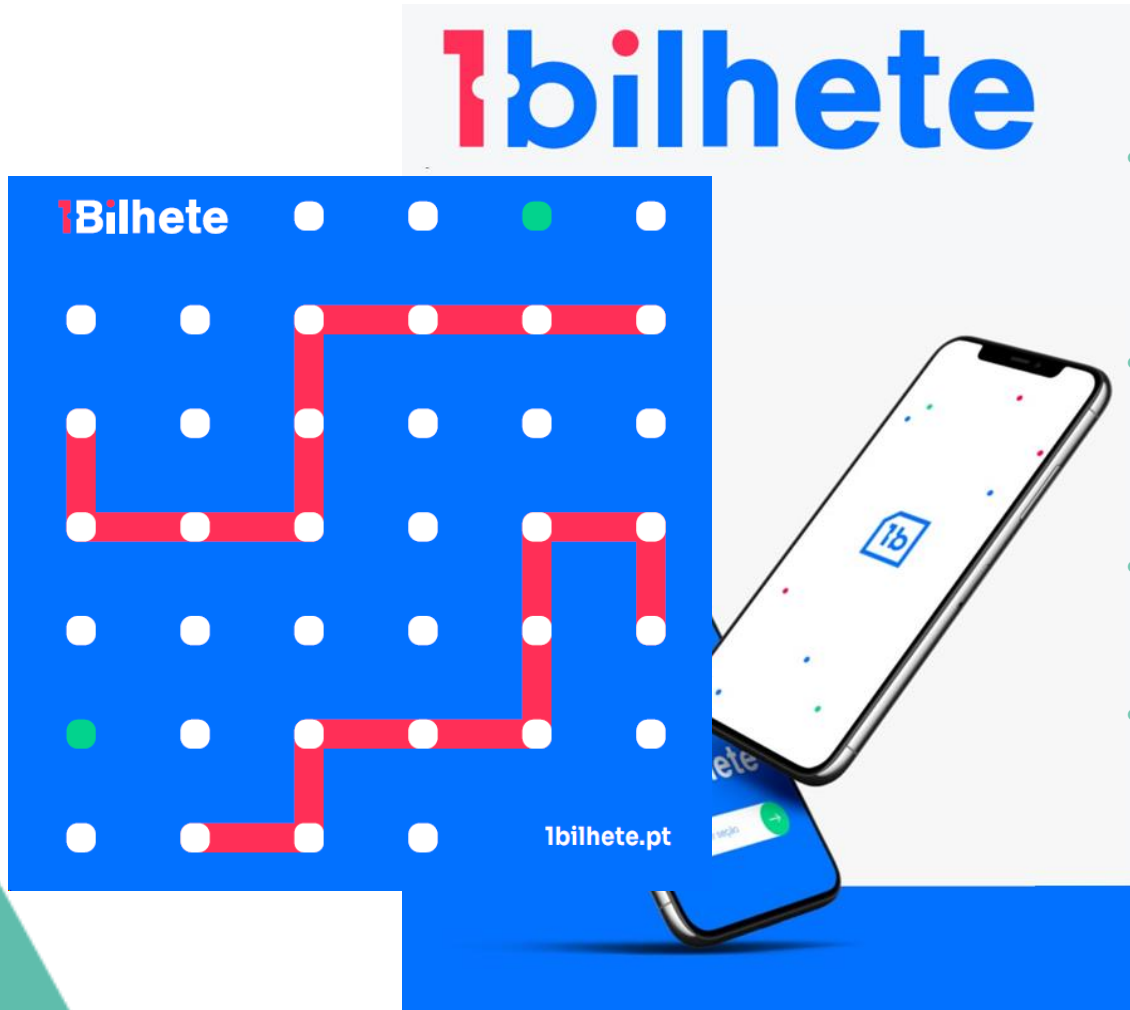


- **Supervised by the Institute of Mobility and Transport (IMT)** - to promote the involvement of the various Transport Authorities.
- **Nationwide project** - intermodal ticketing technology platform enabling interoperability between existing systems, as well as the introduction of new ticketing systems
- **Technological sharing between Transport Authorities** - Lisbon Metropolitan Transport (TML) and Porto Intermodal Transport (TIP) and future adhesions.

Other forms of dissemination



Main Objectives



- Remove the technological barrier between the different regions of the country;
- Articulation of operators with different Transport Authorities and Systems;
- Seamless Mobility for users (MaaS);
- Increasing the use of public transport (decarbonisation, Green Deal, Policy).

1 Bilhete - Status



- 16/23 have already joined the project;
- At the Project meetings we mention the importance of standards, particularly NeTEx and SIRI;
- Access and contribute to information – The importance of NAP;
- The importance of standards being included in the next specifications for new tenders;
- Need to maintain territorial contiguity.



For national Information:

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Panel Discussion: What's next for mobility data sharing in Europe?

- Timo Hoffmann, NAPCORE Secretary General
- Martin Russ, Austriatech
- Ricardo Tiago, IMT Portugal
- Igor Mikolášek, CVD Czech Republic
- Charlotte van Hek, UITP





Thank you for your attention!



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[ITxPT/DATA4PTTools](https://github.com/ITxPT/DATA4PTTools)



[company/data4pt-project/](https://www.linkedin.com/company/data4pt-project/)



data4pt-project.eu





TEADAL



Introducing TEADAL

Ana Pereira

Ubiwhere

Transport Research Arena, Dublin, April 2024

TRUSTWORTHY, ENERGY-AWARE FEDERATED DATA LAKES
ALONG THE COMPUTING CONTINUUM

HORIZON-CL4-2021-DATA-01-01

WWW.TEADAL.EU

EU Data strategy



Brussels, 19.2.2020
COM(2020) 66 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS

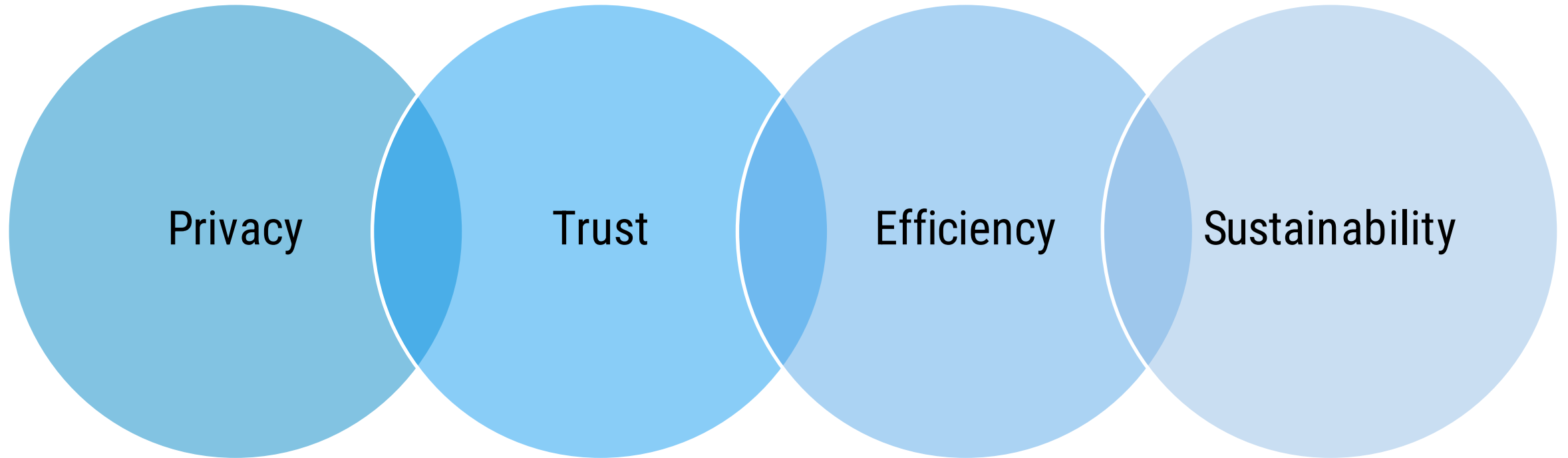
A European strategy for data

Availability of data: The value of data lies in its use and re-use. Currently there is not enough data available for innovative re-use, including for the development of artificial intelligence. The issues can be grouped according to who is the data holder and who is the data user, but also depend on the nature of data involved (i.e. personal data, non-personal data, or mixed data-sets combining the two¹⁷). Several of the issues concern the availability of data for the public good.

Data infrastructures and technologies: The digital transformation of the EU economy depends on the availability and uptake of secure, energy-efficient, affordable and high-quality data processing capacities, such as those offered by cloud infrastructures and services, both in data centres and at the edge. In this perspective, the EU needs to reduce its technological dependencies in these strategic infrastructures, at the centre of the data economy.

*New decentralised digital technologies such as **blockchain** offer a further possibility for both individuals and companies to manage data flows and usage, based on individual free choice and self-determination. Such technologies will make dynamic data portability in real time possible for individuals and companies, along with various compensation models.*

Challenges



Main ambition

To provide key cornerstone technologies that will enable the creation of trustworthy mediatorless federations of data lakes spanning the cloud-edge continuum and, as dynamic constellations of different organisations, to improve a trusted, verifiable, and energy-efficient data sharing as a key driver for fostering a Sustainable European Digital Single Market.

Objectives

1

To establish confidence in handling of data across the continuum and deliver efficiency for building and using stretched data lakes solutions.

2

To enable the construction of trustworthy data lakes and mediatorless federation of trustworthy data lakes.

3

To reduce the environmental impact of data analytics by carefully managing how data are stored, reused, moved, and processed in a federation of stretched data lakes.

4

To simplify the specification and enforcement of privacy/confidentiality requirements, constraints and policies for federated stretched data lakes to be compliant with regulations, norms, and organisations' policies.

5

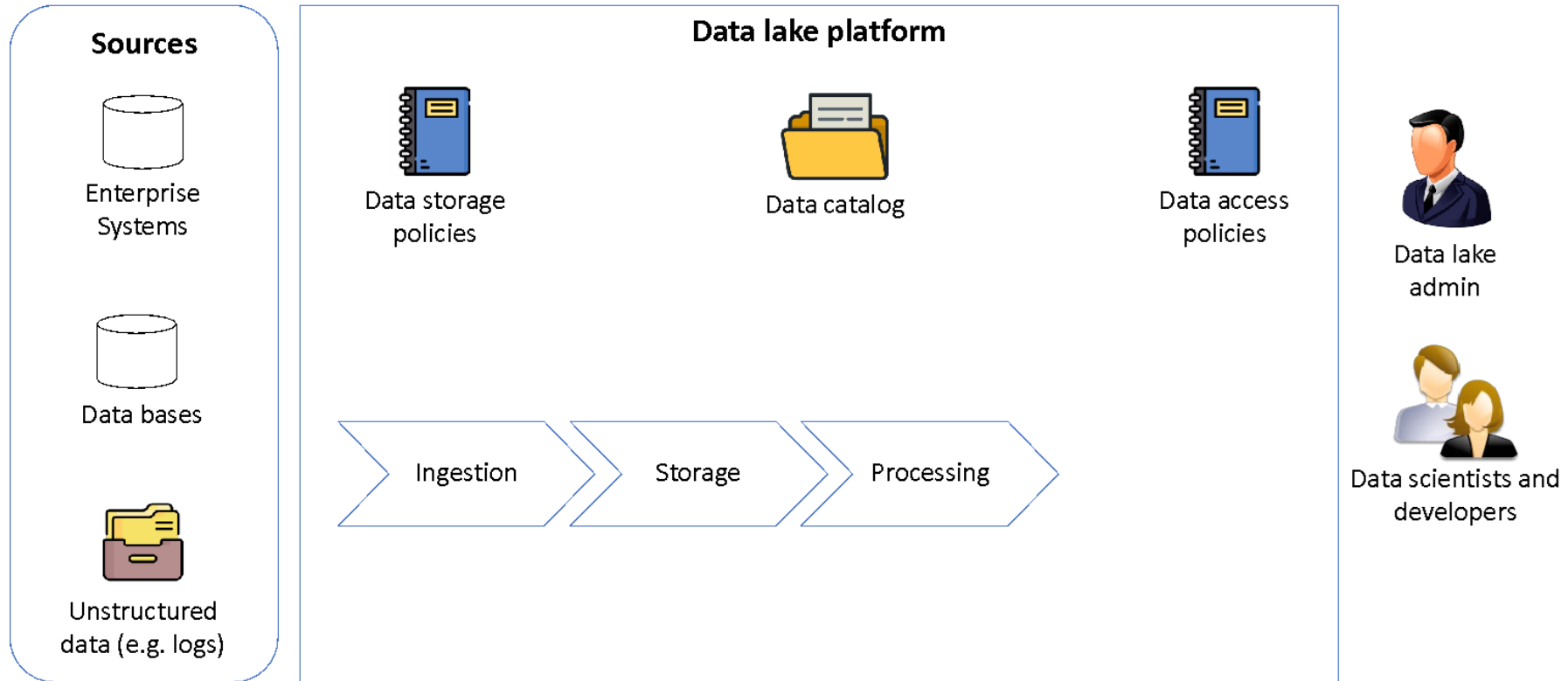
To contribute and influence research, data-centric European initiatives, open-source communities, and industry with methods, and tools to improve data sharing.

Consortium

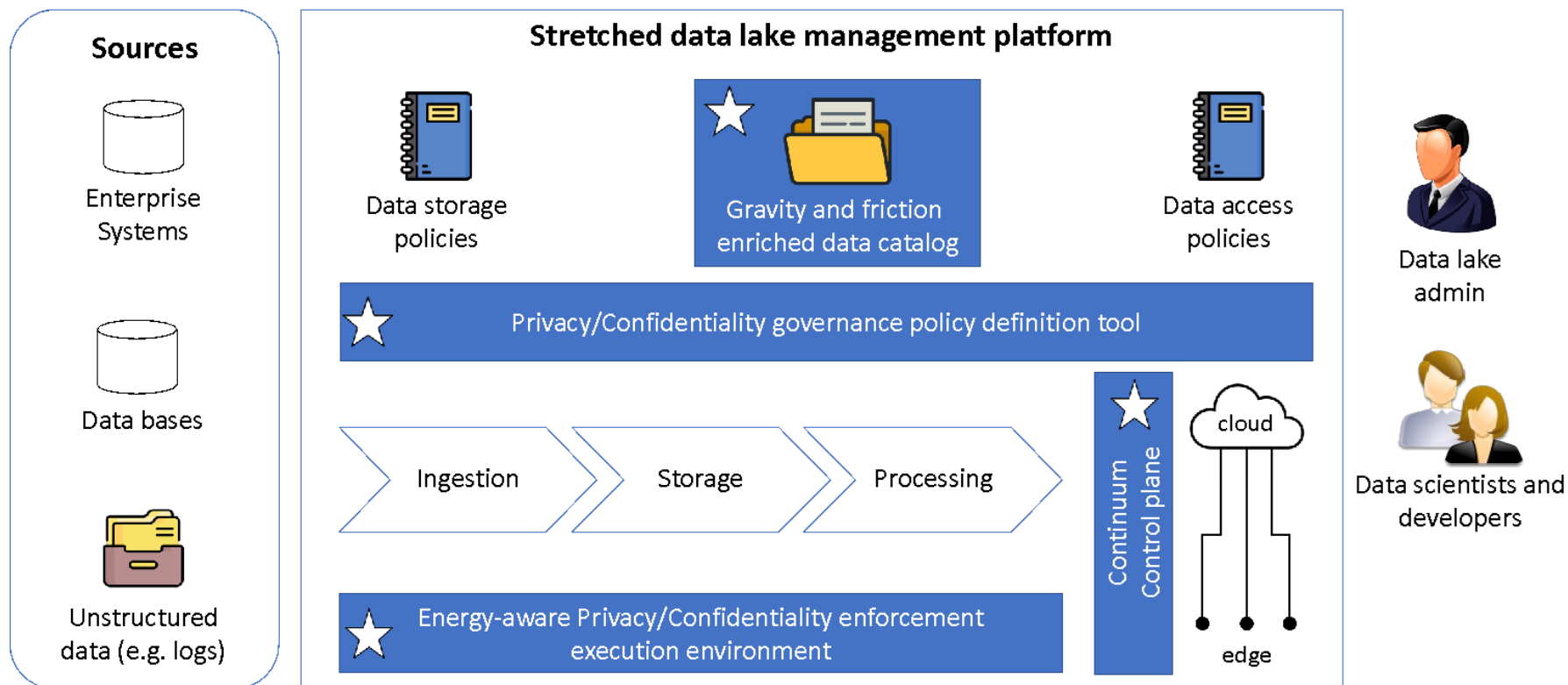


No.	Participant organization name
1	UBIWHERE LDA (Coordinator)
2	POLITECNICO DI MILANO
3	CYBERNETICA AS
4	CEFRIEL SOCIETA CONSORTILE A RESPONSABILITA LIMITATA
5	IBM ISRAEL - SCIENCE AND TECHNOLOGY LTD.
6	TECHNISCHE UNIVERSITAET BERLIN
7	ING BANK N.V.
8	MARINA SALUD, S.A.
9	UNION INTERNATIONALE DES TRANSPORTS PUBLICS
10	AZIENDA METROPOLITANA TRASPORTI E SOSTA CATANIA SPA
11	TECHNISCHE UNIVERSITAET WIEN
12	ALMAVIVA - THE ITALIAN INNOVATION COMPANY SPA
13	MARTEL GMBH
14	TERRAVIEW GMBH
15	ERT TÊXTIL PORTUGAL, S.A.
16	FUNDACIO PRIVADA I2CAT, INTERNET I INNOVACIO DIGITAL A CATALUNYA
17	BOX2M ENGINEERING SRL
18	REGIONE TOSCANA

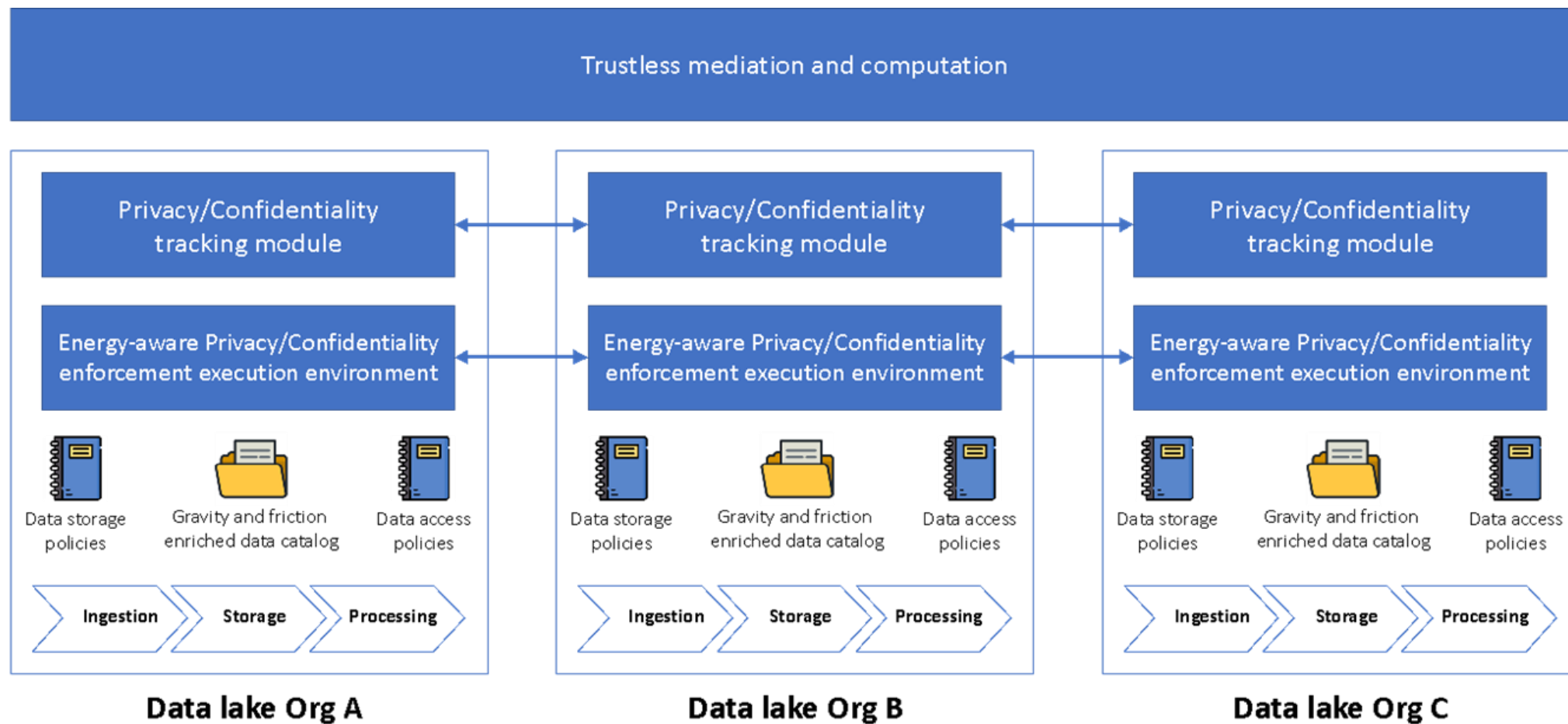
From data lake ...



... to stretched data lake ...



... That can be federated



S/T methodology – pilot cases



Evidence-based medicine

- Health data space – case partner: MARINA

Mobility federated access point

- Mobility data space – case partners: UITP, AMT

Smart viticulture data sharing

- Agricultural and Green Deal data spaces – case partner: TERRAVIEW

Industry 4.0 fast KPI calculation

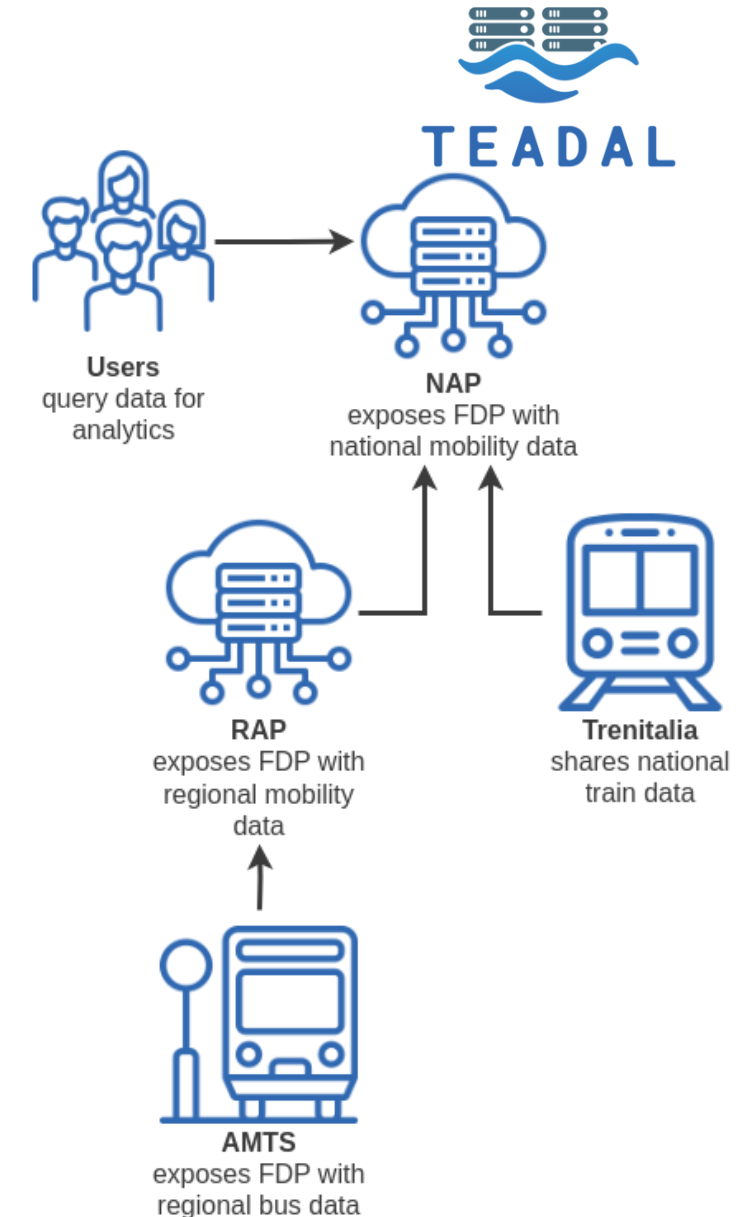
- Industrial data space – case partner: ERT

Regional planning for environmental sustainability

- Energy/PA data spaces – case partners: RT, BOX2M

Mobility pilot: outcomes until now?

- What have we achieved?
 - Pilot and institutional layer of data provision mapped
 - TEADAL node deployed on VM
 - FDP implemented
 - Data requirements defined
- What were our expectations?
 - Allow Public Transport Operators to comply with MMTIS Delegated Regulation using their existing system
 - Access general mobility data to improve service planning





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THANKS



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