



OPEN DATA FOR BETTER URBAN MOBILITY

Urban Mobility Days 2023 – 4 October 2023





Agenda

- Let's meet! Project Overview
- European context
- Using Open data from National Access Points (NAPs)
 - How Czech Republic built their NAP data
- NAPs and Standards
 - How Austria is implementing MMTIS
- Global recommendations
- Q&A



LET'S MEET!



UITP WELCOME KEYNOTE

UMBERTO GUIDA
HEAD OF THIRD PARTY FUNDED PROJECTS STRATEGY

KNOWLEDGE AND INNOVATION, UITP



Hello! I am Anastasia.



Requirements Committee Chair @ ITxPT



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Athens, Greece



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MSc. Environmental engineering – Aristotle University of Thessaloniki
MSc. Urban & Spatial planning – National Technical University of Athens



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Hello! I am Tu-Tho



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MSc. Industrial Engineering – Ecole Centrale de Lille
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Hello! I am Zuzana.



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Hello! I am Julia.



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Dipl.-Ing. Spatial and Urban Planning – Technical University of Vienna



Austrian, German, English



Data4PT – Project overview

Global overview

A CEF Programme Support Action (2020-2023) to **accompany and facilitate** Member States and other relevant stakeholders in the implementation of MMTIS Delegated Regulation

Fact sheets

- Coordinator:  UITP ADVANCING PUBLIC TRANSPORT
- Technical management:  ITXPT INFORMATION TECHNOLOGY for PUBLIC TRANSPORT
- Budget: 2,423,200 €
Funding: 1,998,560 €
- Duration: 2020-2023 (3 years)
- Partners: Austria , Croatia, Czech Republic, France, Denmark, Italy, Portugal, Slovenia, Sweden



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
Long term support



dataapt



Focus on 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 fulfil 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

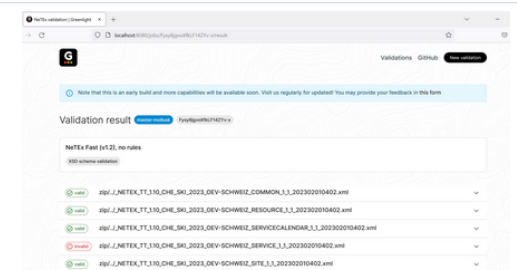
Greenlight - The Data4PT Validation tool

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>



Raise your hands if...

- You are familiar with
 - EU Regulations
 - Your National Access Point team
 - NeTEx / SIRI
- You manage your mobility data
 - Internally
 - With partners
 - Not at all
- You use mobility data to build SUMPs



EUROPEAN CONTEXT



The European Strategy for data



The **European Strategy for data** (2020) aims to make the EU a leader in a data-driven society.



The **Data Governance Act** (2020) facilitates data sharing across sectors and Member States.



The **Data Act** (2022) clarifies who can create value from data.



Ten **European common data spaces**, ranging from industry to mobility, from European Green Deal to energy and health.



Applied to mobility data



Unleash full potential
of **data**.



By 2030, integrated electronic
ticketing facilitates seamless multimodal
passenger transport.
Freight transport will be paperless.



By 2030, automated mobility
will be deployed on large scale.



The impact on (y)our work

ITS Directive

The “mother” of all

- Open data
- Standards & Technical specifications to follow
- Interoperability

MMTIS Delegated Regulation

Open data on NAPs

- Creation of NAPs
- Data categories
- Types of data to publish
- Data formats to use

Pending - MDMS (MaaS) Delegated Regulation

MaaS regulations

- Rights & obligations
- Relationships between operations and platforms
- Framework for ticketing



USING OPEN DATA FROM NAPs



Open data on NAPs

Is not only...

- To comply with EU regulations
- To create a burden on your teams
- To check a box
- For mobility data

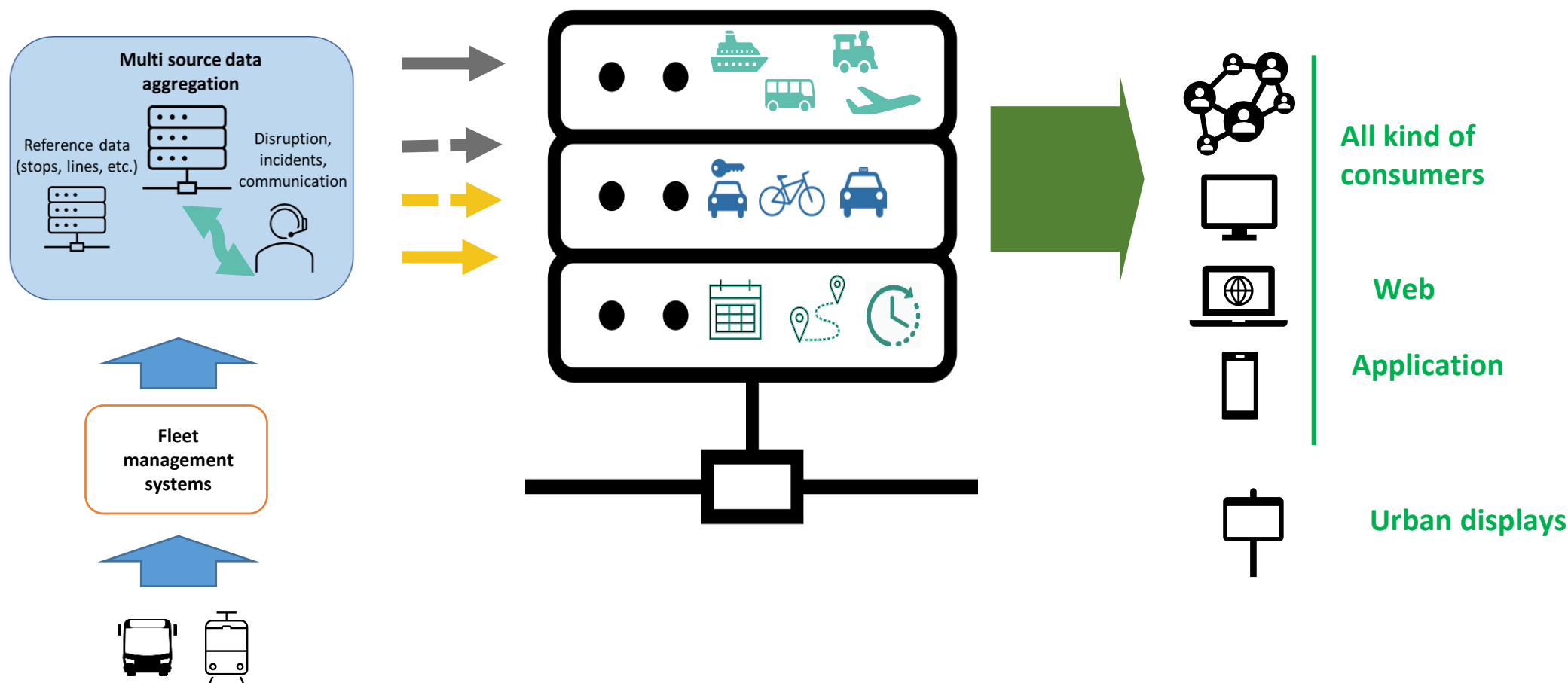
But should be...

- To support citizens' trust
- To help build new mobility services collaboratively
 - National Trip Planners
 - Real-time map of available services
- Facilitate better urban mobility
 - Assessing
 - Improving
 - Planning



Using open data from NAPs

NATIONAL ACCESS POINTS
(open data)





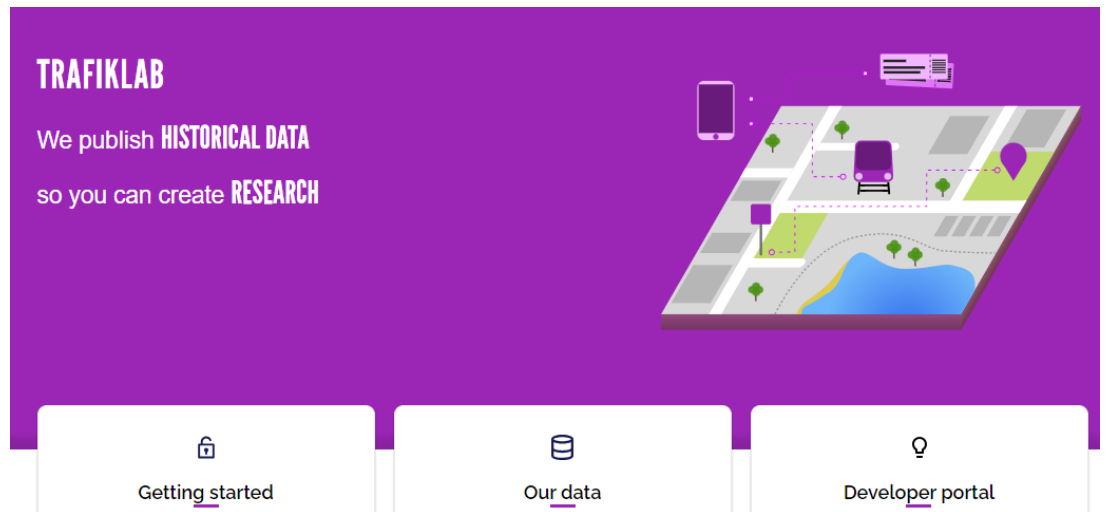
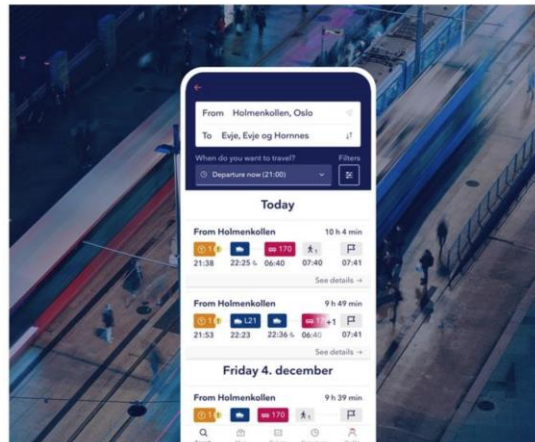
Some concrete use cases...

Norway: NAP data to feed a National Trip Planner

Sweden: NAP data to enable National Distribution Service (NDS) for public transport tickets connecting all operators

OpenTripPlanner 2.0 is here

Try the next generation journey planning service, focusing on travel by scheduled public transportation in combination with bicycling, walking, and mobility services.



Visit [DATA4PT website](https://data4pt-project.eu/news-events/) for more insights
in <https://data4pt-project.eu/news-events/>



Some use cases...

The screenshot displays the LinkingAlps journey planner interface. On the left, the 'Journey planner' section shows the route from San Candido, S. Sepolcro to Malles Venosta, Stazione di Malles, with a departure time of 17:00 on 21.09.2022. The 'Travel by' section lists three options: 446 (16:39 - 20:55, 4:16 h), 446 (17:39 - 21:55, 4:16 h), and 446 (18:39 - 22:55, 4:16 h). The main panel shows the selected route with stops at Innichen, Außerkirchl (16:39), Innichen, Bahnhof Innichen (16:41), and Bahnhof Innichen platform 3 (16:50). The map on the right shows the route through the Alps, starting from Bahnhof Mais and ending at Innichen, Außerkirchl. The interface includes a search bar, navigation icons, and a footer with contact information and legal notices.

LinkingAlps - interlinking existing regional or national journey planner services from all neighboring countries, with a focus on multimodal transport (public transport, railways, new modes)

Visit **DATA4PT website** for more insights
in <https://data4pt-project.eu/news-events/>



How Czech Republic built their NAP data

14 Regions & CIS JŘ

- ✓ 1 Data National Information System for Timetables
- ✓ 1 User Interface for Sending Data





How Czech Republic built their NAP data

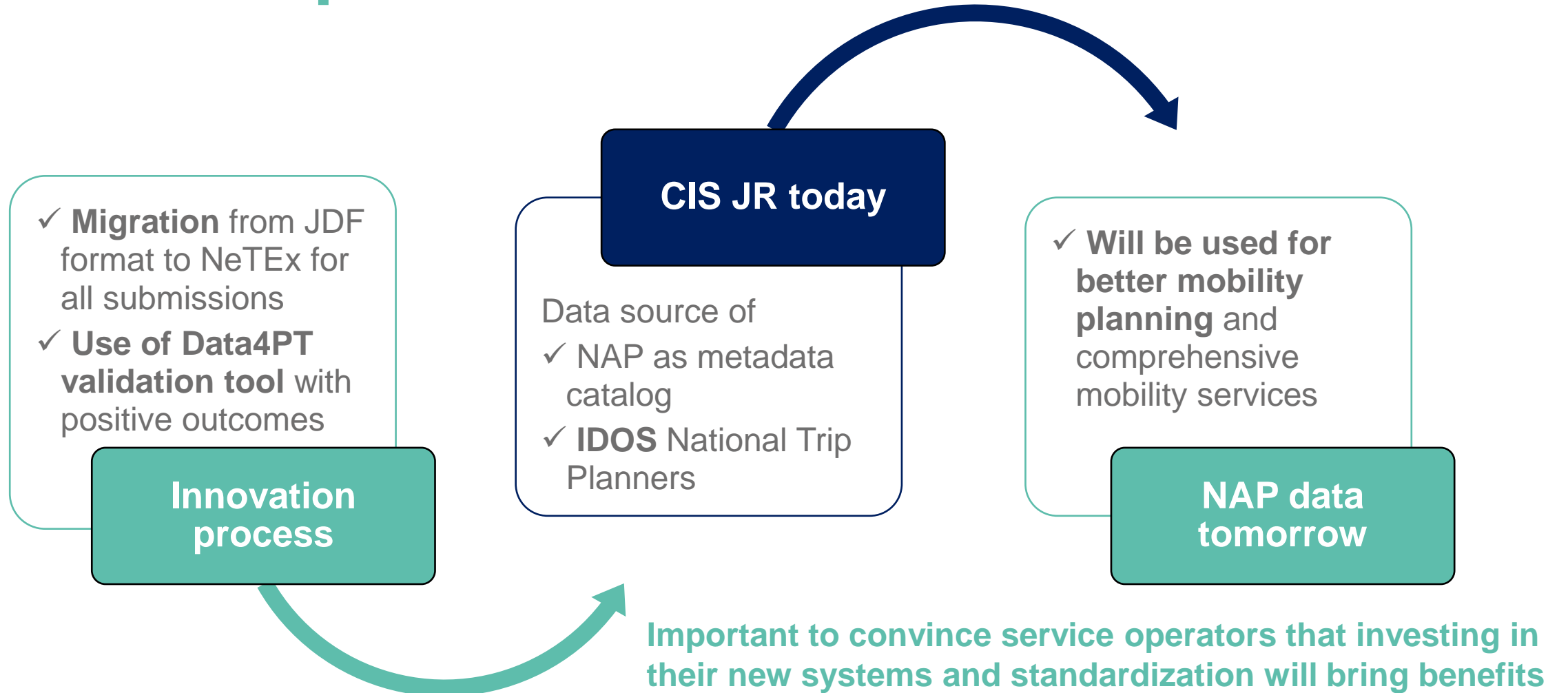
CIS JR is operated under the auspices of the Czech Ministry of Transport

Timetables are submitted to CIS JR by:

- **Transit authorities** of regional/city councils (National Regular Public Transportation Authority).
- **Carriers** (International Regular Public Transportation), railway operators (Public Railway Passenger Transportation on nationwide and regional railways).
- Railway **administrative authorities** (Public Railway Passenger Transport for the tram, trolleybus, special and cable railways).




Czech Republic & their NAP data





IDOS National Trip Planners




ODKUD
Brno

KAM
Praha


< Dnes >


< Teď >





↑ Dřívější spojení


↓ Pozdější spojení


 [Vytisknout](#)

 [Sdílet](#)


















16:56 3.10. út



Celkový čas **3 hod 9 min**, vzdálenost **255 km**





 **R 862 Svitava** R     

České dráhy, a.s. 


Odjezd bývá včas 

 **16:56** Brno hl.n. 3/6

 **20:05** Praha hl.n. 

[Detaily spojení](#)    


cena **329 Kč**


 **Do košíku**


Reklama


17:00 3.10. út





Celkový čas **2 hod 55 min**, vzdálenost **225 km**

 **Bus 721309 25**


RegioJet/STUDENT AGENCY k.s. 

 **17:00** Brno,,Benešova tř.hotel GRAND

 **19:55** Praha,,ÚAN Florenc

[Detaily spojení](#)    

cena **239 Kč**

 **Do košíku**


Reklama

Vaše cesta

Cestující

1. Cestující - dospělý (26-59 let)

[Přidat/změnit cestující](#)

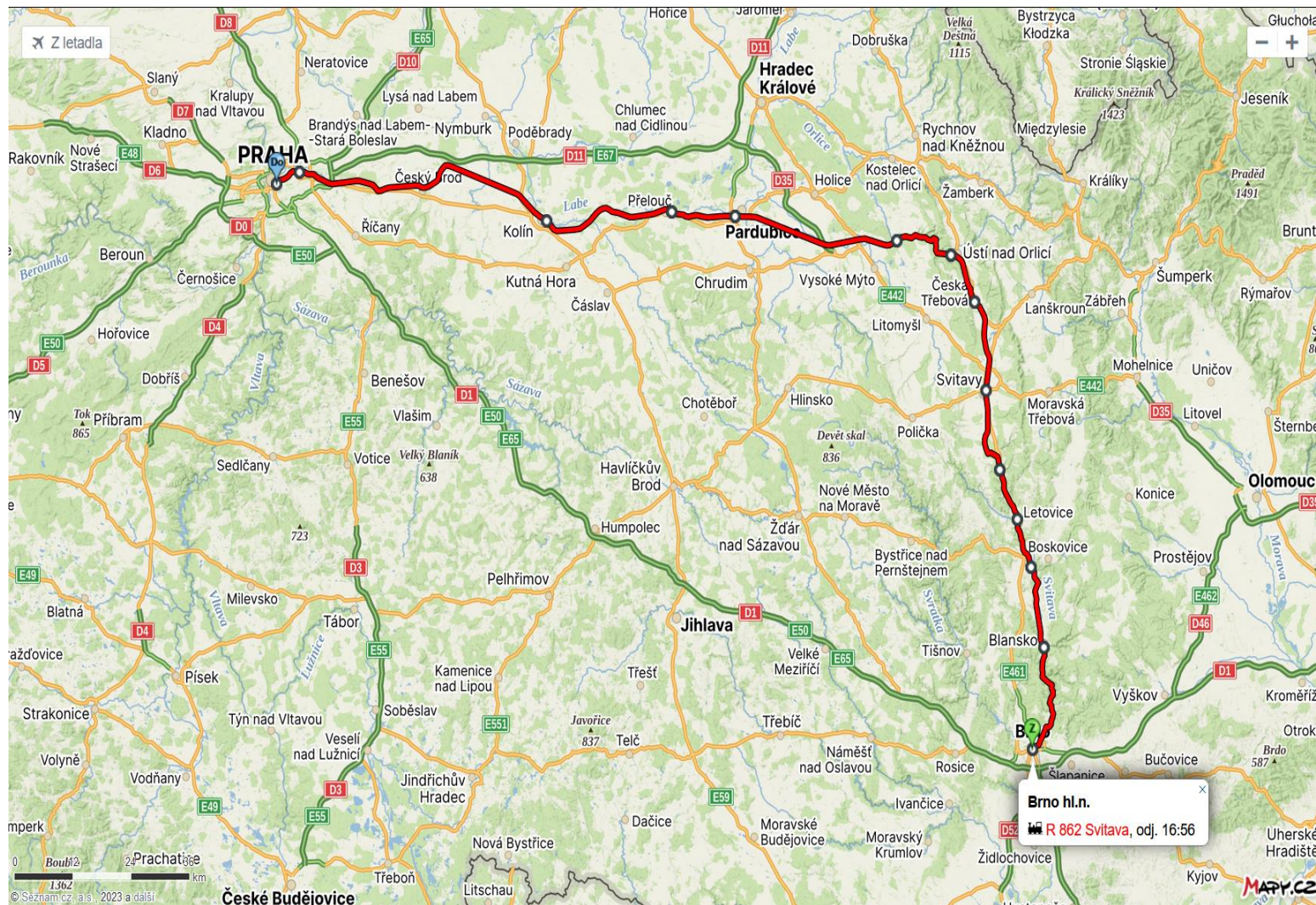
 **Koupit jízdenky**

[Proč v košíku nejsou všechny spoje?](#)

Reklama



IDOS National Trip Planners





NAPs AND STANDARDS



Open data on NAPs is useful when...

- Interoperable via EU recommended standards & specifications
- Of high quality
- Re-used (consumed)



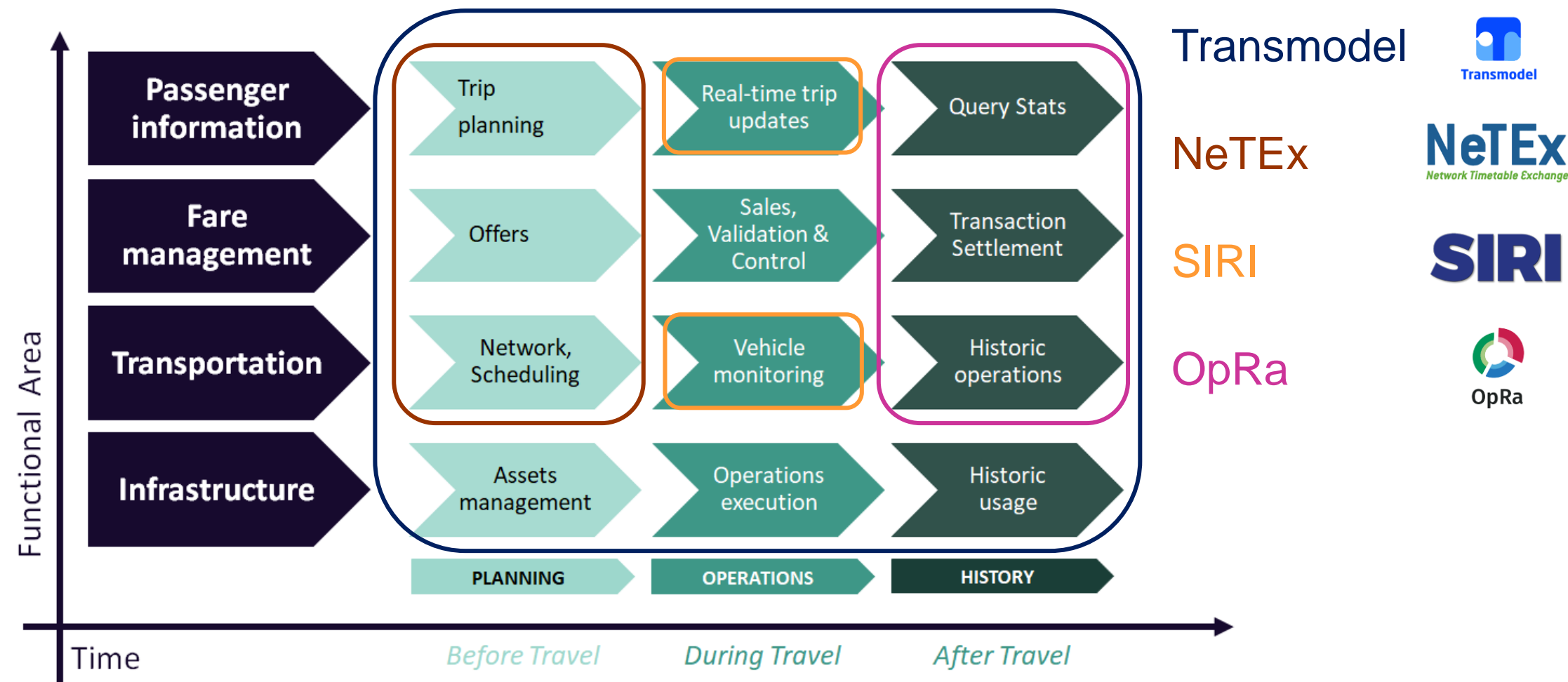


Why standards?

- **Facilitate data exchange & sharing**
 - Between different organizations
 - Between different sectors
 - Between different systems
- **Stimulate tailored solutions to meet multiple and different needs**
 - Same questions = same answers
 - Localize / Personalize leveraging the same base
- **Reduce costs** of development & Scale-up



EU standards for public transport

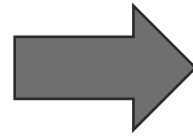




ITxPT specifications from on-board to back-office systems

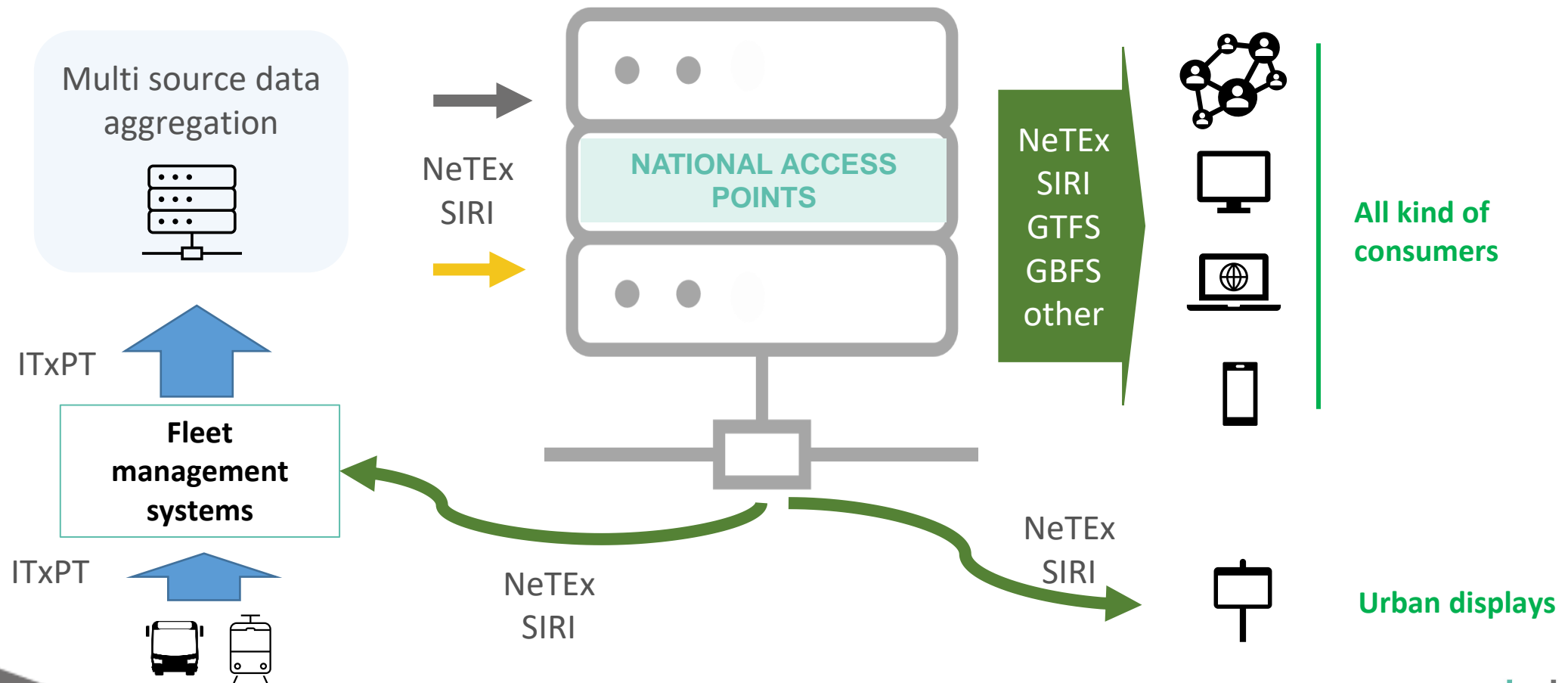


ITxPT





Standardised data for optimized data flow





How Austria is implementing MMTIS

AustriaTech is affiliate body for Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)

- ITS Directive 2010/40/EU converted into **Austrian national law IVS-Gesetz** (IVS-G 2013) including the priority areas; (static data mandatory, dynamic data optional)
- Providing data according to the requirements DR 2017/1926, supported by CEF PSA “PRIO Austria” (2018-2021) **focusing on NeTEx implementation** (Austria NeTEx Profile released in 2021)

Austrian NAP: Implemented architecture as data directory

- **Online Meta data Catalogue** (no data exchange, data sets examples)
- Usage of the **Coordinated Meta Data Catalogue from EU EIP and DCAT-AP**
- **Standardised format** for description of data, data provider, contracts, etc.
- Delegated regulations (A,B,C,E) implemented
- **Continuous development** of NAP and
- **Close Cooperation with the National Body** (ITS Contact Point) who is responsible for review the self declarations (§9 MMTIS)



How Austria is implementing MMTIS

Austrian NeTEx Profile

- Delegated Regulation 2017/1926
- Export Public Transport Data from real life system
 - Timetables
 - Network
 - Transport Lines, ...
- Format NeTEx – EPIP conformity
- Development released 12/2021

9 federal states – 1 Data collection system – 1 user interface “Mobilitätsverbünde Österreich” – MVO

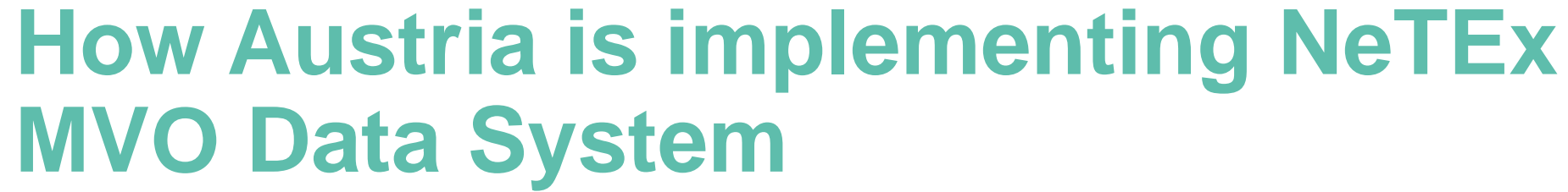
<https://mobilitaetsverbuede.at/>



Testing and Validating NeTEx – Results

- Data Export is EPIP conform
- Manual test positive
- **Data4PT Validator Tool result positive**
- Data Export contains more information then the standard EPIP Profile
- **NeTEx Export publicly available at NAP Austria**
- External Feedback of good usability
- New Data exports are in development
- E.g., On demand services

- **Validation Tool ensures quality and standard conformity of the provided data on the NAP**
- **Can also be used for conformity assessment**





Austrian further activities concerning MMITS standards

National events on Implementing NeTEx/SIRI (MMTIS Standards)

- Further involve stakeholder groups in shared mobility, demand orientated mobility and small PTOs which are not covered by PTA and established Stakeholder (scheduled transport)
- Cooperation with the ITS Contact Point
- April 2023, follow up WS in Q4 2023
- Providing information and experts for questions and dialogues, identify stakeholder demand and requirements
- Bringing in best practices from BMK and implementing PTA/PTOs: MVÖ, ÖBB-Infra, Project Domino, Wr. Linien

Upcoming ITS directive and regulations

- Informing about new requirements setting up the frame for stakeholders
- Information about NETEX; SIRI, OJP standard development
- Development of SIRI Profile started in Austria








Challenges and benefits of providing standardised data


- **For small PTOs:** Implementing MMTIS raises a **lot of organizational issues** and questions concerning new business models (start-ups), **also technical challenges regarding NeTEx and SIRI** format and administrative support was identified
- **Providing data** in standardised/new formats **demands support, clear guidelines and tools by the NAP**
- **Benefits for stakeholders: Data4PT validation tool**, structured and available **information** (FAQ catalogue, manual, guidelines for data provision, reliability etc.)

Example:

- **Positive achievements when setting up new MMTIS standards**, e.g., WIENER LINIEN

Verwendete Standards auf der CIP

- SIRI – Standard Interface for Real-time Information 
- NetEx – Network Timetable Exchange 
- GBFS – General Bikeshare Feed Specification 

 7 

What has standard implementation achieved?

- **Data quality**, Data truth, Data sources,
- **Understanding** of data
- **Overview** of existing data
- Overview of required data
- **Simple connection** to the provision platform

- **Benefits from using MMTIS Standards**
- **Commitment to MMTIS**
- **Commitment to data provision at the NAP**



GLOBAL RECOMMENDATIONS

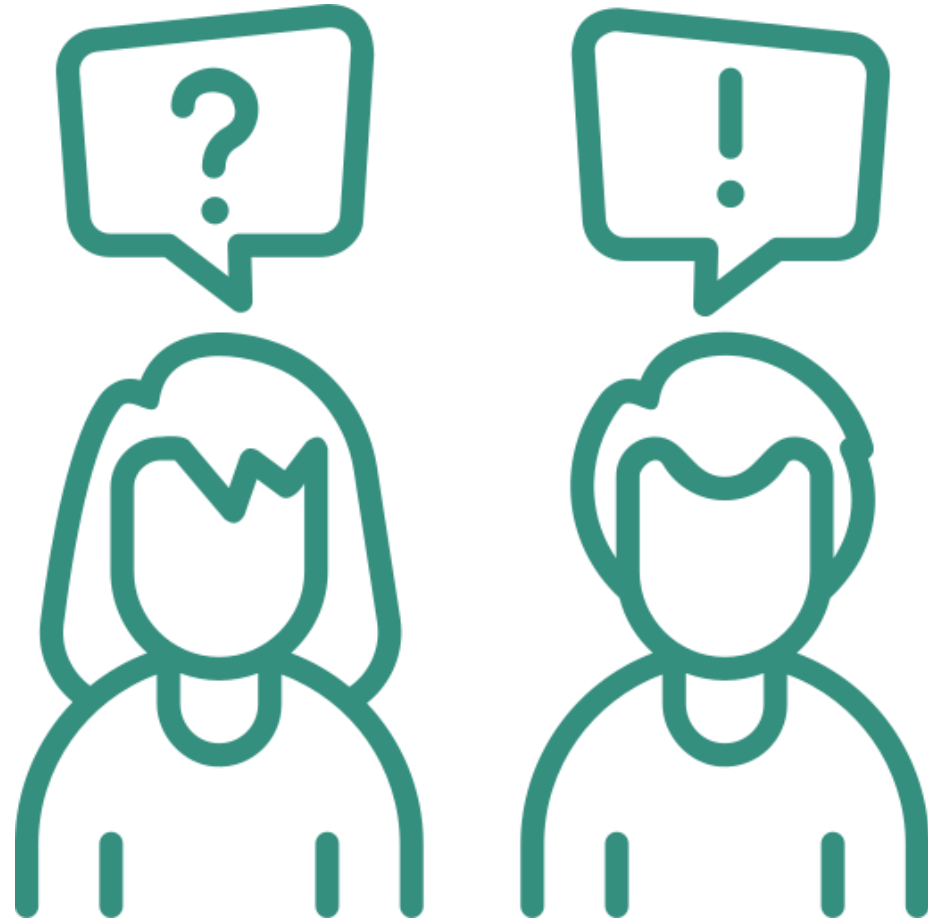


Recommendations

- Adopt/Migrate to **Transmodel-native systems**
- **Export in both**
 - **NeTEx & SIRI** for feed aggregators, operations systems, NAPs, etc.
 - **Legacy** formats (e.g., GTFS/GBFS) for trip planning apps and any other required systems
- If needed, **convert only from NeTEx/SIRI to legacy formats**
- **Integrate** Canonical & Recommended **validators for each** format
- **Join standardization discussions** and their working groups



Questions? Comments?





Questions to the public

- How can we support to with open data and standards?
- How do you link open mobility data to SUMP?
- Is your team proficient in EU standards?
- Do you use open data on NAPs to design urban mobility?



Thank you for your attention!



@Data4PT



info@data4pt-project.eu



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



company/data4pt-project/



data4pt-project.eu