

# DATA4PT

DECEMBER | 2024

## INTRODUCTION

In recent years, public transport services have become increasingly reliant on information systems to ensure reliable and efficient operations, manage their fleets, provide widely accessible and accurate passenger information, and provide high-level service addressing evolving passenger needs. High-quality and interoperable data is key to running these information systems smoothly. In this process, large amounts of data are collected by public transport operators and authorities (PTOs and PTAs, respectively) to enhance their services.



➤ Combined mobility

The European Union (EU) saw this as an opportunity to increase the attractiveness of public transport services via the public provision of EU-wide multimodal travel information services (MMTIS) to facilitate the use of public transport by all travellers. This resulted in the adoption of the European Delegated Regulation (DR) on MMTIS, which affects all data holders, including PTOs, PTAs, and their operational partners. The MMTIS DR has two main mandates:

- Creation of national access points (NAPs) as single points of access for all mobility-related data
- Provision of mobility-related data to NAPs by all data holders using the European standards based on Transmodel – Network Timetable Exchange (NeTEx) for static data and SIRI for real-time data.

In this context, the Data4PT project, implemented by the International Association of Public Transport (UITP) and its members, aimed to advance the development and deployment of Transmodel, NeTEx, and SIRI in Europe. It also acted as a key learning platform for all public transport service operators to incorporate EU-wide mobility data standards in their services.

The assumption underpinning the project was that sharing standardised, accessible, and reliable mobility data will enable travellers to choose more sustainable ways of travelling and living.

The Data4PT project was coordinated by UITP. Consortium members included ITxPT as the technical manager and nine EU member states: Austria, Croatia, Czech Republic, Denmark, France, Italy, Portugal, Slovenia, and Sweden.

## DURATION

1 January 2020 – 30 June 2024, 4.5 years

## BUDGET

EUR 2 million in funding  
(total budget: EUR 2.5 million)



## OVERVIEW OF PROJECT ACTIVITIES

With a strong focus on supporting the development and deployment of the European public transport data standards Transmodel, NeTEx, and SIRI, the project activities and deliverables were divided into four pillars:

- standardisation
- development of a validation tool
- implementation support
- dissemination and training support



## STANDARDISATION

The standardisation pillar led to most of the technical deliverables of the project. It included:

- technical development of Transmodel, NeTEx, and SIRI
- definition of European profiles for NeTEx and SIRI, with a strong focus on passenger information (scheduled data, accessibility details, fares details, and real-time data)
- provision of support in the definition of national profiles for NeTEx for Austria, the Czech Republic, Denmark, and Italy based on the European profiles.

In standardisation work, profiles are the subsets of a broader standard. A profile defines relevant concepts and attributes to be used in specific use-cases (e.g. passenger information, ticketing, etc.). All profiles are developed based on consensus and can vary in coverage. Furthermore, a national profile retains rules that are specific to a country (e.g. mandatory references for stops when a national registry exists).

These activities were essential for the continued development of European mobility data standards and their implementation by EU member states. They also strongly supported and improved linkages between European and international specifications and standards, including ones outside the scope of passenger information.

## VALIDATION TOOL

One of the technical deliverables of the project was the Greenlight validation tool for NeTEx datasets. It is the first user-friendly tool dedicated to NeTEx with an online interface that facilitates seamless use. Its code was also made publicly available for all to integrate into their mobility data pipeline.

The main aim of developing the Greenlight validation tool for NeTEx was to help PTOs/PTAS check the compatibility of the datasets produced using NeTEx with respect to the MMTIS DR and several basic rules about the data itself.

The validation tool enables:

- initial production of NeTEx datasets by service operators, facilitating the uptake of the standard
- member states to quickly check the datasets they received for quality and reuse via NAPs.



## IMPLEMENTATION SUPPORT

Technical support for the implementation of NeTEx and SIRI can be seen as pivotal to their successful adoption in Europe. The idea was to ensure that any stakeholders working with the standards had an adequate understanding of them to effectively implement them.

The technical support allowed member states to quickly get answers to questions coming from their national stakeholders. It also directly facilitated the implementation of NeTEx and SIRI through a single point of contact.

As the support was provided by a pool of experts who were heavily involved in the development of NeTEx and SIRI, it covered a wide range of requests, from the interpretation of standards to mapping documents to individual requests.

Such technical implementation support has been highlighted by both member states and the European Commission (EC) as the highest priority for future standardisation work in the EU and elsewhere.



➤ Automated Shuttle

## DISSEMINATION AND TRAINING SUPPORT

The dissemination and training support pillar focused on:

- raising awareness of relevant European standards (i.e. Transmodel, NeTEx, and SIRI)
- advocating for these standards' implementation in the EU and elsewhere
- building a community of end-users
- facilitating knowledge sharing among member states.

Some of the most successful activities in the Data4PT project were carried out under this pillar, with member states praising the opportunity for them to interact directly with their peers and share their challenges, progress, and success. Dissemination and training support has also been identified by both member states and the EC as a high priority for future standardisation work in the EU and elsewhere.

Today, the main legacy of these activities is the Data4PT Knowledge Base.

## ACTIVE SUPPORT FOR THE EU MEMBER STATES

Data4PT supported EU member states in implementing the EU mobility data standards, while keeping in mind that the member states did not enter the project with the same level of NAP maturity. The table below summarises the different maturity levels and learnings of the member states involved in Data4PT:

| MEMBER STATE STATUS BEFORE DATA4PT | MEMBER STATE DATA4PT OBJECTIVES AND ACTIVITIES | KEY OUTCOMES & LESSONS LEARNED |
|------------------------------------|--|--------------------------------|
|------------------------------------|--|--------------------------------|

**Austria**  
Existing NAP since 2016, with some national use of SIRI

Between 2016 and 2022, the Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) defined the Action Plan for Digital Transformation in Mobility, focused on aligning their national activities to ensure compliance with European regulations.

- Increased uptake of NeTEx and SIRI, coinciding with significant growth in the number of datasets available in the NAP.
- The leading role of the biggest Austrian PTO/PTA, Wiener Linien (Vienna), was crucial in accelerating the adoption of NeTEx and SIRI.
- The long project duration enabled the establishment of good cooperation with the people in charge of mobility data in PTOs/PTAs and big infrastructure operators and service providers.

**Denmark**  
Existing NAP, but limited knowledge of the MMTIS DR and the European standards NeTEx and SIRI

Denmark's main objectives were to further advance the development of their NAP to publish data on multimodal transport using European standards, while providing guidance to data providers.

- A national NeTEx profile was established, and guidance and examples for data providers were developed.
- Real-time data on all trains, light rail, and local and regional buses are transmitted to NAP and will soon be available for use.
- A common practice for the use of data standards should be established before implementing new data requirements in each country. There should be a focus on harmonising existing data across Nordic countries, Europe, and other regions.

**France**  
Existing NAP since 2015, with significant use of other standards. Very limited use, but relatively high awareness, of NeTEx.

France's objectives were to improve the quality of mobility data thanks to the implementation of standards and complementary actions and create a community of data providers publishing their data and a community of data consumers using the standards.

- NeTEx is well-established as the format to use to address issues related to accessibility and fares.
- Open cooperation with other member states benefited national stakeholders, especially on topics such as national stop registry, trip planning, and ticketing.
- There is a strong need to invest more in provision of support to data providers, to ensure that NeTEx is easier to use (including having open-source tools to more effectively process the data and check its quality).

**Portugal**  
Very little knowledge of NeTEx and SIRI

Portugal participated in several European projects to develop their national NeTEx profile and raise awareness on the use of European standards for mobility data sharing. Data4PT was the main project where they intensified the adoption of standards across various regions in Portugal.

- Significant increase in the adoption of standards thanks to national technical meetings and workshops designed for all implementing bodies.
- The use of European standards resulted in more consistent and reliable data sharing among transport operators and authorities.
- Continuous stakeholder engagement is essential for addressing challenges, aligning goals, and facilitating the successful implementation of multimodal data solutions.

**Sweden**  
Use of proprietary formats or general transit feed specification (GTFS) to exchange static data. Most of the work was done manually.  
No cooperation with other EU member states.

Sweden's main objectives were to comply with MMTIS DR and implement tools that would facilitate automation of mobility data collection, aggregation, and sharing. They also wanted to develop joint projects with other member states.

- NeTEx is now the reference format used in Sweden to handle national sales data, leveraging the public data shared on the NAP. A platform was developed to handle mobility data import, aggregation, conversion, export, and publication.
- Both static and dynamic data is now available on the NAP. Along with the implementation of validation tools, it helped improve data quality and enabled Sweden to be fully compliant in its implementation of the Intelligent Transport Systems (ITS) Directive and MMTIS DR.
- Dissemination activities contributed to increased interest in the industry, which facilitated the rollout of national ticket distribution. Such activities will continue in the future.



### THE WAY FORWARD

As a direct support measure for the European Union's Delegated Regulation on the provision of multimodal travel information service across the EU, through the use of EU mobility data exchange standards, the Data4PT project has proven to be a key asset in the establishment and further development of NAPs, which have, in turn, improved the accessibility of publicly shared multimodal mobility data. The project has reinforced the idea that public transport operators and authorities should have a stronger voice in NAP development. Such a bottom-up approach would facilitate the definition and adoption of:

- a common semantic model for all to reuse interoperable data
- minimum standards that align with public transport operators' needs and capacities, catering to value cases such as personalised cross-border itineraries and ticketing
- common data exchange formats, supporting data access and usage control to further improve interoperability among modes and borders.

Currently, the NAPs of all the EU member states, including Norway and Switzerland, and three associated partners are working together on defining and implementing common procedures and strategies within the NAP Coordination Organisation for Europe (NAPCORE) project. This initiative has been launched as a coordination mechanism to improve the interoperability of NAPs as the backbone of European mobility data exchange. NAPCORE aims to increase access to and expand the availability of mobility-related data through coordinated data access and better harmonisation of the European

NAPs. Its ultimate goal is to improve the interoperability of mobility data in Europe through mobility data standard harmonisation and alignment.

In this context, it seems quite natural that the legacy of Data4PT will live on in the NAPCORE project. This should lead to the strengthening of NAPs' position and role, especially with respect to the multimodal aspect, facilitating steps towards the creation of European-wide solutions to enable the use of EU-wide multimodal mobility data.

For the continuation of Data4PT activities, UITP recommends a strong focus on:

- continuation of technical and strategic support to all PTOs and PTAs in the implementation of mandated European standards, which would be of immediate benefit to all UITP members
- continuation of dissemination of best practices and lessons learned
- continuation of awareness campaigns on standardisation and continued alignment of data standards to cover all public transport services, including shared mobility and other micro services
- acceleration of cross-border usage of mobility-related data

Along with a strong and fair governance structure, mobility data is pivotal to a well-functioning public transport system and multimodality. As such, the harmonisation of mobility-related data exchange is an essential foundation for evolving public transport services, such as redefining public transport by going beyond mass transit and integrating on-demand and shared mobility and better management of vehicle fleets, schedules, and timetables, and ticketing systems to enable integrated transport systems across the EU. The overall goal is to make the journeys easier and more seamless for passengers, leading to sustainable mobility habits and behaviours.



Helsinki Region Transport HSL

## CONCLUSIONS

*In the age of digital transformation, passenger information can enable service providers to enhance the attractiveness, accessibility, and efficiency of all public transport services. High-quality and readily accessible and reusable data is crucial, as public transport increasingly relies on information systems to ensure reliable, efficient operations and relevant passenger information.*

*The use of standards to create, manage, and share high-quality mobility data is crucial to successful digital transformation of the sector. To this end, the EU co-funded the UITP-led Data4PT project.*

*The project achieved the following:*

- *increased visibility and understanding of the European standards Transmodel, NeTEx, and SIRI*
- *provision of basic technical support to member states in their implementation of these standards.*

*In addition to UITP's advocacy effort, the project significantly contributed to raising awareness and increasing uptake of standards in all European regions and elsewhere. This will ultimately enhance the attractiveness of public transport by making it easier to integrate all transport solutions in users' trip planning solutions. Moreover, it will also pave the way for better international cooperation and best practice exchange regarding other digital strategies to improve public transport, such as ticketing.*

## MAIN REFERENCE AND KNOWLEDGE BASE

<https://data4pt-project.eu/>

### PROJECT STAKEHOLDERS

- UITP as coordinator
- ITxPT as technical manager
- Nine EU member states as consortium partners: Austria, Croatia, Czech Republic, Denmark, France, Italy, Portugal, Slovenia, & Sweden
- Implementing bodies

See all partners and their logos here:

<https://data4pt-project.eu/consortium/>



▶ Seamless mobility

This is an official Project Brief of UITP, the International Association of Public Transport. UITP has more than 1,800 member companies in 100 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport worldwide.

Data4PT has received funding from the European Union's DG for Mobility and Transport under grant agreement No MOVE/B4/SUB/2019-104/CEF/PSA/SI2.821136.

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