



Future of NAPCORE: Addressing the MMTIS topic

Turin, 6 November 2024

Agenda

Turin 6, November 2024

- Introduction: NAPCORE multimodal activities overview
- MMTIS implementation and the future of NAPCORE
(Petra Söderqvist)
- OpRa: Potential application of observed data exchange protocol
(Fabrizio Arneodo)
- Digitalisation in multimodal mobility: Opportunities for and needs for public authorities
(Laura Babío Somoza)
- Multimodal Mobility Data Harmonisation
(Yves Amsler)
- Q&A and discussion

Introduction:

NAPCORE multimodal activities overview

NAPCORE multimodal activities overview

- **Data dictionary:** EU(DR) 2024/490 + EU(DR) 2017/1926 providing definitions to services and data types and their correspondence to NeTEx / SIRI elements
- **Quality Framework:** Establishing dimensions, criteria and measures to validate MMTIS datasets in the NAPs
- **Guidance material** on the use of Booking APIs
- **Mapping** : contribution in the mapping of multimodal standards (e.g. Parking: EPA alignment; GBFS - NeTEx)

Future of NAPCORE: Addressing the MMTIS topic



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NAPCORE MOBILITY DAYS

MMTIS implementation and the future of NAPCORE

Petra Soderqvist

DG MOVE – Unit B4

Turin, 6 November 2023

ITS Directive revision 2023

- Entered into force **December 2023**
- Commission obligation:
 - Adopt ITS working programme (within 12 months after the entry into force)
 - Templates for the Member States' reports (incl. list of KPIs for assessing the implementation of the Directive and its Delegated Acts)
- Mandates that certain crucial road, travel and traffic data (Annex III) are made **available in digital format, including multimodal data**, such as information on and accessibility of access nodes (all scheduled modes)

MMTIS: Revision 2024

- Entered into force **March 2024**
- Applies to **already digitalised data available in machine-readable format**
- Mandating the **accessibility of dynamic data**
- New **static, historic and observed data** types in the Annex
 - Parking (Park & Drive stations, scooter parking, tariffs)
 - Historic data on delays
 - Observed data on delays and cancellations
 - Accessibility of the vehicle and on-board services, capacity for bicycles
- New **dynamic data** types in the Annex
 - Parking tariffs
 - Availability and location for scooter-sharing and other vehicle-sharing
 - Car parking spaces available (on and off-street)
 - Occupancy of the vehicle (opt-in for Member States)

MMTIS: Implementation handbook

- For information purposes only
- Updated with 2024 MMTIS revision:
 - Description of the background to the revision in 2024
 - Overview of the different Articles
 - Q&A section
 - Summary of the support actions taken place to support the implementation of MMTIS – incl. the NAPCORE project
- To be published on DG MOVE website
- Updated after NAPCORE project concluded with relevant MMTIS output



Implementation Article 4 (static data)

Deadline	Data	Geographic coverage	Examples data types (non-exhaustive list)
1 Dec 2019	Static data 1.1*	TEN-T comprehensive network	- Addresses - Timetables - Road network, cycle network, pedestrian network
1 Dec 2020	Static data 1.2*	TEN-T comprehensive network	- Location search (bike-sharing, car-sharing) - Basic common standard fares
1 Dec 2021	Static data 1.3*	TEN-T comprehensive network	- Detailed common standard and special fares - Detailed cycle network attributes,
1 Dec 2023	Static data 1.1*, 1.2*, 1.3*	Entire Union transport network	[See rows above]
1 Dec 2024	Static data	Entire Union transport network	- Location of parking places (on and off-street) - Basic, common, special fares for transport on demand
1 Dec 2025	Static data 1.4	Entire Union transport network	- Historic data on delays - Observed data on delays - Observed data on cancellations

Implementation Article 5 (dynamic data)

Deadline	Data/Level of Service	Geographic coverage	Examples data types (non-exhaustive list)
1 Dec 2025	Dynamic data 2.1	TEN-T comprehensive network	- Disruptions, network closures, diversions - Estimated departure and arrival times - Status of access node features
1 Dec 2026	Dynamic data 2.2	TEN-T comprehensive network	- Information service on parking tariffs - Availability and location of vehicle-sharing and car parking spaces
1 Dec 2028	Dynamic data 2.1, 2.2	Entire Union transport network	[See rows above]

MMTIS: Requirements



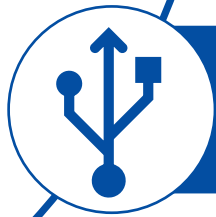
Implementation in Member States – mapping of NAP data



Data holders ('poor quality data', 'commercially sensitive data' etc)



Transport on demand sector (shared mobility, micromobility etc)



Reference standards: Transmodel, NeTEx, DATEX II, SIRI, (OpRa) etc

NAPCORE (2021-2025)

MMTIS data dictionary

mobilityDCAT-AP

WG + Ambassadors
(cycling, parking etc)

Next 'NAPCORE' (2025-)

EU identifiers for
access nodes

Data quality

Training and information

Data4PT activities

**To fully support multimodal aspects
– need relevant expertise represented in the project**

Thank you!

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Mobility Data Days 2024

Future of NAPCORE

OpRa

Operating raw data, statistics exchange

**Potential application of observed data exchange
protocol.**



European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Fabrizio Arneodo
CEN SG10/OpRa Chairman

Nov 6th 2024



OPRA MOTIVATION AND STANDARDIZATION CONTEXT

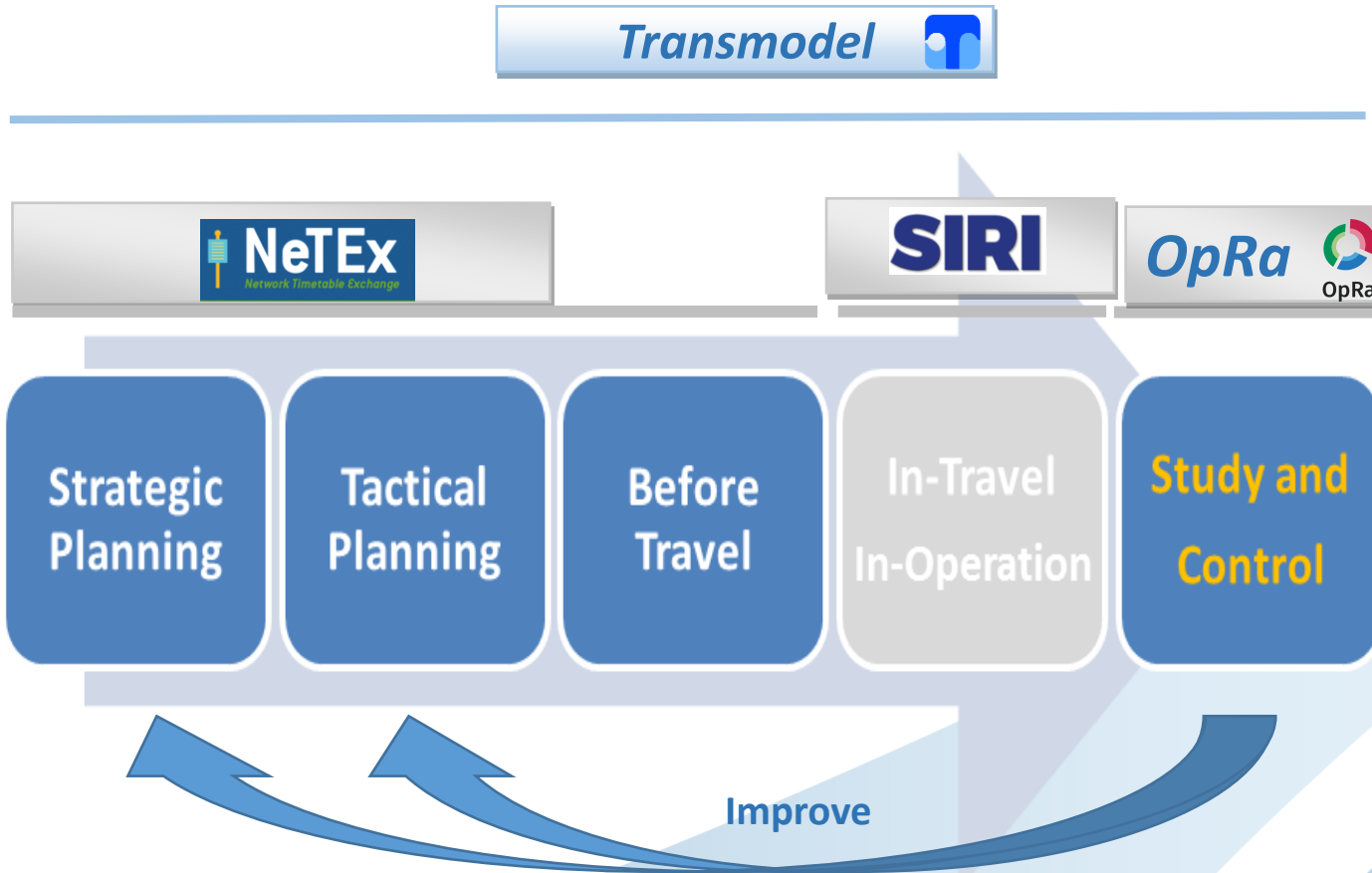
OpRa is a CEN (European Committee of Normalization) initiative with main focus on the identification of Public Transport raw, **historic and observed data** to be exchanged, gathered and stored in order to support *Study and Control* of Public Transport Service.

Particular focus on raw data identification actual and measured information, i.e. information which cannot be changed anymore in the future.

OpRa work tackle what required in **Delegated Regulation 490/2024** concerning historic and observed data according to the modalities required by **EU ICT Rolling Plan**.



OpRa



Strategic Planning: PTAs high level Planning of PT Service

Tactical Planning: operators plan their resource usage (vehicles, rolling stock, personnel)

Before Travel: all planned networks and timetables are published

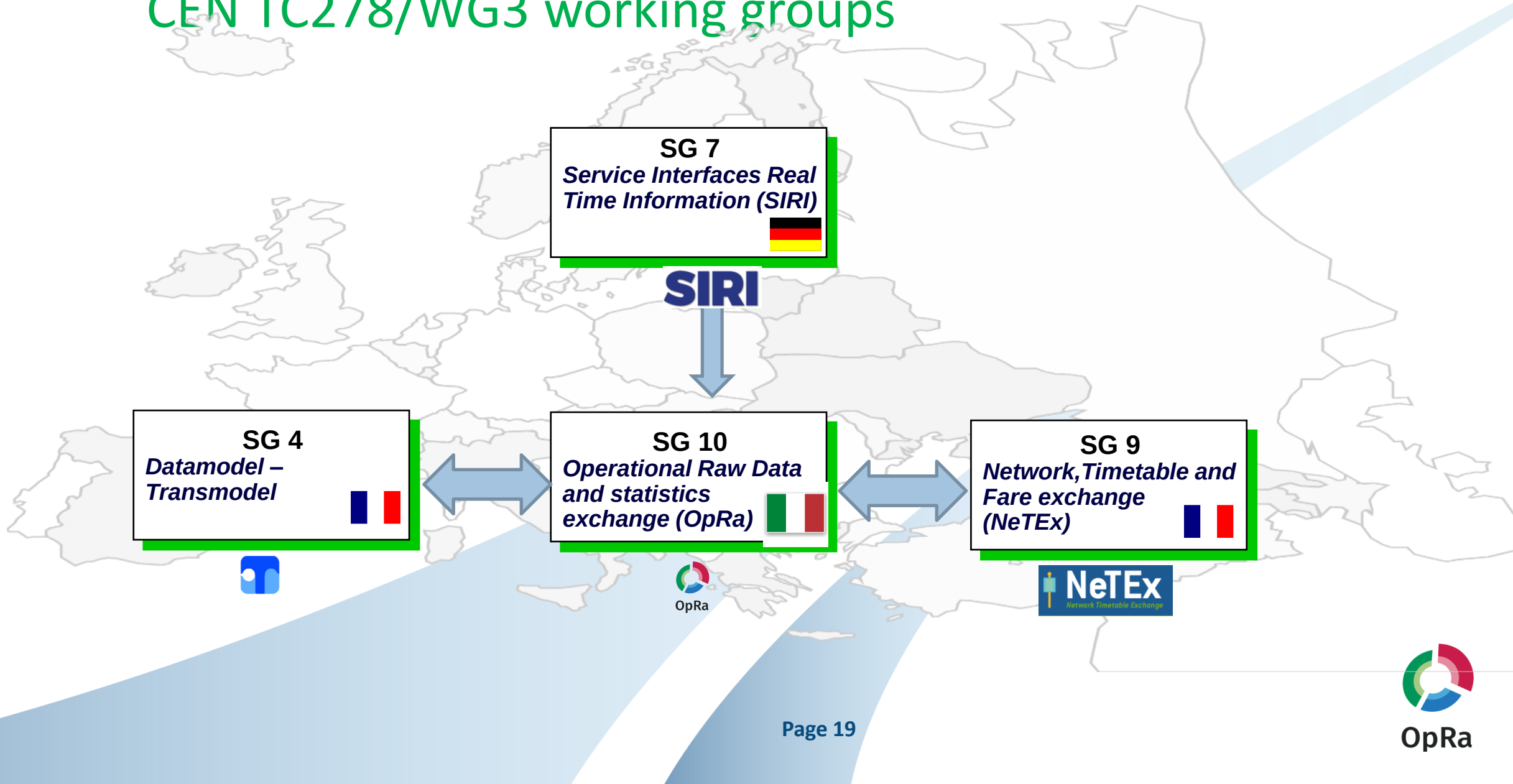
In-Travel: the transportation service is conducted. Real-time information exchange

Study and control: PTAs & PROs review the history of actual operations, for improvements

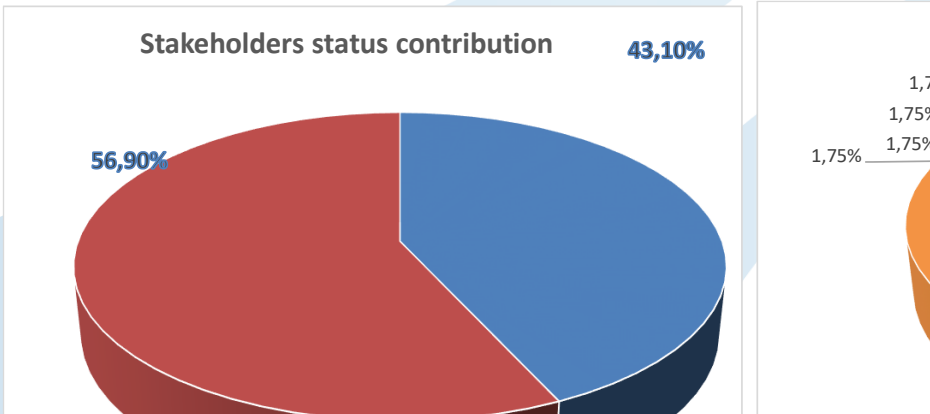


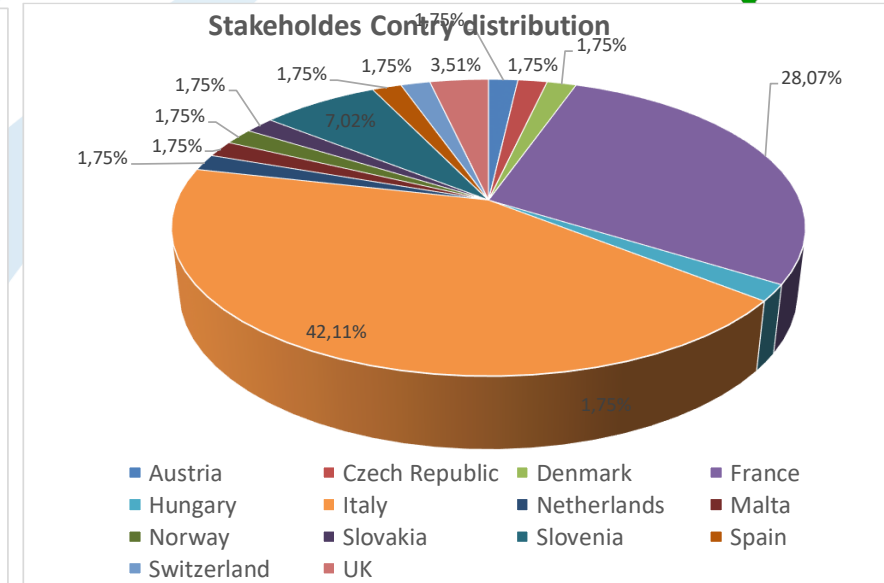
OpRa: Standardization context

CEN TC278/WG3 working groups





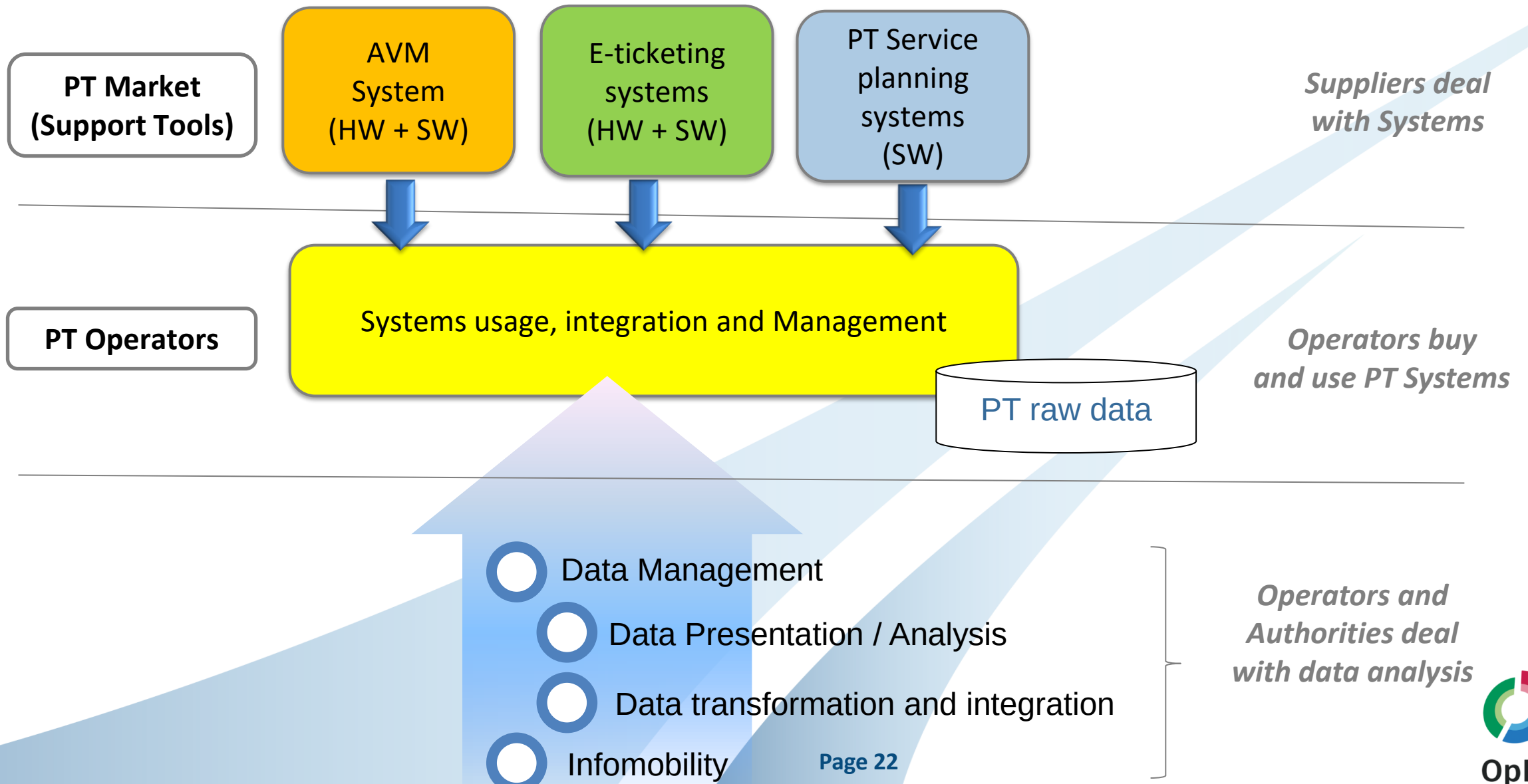
1. **58 stakeholders** were identified including Authorities, PTO, Sw companies and System Integrators.
 2. **7 main contributor countries:**
 1. France
 2. Hungary
 3. Italy
 4. The Netherlands
 5. Slovenia
 6. Slovakia
 7. Spain
- 
- The image contains two pie charts. The first pie chart, titled 'Stakeholders status contribution', shows two segments: a red segment representing 56,90% and a blue segment representing 43,10%. The second pie chart, partially visible on the right, shows three segments, each representing 1,75%.
- | Status | Contribution |
|--------------|--------------|
| Red Segment | 56,90% |
| Blue Segment | 43,10% |
- | Country | Contribution |
|---------|--------------|
| France | 1,75% |
| Hungary | 1,75% |
| Italy | 1,75% |





OPRA HISTORICAL AND OBSERVED DATA GATHERING, EXCHANGE AND MANAGEMENT

OpRa: data generation context

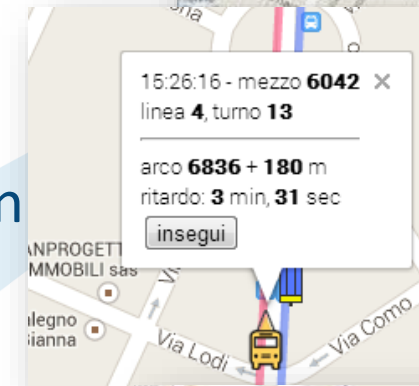




OpRa: data generation context

Fleet vehicle status in real-time

- ❑ **AVM systems** installed on vehicles generate **Real-time data** as results of specific event (e.g. Open/Close doors)
- ❑ **Observed data** could be:
 - **Current position** of each vehicle and additional information
 - **Vehicle delay**
 - **Forecast arrival time**
 - **Passengers count**
- ❑ In general, every geo-referred data could be generated and then gathered in central management systems.





OpRa: data usage context

“Rewind” the PT Service performed by fleet

- ❑ Replaying fleet “past activity” with **historical and observed data**
- ❑ This can enable:
 - PT service **performance analysis**
 - **Accidents detection** and double check for insurance purposes

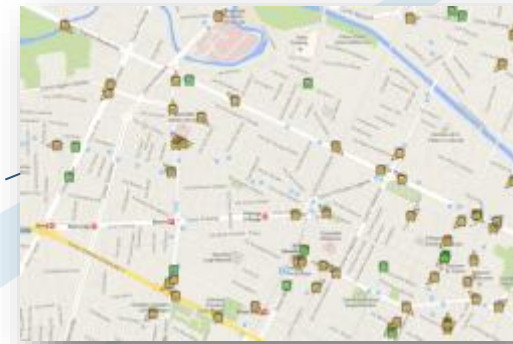
Historical data



Engine

Page 24

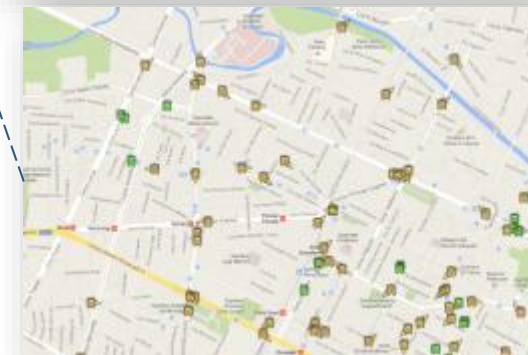
4:25:55 p.m.



4:26:05 p.m.



4:26:25 p.m.



OpRa: data usage context

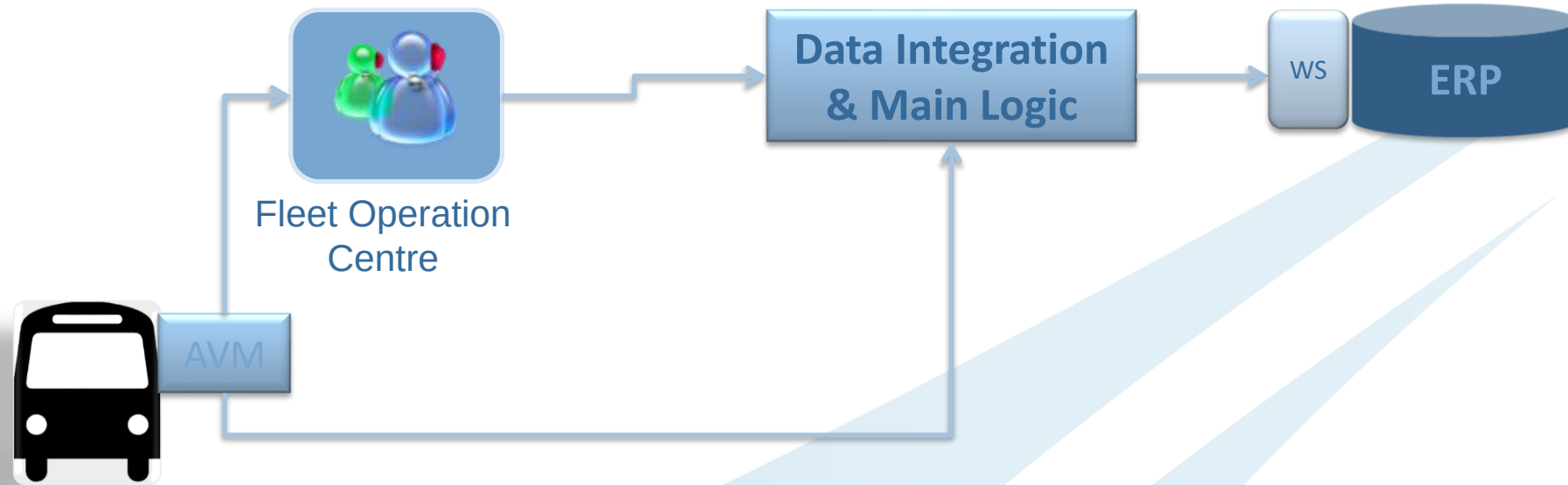
Decision Support Systems (KPIs)



- ❑ Calculation of **Real time KPIs** for fleet management
- ❑ Navigation among hierarchy levels of data (drill down/up)
- ❑ Graphical representations
- ❑ WEB based application
- ❑ Integrated with other applications

OpRa: data usage context

PT Fleet vehicle Failure alerts system



- ❑ Collecting **observed failure data** arising during vehicle service, information sources:
 - driver (through *ad hoc* GUI)
 - operator of Fleet Operation Centre
- ❑ XML based Data exchange
- ❑ Data are integrated and stored into Operator ERP



OPRA APPROACH FOR RAW AND HISTORICAL DATA



OpRa: CEN/TR 17370 high level content

1. **Methodology:** Assessment, Use Cases definition and classification, Indicators definition, Raw Data identification.
2. **National Scenario** for PT Raw Data and indicators usage
3. **EU projects** dealing with PT indicators
4. **KPI definition** in research projects
5. Description of defined **Use Cases**
6. Compatibility with other standards: **Transmodel ecosystem**
7. **Data Dictionary**

CEN/TC 278

Date: 2018-11

WI 00278429:2018

Secretariat: NEN

Public transport — Operating raw data and statistics exchange

Einführendes Element — Haupt-Element — Ergänzendes Element

Élément introductif — Élément central — Élément complémentaire

ICS:





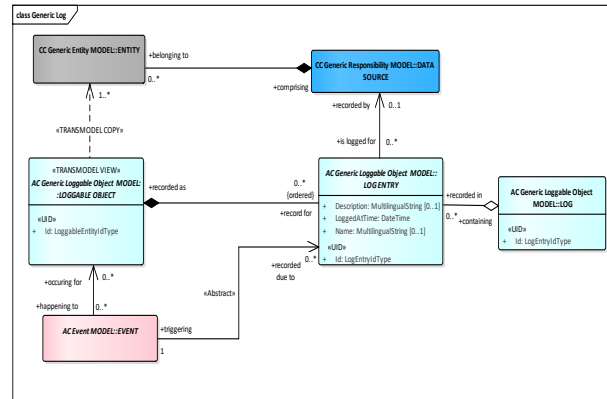
OpRa: methodology

Main concepts used

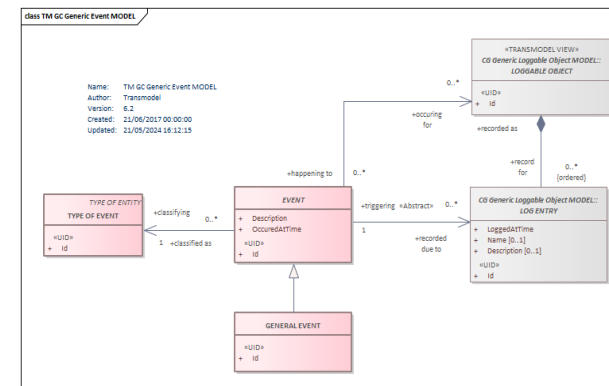
USE CASE

Use Case: EFFICIENCY-010	
Name	Mean delay on a per ROUTE, SERVICE JOURNEY or STOP basis.
Description	It considers the occurred delay at a specific point (STOP_POINT) for each line of the Public Transport Service in the reference period (day, month). Goal: Evaluate the efficiency of the Service in terms of delays. Formulae: Mean (Arrival Time - Scheduled Time)
Source (Country)	Italy, Hungary, France
Main Actors	PTO
UC	Service delays and inefficiencies
Raw data needed	TM Raw TM data: DELAY, PT SITUATION CONSEQUENCE, PT SITUATION, SITUATION CAUSE, PT SITUATION CONSEQUENCE SCOPE, ROUTE, SERVICE JOURNEY, SCHEDULED STOP POINT, STOP PLACE (through assignment). Exchanged data : Mean DELAY per SERVICE JOURNEYS using the specified ROUTE and mean for for all SERVICE JOURNEYS of the ROUTE; Mean delay per STOP PLACE used on the ROUTE; <i>Note: a precise definition of delay has to be provided, since it can be provided at stop level, at start & end, can be valid for only a part of the Journey, etc.</i>

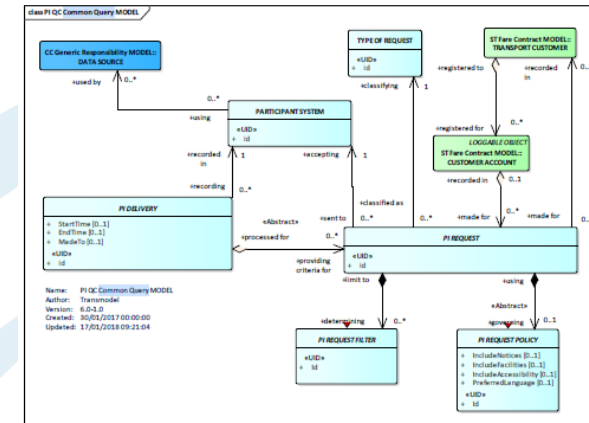
LOGGABLE OBJ



EVENT



COMM. QUERY



Source:
CEN/TR 17370:2019

Source :
CEN/EN 12896-8:2020

Source :
CEN/EN 12896-1:2021

Source :
CEN/EN 12896-6:2020



1

Service Offer

Planned Service Offer

Actual Service Offer

It gathers all the themes and Use Cases relevant to the **Offer** of Transport for PT Service (e.g. Spatial and time coverage, offered seats, etc.). This category is further divided into following sub-categories:

1. Planned Service Offer (as result of Strategic and Tactical planning phases);
2. Actual (measured) service Offer.

2

**Service
demand**

Expected Service Demand

Actual Service Demand

It gathers all the themes and Use Cases relevant to the **Demand** of Transport for PT Service (O/D matrix, load factor, etc.). This category is further divided into following sub-categories:

1. Expected Service Demand;
2. Actual (measured usage) service Demand.

3

**Service
Externality**

It gathers all the themes and Use Cases relevant to PT Service **Externality**, that implies costs or benefit sthat affects a external party who did not choose to incur that cost or benefit (pollution emissions, safety, etc.).

4

**Service
Economy****Income Service Economy****Expences Service Economy**

It gathers all the themes and Use Cases relevant to the **Economy** of Transport for PT Service in terms of incoming funds (sold tickets, etc.) and expenses (costs, etc.). This category is further divided into following sub-categories:

1. Income Service Economy;
2. Expences Service Economy.

5

**Service
Efficiency**

It gathers all the themes and Use Cases relevant ot the **Efficiency** of Transport for PT Service (lines overlaps, MTBF, delays, etc.)



OpRa: future application

Future of NAPCORE



- ❑ OpRa deals with observed and historical data in a framework of Regulation Study and analysis exploitation.
- ❑ It is under the EU Transmodel umbrella together with **NeTEx** (static data) and **SIRI** (dynamic data).
- ❑ It is aligned with EU Delegated Regulation 490/2024 for the requirement of observed data gathering and exchange and it is compliant with EU ICT Rolling Plan.
- ❑ Next steps concern the adoption at National Access Point MMTIS level and future of NAPCORE could include this task.



Dr. Fabrizio Arneodo has Computer Science degree at the University of Turin, with 20+ years of experience in the management of complex software development projects; he currently holds the role of CTO of the 5T company, where he oversees all the technological aspects in the application domain of intelligent transport systems.

For 10+ years he has been working as an expert recognized by UNI in the field of standardization of technologies applied to Public Transport and represents Italy in the steering committee of CEN TC278 / WG3 "ITS for Public Transport", with the role of Chairman of the Standardization Group. European OpRa (Operating Raw Data and statistics exchange).

He has more than 20 publications in national and international scientific journals in the field of vehicular traffic, public transport, infomobility, ticketing and intelligent transport systems solutions.



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TC278/WG3 ITS for Public Transport standards

Operating Raw Data and Statistics exchange (OpRa) Charirman

<https://www.itsstandards.eu/> | <http://www.opra-cen.eu/>



Digitalisation in multimodal mobility

Opportunities for and needs for public authorities

Laura Babio Somoza

Traffic Efficiency Cluster Lead POLIS network



Urban mobility challenges shaping policy goals



AIR QUALITY



MODAL SHIFT

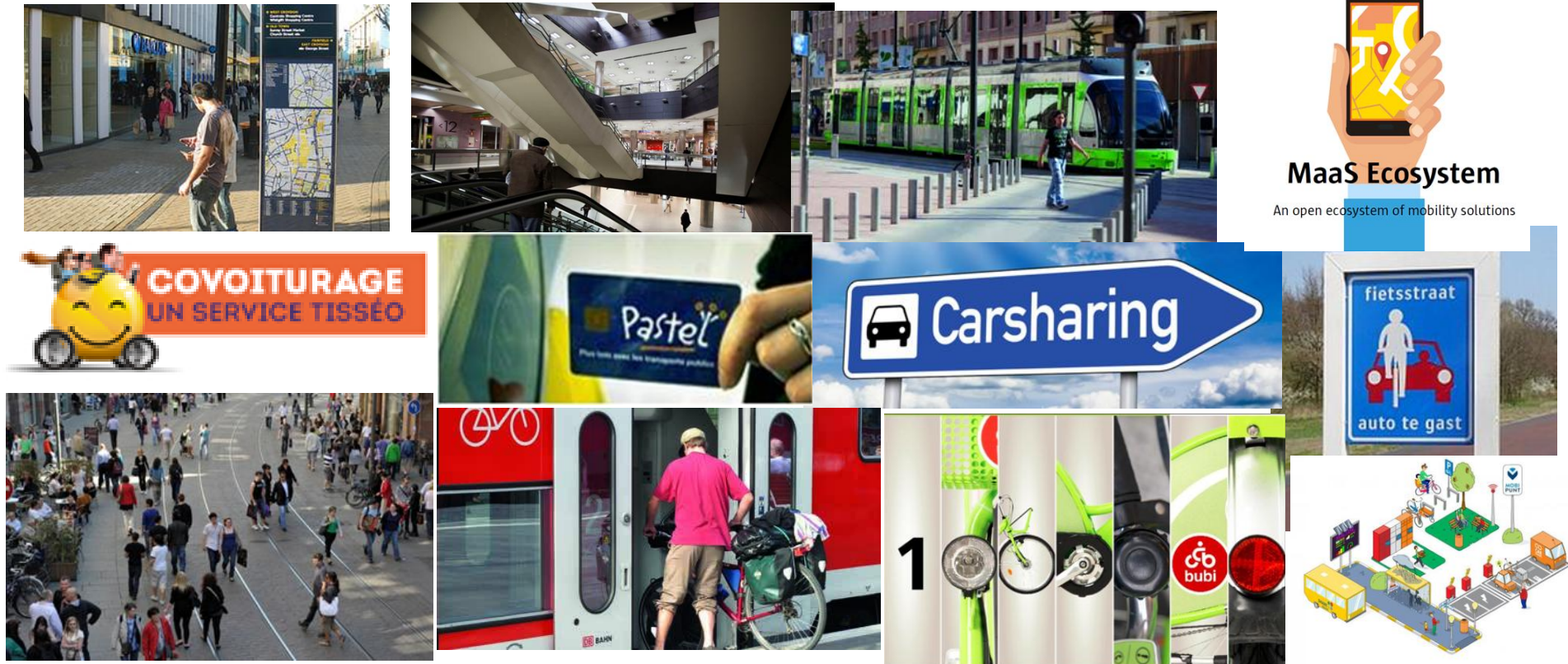


SAFER ROADS



DECARBONISATION

Sustainable Urban Mobility Ecosystem



MaaS Ecosystem
An open ecosystem of mobility solutions

Multimodal – Intermodal – Clean – Safe – Flexible – Affordable – Connected –
User-centric – Inclusive – Shared – Healthy – Seamless ...



Digitalisation Challenges for local and regional authorities

Cost of digitalisation and **complying** with the different regulations

Navigating and dealing with a **complex and fragmented legal framework** around accessing and sharing data

Ensuring **data quality** (i.e, complete and reliable data)

Limited human resources capacity for data management and use (lack of skills and specialised expertise)

Limited understanding where relevant data can be found and how to access it

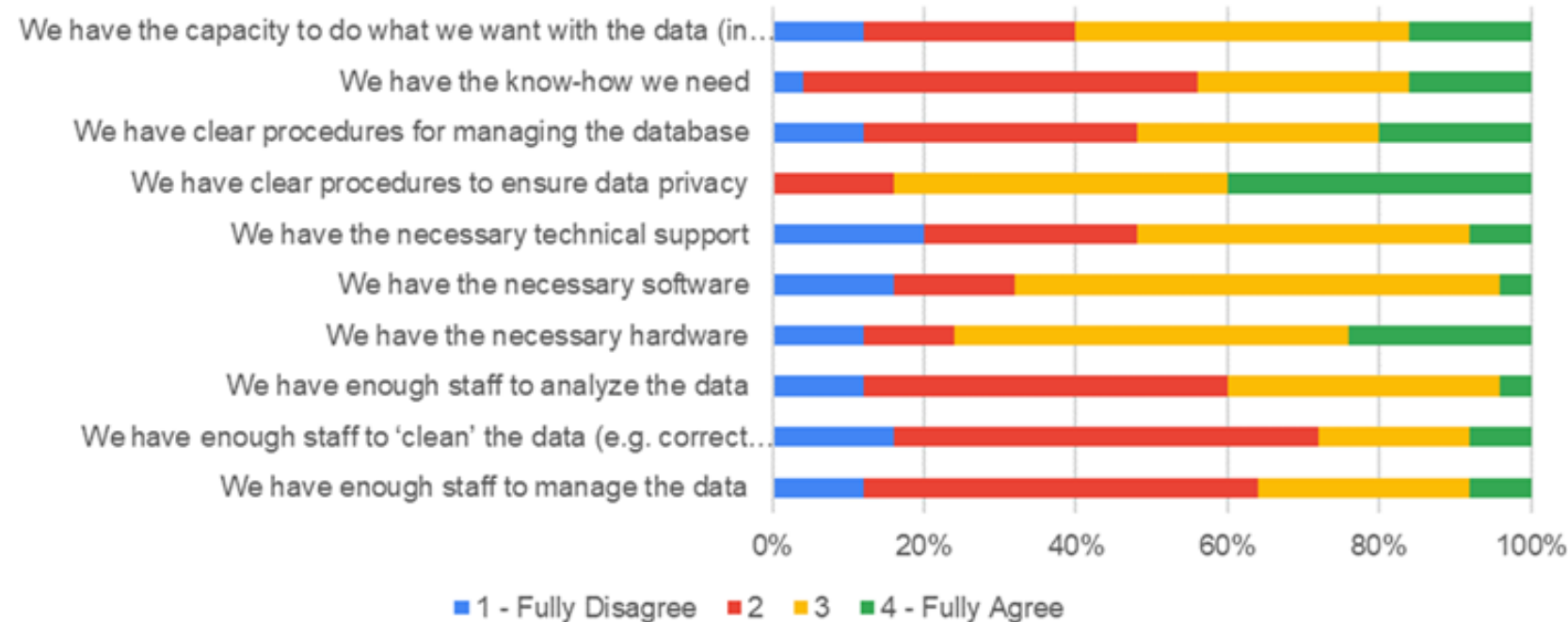
Integrating legacy systems with new data sharing technologies

Trust issues (including unwillingness to share data of public interest, understanding how to build trust and mitigate trust issues among actors involved in data cooperation)

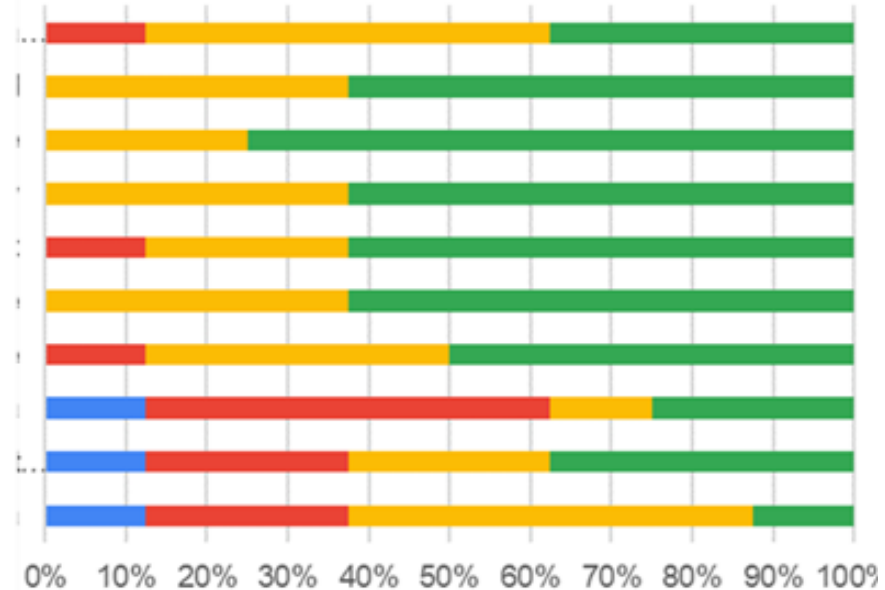
Digitalisation at different speeds



Public authorities

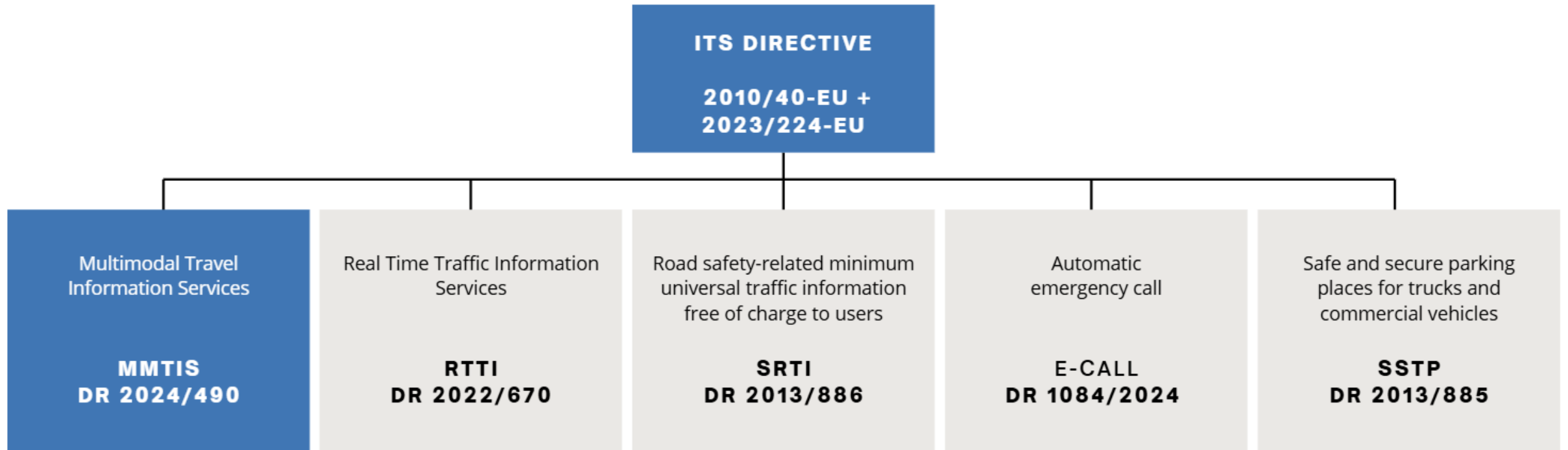


Private sector





EU Regulation pushing for digitalisation





NAP related challenges and impacts

– local authorities

Challenge	Impact
• NAPs are inconsistent across the EU • Lack of support for the local level in some MS • Lack of knowledge and know-how on the EU regulations	Difficult to build capacity and share best practices
• Lack of standards for certain data types (parking, cycling) • Proliferation of standards profiles difficulting interoperability	Data not being shared or with poor quality
• Standards conversion leading to data quality issues	Data not being used



Opportunities MMTIS presents to public authorities

Direct benefits:

- Driving standardization (e.g. parking and cycling) – shouldn't we learn from the public transport story?
- Drive the creation and improvement of multimodal information services, leading to more attractive services for end users
- Improved discoverability and accessibility of their data

Secondary benefits:

- Improved multimodal information services have a real impact on modal shift and behaviour change



Needs of local authorities

- Increased **know-how and support** to implement the EU legislation – handbook good start, but more support needed
- More **dialogue structures** between the different levels – could NAPCORE play a role in facilitating this?
- **Harmonisation** of Standards- Intervention?
- **Clarity** on the **EMDS framework** and how it can support local data sharing (and the NAPs)
- **Financial support** to enable digitalisation (and compliance with EU regulations)
- **Fair** and proportionate **data exchange**

Cooperation NAPCORE - POLIS



- to enhance dialogue with data and service providers operating on the urban level to foster efficient data provision in cities and regions with the ITS Directive, its Delegated Regulations and the EU Urban Mobility Framework as legal and strategic starting point
- operational objectives:
 - 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 react to 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 NeTeX, Siri, DATEX II
 - ensure that cities and regions affiliated with POLIS have improved access to NAPCORE outcomes and resources





Thank you

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06/11/2024

Multimodal Mobility Data Harmonisation

Yves Amsler, UITP

THE INTERNATIONAL ASSOCIATION OF PUBLIC TRANSPORT

We represent
**local
passenger
transport
services**
(road, rail,
waterborne)
towards the
EU institutions

In Europe

450+ members

(PTOs, PTAs)
from all EU
Member
States





MULTIMODAL MOBILITY DATA HARMONISATION

Topics addressed:

- Mobility
- Multimodality
- Mobility Data
- Multimodal Mobility Data Harmonisation



Limited focus = **Mobility of persons/Digital Data**



does not consider the mobility of goods (logistics)



The two mobility domains may overlap



MULTIMODAL MOBILITY DATA HARMONISATION

Mobility = decision of a **person** – the **traveller** – **to travel** for a given reason (*trip purpose*) at a given date/time (*trip time*):

- from a **geographical Origin O** to a **geographical Destination D** located in:
 - Countryside/Rural or Urban area (city & hinterland daily-life territory) - different size, density, structure...
 - Of an EU country (EU 27) or of a Non-EU country (European non-EU, Non European)



Multiple OD combinations possible involving **various transport means/systems** depending on **trip length of OD trip** and specific needs of the traveller



Different **stakeholders** and **mobility data are** at stake for each of the OD combinations



MULTIMODAL **MOBILITY** DATA HARMONISATION

Mobility actors (beyond the major one: customers):

- **Public Authorities (PA): territorial competence systems/modes/means**
 - **EU PA (European Commission (EC), European Agency), National PA, Regional/Urban PA**
- **Mobility providers: territorial competence systems/modes/means**
 - **Private Company: International (e.g. GAFAM, Amadeus, Uber), EU and/or National (e.g. Airlines and Railway Undertakings, vehicle manufacturers), Local (Public Transport Operator (PTO) & MaaS (Mobility as a Service))... and IT Suppliers (Operational support and passenger information systems)**
- **Regional/urban PT PA: “PTA”= both Authorities and Mobility providers**



Public Transport: Advertised transport service & available for use by the public (possibly under some conditions)



MULTIMODAL **MOBILITY** DATA HARMONISATION

Mobility is achieved through **various transport systems/modes/means**:

- **Road borne systems/modes/means**
- **Rail borne systems/modes/means**
- **Air borne systems/modes/means**
- **Waterborne systems/modes/means**



Public Transport: Advertised transport service & available for use by the public (possibly under some conditions)



MULTIMODAL MOBILITY DATA HARMONISATION

Road borne (land) systems/modes/means

- **on-foot travel**: walking (with possible dedicated infrastructure: pedestrian area)
- **private transport mode/mean**: Car; skate/roller; (e)-scooter; (e)-bike with possible dedicated infrastructure; other motorized 2 or 3 wheels
- **public transport (PT) mode/mean**:
 - **conventional PT (scheduled or on-demand)**: bus, coach, cableway, shuttle bus, taxi, moto taxi, dial-a-ride vehicle (PRM)
 - **alternative PT**: car-sharing or hire, 2 or 3 wheels-sharing or hire, ride-sharing (car pooling, Uber pool)
- **public transport (PT) system**: Bus Rapid Transit (dedicated road infrastructure); Tram/Light Rail (mixed road borne and rail borne with possible dedicated infrastructure)



System approach includes infrastructure used when mode/mean moving or idle (parking). PT systems are following the PSO regulation under PTAs' legal responsibility



MULTIMODAL MOBILITY DATA HARMONISATION

Rail borne (land) systems/modes/means: all conventional PT

- International railway systems/modes/means: cross a border EU country/Non-EU country
- Europe Railway System of the “SINGLE EUROPEAN RAILWAY AREA” (SERA)
 - EU “interoperable” railway systems between urban areas within one EU country or between two+ EU countries
- Urban rail systems (non-SERA and SERA) within one single urban area
 - Tram/Light Rail (mixed road borne and rail borne): excluded from the SERA
 - Metro (fully dedicated infrastructure): excluded from the SERA
 - Other urban rail systems: SERA or non-SERA (“functionally separate” infrastructure or rolling stock)



Non-SERA urban rail systems are not bound by EU legislation other than PSO Regulation



MULTIMODAL MOBILITY DATA HARMONISATION

Air borne (air) modes/means: all conventional PT

- *Intercontinental air borne modes/means: one airport in Non-EU continent*
 - *modes/means: Airplanes [long range (7h-12h)]*
- *International air borne modes/means: one airport in Non-EU country*
 - *modes/means: Airplanes [short range (30mn-2h); medium range (1h-4h, up to 6h)]*
- *European air borne modes/means: airports in EU country(ies) [in/nearby urban areas]*
 - *modes/means : Airplanes [short range (30mn-2h); medium range (1h-4h), Helicopter, ballon, air taxi*



MULTIMODAL MOBILITY DATA HARMONISATION

Waterborne modes/means (maritime or **inland** waterways):

- **International waterborne** modes/means : one port Non-EU country
 - modes/means (**all conventional PT**): *Maritime Cruise Ships and Cargo-Passenger Ships (plies in deep waters, oceans and high seas), Maritime and Inland Waterways ferries*
- **European waterborne** modes/means: ports in EU country(ies) [in urban areas]
 - **Private modes/means**: *Maritime and Inland Waterways boats (operate in restricted waters, near the coast), kayak, canoe, jet ski...*
 - **Conventional PT** modes/means: *Maritime Cruise Ship; Maritime and Inland Waterways ferries, boats; Inland Waterways water bus, vaporetto, water taxi, jet ski*
 - **Alternative PT** modes/means: *kayak or canoe sharing, jet-ski sharing, jet-ski pooling*



Maritime and Inland waterways modes/means follow different regulations

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

PERSONAL MODE

PERSONAL MODE OF OPERATION

Accessing
public transport:
- by self-owned
vehicle (e.g., cycle, car)
- or without
vehicle (i.e., by foot)

Operating a
self-owned
vehicle

Walking

*No public
advertisement*

PUBLIC TRANSPORT MODE

ALTERNATIVE MODE OF OPERATION

Vehicle
sharing

Vehicle
rental

Vehicle
pooling
(=ride
sharing)

CONVENTIONAL MODE OF OPERATION

FLEXIBLE
mode of operation

including
On-demand

SCHEDULED
mode of operation
(e.g., bus, train)

*Public Transport: Advertised transport service & available for use by the public
(possibly under some conditions)*

USAGE



Travel means: Physical means of movement, disregarding any ownership or operational aspects (non exhaustive list). PT=Public Transport

Foot

Ski

Skate,
roller...

E-Scooter

Cycle

Motorised
2&3
wheels

Car

Coach

Bus

Tram

Waterborne
PT
(ferry...)

Airborne
PT
(airplanes...)

Train

Metro



CURRENT SCOPE OF TRANSMODEL

[illegible]

[illegible]



MULTIMODAL MOBILITY DATA HARMONISATION

CONCLUSIONS (1/3)

- ➔ • Among Road borne modes/means, lack of information on COACH market
- ➔ • Overlap between ITS and Rail legislation (e.g. TSI Telematics)
- ➔ • Interface ITS legislation/other EU legislation to be clarified (Air transport, Waterborne transport, DATA, Cybersecurity, TEN-T (urban nodes), TRAVEL...)(also glossary)



Responsibilities of PTAs/PTOs to be recognised (subsidiary principle)



MULTIMODAL MOBILITY DATA HARMONISATION

CONCLUSIONS (2/3)

Sustainable mobility: some services are not “sustainable”, depending on the territory

- ➔ • **airplanes, especially for short distance** travel (energy efficiency)
- ➔ • **private cars, especially in urban areas** (congestion, urban space consumption, safety...)
- ➔ • **some new mobility services, when e.g. speed/traffic/parking/service** is not regulated (safety, urban space consumption, the territory in which they may operate, other rules to comply with)
- ➔ • **some alternative public transport services** (car-sharing, bike sharing, ride sharing), when e.g. traffic/parking/driver is not regulated (traffic disturbance, urban space consumption, unfair competition, the territory in which they may operate, other rules to comply with)



Not all “mobility” should be encouraged. The mobility services to be supported are those associated to “**sustainable** mobility”, be it achieved by individual means or by public transport.



MULTIMODAL MOBILITY DATA HARMONISATION

CONCLUSIONS (3/3) : RECOMMENDATIONS

- ➔ • To clarify and to limit the scope of the legislations and of the projects
- ➔ • To involve the relevant stakeholders responsible to decide on “their” “commonalities” regarding dataspace, and to agree on European Passenger Information Profiles based on NeTEx and SIRI
- ➔ • To respect the subsidiary principle,
- ➔ • To elaborate within a given (new) dataspace “common” harmonized technical specifications taking into account the existing situation, with the aim, when dealing with multimodality, to align on Transmodel as a data model reference
- ➔ • To take stock of DATA4PT as a tool and get a follow-up (• CEN standards support • Standards development and alignment and Profiles definition • **Implementation support** • Technical artefacts management (including Implementation and tools) • **Dissemination** (Communication and Training))



To define what can be sustainable mobility, there is a need that relevant stakeholders get a holistic view of all mobility services within their area of competence through appropriate cooperation and PAs' financial support



MULTIMODAL MOBILITY DATA HARMONISATION



Have a look at <https://transmodel-cen.eu>

New Transmodel website



[ABOUT](#) [STANDARDS FOR IMPLEMENTATION](#) [CONFORMITY](#) [DOCUMENTATION](#) [FAQ](#) [NEWS](#) [WIKI](#) [CONTACT](#)



Model for the overall Public Transport domain

NeTex

Exchange Format
for planned information

SIRI

Exchange Format
for real time information

OpRa

Exchange Format
for operational raw data

OJP

Open API for distributed journey
planning

What is Transmodel?

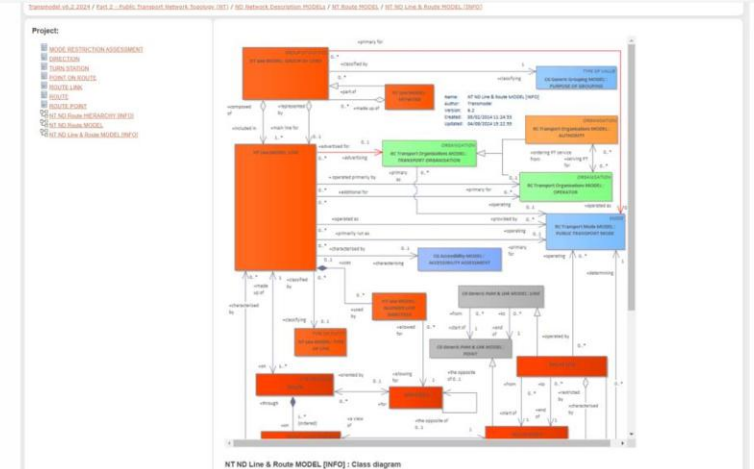
What transport modes are covered in Transmodel?

Transmodel provides an abstract model of common public transport concepts and data structures that can be used to underpin many different kinds of public transport information systems, in particular in the domain of public transport network management, timetabling, vehicle scheduling, fares management, operations monitoring and control, trip planning, driving personnel management.

Transmodel is designed for multimodality: it covers both **conventional** (i.e. scheduled and flexible) and **alternative** (e.g., vehicle sharing, taxis) modes of operations.

The figure below represents what Transmodel covers (in green) and its definition of Public Transport. By default, Transmodel does not cover any personal mode of transport.

Currently the needs of the land transport means such as bus, tramway, light-rail, metro, inland waterway vehicles (vaporreto, some local ferries), coach, long distance rail, are taken into account. For other land transport means, such as cars, (e-) cycles, (e-)scooters, etc, Transmodel considers them only in the context of vehicle sharing, vehicle pooling or vehicle rental but not within a purely personal operation. Transmodel also covers in principle other means of public transport which are not based on land transport, but waterborne (e.g. maritime cabotage) or used for air services (e.g. airplanes).



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Short introduction



What is Transmodel 7 - 2018



What is NeTex 7 - 2015

NeTex tutorials



Everything you need to know about NeTex



How to manage & share public transport data
in one go



How to improve the passenger experience with
real-time data



THANK YOU!

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Advisor

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Future of NAPCORE: Addressing the MMTIS topic

- Q&A and discussion



Petra Söderqvist
DG MOVE



Fabrizio Arneodo
5T



Laura Babío Somoza
POLIS Network



Yves Amsler
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Thank you for your attention

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