Session 1

EU-wide multimodal travel information services and route planning

European Commission

Session 1

Moderator:

- Claire Depré, DG MOVE, Head of Unit Sustainable Intelligent transport

Speakers:

- Francesco Pignatelli, DG JRC, Project leader
- Bernard Schwob, AFIMB Director
- Kasia Bourée, Transmodel, Project leader
- Christophe Duquesne, NeTEx, Expert
- Frank Daems, Ertico, Senior Manager

European Commission

Session 1:
EU-wide multimodal travel information services

recent developments in France on mobility and the national access point

Bernard Schwob, director

multimodal information and smart-ticketing agency

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DE LA TRANSITION
ÉCOLOGIQUE
ET SOLIDAIRE

A French draft law on mobility – data part based on the delegated regulation

- Delegated regulation on multimodal information is directly applicable, comprehensive and … pretty ambitious !
- A French draft law:
  - Taking into account some basics of a previous law adopted 2 years ago
    - access to data should be free for small users (start-up ,…)
  - Using the options and adaptations made possible by the delegated regulation 2017/1926
    - Access to dynamic data
    - A shorter schedule: access to data by december 2021, instead of december 2023
    - The possibility of defining which actor is responsible for the provision of data: in the case of public service concession, the public authority is made responsible.
  - Relying on previous achievements of regions in France :
    - They used to collect data for their own journey planner ;
    - The law would give them the charge of **animating** the process of data opening by the transport authorities and operators.

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A French draft law on mobility - additional measures on accessibility and ticketing

- Ensuring information on accessibility for handicaped people :
  - data on accessibility shall be collected, when not available
  - data on accessibility of :
    - transport services,
    - foot paths from main stop points to main buildings ;
    - identifiers of digital tags

    aiming at improving journey planners for blind people

- Facilitating the MAAS projects :

  access to the smart-ticketing services shall be given:
  - to the multimodal ticketing service providers ;
  - by operators supplying public service concession or subsidized transport services.

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National Access Point in France

- Implementation of NAP relying on the existing platform for public data :

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data.gouv.fr

- NAP is both a data warehouse and a repository:

  NAP hostes the static datasets or gives a link allowing to download it

- Approach based at first on a voluntary basis

  Not only local authorities and transport operators involved, but also information service providers

- A step by step approach:
  - First step: a work with pilot authorities on static data of scheduled services
  - A second step launched by a « data-MaaS committee » in october 2018 and aiming at :

    - exposing static data of all scheduled services :
    - dealing with others data: dynamic data of scheduled services, …
    - dealing with other transport modes: bike and car-sharing, parking…

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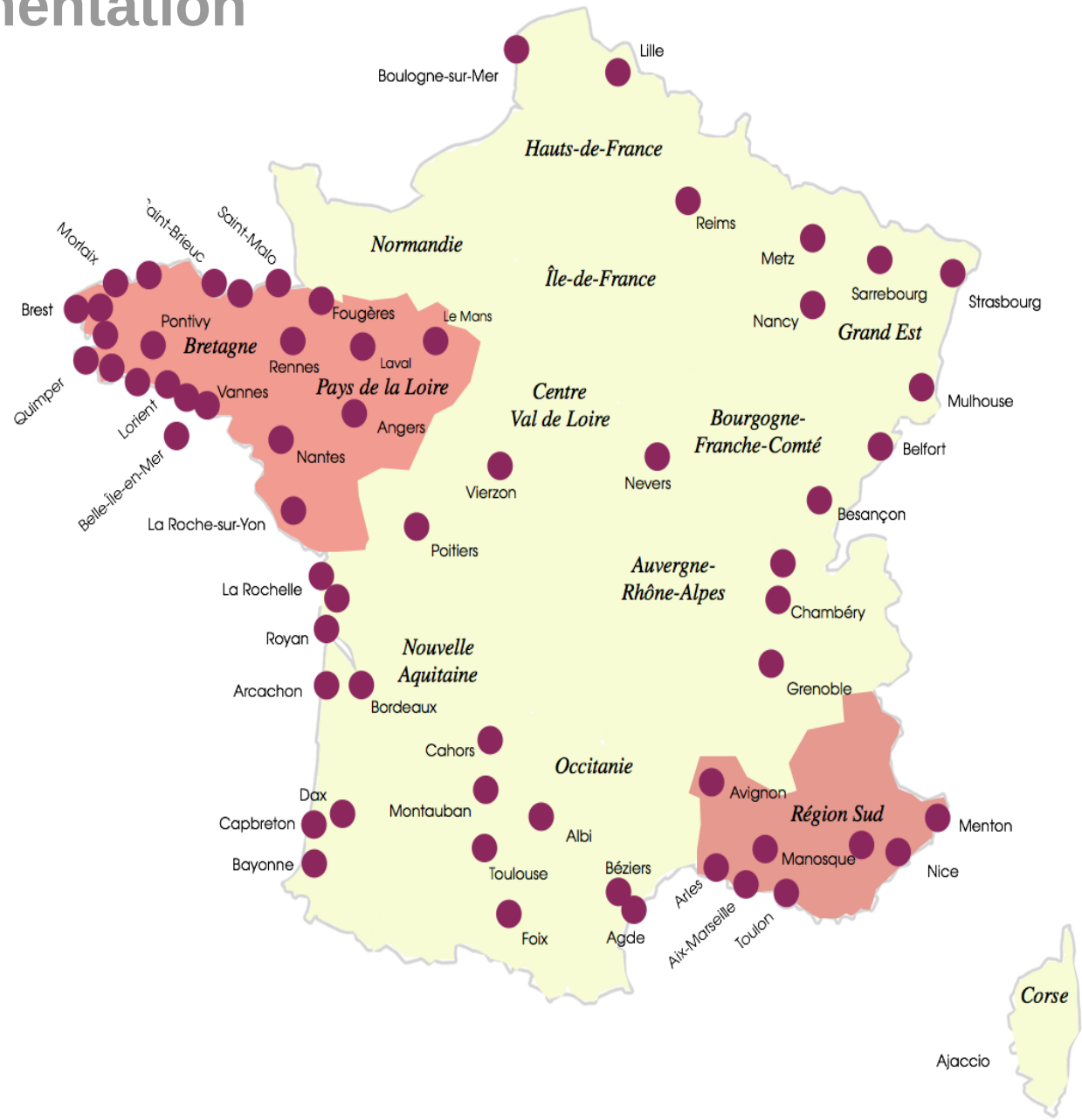
National Access Point
Current implementation

●	Pilot local authorities Static data published	62
	Local authorities contacted Pending agreement	56

▇	Pilot Regions Static data published	3
▇	Regions contacted	10



Standards and quality

- An open source software available to support the implementation of Netex
  - Creation of a set of data; data improvement;
  - conversion from GTFS to Netex
  - validation : Netex compliance and quality of data
  - data management

- work on national Netex and SIRI profiles
  - Available profiles : static data, accessibility
  - to be launched soon:
    - SIRI profile, relying on an existing regional profile;
    - fares profile

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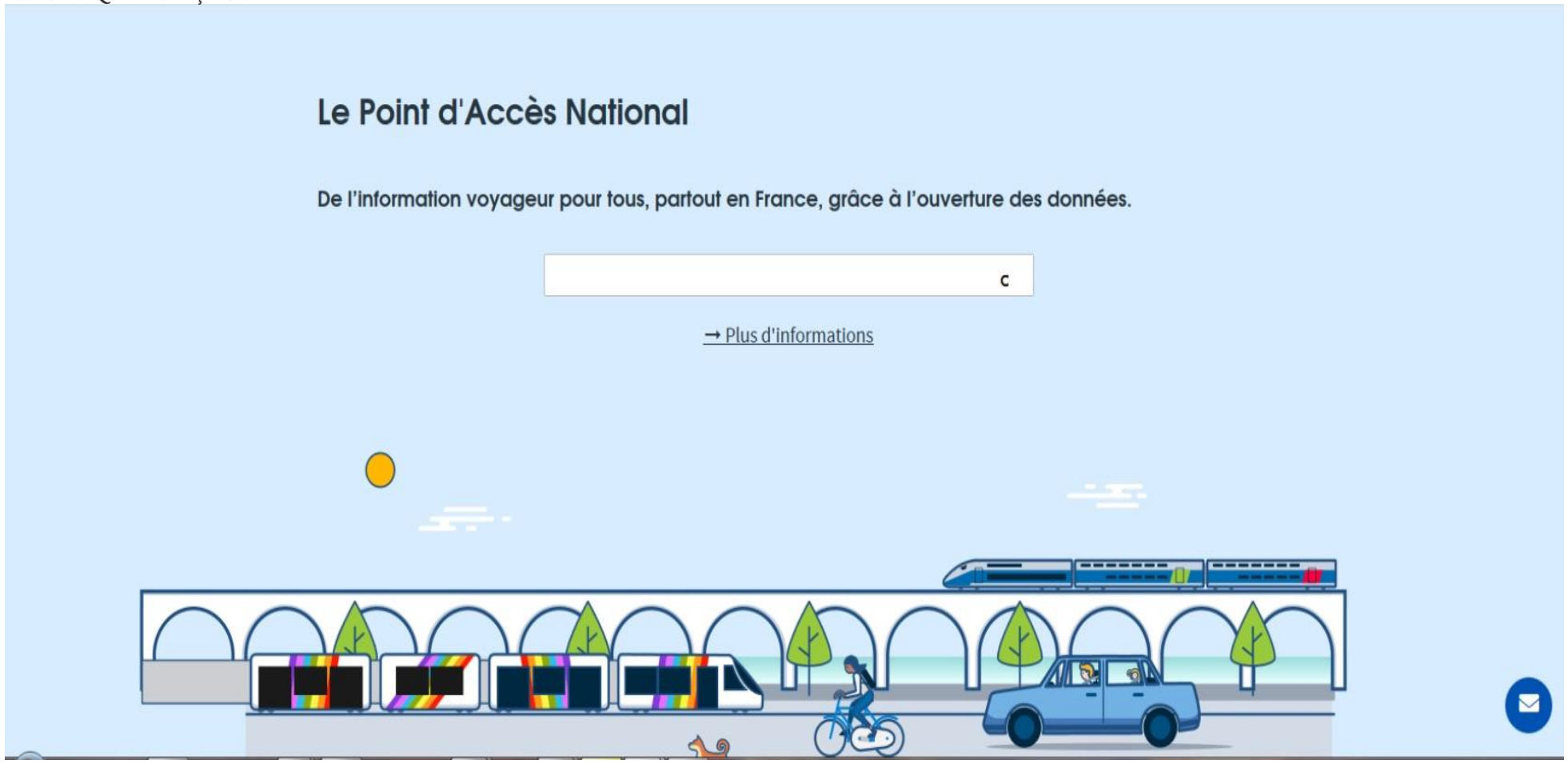
https://transport.data.gouv.fr/



The role of INSPIRE in the provision of an EU-wide Multi-Modal Transport Information Services (MMTIS)

Francesco Pignatelli
European Commission – DG JRC

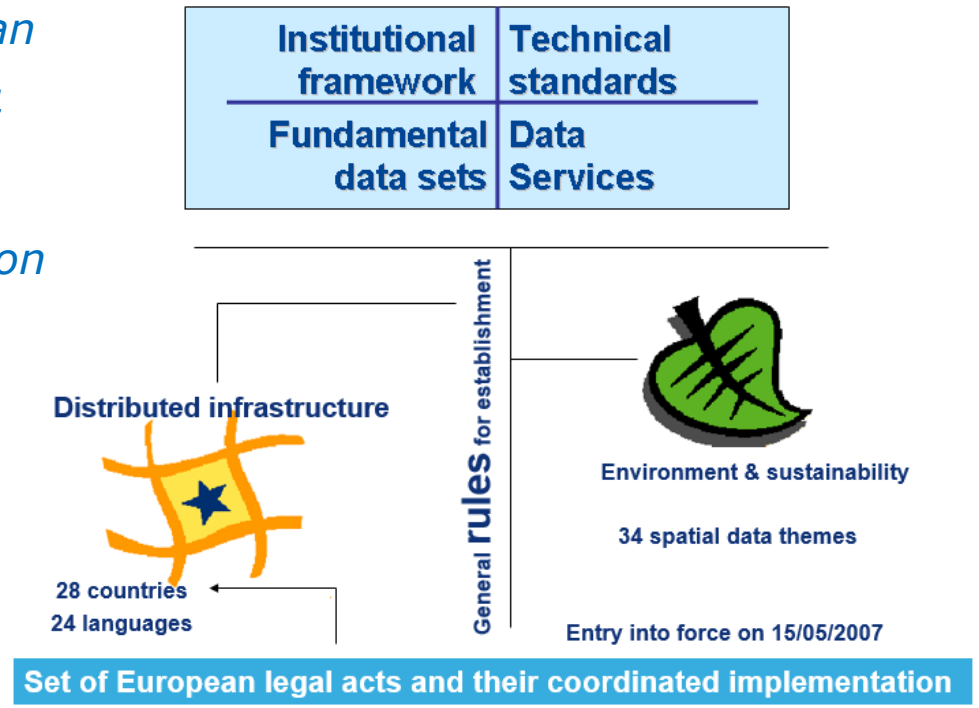
Giacomo Martirano
DG JRC external consultant

Delivering EU-wide Multimodal Travel Information, Planning and Ticketing Services: Dream or Reality

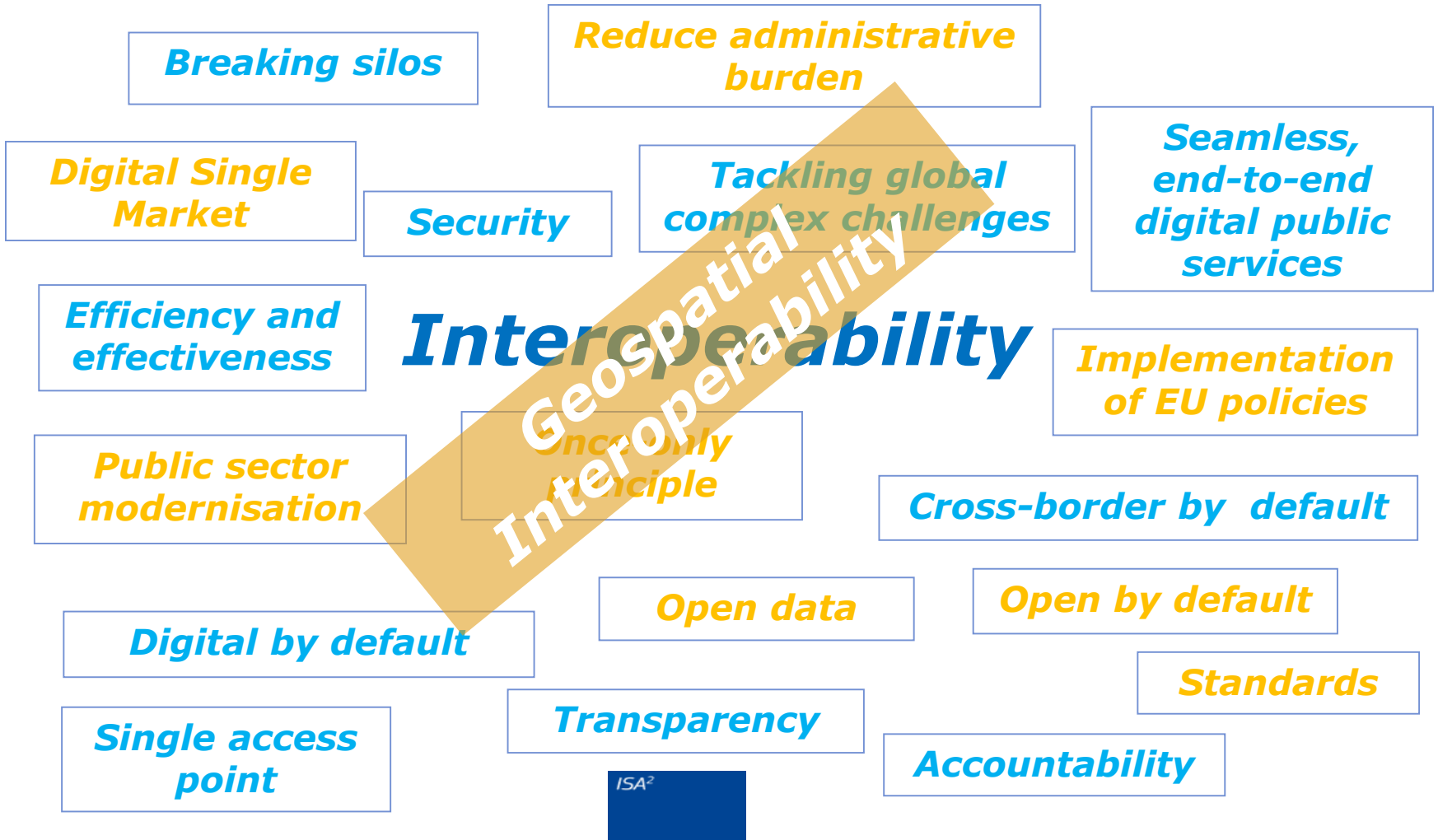
Bruxelles (BE), 20 Novembre 2018

INSPIRE, Europe's "lingua franca" for anything geospatial

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)



ISA² Programme led by the European Commission (DIGIT): Interoperability Solutions for Government, Businesses and Citizens



Geospatial data beyond INSPIRE

Interoperability
Solutions for European Public
Administrations, Businesses and Citizens

ISA²

Digital Single Market
e-Government Action Plan
Tallinn Declaration
Digital Europe

Digital Government

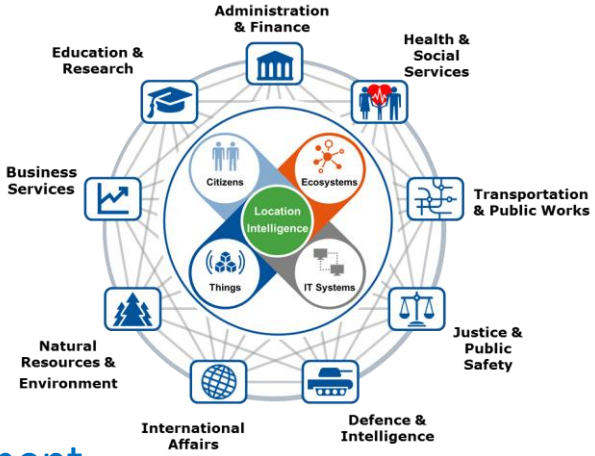
Technology-enabled
innovation and growth

MMTIS

European
Location
Interoperability
Solutions for
E-Government

Geospatial data

Studies,
Frameworks and Standards,
Applications and Pilots,
Services



Location Interoperability for Digital Government

G2B ELISE Transportation Pilot

Commercial map providers like **HERE** and **TomTom** need **road** network **data** that are

- consistent
- accurate
- up-to-date

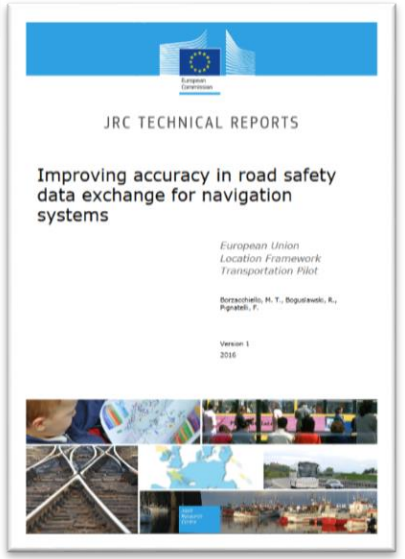
In the **Transportation Pilot**, **INSPIRE** standards are used to get **geospatial data from public administrations**

Significant **reduced error rates in maps of from 25% to 7%**, and Road Authorities (SE, NO) upgraded **from quarterly to daily updates** to map providers

Commercial map providers able to move **from disparate** national processes **to more standardised processes** in EU countries

Pilot now being **rolled out across Europe** under CEF – Transport (**14 countries**)

Next step to open solutions to **ALL industry players**



Up-to-date flow of road safety data between National Road Authorities and private map providers

http://publications.jrc.ec.europa.eu/repository/handle/JRC104569

Published in December 2016

https://www.youtube.com/watch?v=jnny5ATwTYE

INSPIRE support to the Multi-Modal Travel Information Services (MMTIS)

Policy background

ITS Directive Regulation for the *provision of EU-wide Multimodal Travel Information Services* (MMTIS) 2017/1926

Establishes the specifications necessary for accessibility, exchange and update of standardised travel and traffic data to ensure distributed journey planning for the provision of MMTIS in the EU

Why INSPIRE?

Static travel and traffic data shall be provided using the INSPIRE requirements, when related to the spatial networks

Problem statement

With INSPIRE, other ITS standards should be considered:

- What are the overlaps and the links?
- What are the options for MS when addressing the requirements of the two Directives?

Actors

- DG MOVE – DG JRC collaboration
- 6 experts for 6 standards
- ITS and INSPIRE stakeholders

Timeline: Jan 2018 - March 2019

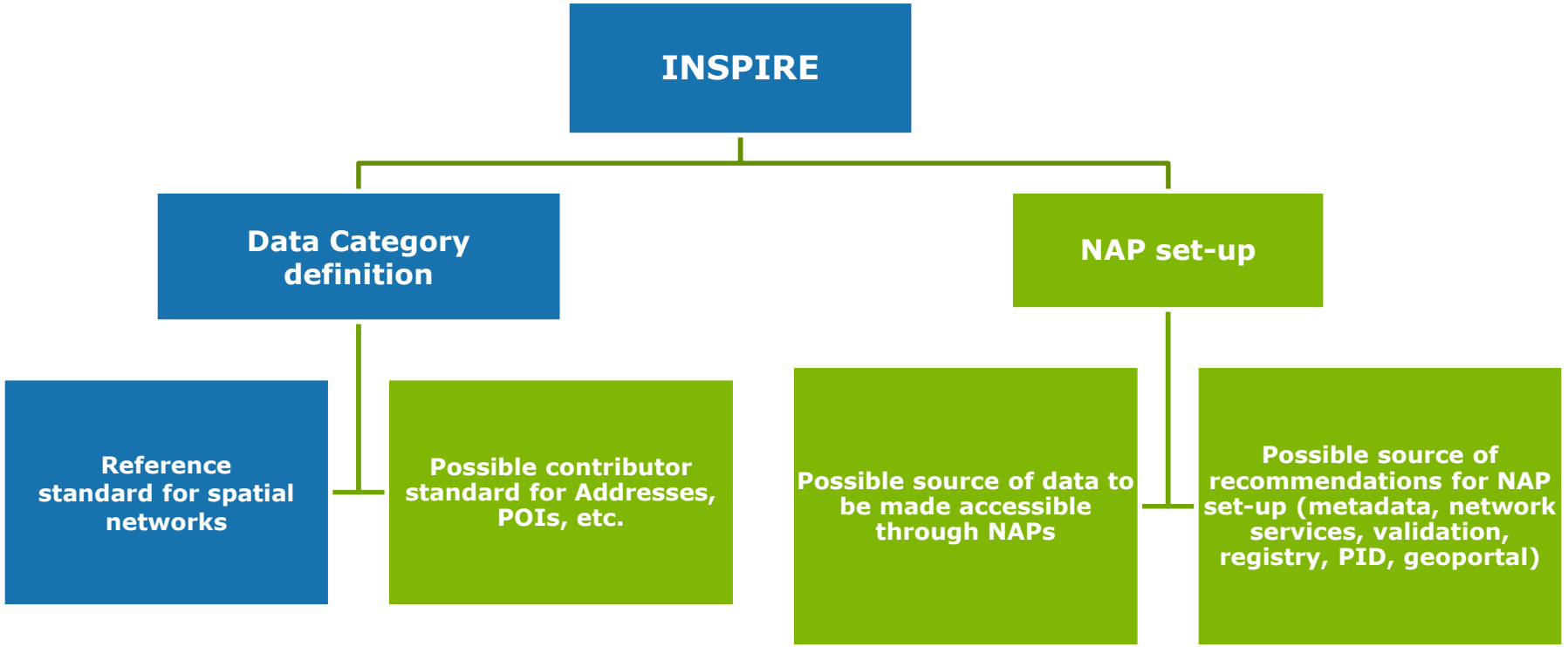
Methodology

- Identify differences in scope/purpose of the different standards involved
- Describe the method for handling of overlaps and linking among different standards
- Provide definitions of the MMTIS data categories
- Consult with ITS and INSPIRE stakeholders
- Provide recommendations to MS to support implementation of the ITS regulation, taking into account INSPIRE requirements

Next steps

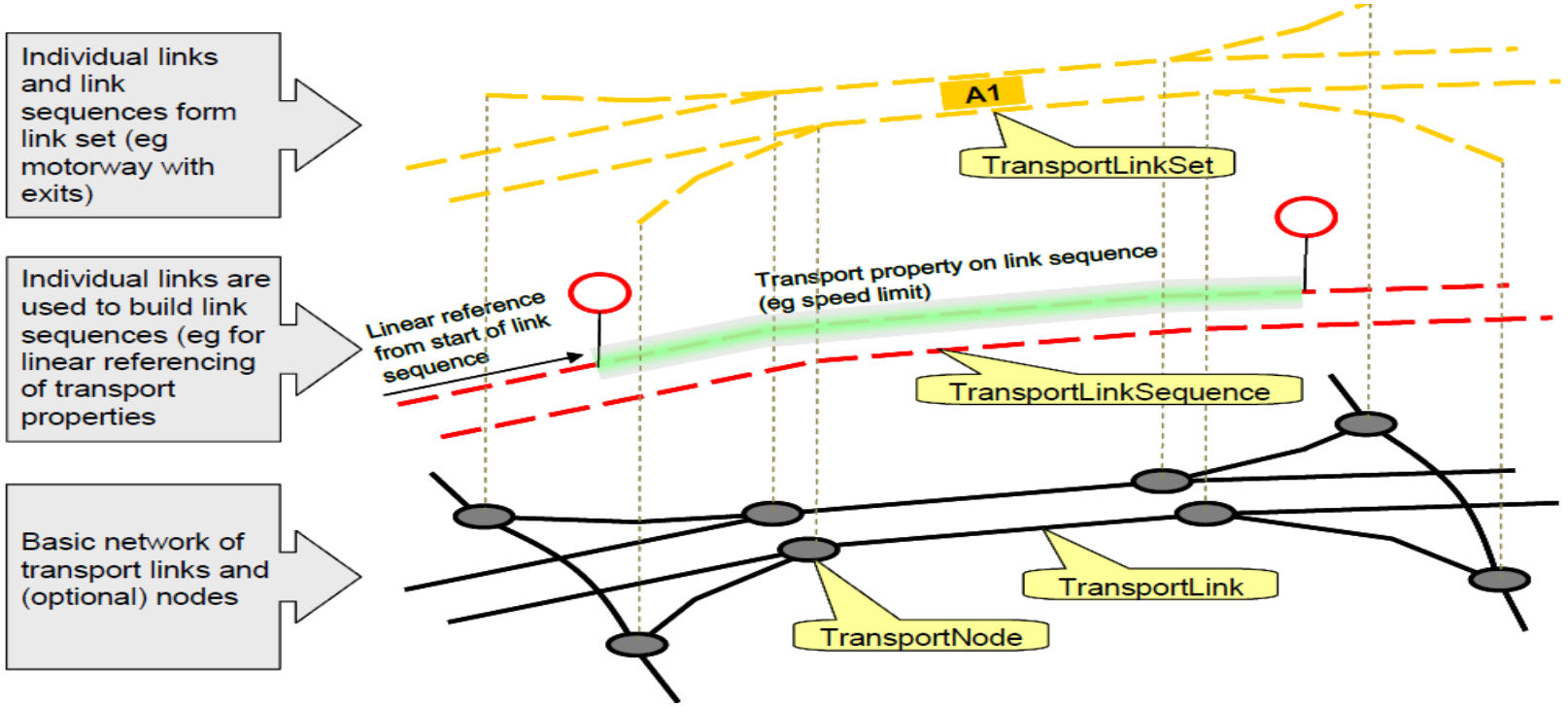
- Presentation of INSPIRE-MMTIS project at the 3rd Follow-Up Member States Expert Meeting (20th Nov. 2018, Brussels)

The role of INSPIRE in the provision of EU-wide MMTIS



Publication deadline	Spatial data categories
01/12/2019	— Location search (origin/destination): — Address identifiers (building number, street name, postcode) — Topographic places (city, town, village, suburb, administrative unit) — Points of interest (related to transport information) to which people may wish to travel
	— Location search (access nodes): — Identified access nodes (all scheduled modes) — Geometry/map layout structure of access nodes (all scheduled modes)
	— Trip plan computation — scheduled modes transport: — Connection links where interchanges may be made — Network topology and routes/lines (topology) — Stop facilities access nodes (including platform information, help desks/information points, ticket booths, lifts/stairs, entrances and exit locations)
	— Trip plan computation — road transport (for personal modes): — Road network — Cycle network (segregated cycle lanes, on-road shared with vehicles, on-path shared with pedestrians) — Pedestrian network and accessibility facilities

Example of the use of Link, Node, Link Sequence and Link Set



INSPIRE implementation experience, reusable as additional support to NAP set-up and operation

Components that can be used as examples and investigated by the NAP for their assessment and potential adaptation:

- Set-up and operation of an EU geoportal which harvests the NAP catalogues and provides a single access point to national datasets
- Set-up and operation of a codelist Registry, to support the harmonisation of vocabularies
- Set-up and operation of a Validation Service allowing MS to self-validate their datasets/metadata/network-services
- Definition of rules for PID (Persistent Identifiers) management

Want to know more?

ELISE

European Location Interoperability Solutions for e-Government

Get started: ELISE Action page

Join and collaborate: ELISE Community

Stay tuned: @EULocation

http://inspire.ec.europa.eu/

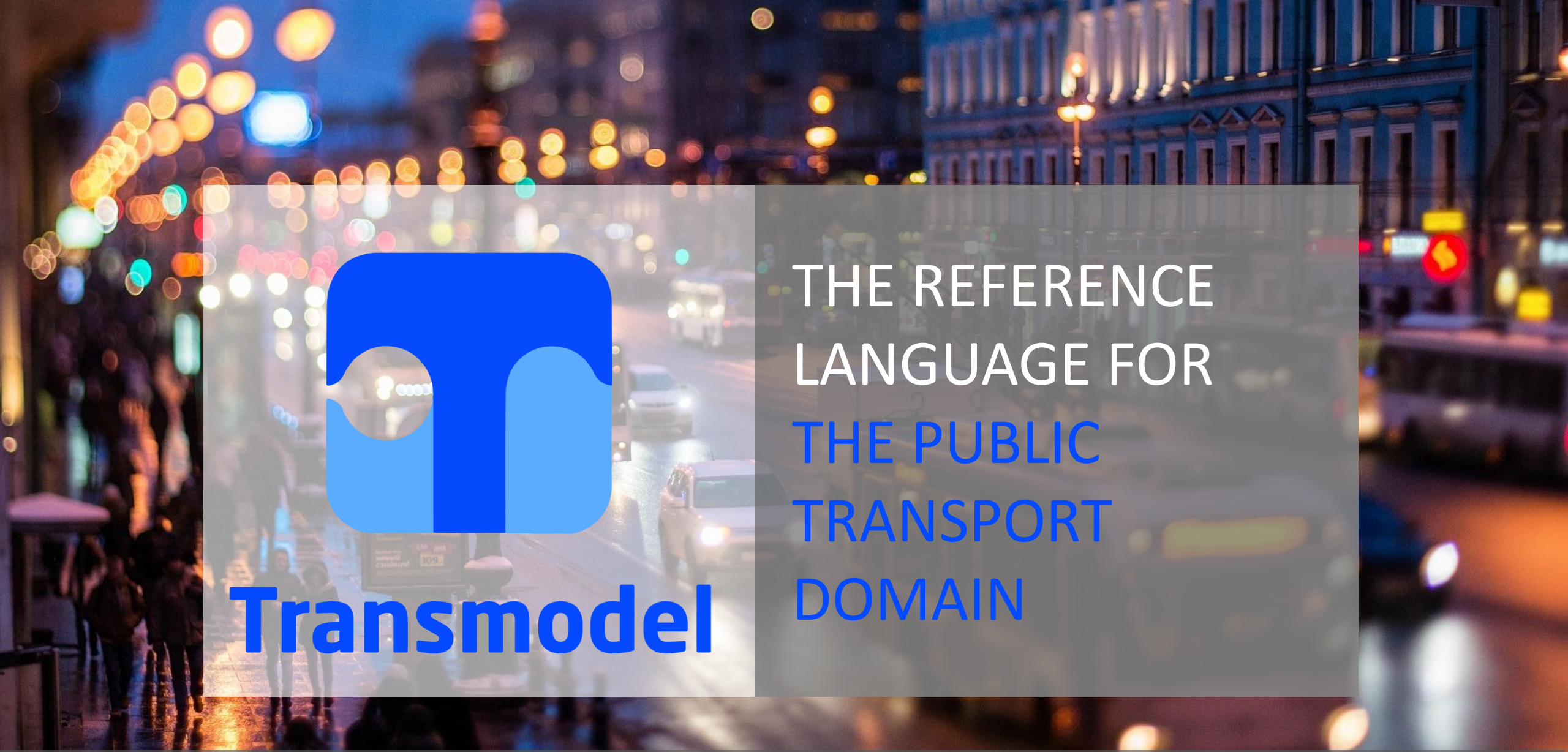
The ELISE action is undertaken with the support of ISA².

ISA² is a EUR 131 million programme of the European Commission which develops digital solutions that enable interoperable cross-border and cross-sector public services for the benefit of public administrations, businesses and citizens across the EU.

ISA² supports a large range of actions and solutions. The ISA² solutions can be used free of charge and are open source when related to IT.

ISA² - IT solutions for less bureaucracy **You click, we link.** Follow us on twitter.

http://ec.europa.eu/isa, ISA@ec.europa.eu

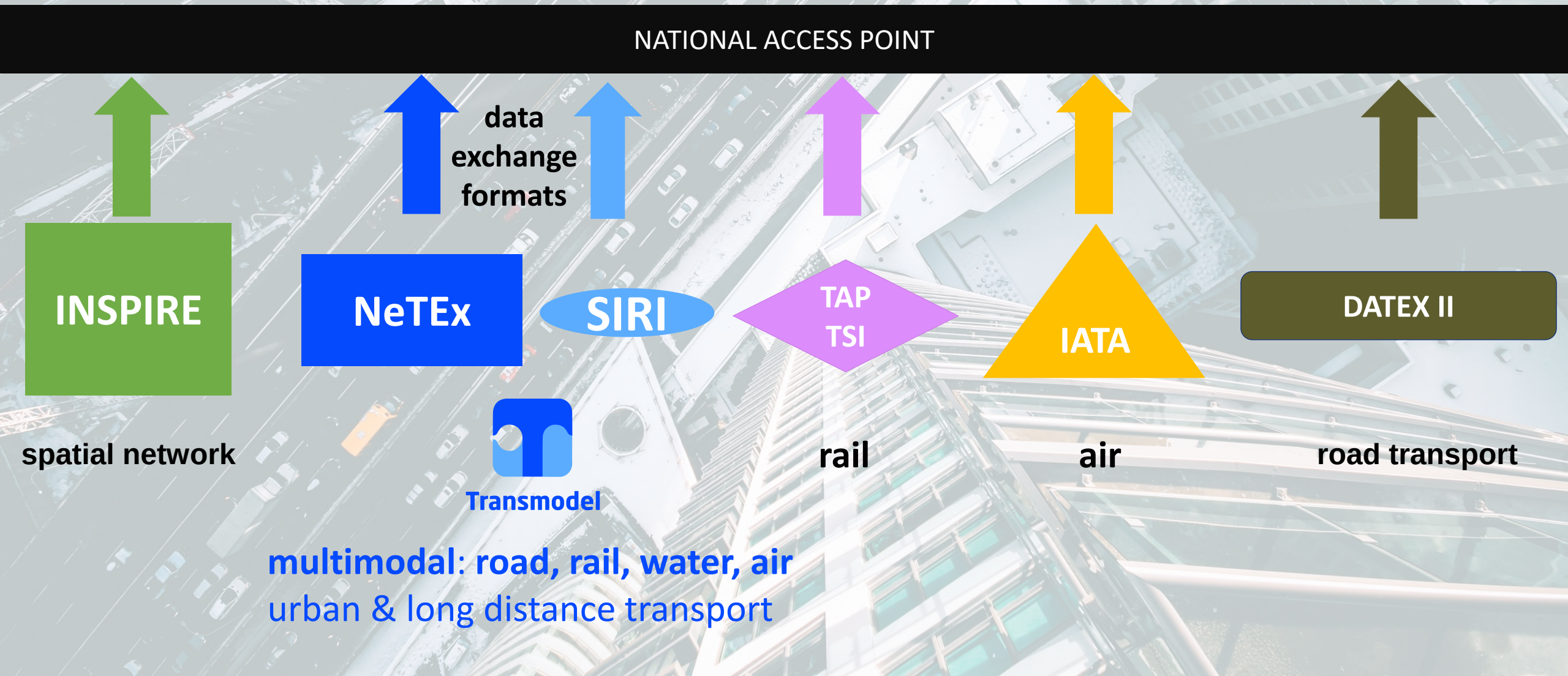


Transmodel

THE REFERENCE LANGUAGE FOR THE PUBLIC TRANSPORT DOMAIN

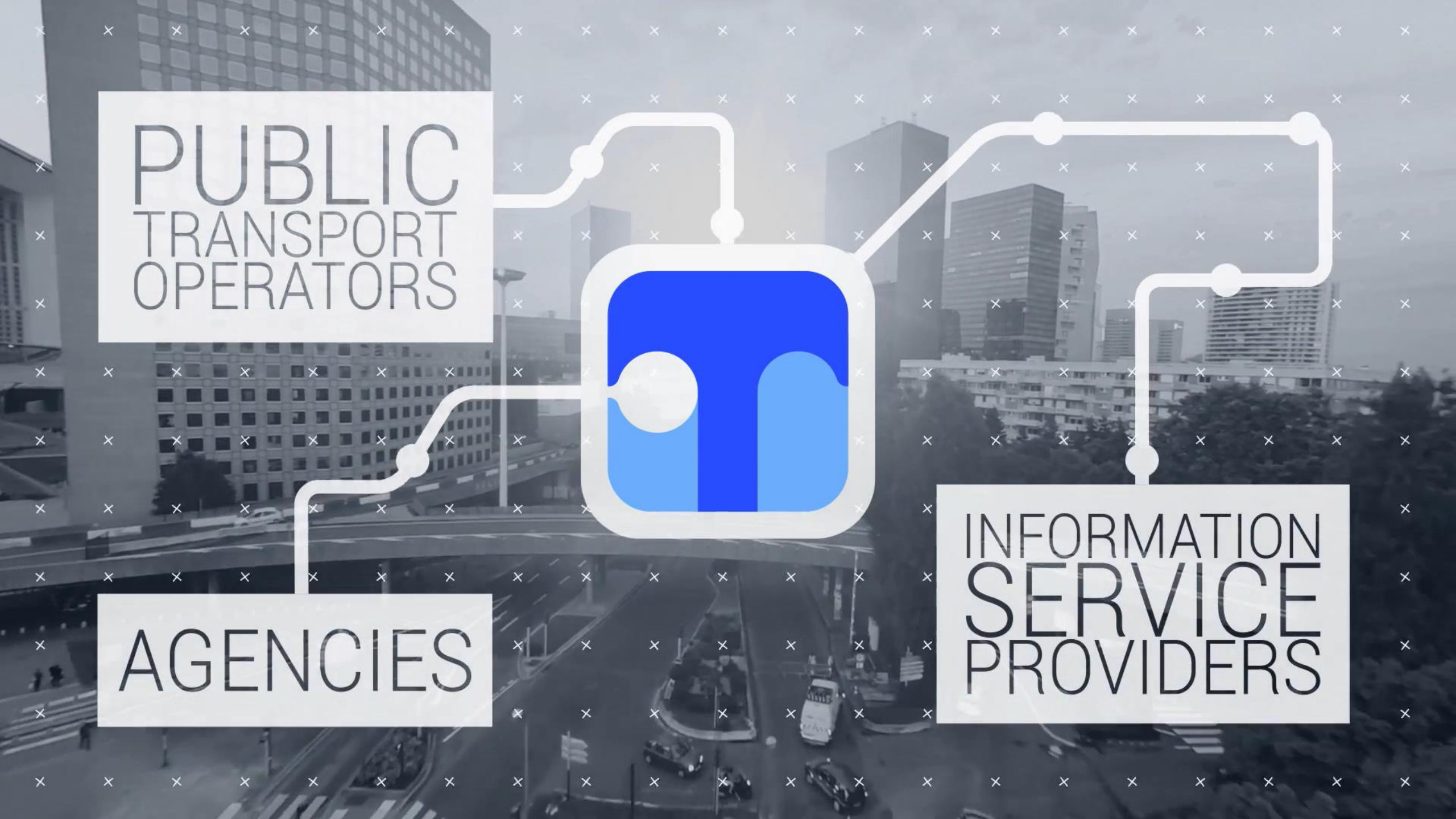
Kasia Bourée
Project Team INSPIRE support to MMTIS/ CEN TC278 WG3 SG4 Leader

Transmodel and the MMTIS Regulation



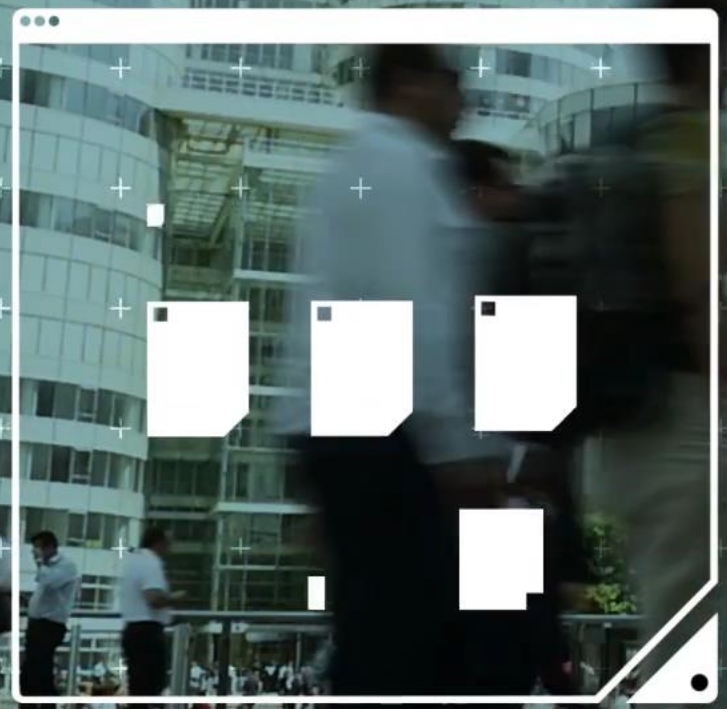
multimodal: road, rail, water, air

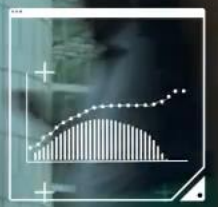
urban & long distance transport


PUBLIC
TRANSPORT
OPERATORS
AGENCIES
INFORMATION
SERVICE
PROVIDERS

COMMON LANGUAGE

EASIER INTROPERABILITY



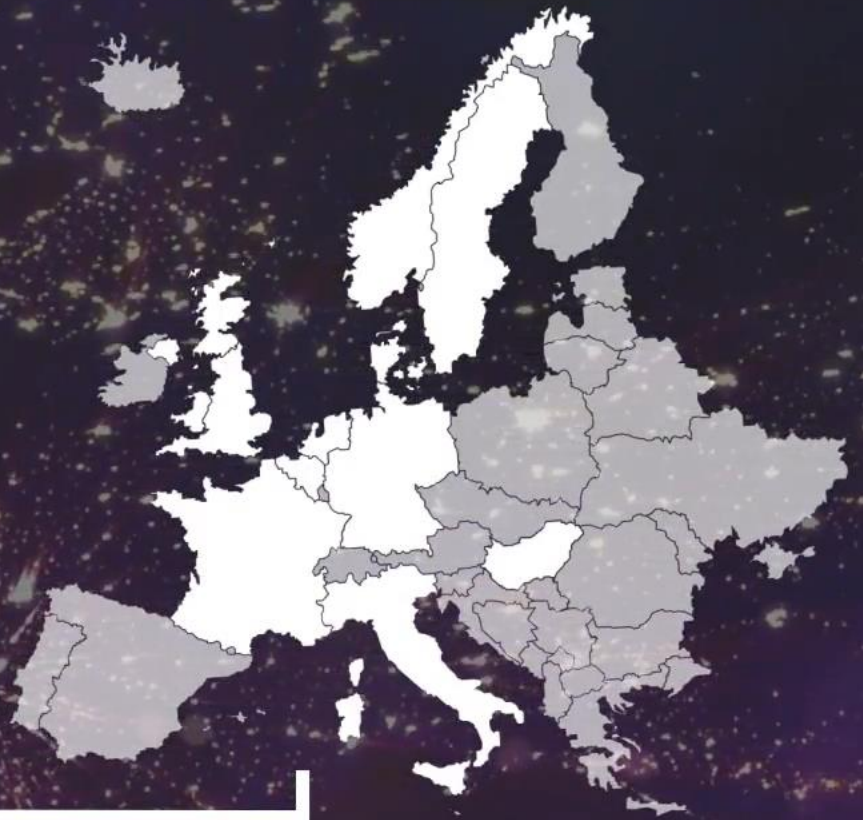


WIDE RANGE OF SYSTEMS

EN 12896

sitp

2000 2005 2006 2010 2015 2020



EUROPEAN STANDARD


8 PARTS

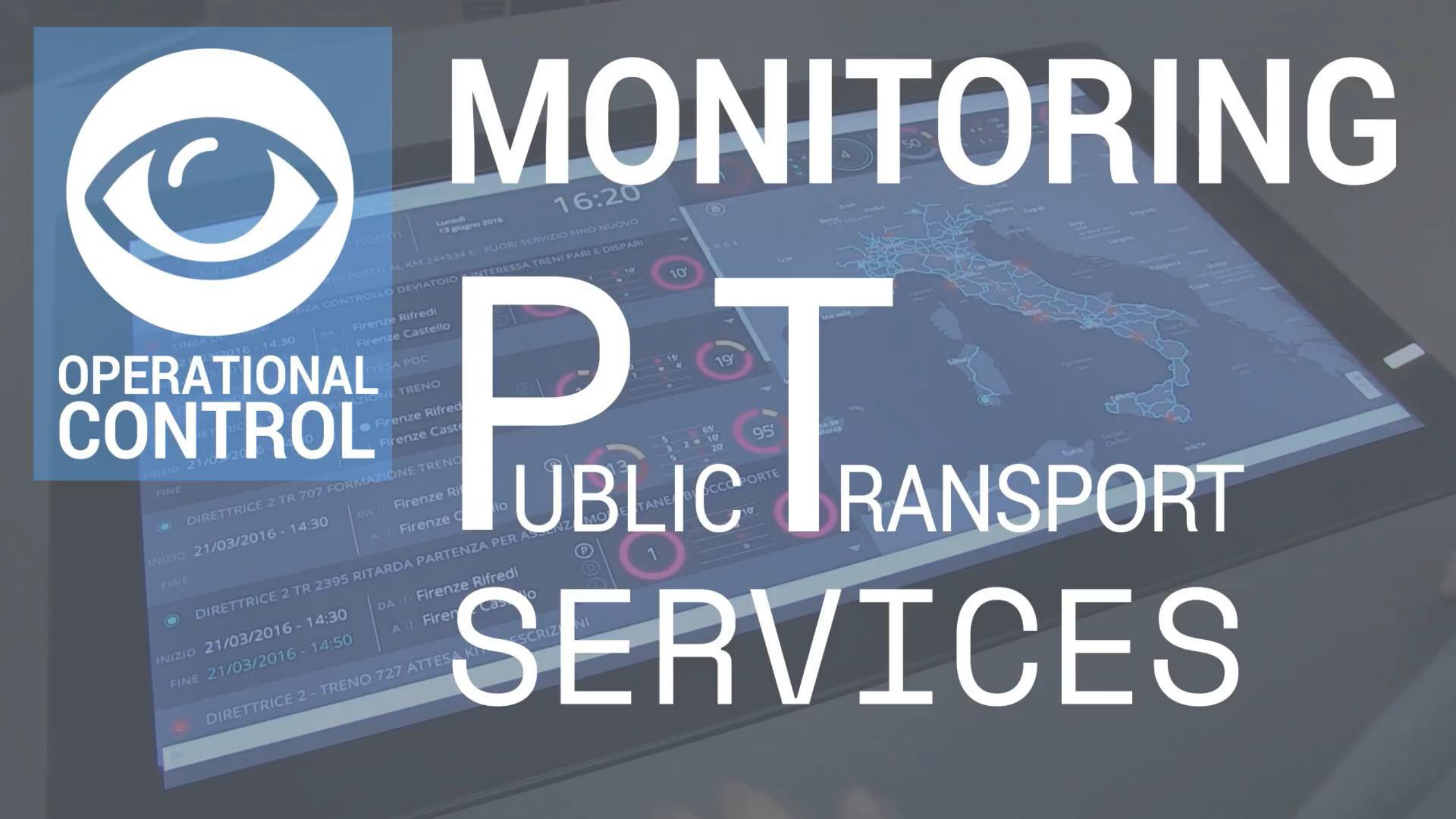
COMMON CONCEPTS

uniform approach

GROUPING
VALIDITY
VERSIONING

NETWORK DESCRIPTION


TIMING
INFORMATION


OPERATIONAL
CONTROL
MONITORING
PT
PUBLIC TRANSPORT
SERVICES

FARE MANAGEMENT

PROPERTIES
CONTROL
AND
VALIDATION

FARE MANAGEMENT

PASSENGER INFORMATION

DRIVER MANAGEMENT

COVERS

processes and records


NADRAŽÍ
MANAGEMENT
INFORMATION
& STATISTICS
measure
evaluate
PT services

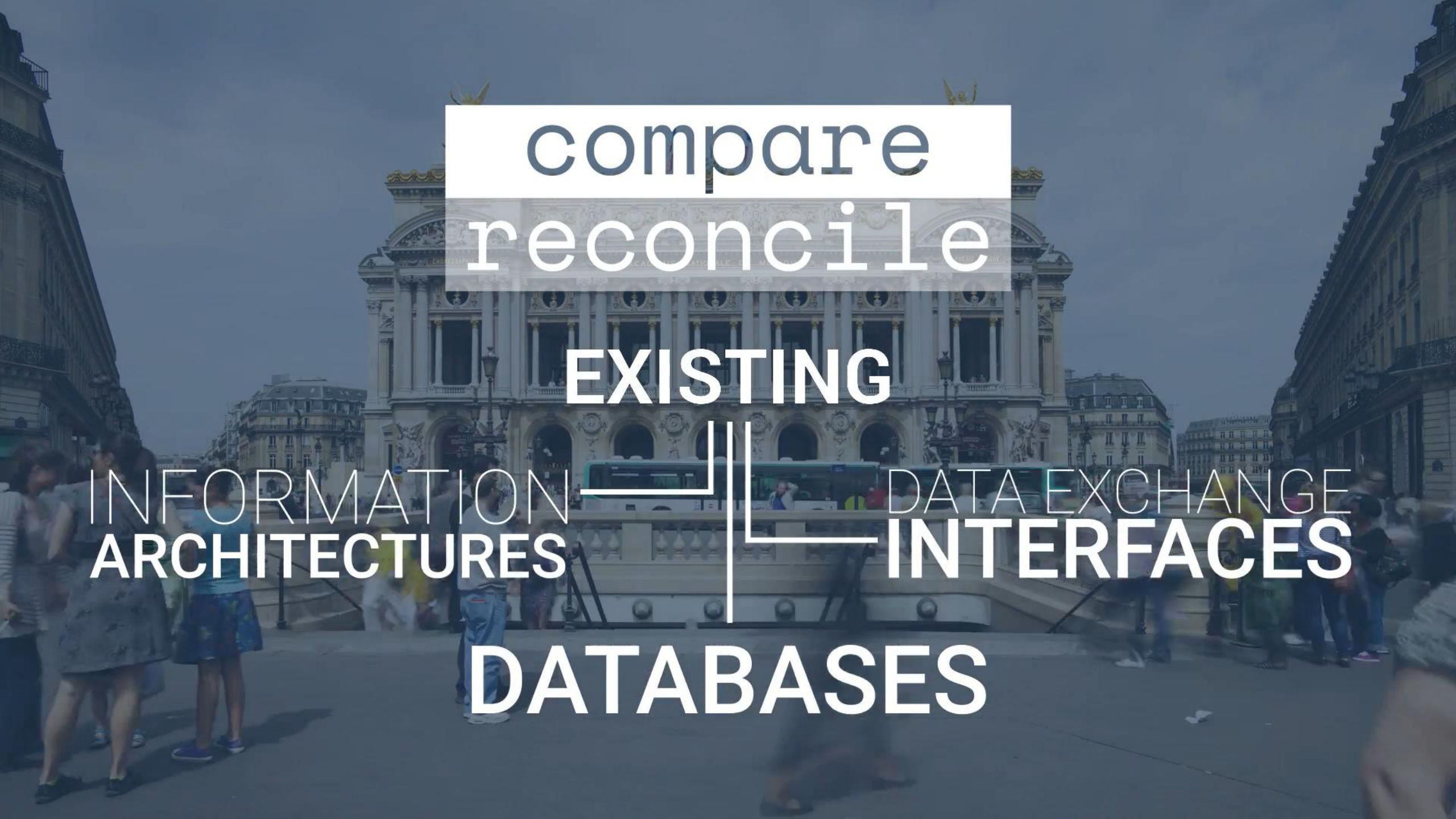
IT system ×

PRECISE

FLEXIBLE

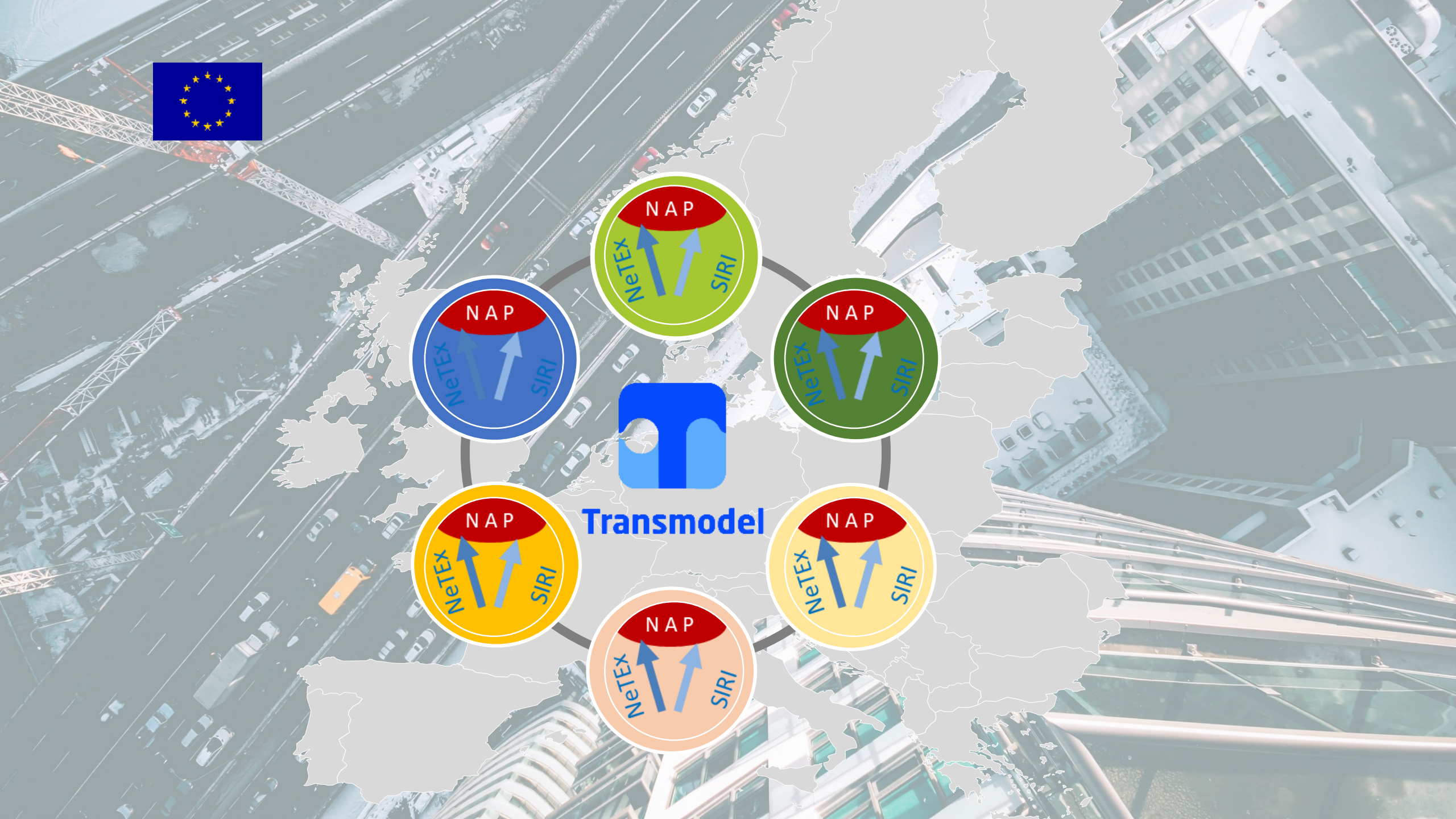
REUSABLE

PT DATA


compare
reconcile
EXISTING
INFORMATION
ARCHITECTURES
DATA EXCHANGE
INTERFACES
DATABASES


specify
NEW
INFORMATION
ARCHITECTURES
DATA EXCHANGE
INTERFACES
DATABASES

specify
NEW


NAP
NeTEx
SIRI
NAP
NeTEx
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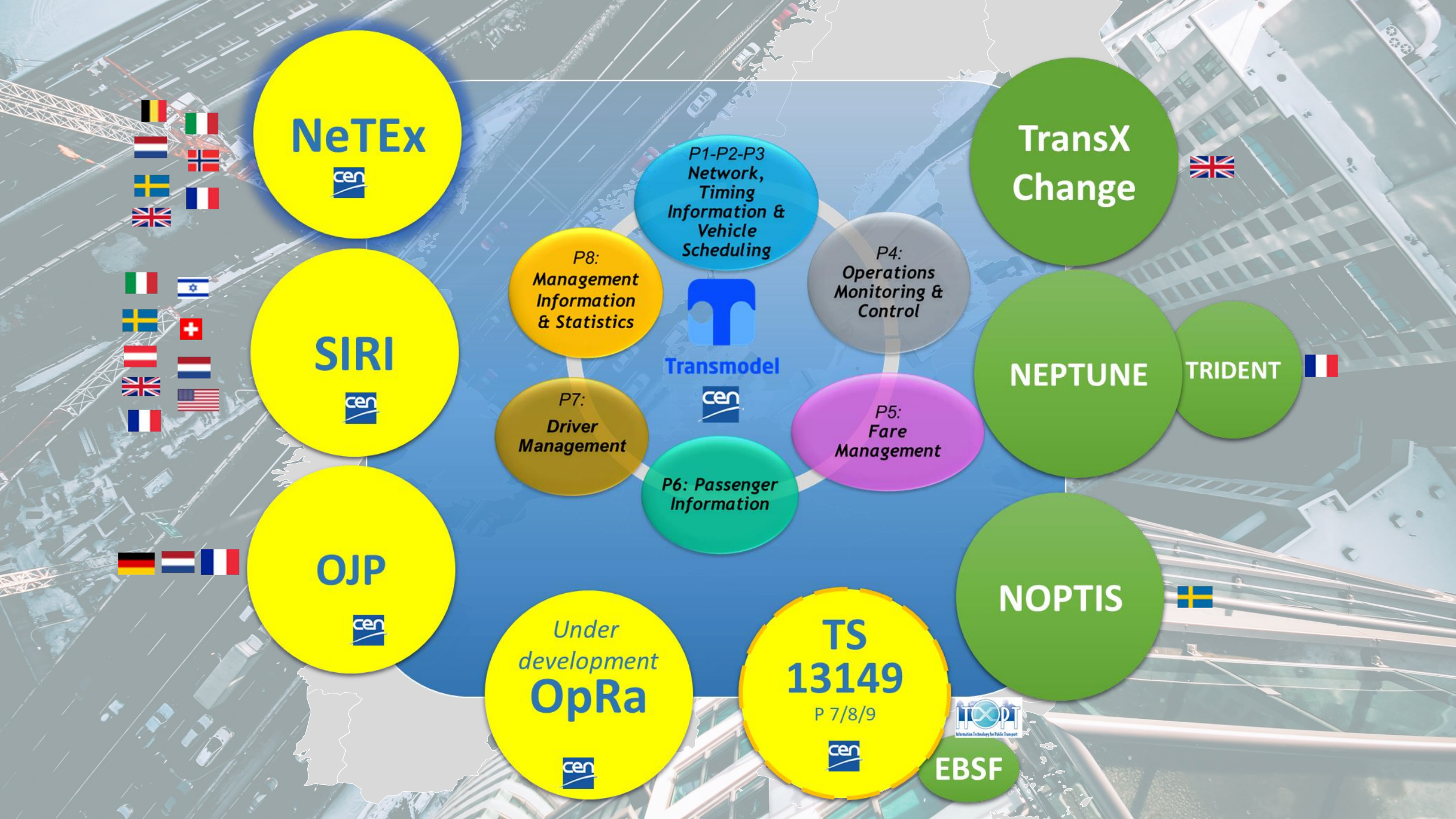
SIRI


NeTEx
SIRI
OJP
Under development
OpRa
TS 13149
P 7/8/9
EBSF
NOPTIS
NEPTUNE
TRIDENT
TransX Change
P1-P2-P3 Network, Timing Information & Vehicle Scheduling
P4: Operations Monitoring & Control
P5: Fare Management
P6: Passenger Information
P7: Driver Management
P8: Management Information & Statistics
Transmodel

ROAD INFRASTRUCTURE

INSPIRE

GDF

ROAD TRAFFIC INFORMATION

DATEX II

Measured elaborated data

VMS

Parking

Situation

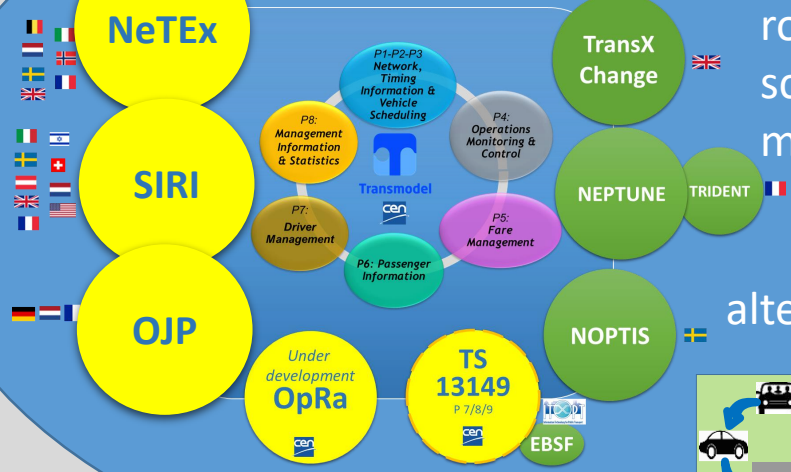
Location Referencing

PUBLIC TRANSPORT static and dynamic

NeTEx

SIRI

OJP



TransX Change

NEPTUNE

TRIDENT

NOPTIS

road, rail, air, water scheduled & flexible modes

alternative modes

Under development

Under development OpRa

TS 13149 P 7/8/9

EBSF

AIR TRANSPORT

IATA

RAIL TRANSPORT

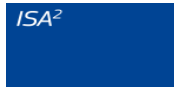
long distance

TAP - TSI

EUROPEAN UNION AGENCY FOR RAILWAYS

Thank you for your attention

See also www.transmodel-cen.eu



NeTEx

Exchange protocol for Public Transport scheduled information

NeTEx : Exchange format

1. **Based on a subpart of Transmodel**
   - scheduled passenger information
   - scheduled operational information
2. **Implemented using an exchange language**
   mainly **XML/XSD**, but JSON is possible
3. **May simplify some concept in « views » when all the details provided by Transmodel are not required**
   but MUST stay consistant with Transmodel

NeTEx : Exchange format
(example)

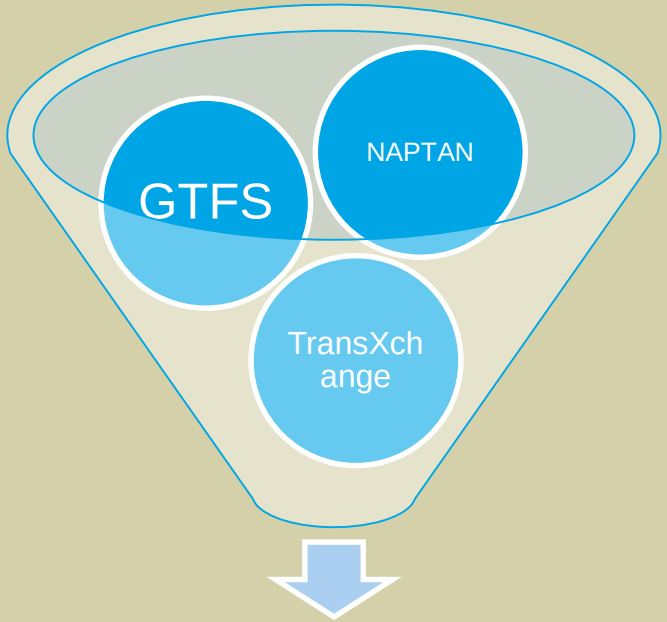
```
<!-- Frame NETEX_ARRÊT-->
<GeneralFrame version="001" id="AURIGE:TypeOfFrame:NETEX_ARRET-Le-Corbusier:LOC">
      <Name>Frame NETEX_ARRET Le Corbusier</Name>
      <Description>Frame NETEX_ARRET pour l'exemple d'arrêt Le Corbusier</Description>
      <TypeOfFrameRef ref="FR:TypeOfFrame:NETEX_ARRET">version="1.01:FR-NETEX_ARRET-1.0"</TypeOfFrameRef>
      <members modificationSet="all">

            <!-- ========================================= -->
            <!-- LIEU D'ARRET MONOMODAL Jules Michelet -->
            <StopPlace version="001" id="FR:78197:StopPlace:00004:LOC">
                  <!-- le "LOC" sera supprimé si l'on dispose d'un référen
                  <Name>Jules Michelet</Name>
                  <Description>Lieu d'arrêt monomodal Jules Mich
                  <Centroid>
                        <Location id="AURIGE:Locatio
                              <Longitude>2.071
                              <Latitude>4
                        </Location>
                  </Centroid>
                  <placeTy
                                                      />
                                                      :RoadAddress:address11:LOC">
                                                      r</RoadName>
                                                      ole maternelle Jeanne Moreau</Landmark>
                                                      eRef ref="INSEE:TopographicPlace:78297"/>
                                                      ionRef version="001" ref="AURIGE:Operator:768:LOC"/>
                                                      fait partie du Pôle Monomodal Le Corbusier -->
                  <ParentSiteRef version="001" ref="FR:78197:StopPlace:00001:LOC"/>
                  <TransportMode>bus</TransportMode>
                  <StopPlaceType>onstreetBus</StopPlaceType>
                  <quays>
                        <QuayRef ref="AURIGE:Quay:008:LOC" version="001"/>
                        <QuayRef ref="AURIGE:Quay:008:LOC" version="001"/>
                  </quays>
            </StopPlace>
            <Quay version="001" id="AURIGE:Quay:008:LOC">
                  <Name>Jules Michelet</Name>
```

IT LOOKS LIKE HTML

NeTEx : Scope


NeTEx
INFORMATION ABOUT
>STOPS
>ROUTES
>TIMETABLES
>FARES
1,50 €
1,50 €
1,50 €

NeTEx in National access points



NeTEx in PTO

NeTEx in NAP

NeTEx: Use case examples

To feed **journey planner**

Any **passenger information** system feed

Open Data feed (often as an enhanced complement to GTFS)

AVMS feed, as a base for realtime information

Exchange for **co-operated network**

Late schedule update (on a specific day) dissemination

Ticketing system feed to **update de fare offer**

Etc.

NeTEx: Profile

A NeTEx profile is a subset of NeTEx dedicated to a specific use case

A profile

- **facilitates the implementation** of a standards
- improves **interoperability**

by

- focusing only on **what is needed**
- **filling the small gaps** voluntarily left by the standard
- taking into account the **local context.**

Example of NeTEx usage

ENTUR - Norway

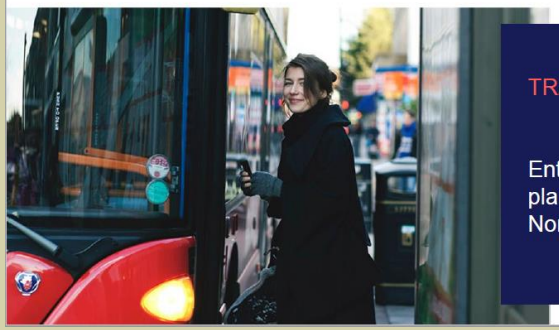
Entur target groups

PT-OPERATORS

Work closely with operators of public transport in Norway and contribute for them to provide efficient travel planning and sale services to their customers

RAIL-OPERATORS

Entur operate ticketsystems for the national rail companies and servicefunctions both on railstations and sentral customerservice office.



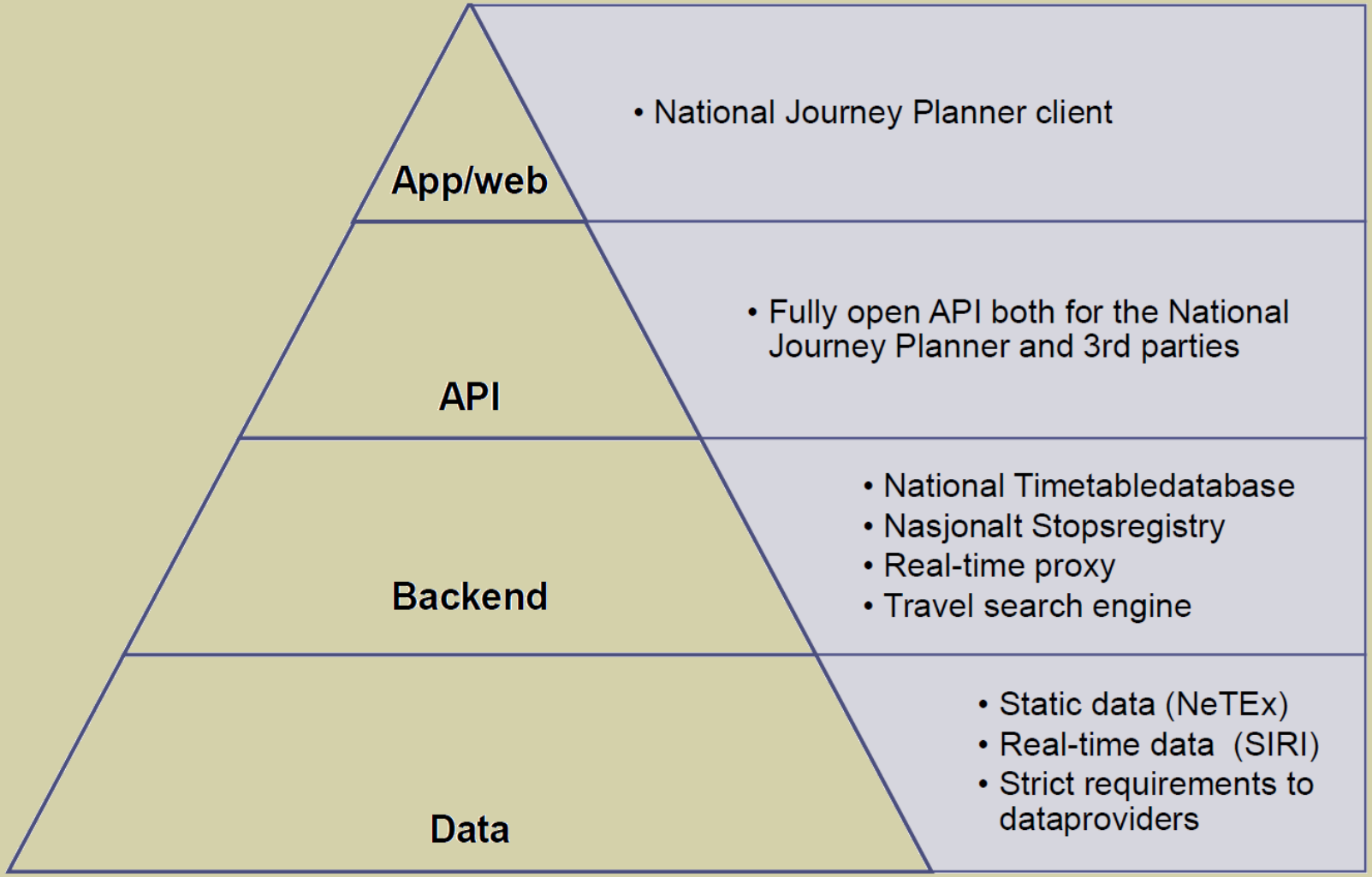
TRAVELERS

Entur promote a National Journey planner for all public transport in Norway

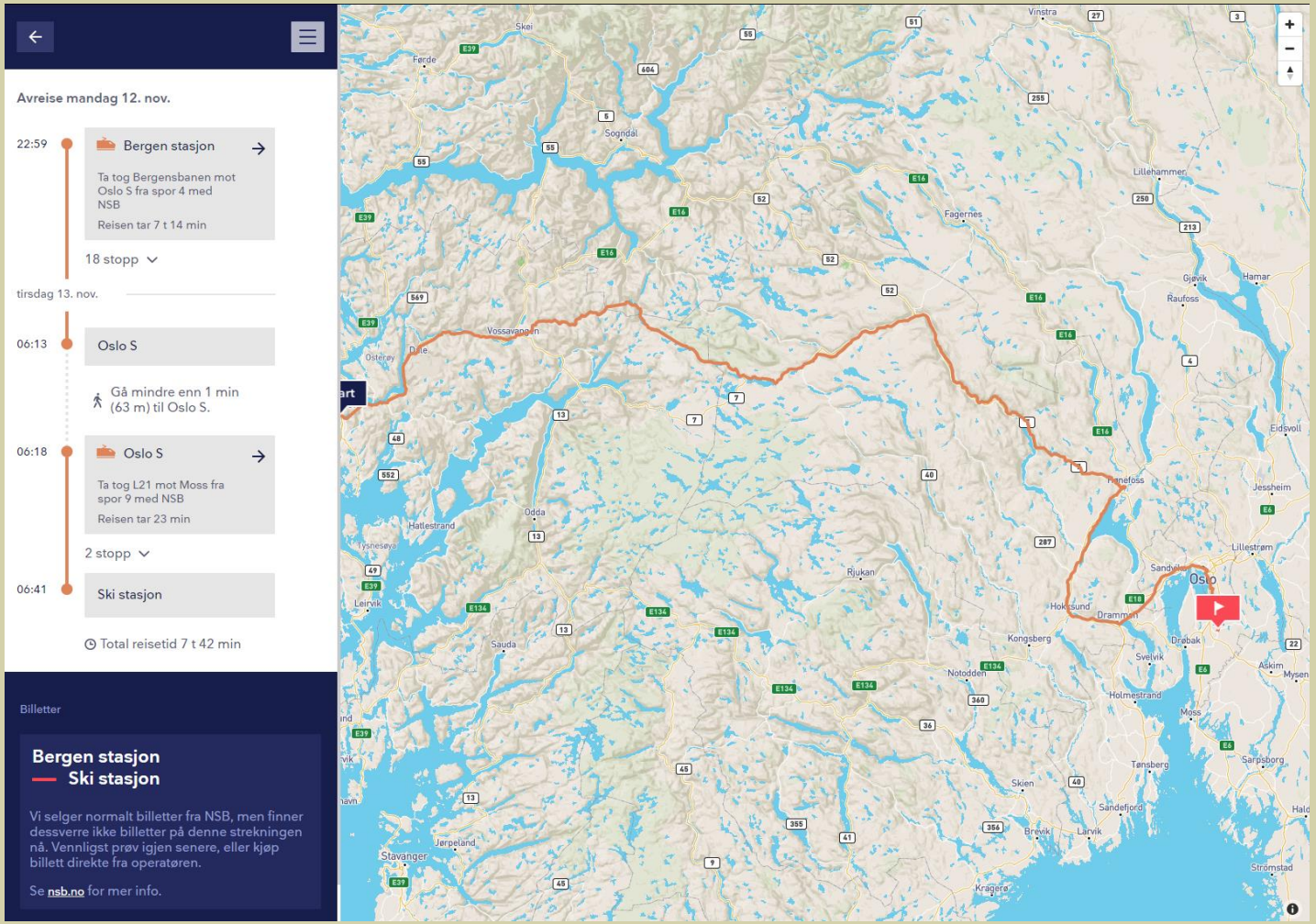
SERVICEPROVIDERS

Entur offers open PT-data and a national journey planner API for 3rd. parties

ENTUR - Norway

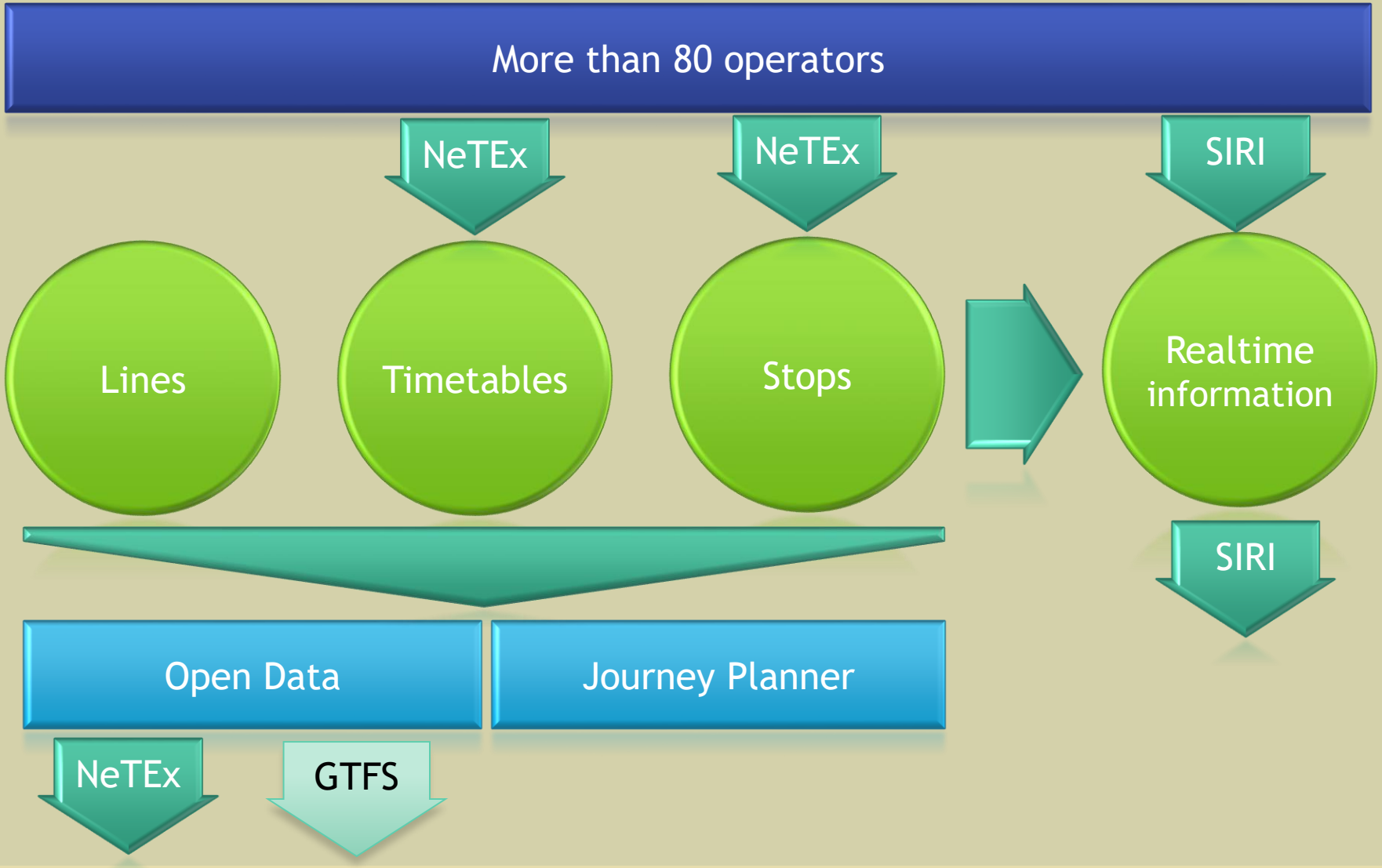


ENTUR - Norway



https://en-tur.no/

Ile-de-France Mobilité



NeTEx common tool:

Chouette

Thanks for your attention

Christophe Duquesne

christophe.duquesne@aurigetech.com

Access to Data for a Better Mobility

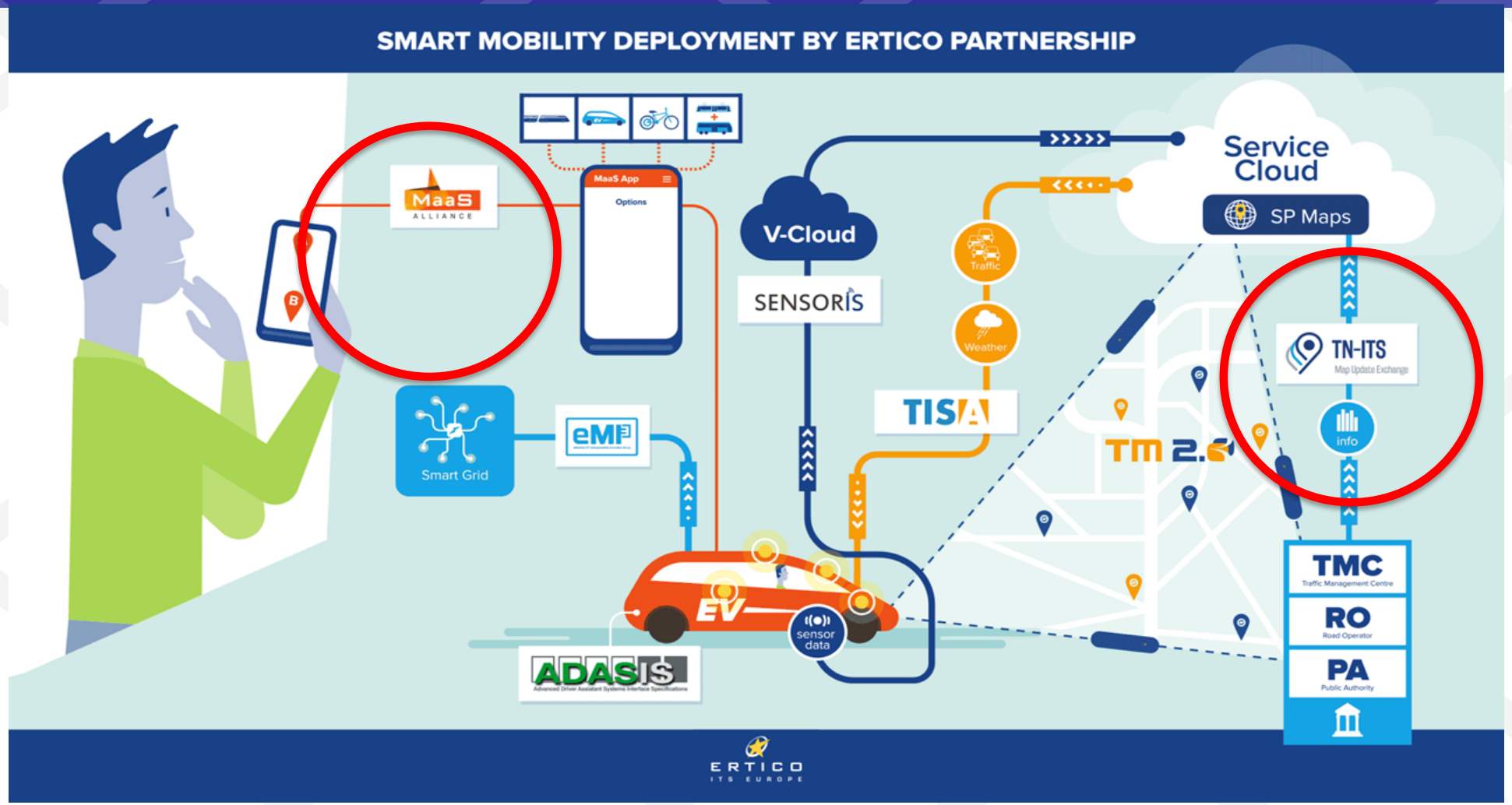
The TN-ITS Platform

Frank Daems , ERTICO

TN-ITS

Map Update Exchange

Transport Network – ITS



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Map Update Exchange

TN-ITS Vision and Mission

Vision

Bringing fresher map data to intelligent transport services

Mission

Facilitate and foster the exchange of ITS-related spatial road data between road authorities as trusted and quality data providers, and, data users as map makers and other parties.

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The TN-ITS data chain

Road Authorities publish changes of road data as part of their SDI maintenance

Map makers retrieve, verify and integrate these changes in their platform and bring this to map users

Drivers can benefit from up-to-date fresh map data in their in-vehicle system, stand-alone navigation device or smartphones

→ to share effectively any changes to road data and ensure a seamless data chain

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Focus: Specifications & Deployment

Standardisation

Define & maintain TN-ITS specifications in CEN/TC 278 WG7

CEN/TS17268 (October 2018)

Implementation Support

Provide guidelines & tools to support implementation in **Belgium, Finland, France, Ireland, Norway, Sweden,** and **United Kingdom.**

TN-ITS GO: + NL, HU, CY, SL, EE, LT, PT, ES, GR

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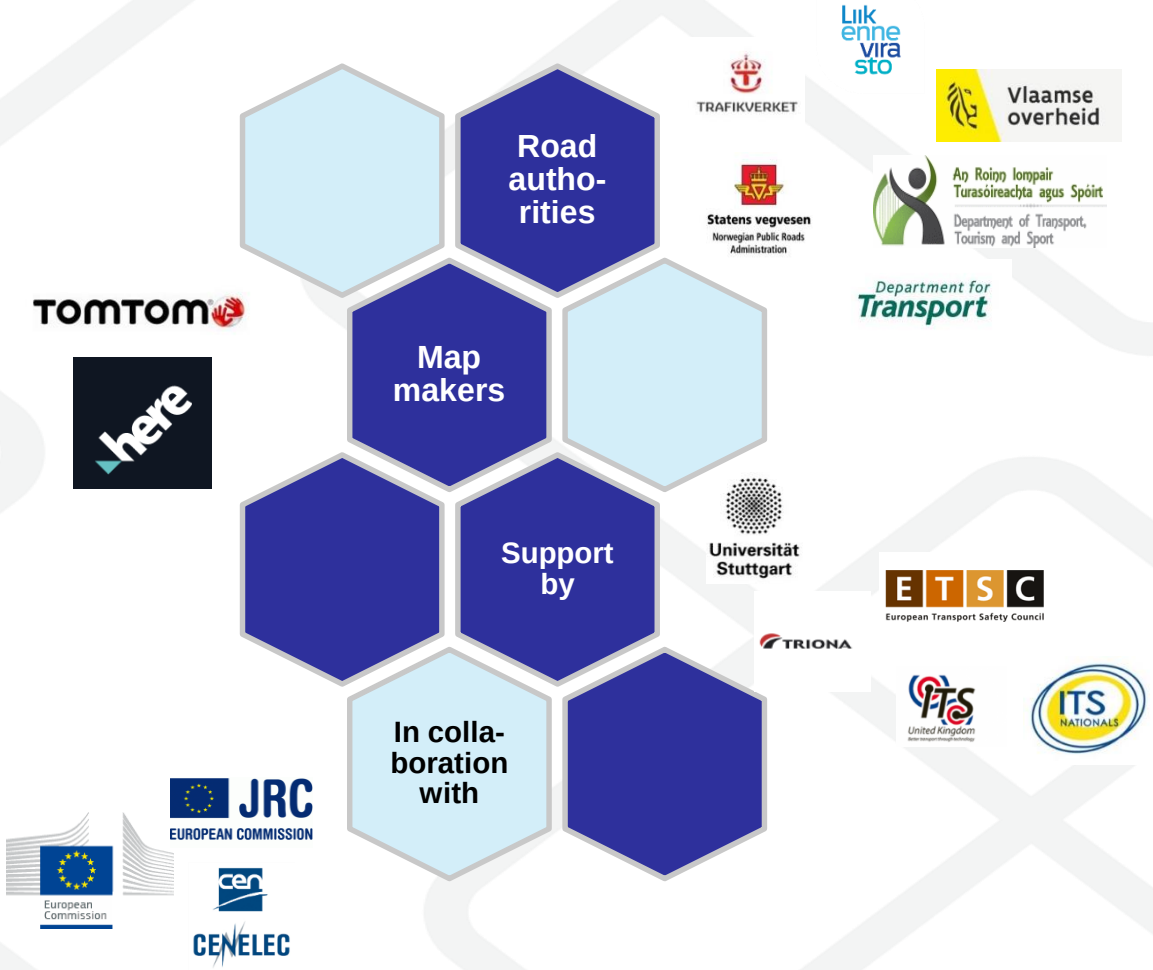
TN-ITS Members



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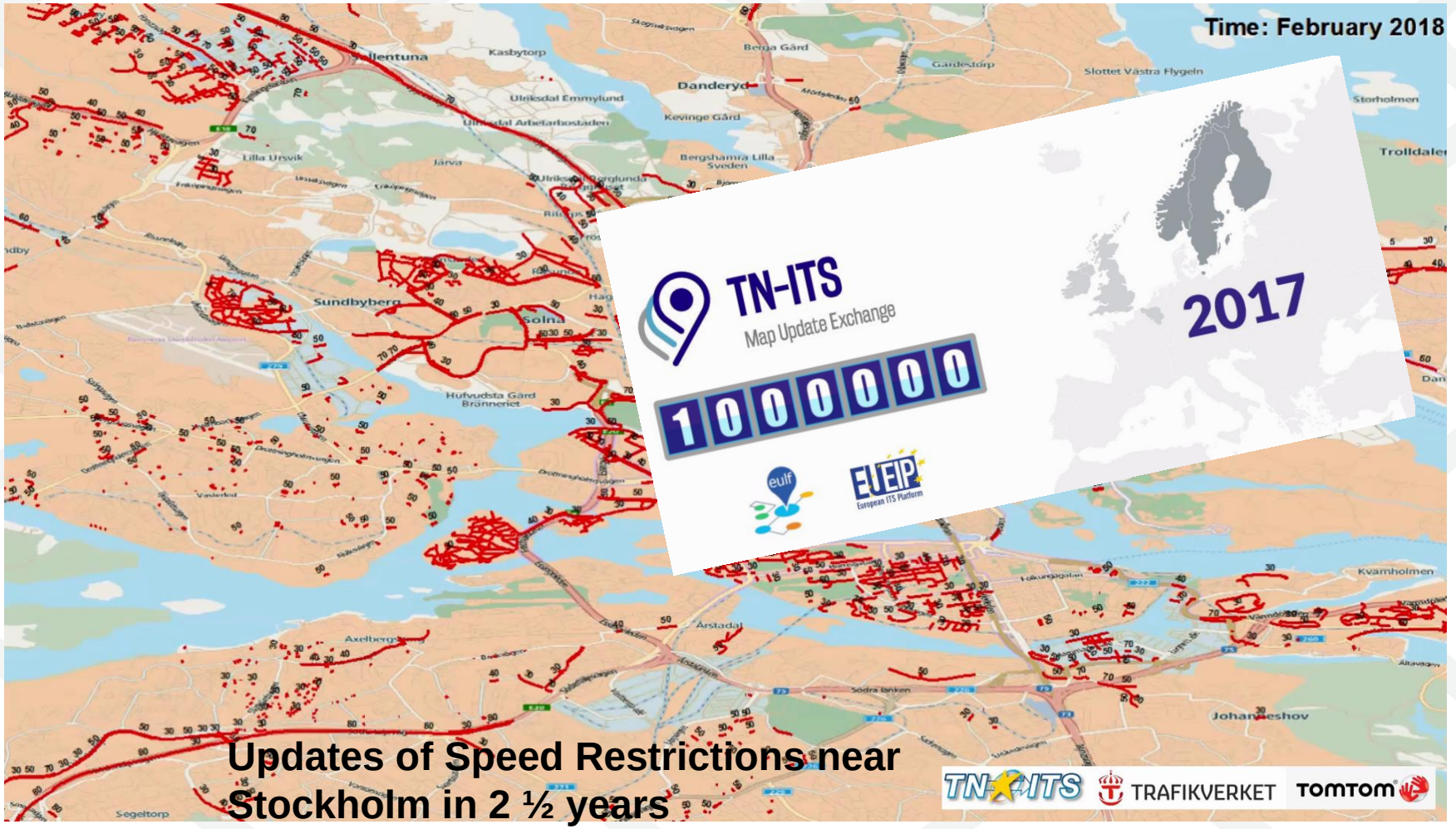
Re-Use at Map & Service Providers



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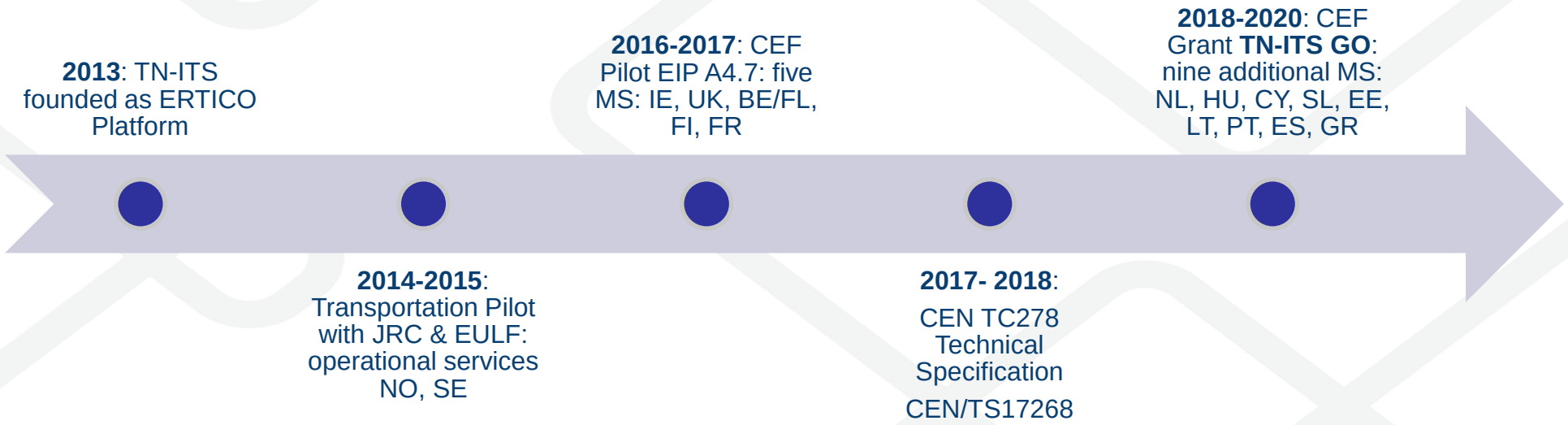
TN-ITS Storyboard



→ Towards TN-ITS services in 15 EU countries

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TN-ITS GO : further deployment in EU

- CEF MOVE/B4-2017-63 2M€ Grant
- 20 partners across EU
- First TN-ITS services in nine MS
- Improvement in five existing implementations
  - Pilot services to become fully operational
  - Feedback loop from Map Makers
  - New features supporting new use cases
- Minimum coverage TEN-T network – ambitions is more!
- Start Jan 2018 – 4 Years

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Future Contribution of TN-ITS

Physical infra (examples)

Digital infra (examples)

- the TN-ITS Technical Specification (CEN TS 17278) will be **extended to support MMTIS** data 2019
- **Place and position** of multimodal Hubs
- **Type of multimodal transfer** possibilities (being it e.g. metro station, buss-station, share bike parking,…)
- Static data that **provides guidance** to e.g. automated vehicles in this multimodal approach

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Map Data Exchange

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