



The context of standardisation of Public Transport data exchange

Webinar

12 April 2021

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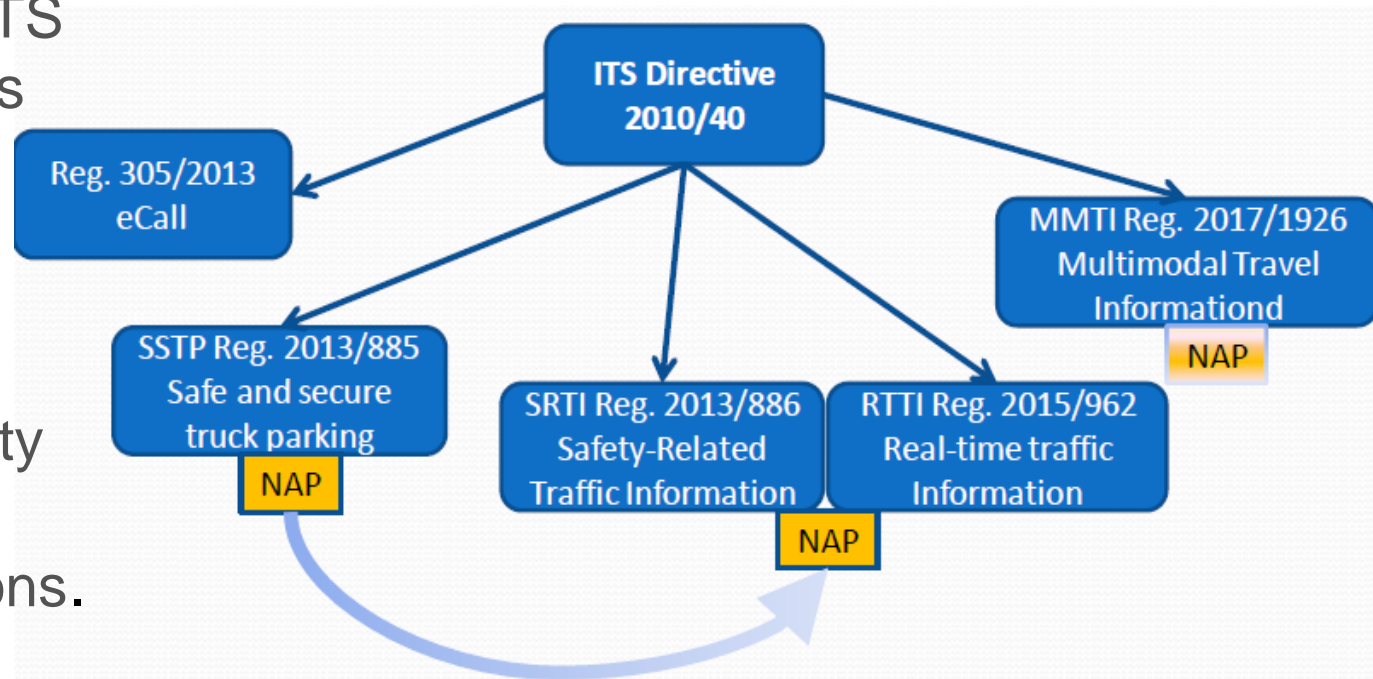


ITS EU directive 2010/40

Delegated Regulations



- ❑ Establish a framework for coordinated and effective deployment and use of ITS within Member States (MS) and across borders;
- ❑ Develop specifications necessary to ensure the compatibility, interoperability and continuity for the deployment and operational use of ITS for priority actions.





ITS EU directive 2010/40

MMTI Delegated Regulation 1926/2017



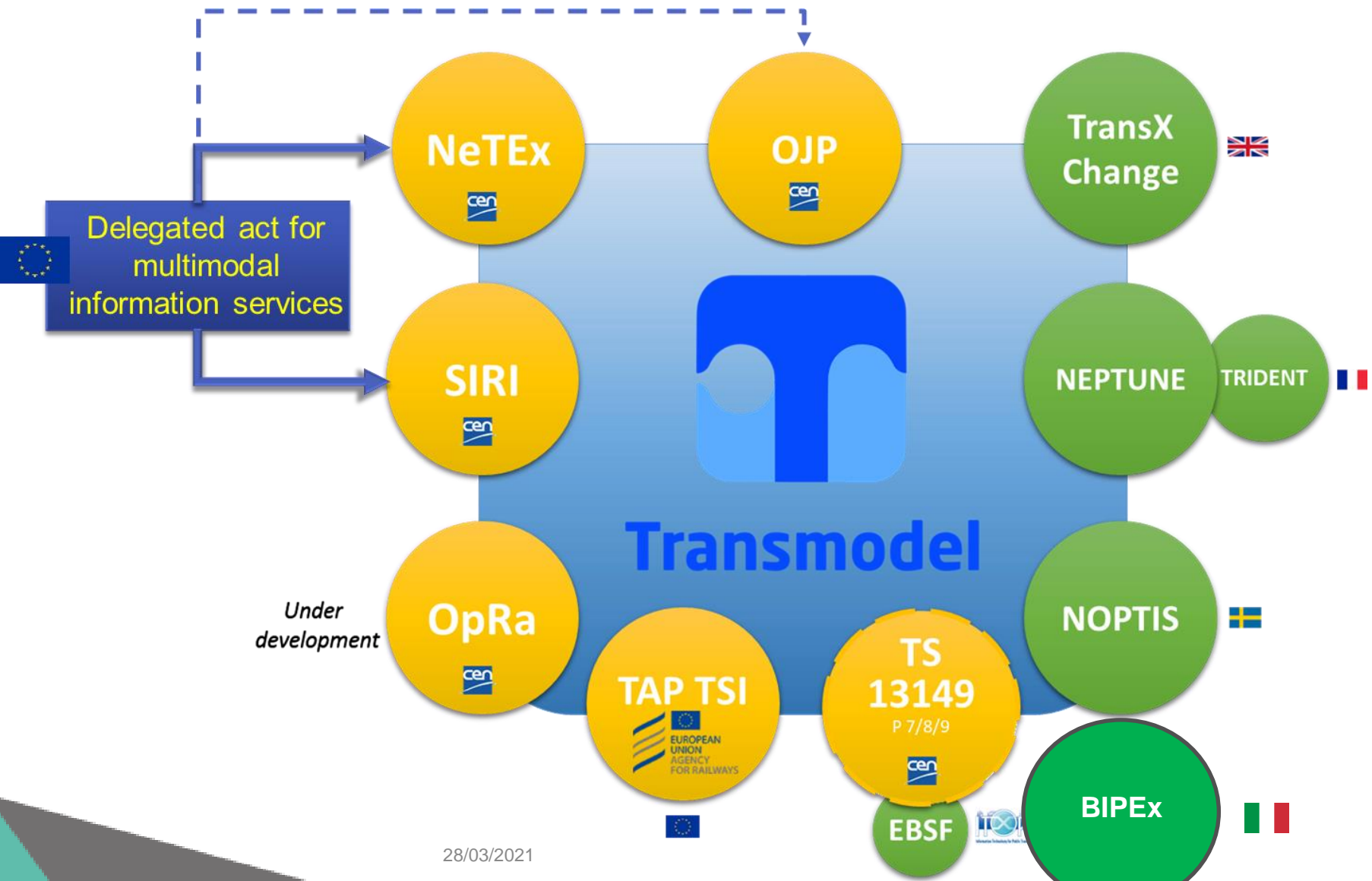
- The definition of the necessary requirements to make **EU-wide multimodal travel information services** accurate and available across borders based on one or more of the following types of provisions:
- Functional provisions describing the roles of various stakeholders and the information flow between them technical provisions to fulfil functional provisions
- Organizational provisions describing procedural obligations of the various stakeholders
- Service provisions describing the levels of services and their content

It considers Information and Planning, NOT ticketing



MMTI Delegated Regulation 1926/2017

CEN Standards context



28/03/2021



MMTI Delegated Regulation 1926/2017

NAP implementation phases – Static data

Static Dataset	Comprehensive TEN-T incl. Urban Nodes	Other parts of the network
Timetables, access nodes, accessibility, network topology etc.	2019	
Bike-sharing & car-sharing stations, vehicle facilities, basic common standard fares, how and where to buy tickets etc.	2020	2023
Detailed cycling network attributes, estimated travel times etc	2021	



MMTI Delegated Regulation 1926/2017

NAP implementation phases – Dynamic data



- 1 Passing times, trip plans and auxiliary information:
 - (i) Disruptions (all modes)
 - (ii) Real-time status information - delays, cancellations, connections monitoring
 - (iii) Status of access node features (including dynamic platform information, operational lifts/escalators, closed entrances and exit locations)

- 2 (a) Passing times, trip plans and auxiliary information (all modes):
 - (i) Estimated departure and arrival times of services
 - (ii) Current road link travel times
 - (iii) Cycling network closures/diversions



MMTI Delegated Regulation 1926/2017

NAP implementation phases - Dynamic data



3 (b) Information service:

Availability of publicly accessible charging stations for electric vehicles and refuelling points for CNG/LNG, hydrogen, petrol and diesel powered vehicles

4 (c) Availability check:

(i) Car-sharing availability, bike sharing availability

(ii) Car parking spaces available (on and off-street), parking tariffs, road toll tariffs

5 Trip plans: Future predicted road link travel times



International Standardisation Committees for Public Transport (PT)



 **ISO TC 204**
Intelligent Transport Systems

WG 8: Public Transport



 **IEC TC 9**
Electrical equipment and systems for railways

Several working groups



European Standardisation Committees for Public Transport (PT)

- ❑ In Europe **CEN** and **CENELEC** cooperate with their international counterparts, the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).
 - Vienna Agreement (ISO-CEN)
 - Dresden Agreement (IEC-CENELEC).
- ❑ CENELEC (Electrotechnical standardization), ETSI (telecommunications) and CEN (other technical areas) form the European system for technical standardization.



European Standardisation Committees for Public Transport (PT)

CEN TC 278

Road Transport Traffic Telematic

WG 3: Public Transport

WG 4: Traffic & Traveller Information

CEN TC 224

Machine-readable cards, related device interfaces and operations

WG11: Transport applications

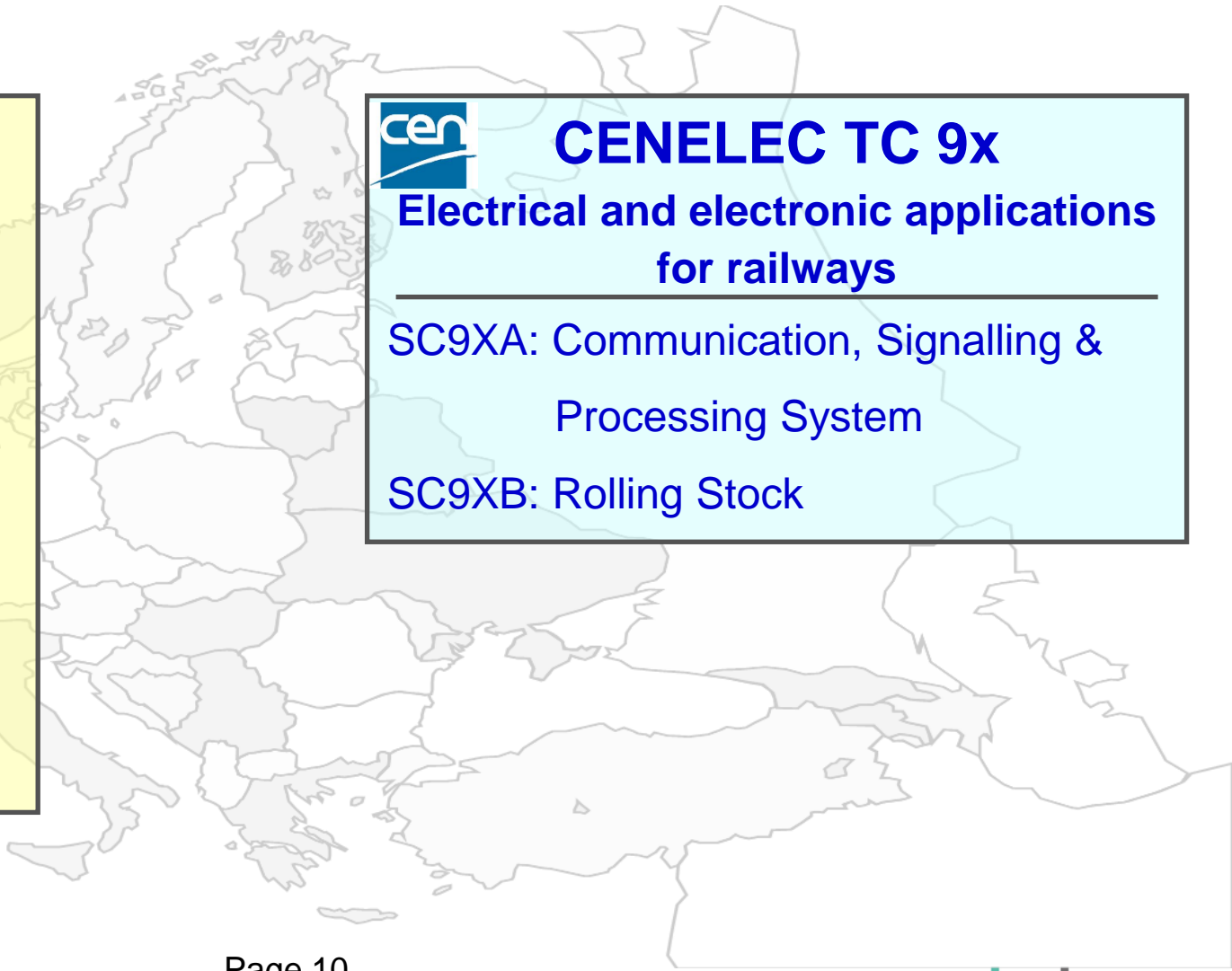


CENELEC TC 9x

Electrical and electronic applications for railways

SC9XA: Communication, Signalling & Processing System

SC9XB: Rolling Stock





Correspondance among Standardisation Committees for Public Transport (PT)

ISO TC 204

Intelligent Transport Systems

WG 8: Public Transport



CEN TC 278

Road Transport Traffic Telematic

WG 3: Public Transport

WG 4: Traffic & Traveller Information

CEN TC 224

Machine-readable cards, related device interfaces and operation

WG11: Transport applications



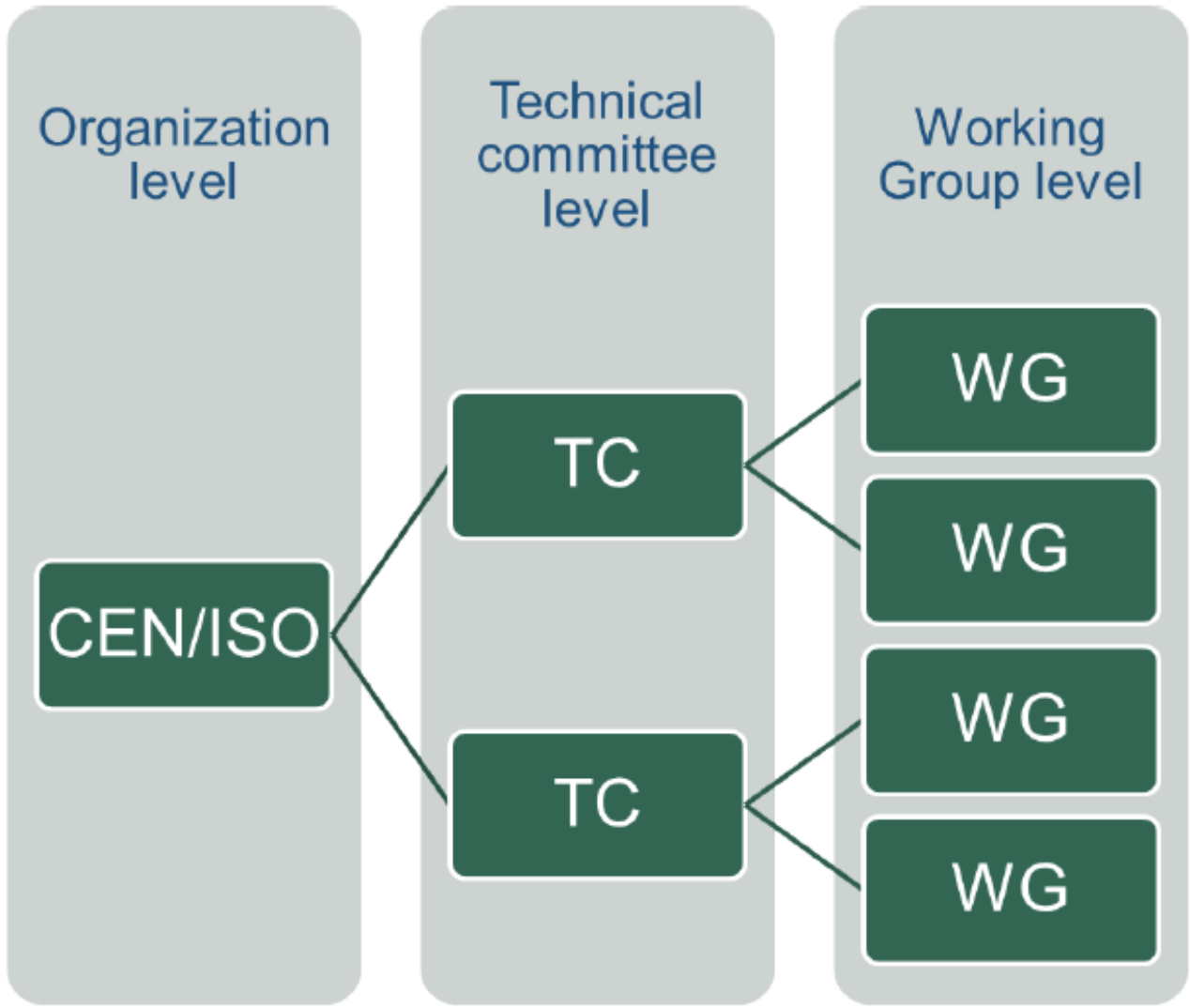
UNI CT 525

Intelligent Transport Systems

UNINFO



ISO/CEN Technical Committees and Working Groups





CEN method of work (1/3)

- ❑ **Standard** is a technical document designed to be used as a rule, guideline or definition. It is a consensus-built, repeatable way of doing something.
- ❑ Standards are created by bringing together all interested parties such as manufacturers, consumers and regulators of a particular material, product.
- ❑ A **European Standard** (EN) automatically becomes a national standard in the 31 member countries. Besides European Standards (EN), CEN also develops Technical Specifications (TS) and Technical Reports (TR). These deliverables are developed easier and faster than European standards

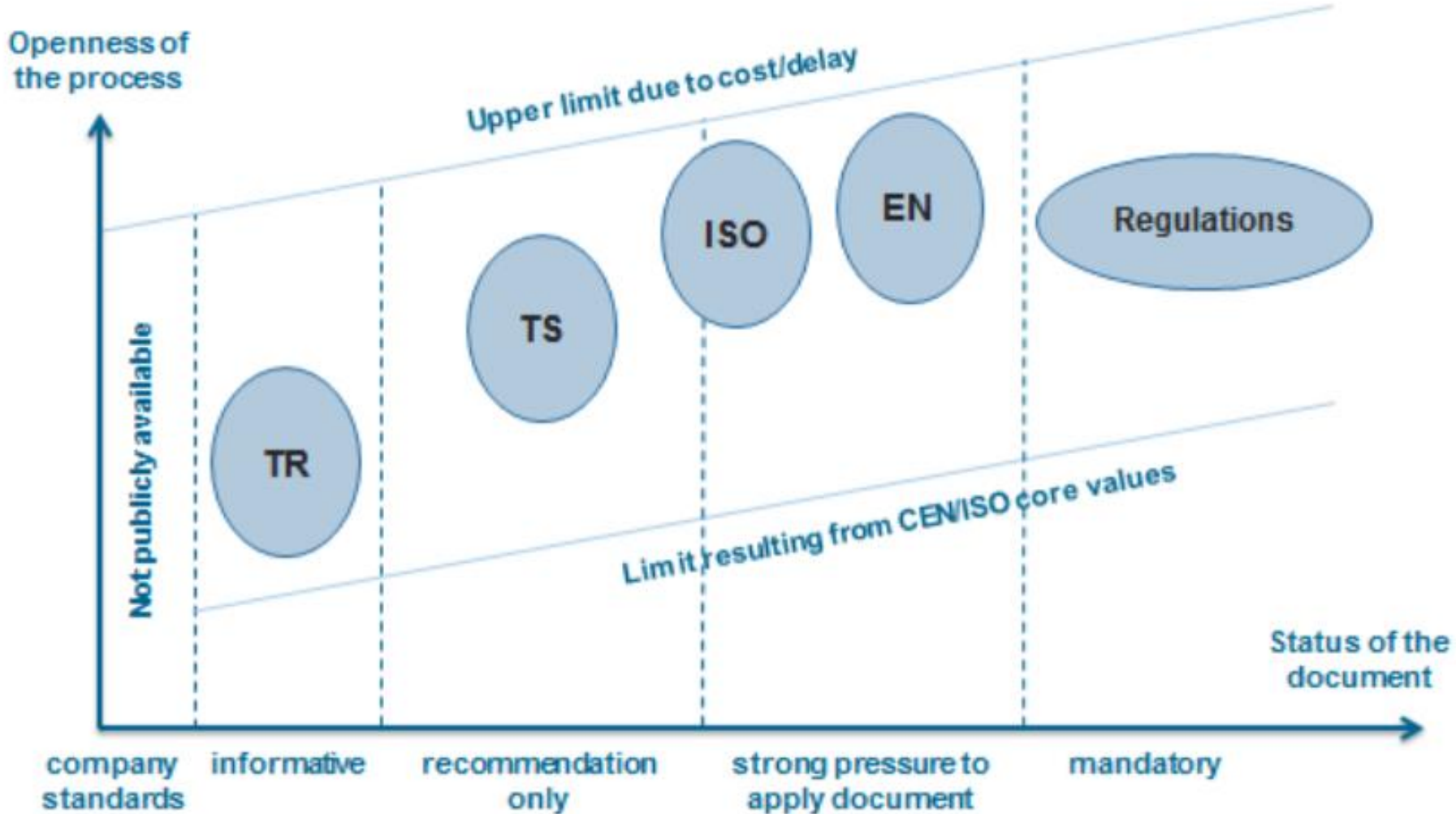


CEN method of work (2/3)

- ❑ A Technical Specification (TS) can be produced when there is no immediate need for a European standard or when the technology is not mature enough to develop a standard.
- ❑ Technical Specifications require less time to be developed and do not have to be adopted by the national members. A Technical Specification can be converted into a European Standard when deemed ready.
- ❑ A Technical Report (TR) contains information on the technical content of standardization work. This information is not suitable to be published as an EN or TS. A Technical Report may include, for example, data obtained from a survey, data on work in other organizations, or any other data that might be useful to a CEN member.
- ❑ Every concerned group or person (e.g. consumers, manufacturers, public authorities etc.) may comment on a draft version of a European Standard.



CEN method of work (3/3)





CEN TC 278 WG 3 - Public Transport (PT)

Scope

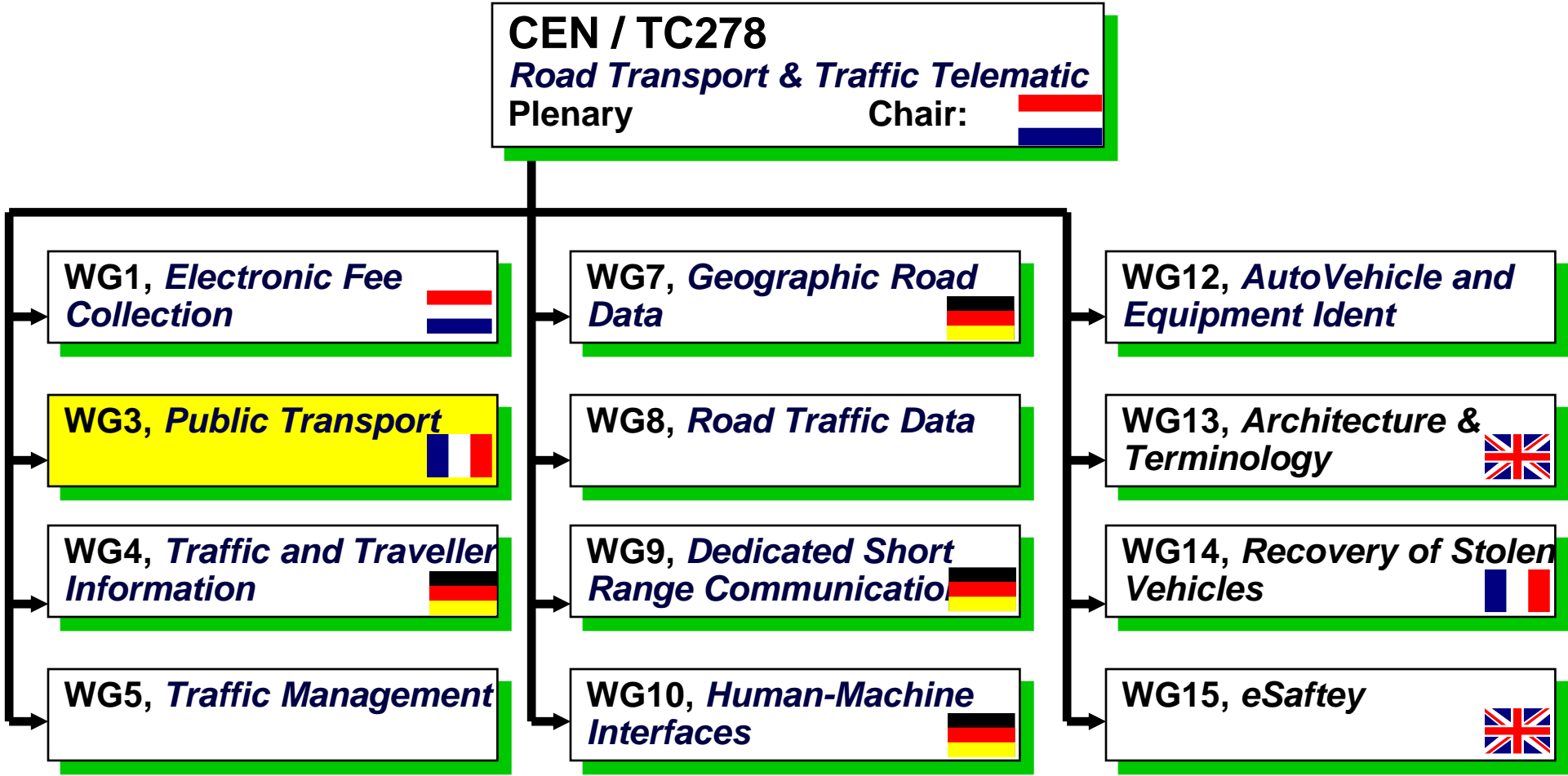
- ❑ WG3 develops standards for urban public transport telematic applications . On vehicles the scope is limited to busses and trams, which are operated like a bus fleet.
- ❑ WG3 is a control committes of the work performed by all Subgroups (SG)
- ❑ **Convenor:** Mr Emmanuel de Verdalle (FR)

Members:

- ◇ Belgium
- ◇ Denmark
- ◇ Germany
- ◇ Finland
- ◇ France
- ◇ UK
- ◇ Italy
- ◇ Netherlands
- ◇ Norway
- ◇ Austria
- ◇ Sweden
- ◇ Swiss
- ◇ Czech republic

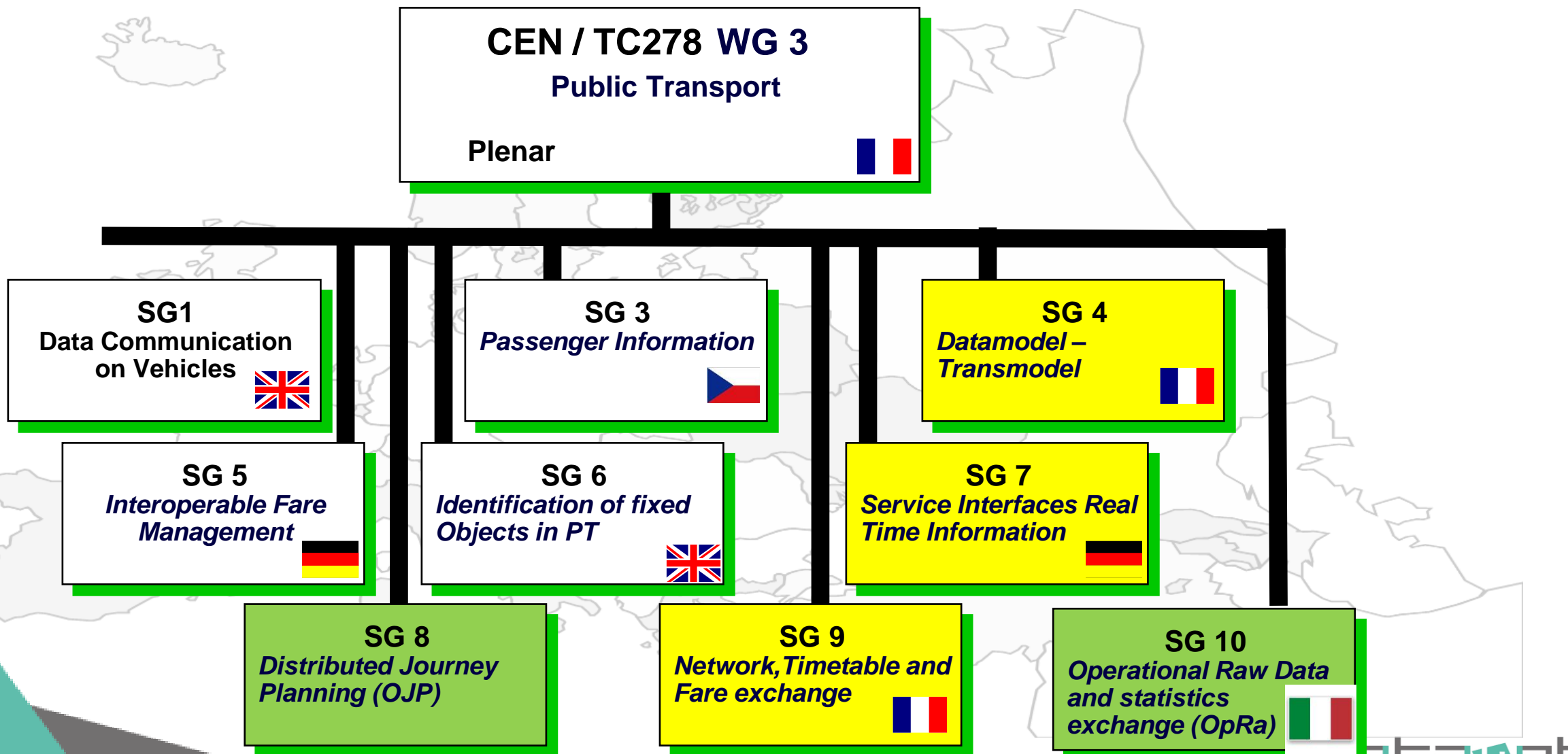


CEN TC 278 Road Transport Traffic Telematics (RTTT) Structure





CEN TC 278 WG 3 - Public Transport (PT) Structure





CEN TC 278 WG3 - SG4



Transmodel

□ Reference Data Base Model (TRANSMODEL)

- Chairman : Mrs K. BOUREE (FR)
- Reference data base model allowing links between different transport application programs (Scheduling, Passenger information, Fare collection, etc.)
- Transmodel is an EU norm (EN 12896) that use UML methodology and is modularised, the documentation splits into the following parts:
 - Part 1: Common Concepts
 - Part 2: Public Transport Network
 - Part 3: Timing Information and Vehicle Scheduling.
 - Part 4: Operations Monitoring and Control.
 - Part 5: Fare Management.
 - Part 6: Passenger Information
 - Part 7: Driver Management
 - Part 8: Management Information and Statistics
 - See <http://www.transmodel-cen.eu/>





CEN TC 278 WG3 - SG7

SIRI

❑ Standard Interface for Real-Time Information (SIRI)

➤ Chairman : Mr W. BRUNS (GE)

➤ The Service Interface for Real Time Information (SIRI) specifies a European interface standard for exchanging information about the planned, current or projected performance of real-time public transport operations between different computer systems

➤ SIRI is divided into:

- Part 1: Context and framework (CEN/TS 15531-1:2015);
- Part 2: Communications infrastructure (CEN/TS 15531-2:2015);
- Part 3: Functional service interfaces (CEN TS/15531-3:2015);
- Part 4: Functional service interfaces: Facility Monitoring (CEN/TS 15531-4:2011);
- Part 5: Functional service interfaces - Situation Exchange (CEN/TS 15531-05:2016)

See <https://www.siri-cen.eu/home.aspx> and <https://www.vdv.de/siri.aspx>



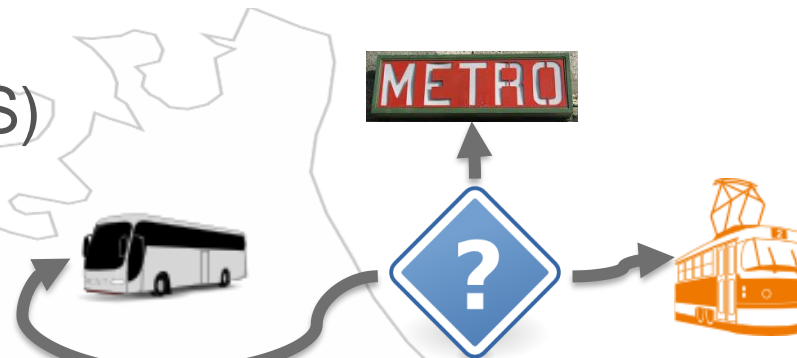
CEN TC 278 WG3 - SG8

❑ Distributed Journey Planning System (DGPS)

➤ Chairman : Mr Radermacher Berthold (GE)

➤ Supporting action for the European Railway Agency (ERA) and coordination of rail standard with urban and suburban standards like IFM and SIRI based on TRANSMODEL

➤ Update of Open Journey Planning (OJP) API, in coherence with Delegated Act 1926/2017





CEN TC 278 WG3 - SG9



- ❑ Network and Timetable Exchange (NeTEx)
 - Chairman : Mr C. DUQUESNE (FR)
 - Exchange of most of the PT related scheduled information: network description, timing information and fares. Supporting action to complete SIRI services on Network, Timetable and Fare exchanges
 - NeTEx is divided into three parts, each covering a functional subset of the CEN Transmodel for Public Transport Information:
 - Part 1 describes the Public Transport Network topology (CEN/TS 16614-1:2014);
 - Part 2 describes Scheduled Timetables (CEN/TS 16614-2:2014);
 - Part 3 covers Fare information (CEN/TS 16614-3:2015).
 - Part 4: European Passenger Information Profile.
 - See <http://netex-cen.eu/>





CEN TC 278 WG3 – S10



OpRa

- Operational Raw data and statistics exchange (OpRa)
 - Chairman : Mr F. ARNEODO (IT)
 - Identification of actual and measured Public Transport Data, mainly relevant to Transmodel domain “Operations monitoring & control”., to enable the *Study and Control* phase performed by Public Transport Operators and Authorities
 - Review the history of actual operations, leading to improvements either through operational changes or strategic and tactical planning phases optimization.
 - See <http://www.opra-cen.eu/>

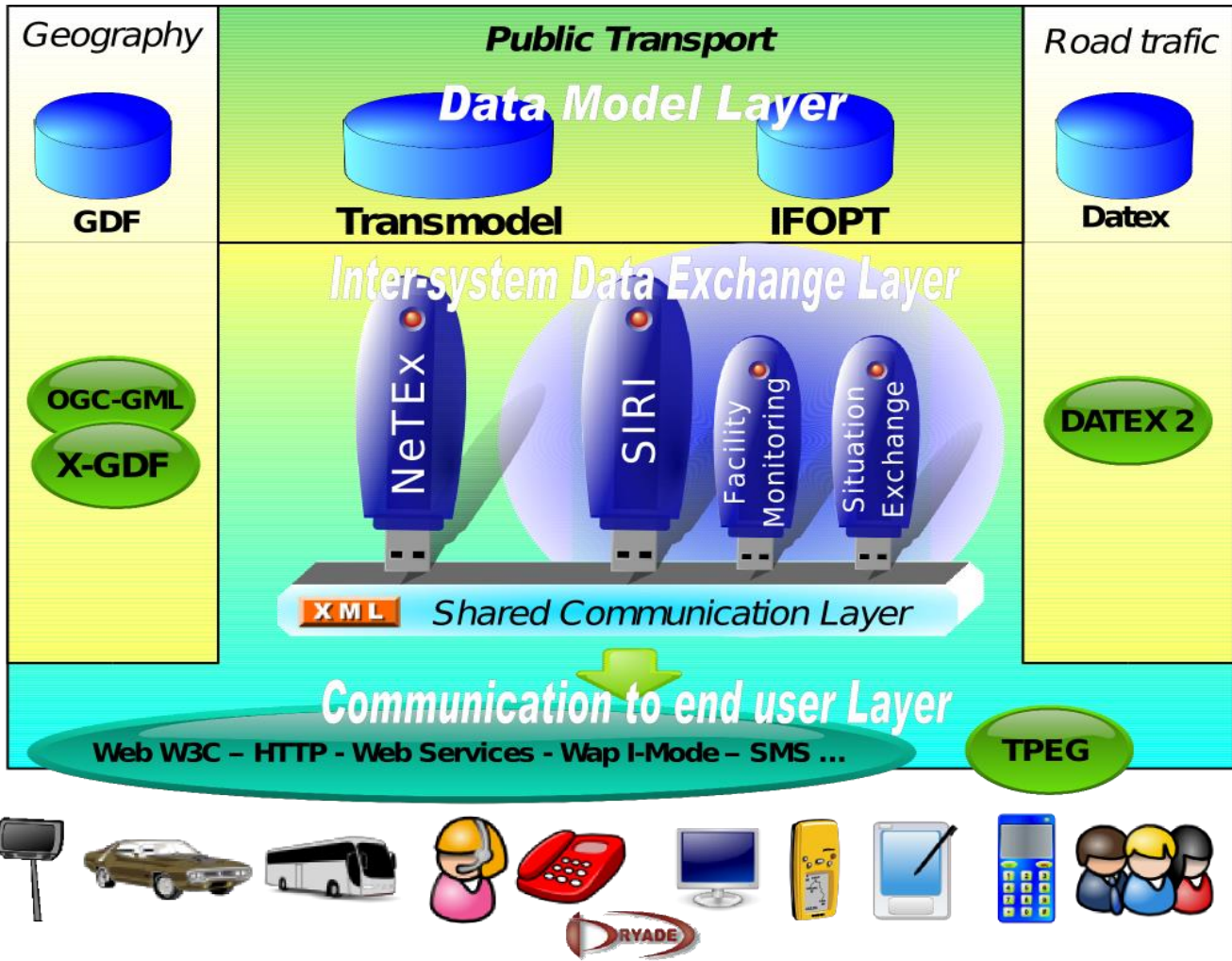


Transmodel, NeTEX and SIRI relations

Data Model

**Inter-System
Data Exchange**

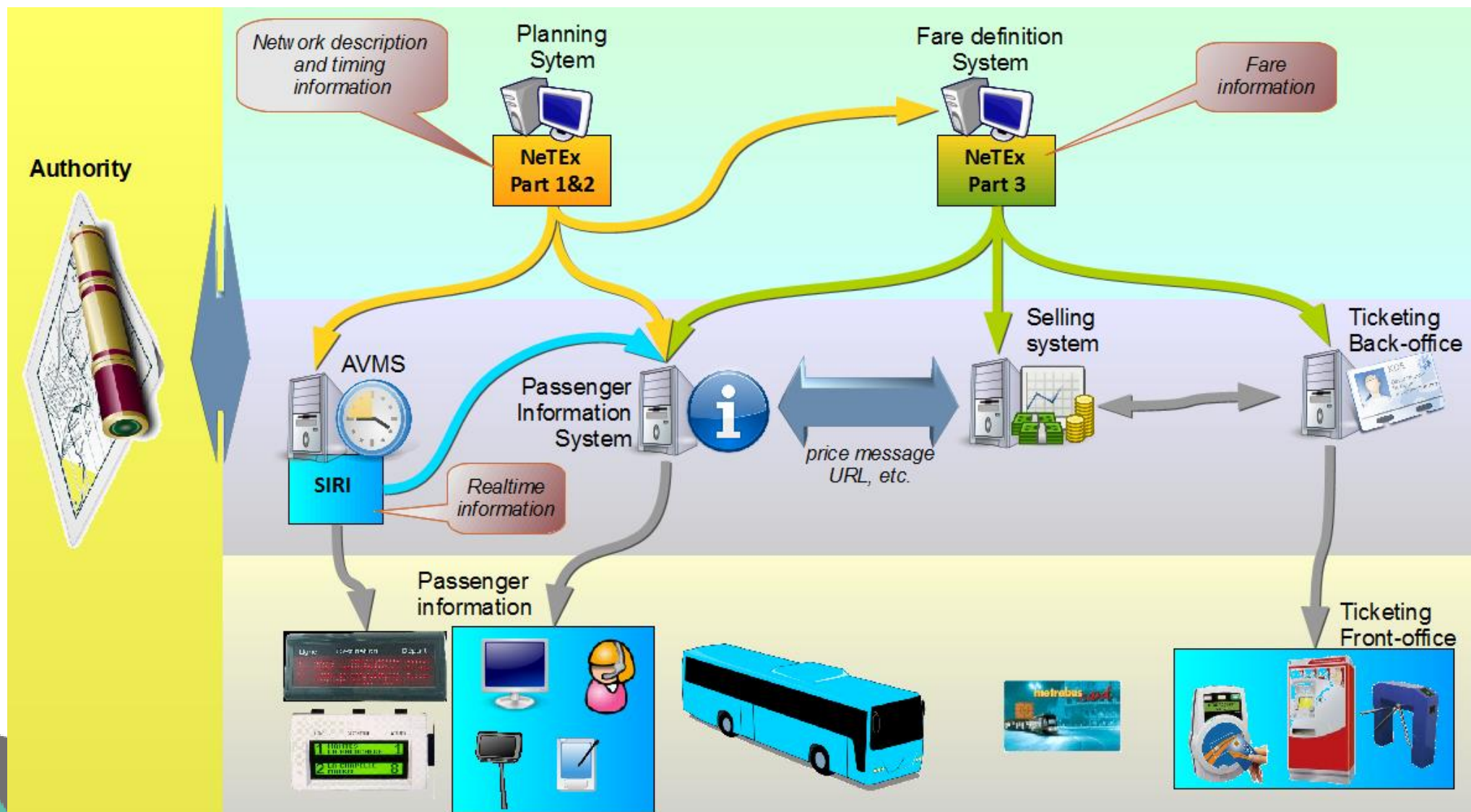
**End-user
communication**





CEN TC 278 RTTT WG 3 activities

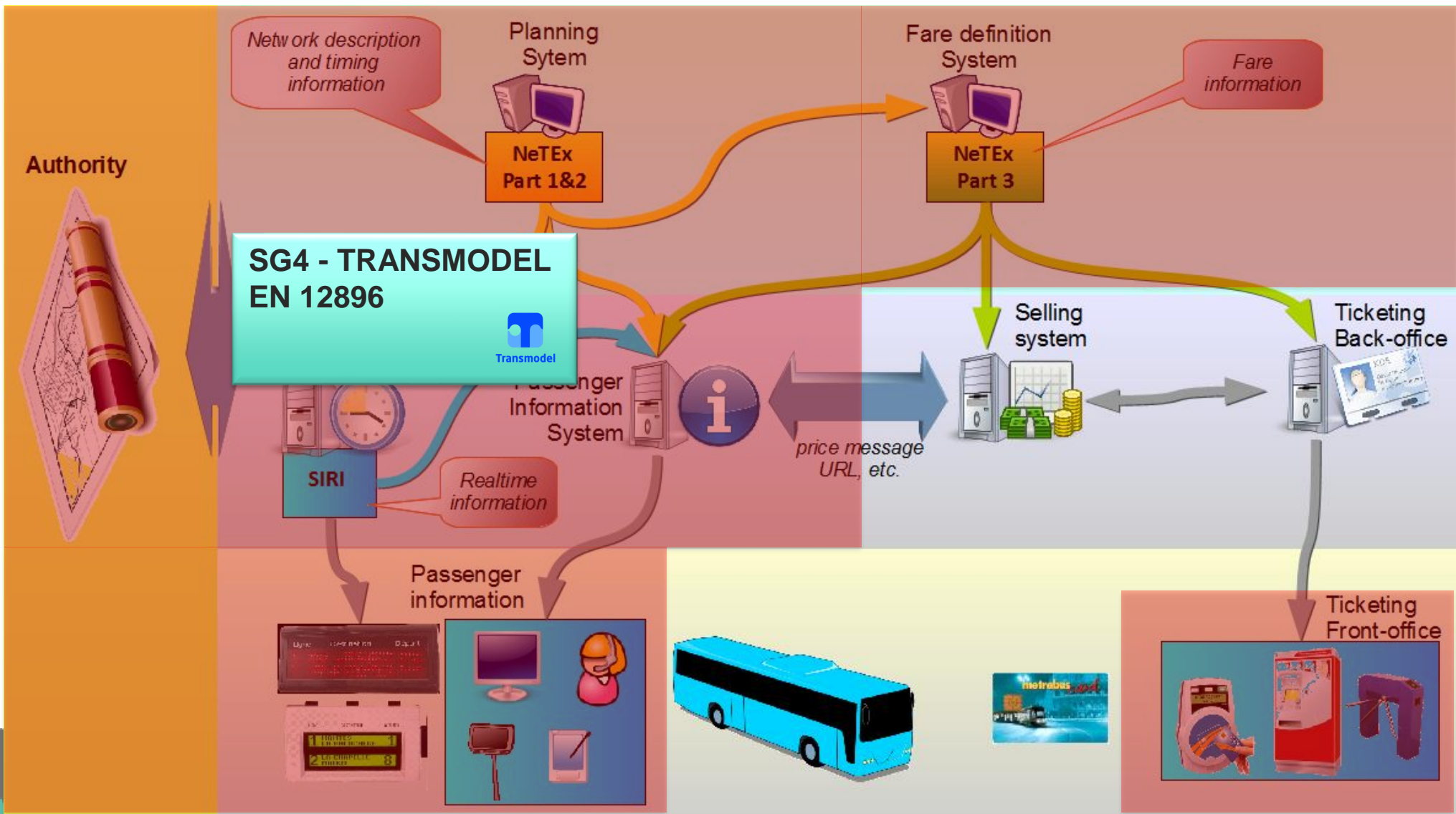
Fields of standardisation





CEN TC 278 RTTT WG 3 activities

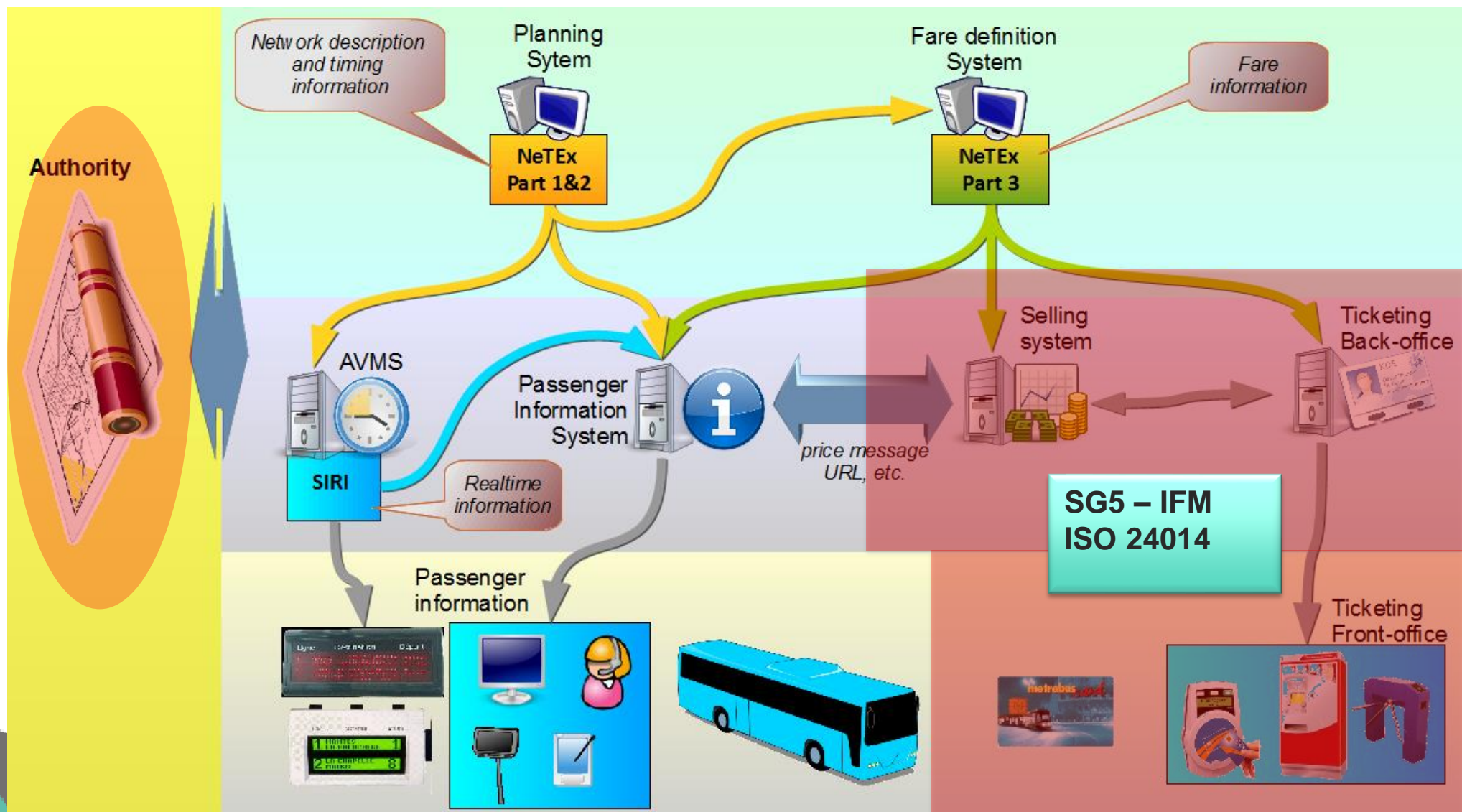
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CEN TC 278 RTTT WG 3 activities

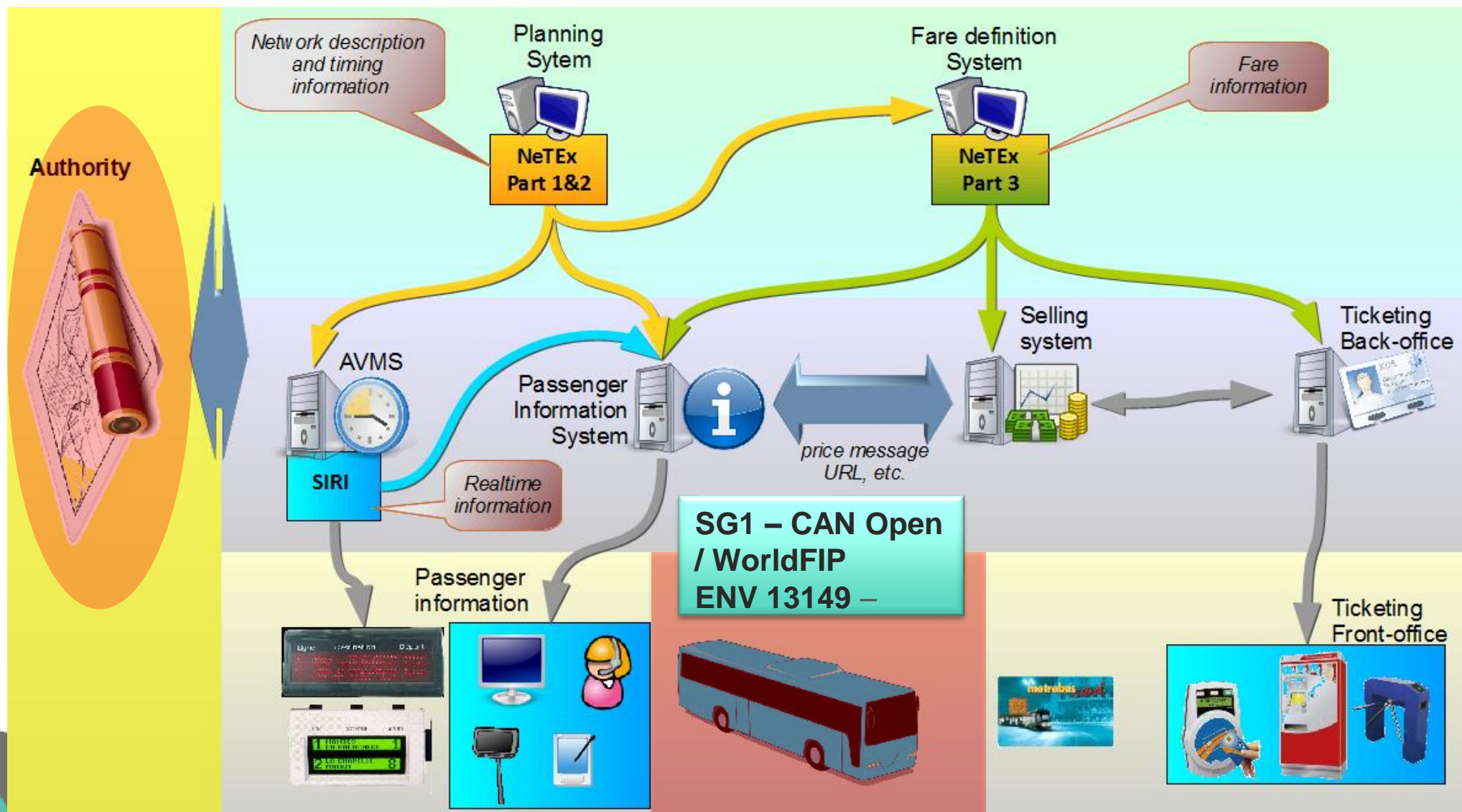
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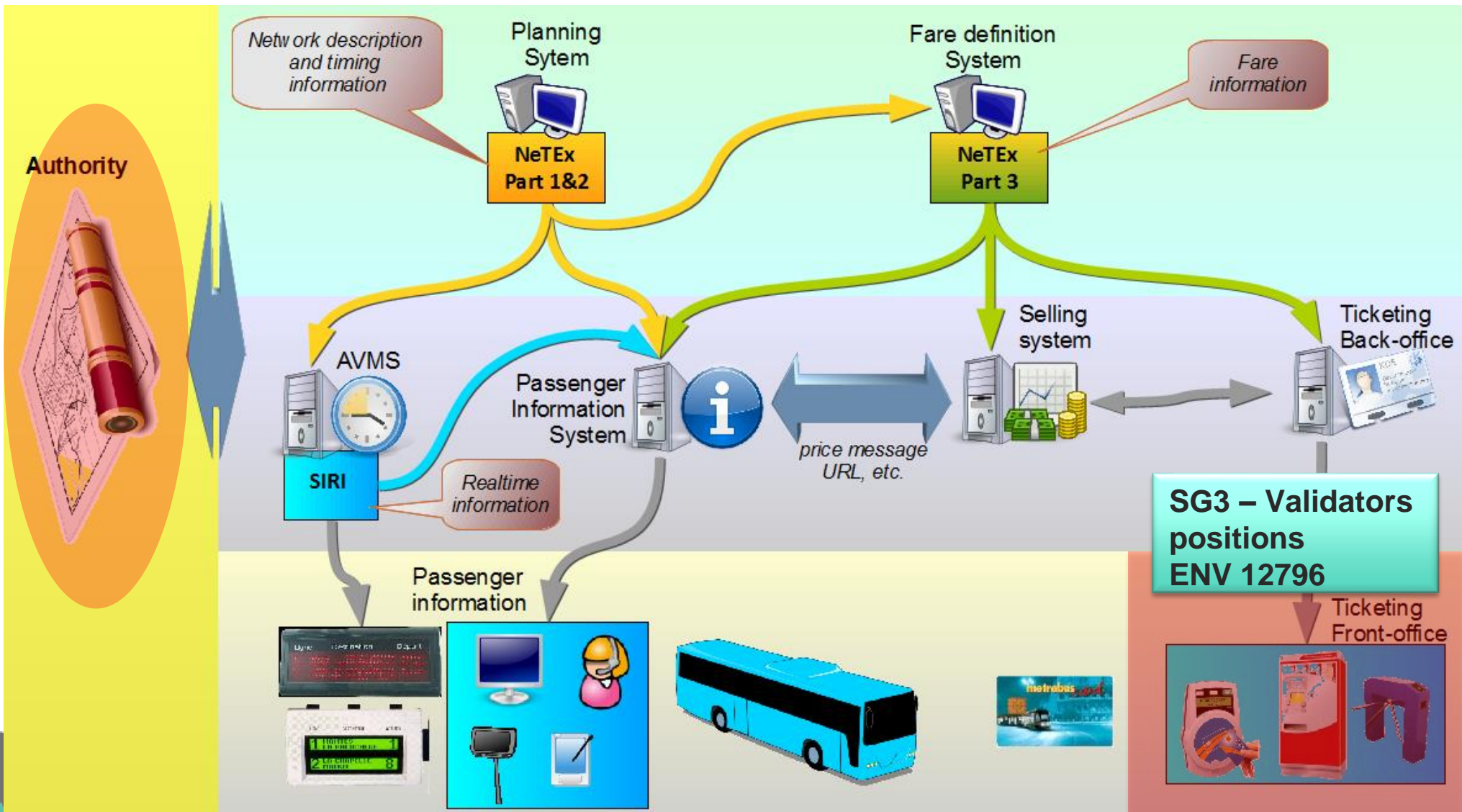
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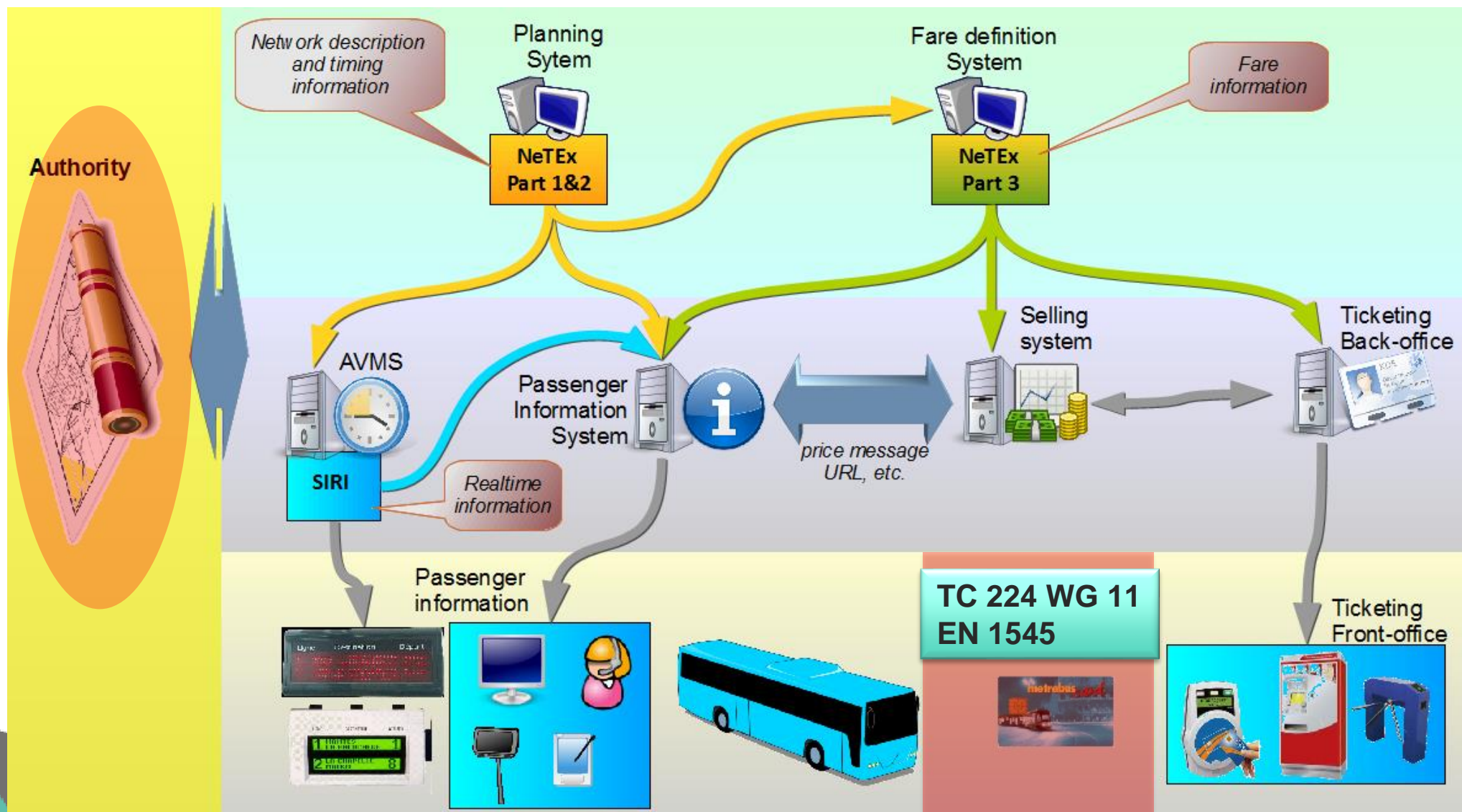
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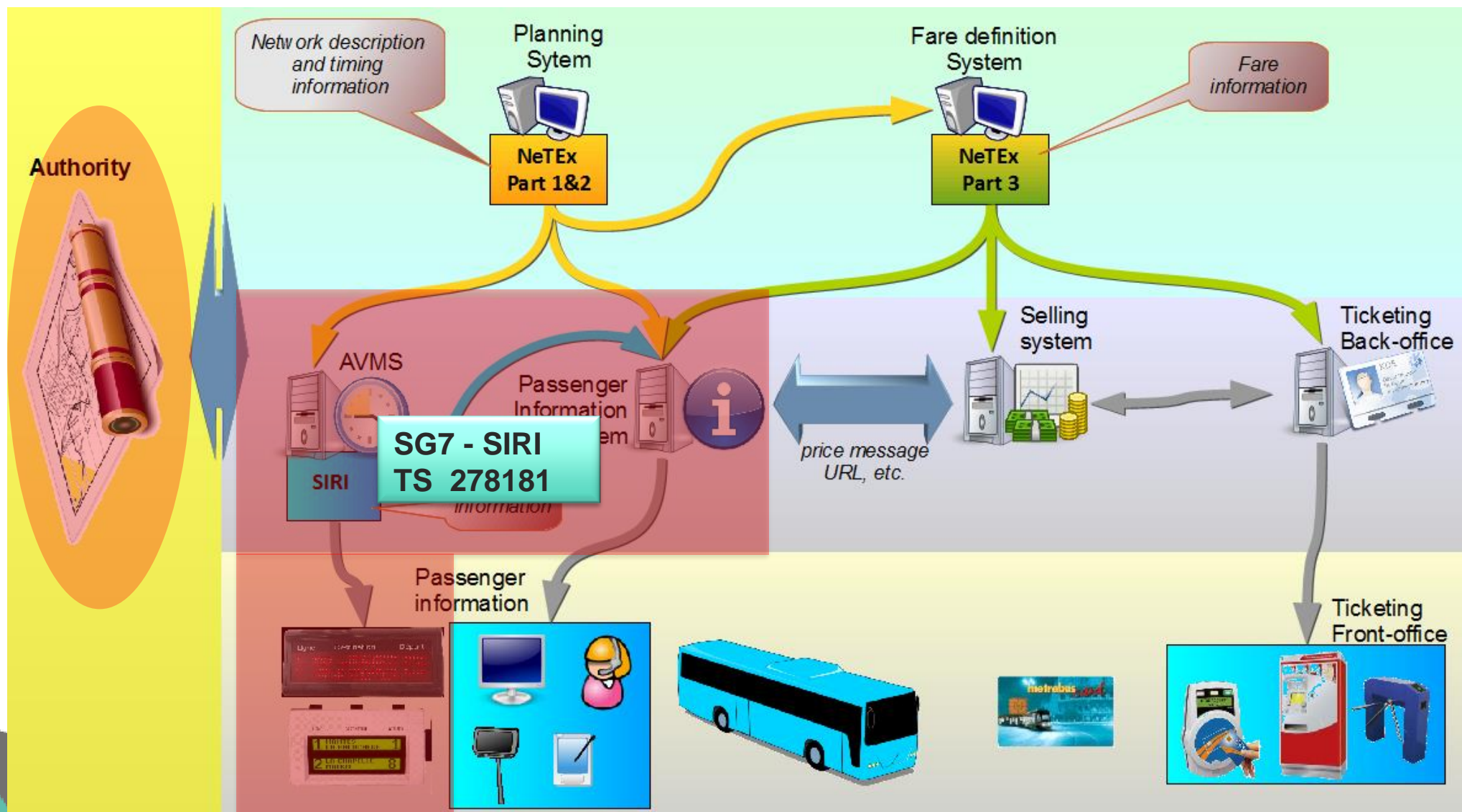
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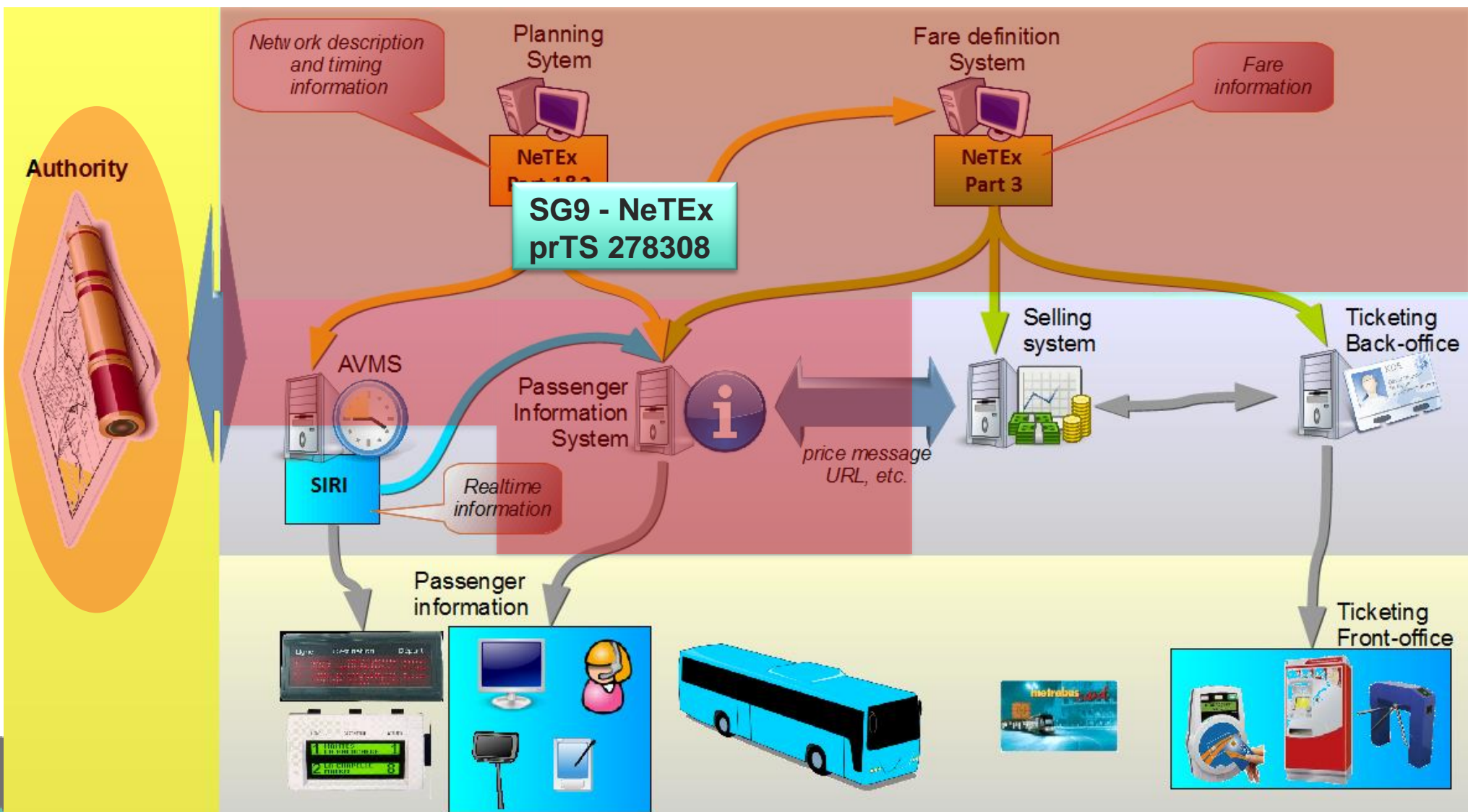
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CEN TC 278 RTTT WG 3 activities

Fields of standardisation





data4pt

Thank you for your attention!

www.data4pt-project.eu/



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