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ERTICO-ITS Europe activities relevant to Mobility Data Infrastructure

András Csepinszky, Senior Manager

Agenda

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- Data for Road Safety ecosystem
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Traffic & Transport Industry

Connectivity Industry

Users

Public Authorities

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ITS EUROPE

A unique public-private partnership

Bringing together over **120 Partners** from **all ITS sectors** to make mobility **smarter, cleaner, safer and more efficient.**

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Research

Vehicle Manufacturers

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- ✓ **Established in 1991 by the European Commission and industry leaders**
- ✓ **Focus on innovation in the transport and mobility system**
- ✓ **European projects on research, innovation -> deployment**
- ✓ **Building bridges with the ITS community worldwide & thought leadership**
- ✓ **Organiser of ITS congresses**

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monotch SMART MOBILITY PLATFORMS
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RE:Lab
IMT INSTITUTO DA MOBILIDADE E DOS TRANSPORTES, I.P.
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Bundesministerium für Verkehr und digitale Infrastruktur
RACC Mobility Club
gm
YUNEX TRAFFIC
Provincie Noord-Brabant
TOFAŞ
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RTA
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Examples of ERTICO projects

ERTICO ITS EUROPE

CCAM

5GMETA

FAME
Framework for coordination of Automated Mobility in Europe

GUIDE
Supporting the Strategic Deployment Agendas for the EU Corridors

ENSEMBLE

IN2CCAM

napcore

CulturalRoad

PODIUM

SINFONICA

SUNRISE
SAFETY ASSURANCE FRAMEWORK FOR CONNECTED, AUTOMATED MOBILITY SYSTEMS

V4SAFETY

wetransform

Clean & Eco-Mobility

eBRT 2030

eCHARGE 4DRIVERS

LeMesurier

NextETRUCK

solutions plus

ZEV-UP

Transport & Logistics

Ploto

Urban Mobility

REAL LOCATE

SHOW
AUTOMATED URBAN MOBILITY

SUM

MaaS Konya

SUMP İZMİR

Ptt teknoloji

This project is financed by the European Union and the Republic of Turkey

Cross sector

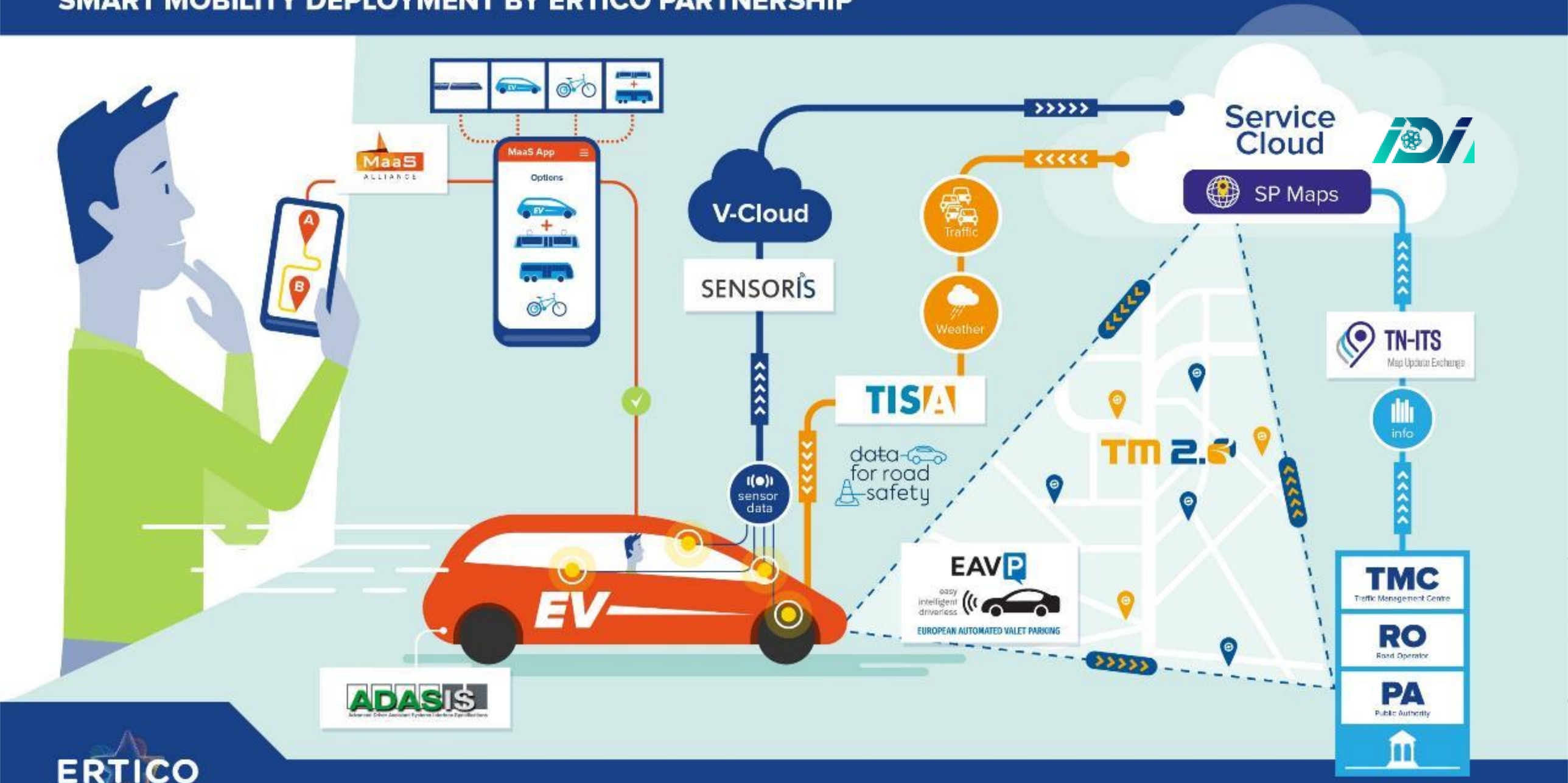
deploy EMDS

JULIA

PRIVATEER
Privacy-first Security Enablers for 6G networks

STREnGth_M
Strengthening EU Road Transport R&I

SMART MOBILITY DEPLOYMENT BY ERTICO PARTNERSHIP



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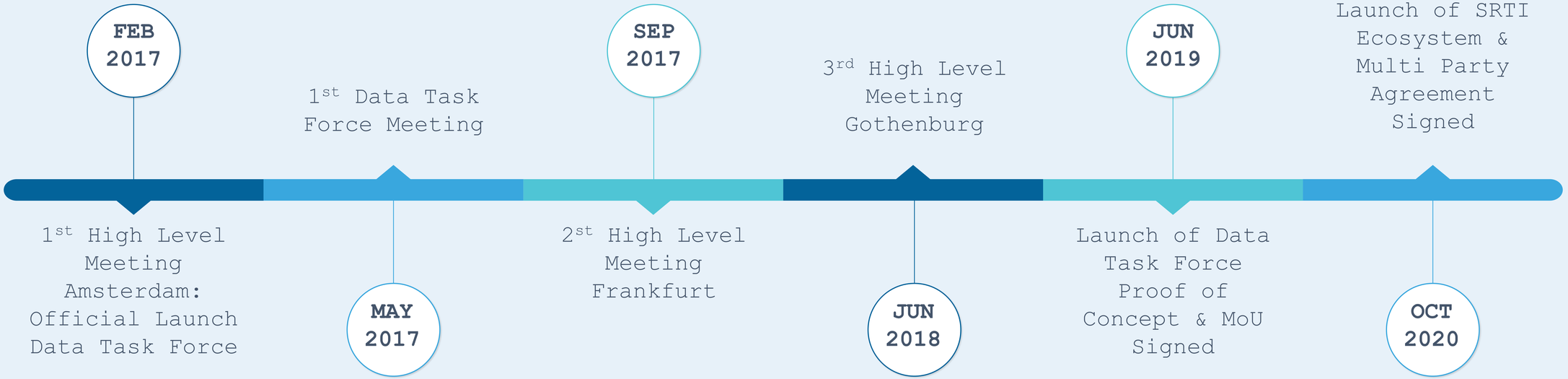
DFRS introduction

Introduction

- All European Transport Ministers, the European Commission and current industry partners established the Data for Road Safety during the High-Level Meeting on Connected and Automated Driving on 15 February 2017 in Amsterdam.
- The mission of the European Data for Road Safety is to improve road safety by maximizing the reach of safety-related traffic information powered by safety data generated by vehicles and infrastructure.
- The DFRS ecosystem supports the implementation of existing EU laws on access to safety data. By prioritising access to safety data and enabling collaboration between vehicle manufacturers and countries, the DFRS ecosystem aims to enhance traffic safety for all road users.

Timeline



Key Principles

The DFRS is based of the following Key principles:

Free of charge…

Data is exchanged within the SRTI Ecosystem for the sole purpose of road safety, without any financial compensation between the parties and within the agreed data privacy policy.

…on the basis of reciprocity…

The reciprocity principle simply means that if you get something - you give something. Each role brings a value to the Ecosystem.

…for road safety

Data received through the SRTI Ecosystem can only be used to create Safety Related Traffic Information. It is strictly prohibited to use the data in the SRTI Ecosystem for any other purpose, as the members consider other usage to be commercial use cases.

These principles and other agreements are part of the Multi Party Agreement signed by the partners, and are valid within the SRTI Ecosystem. Joining the SRTI Ecosystem by signing the Multi Party Agreement alters however in no way any rights and obligations parties have, including the European Delegated Regulation on the exchange of Safety Related Traffic Information.

About DFRS

Facilitate the use of in-vehicle data for the creation of Safety Related Traffic Information as defined in the Delegated Regulation (EU) 886/2013 (ITS Directive)

Multi-Party Agreement: legal and organisational framework of cooperation

Definition and common understanding of data levels (L2, L2‘, L3)

Decentralized ecosystem with defined roles and responsibilities as defined within the Technical Documentation

Proven potential to improve road safety

Focus on road safety events and conditions categorised in the Delegated Regulation (EU) 886/2013

Open to new members: www.dataforroadsafety.eu

Legal background

Legal Background

Basis for the creation of the National Access Points and the National Bodies is the ITS Directive of the European Union together with the Delegated Regulations that were created under it.

Directive 2010/40/EU

- Sets priority actions
- Empowers adoption of delegated regulations

Delegated regulations:

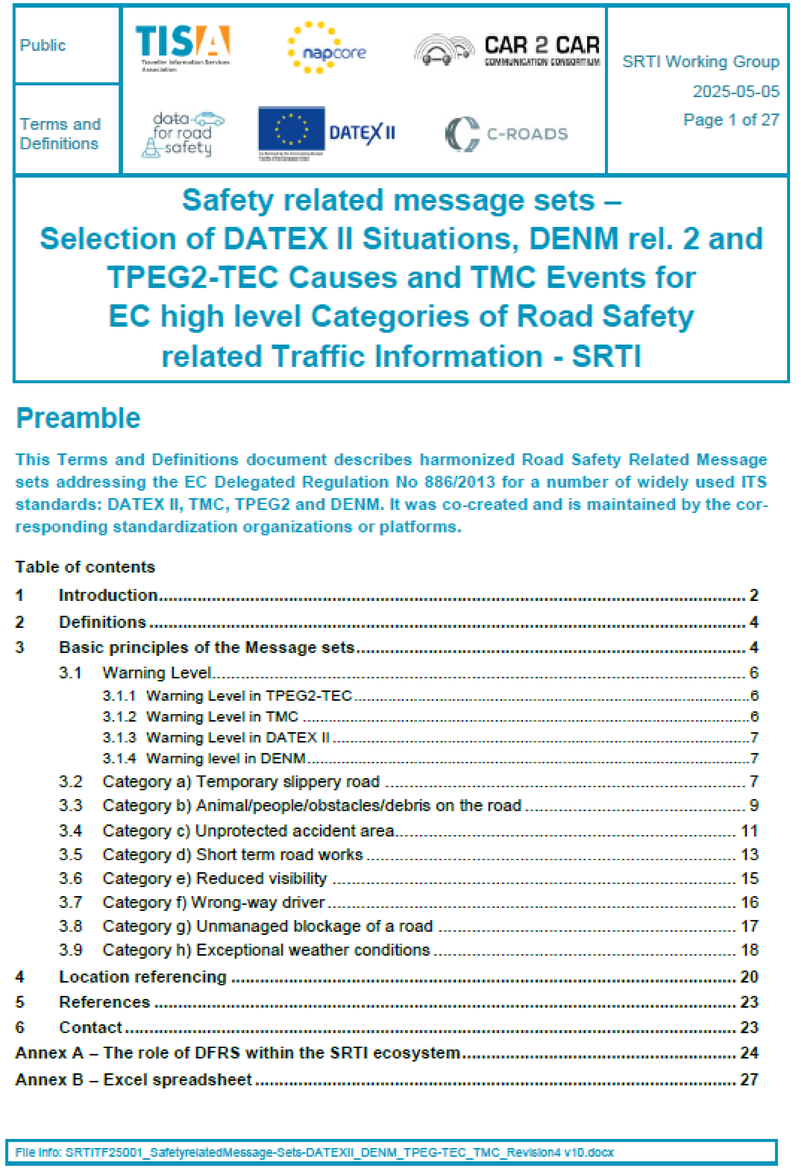
- Safety-related minimum universal traffic information (SRTI): Reg. (EU) No 886/2013
- Safe & secure truck parking: Reg. (EU) No 885/2013.
- EU-wide Real-Time Traffic Information (RTTI): Reg. (EU) 2015/962
- EU-wide Multimodal Travel Information Services (MMTIS): Reg. (EU) 2017/1926.
- EU-wide Real-Time Traffic Information (RTTI): Reg. (EU) 2022/670

SRTI relevant data and their standards' harmonisation

SRTI relevant data categories

- temporary slippery road;
- animal, people, obstacles, debris on the road;
- unprotected accident area;
- short-term road works;
- reduced visibility;
- wrong-way driver;
- unmanaged blockage of a road;
- exceptional weather conditions.

Source: https://eur-lex.europa.eu/eli/reg_del/2013/886/oj/eng



Public

Terms and Definitions

SRTI Working Group
2025-05-05
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Safety related message sets – Selection of DATEX II Situations, DENM rel. 2 and TPEG2-TEC Causes and TMC Events for EC high level Categories of Road Safety related Traffic Information - SRTI

Preamble

This Terms and Definitions document describes harmonized Road Safety Related Message sets addressing the EC Delegated Regulation No 886/2013 for a number of widely used ITS standards: DATEX II, TMC, TPEG2 and DENM. It was co-created and is maintained by the corresponding standardization organizations or platforms.

Table of contents

File Info: SRTITF25001_SafetyrelatedMessage-Sets-DATEXII_DENM_TPEG-TEC_TMC_Revision4 v10.docx

Source: https://tisa.org/wp-content/uploads/SRTITF25001_SafetyrelatedMessage-Sets-DATEXII_DENM_TPEG-TEC_TMC_Revision4-v10.pdf

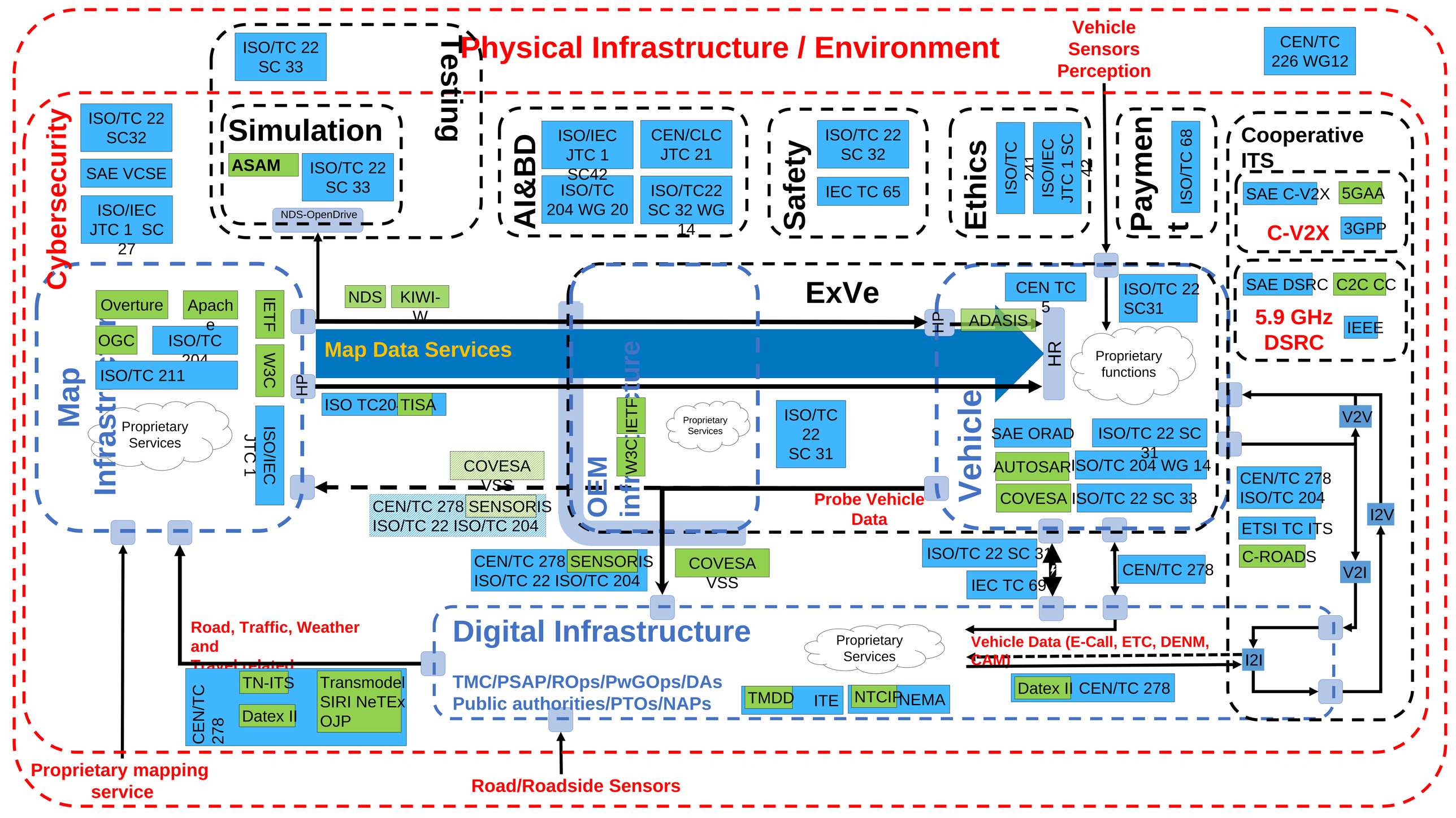
RTTI relevant data

RTTI relevant data categories

- Data on infrastructure: road network links & attributes (geometry, width, number of lanes, gradients, junctions); road classification; locations of tolling stations, service/rest areas, EV recharging points (with use conditions), CNG/LNG/LPG stations, other refuelling points, and delivery areas.
- Crucial data on regulations & restrictions: static/dynamic regulations (tunnel/bridge access, permanent access restrictions, speed limits, freight delivery rules, HGV overtaking bans, dimension limits, one-way streets, zonal restrictions incl. current access status, reversible-lane direction); traffic circulation plans.
- Other data on regulations & restrictions: locations/IDs of regulatory/danger signs (tunnel/bridge access, permanent restrictions, other regulatory signs); other static/dynamic regulations; identification of tolled roads, fixed user charges & payment methods; variable road-user charges & payment methods.
- Crucial data on state of the network: road closures; lane closures; roadworks; temporary traffic-management measures.
- Other data on state of the network: bridge closures; accidents/incidents; poor road conditions; weather affecting surface/visibility.
- Data on real-time use of the network: traffic volume; traffic speed; queue location/length; travel times; border-crossing wait time; availability of delivery areas; availability of EV recharging and alternative-fuel refuelling points/stations; ad-hoc recharging/refuelling price.

Source: https://eur-lex.europa.eu/eli/reg_del/2022/670/oj/eng

Mobility standards’ ecosystem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Simulation
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NDS-OpenDrive
Cybersecurity
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CEN/CLC JTC 21
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Ethics
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Payment
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Vehicle Sensors Perception
CEN/TC 226 WG12
Cooperative ITS
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3GPP
SAE DSRC
C2C CC
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Probe Vehicle Data
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Proprietary functions
Vehicle
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V2V
CEN/TC 278
ISO/TC 204
ETSI TC ITS
C-ROADS
I2V
V2I
ISO/TC 22 SC 31
IEC TC 69
CEN/TC 278
Digital Infrastructure
TMC/PSAP/ROps/PwGOps/DAs
Public authorities/PTOs/NAPs
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NTCIP
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Vehicle Data (E-Call, ETC, DENM, CAM)
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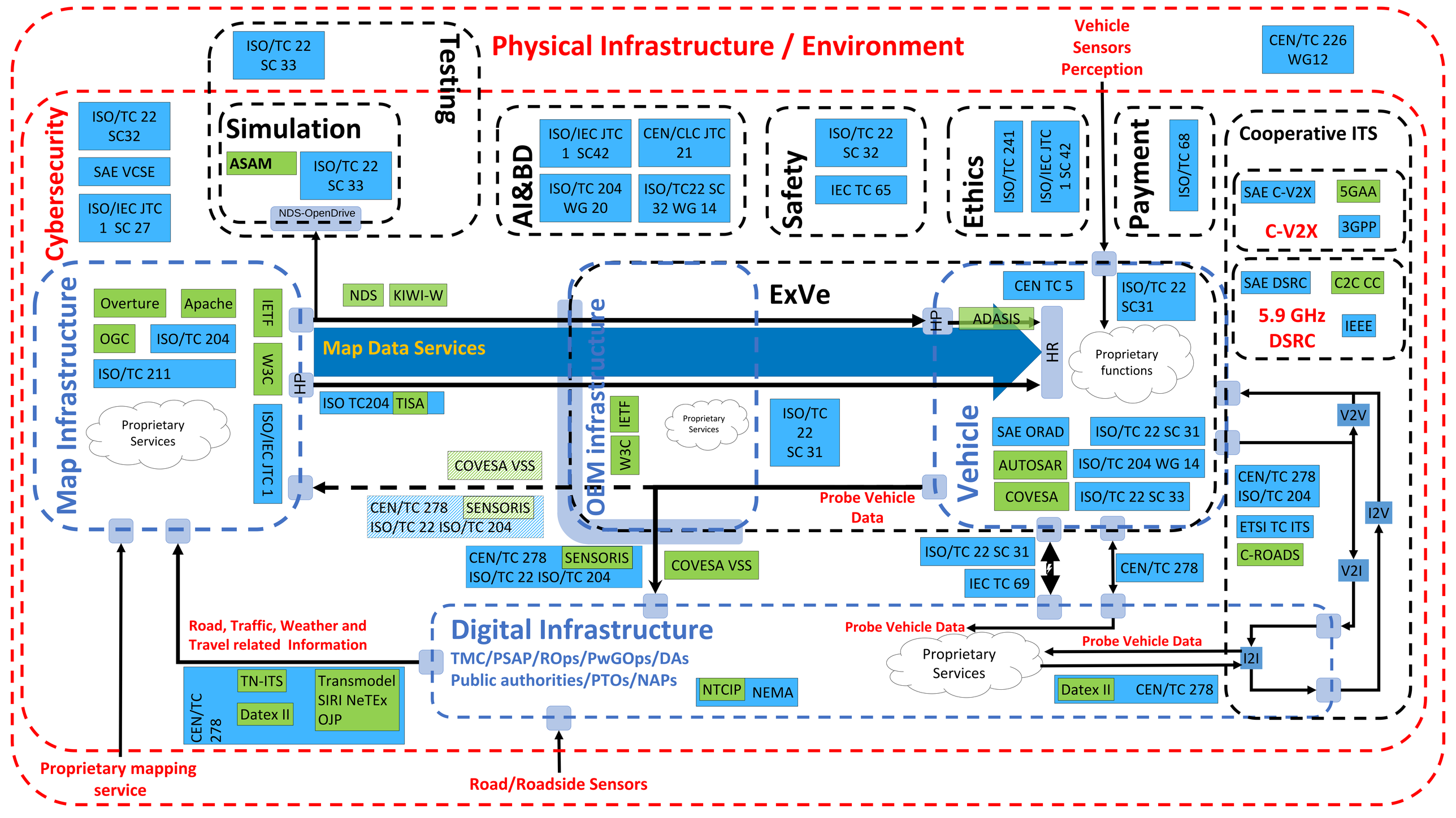
Datex II
Transmodel SIRI NeTEx OJP
Proprietary mapping service
Road/Roadside Sensors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Road, Traffic, Weather and Travel related Information
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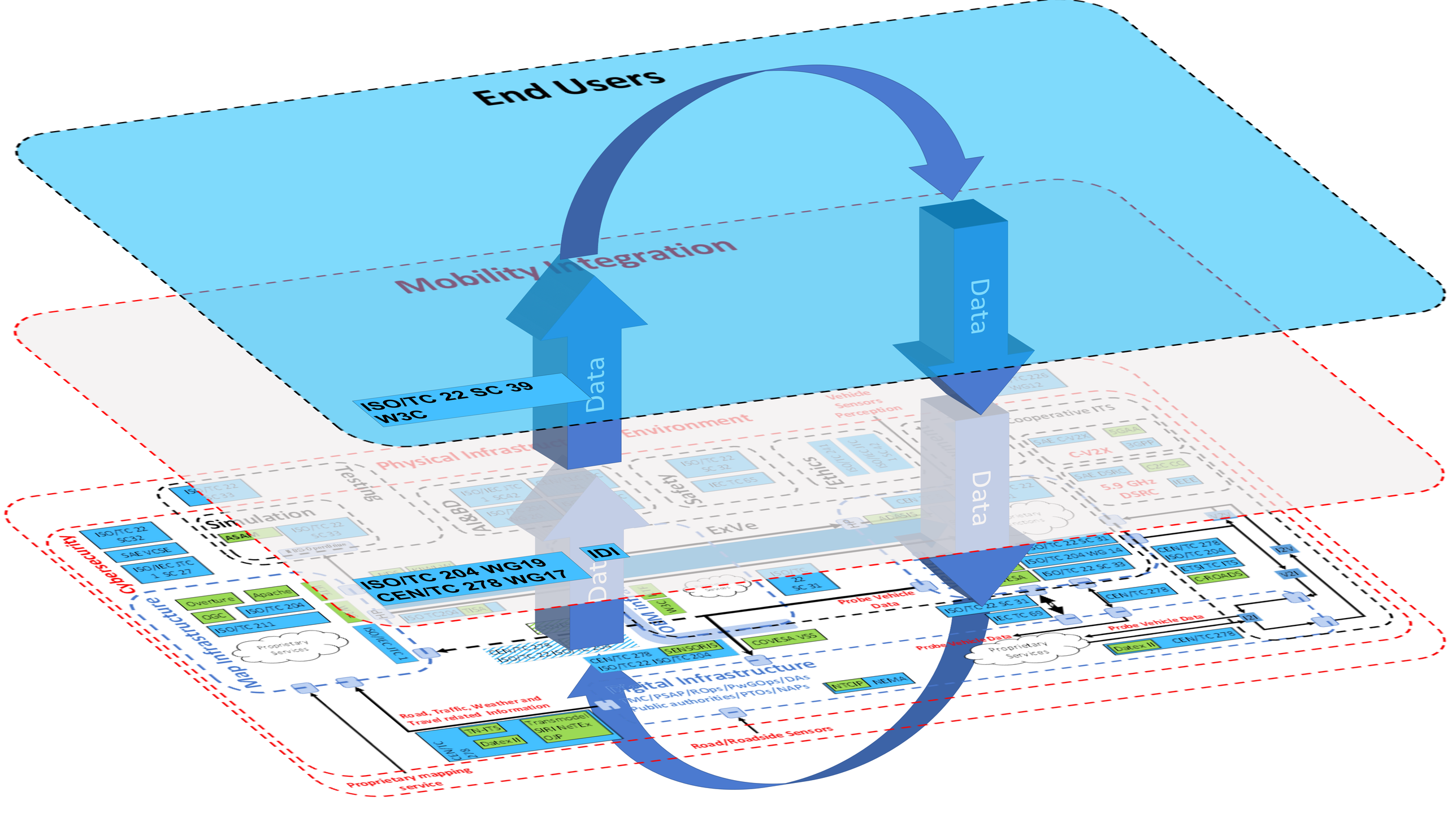
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C-ROADS

Data for Road Safety ecosystem

DFRS Ecosystem

Data Source

- A Party that generates Data (L2), Data (L2') and/or Data (L3);
- The Data Source is responsible for contributing original, new content into the ecosystem; and
- A typical L2 Data Source would be a vehicle OEM contributing L2 Data to the ecosystem.

Data Access Interface Provider (L2)

- Provides access to L2 data;
- For vehicle L2 data usually executed by an OEM or a delegated entity; and
- For public authority L2 data usually executed by road operator.

Aggregator (L2 to L2')

- A Party that uses Data (L2) to create Data (L2') e.g. by harmonizing and cleansing L2 data from L2
- data sources.

Data Access Interface Provider (L2 Prime)

- Provides access to L2 prime data (Refer to Appendix 1 - L2' Data)

Creator (L3)

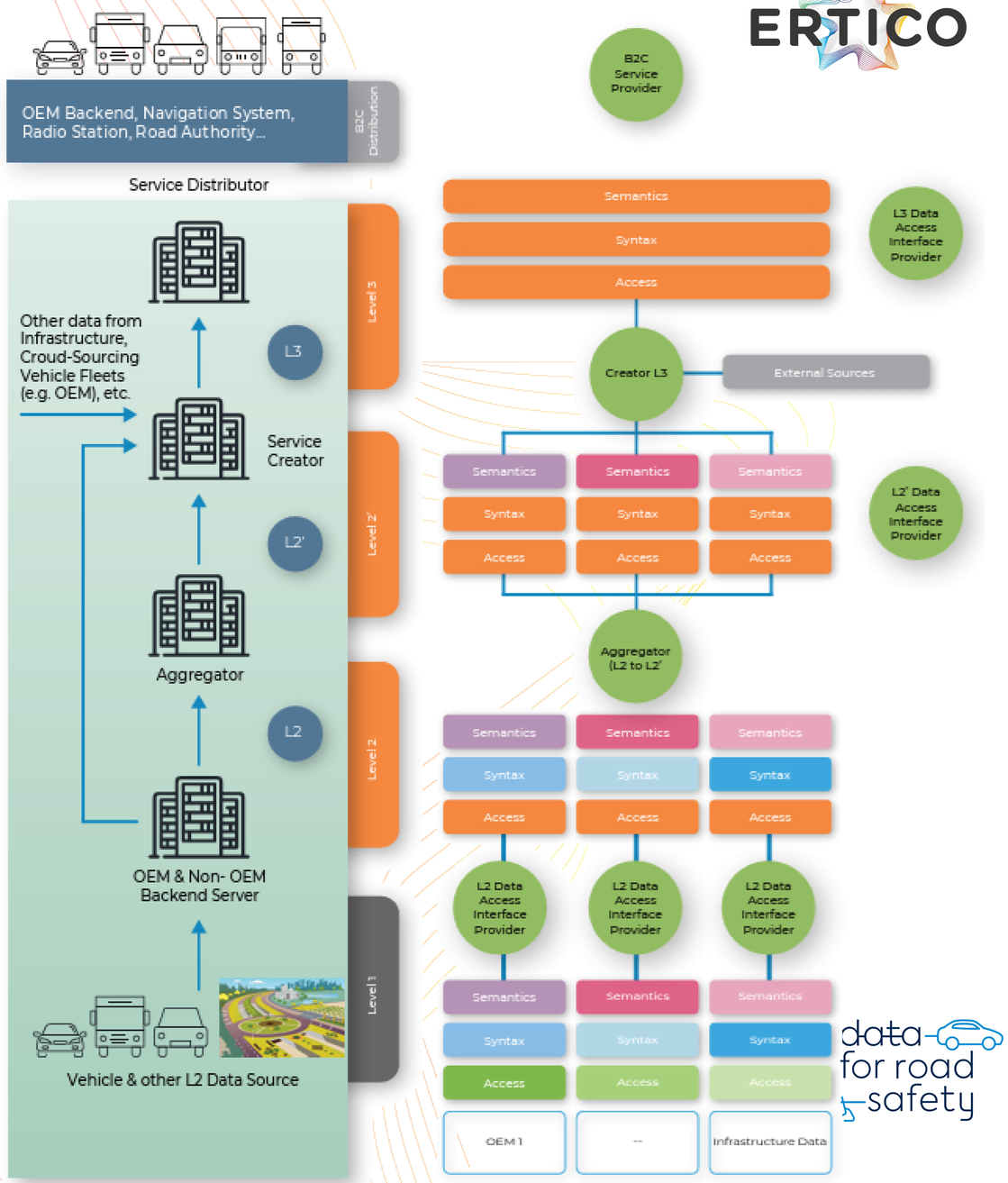
- A Party that creates Data (L3) from varying sources including Data (L2) and/or Data (L2') and/or
- Data (L3) acquired through the SRTI Ecosystem and/or external data sources.

Data Access Interface Provider (L3)

- Provides Access to L3 data

Service Provider

- A Party that renders and distributes Data (L3) acquired through the SRTI Ecosystem directly to an end user (i.e. driver in vehicles).



Data standards in the DFRS ecosystem

L2 data implements SENSORIS specification

- Provides a standard way for OEMs to supply L2 vehicle sensor/trigger data into the DFRS pipeline; DFRS explicitly lists SENSORIS as the standard to be used for L2 inputs.
- Carries rich perception/road-environment attributes (e.g., hazards, conditions), making it well-suited to feed DFRS's SRTI categories derived from in-vehicle sensing.
- Data-efficient, resolution-scalable encoding reduces uplink bandwidth while keeping flexibility for research/PoC fields—useful for broad OEM participation in DFRS.
- Supports cloud-to-vehicle request messages so fleets can collect just-in-time, area-specific evidence for SRTI event creation.
- Widely recognised across the ecosystem (OEMs, map/service providers), easing interoperable ingestion of probe/perception feeds into SRTI service creator

L3 data implements DATEX II

- DFRS encodes all L3 SRTI with a common DATEX II profile (SRTI Recommended Reference Profile), ensuring compliance with Delegated Regulation 886/2013.
- DATEX II Recommended Profiles provide a harmonised, slim exchange for cross-border SRTI publication and consumption.
- Maintains cross-standard mappings (DATEX II ↔ DENM/TPEG2/TMC) so safety events flow consistently across C-ITS and broadcast ecosystems.
- Proven integration with National Access Points (e.g., ASFINAG example) and profiling, supporting wide dissemination to service providers.
- Backed by a multi-party cooperation (DFRS, DATEX II/NAPCORE, TISA, C-ROADS, C2C-CC) to harmonise SRTI message sets and governance.

SENSORIS specification in a nutshell

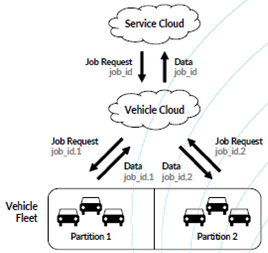


Figure 10. Example for split of job requests by vehicle cloud

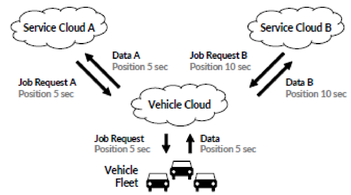


Figure 9. Example for consolidation of job requests by vehicle cloud

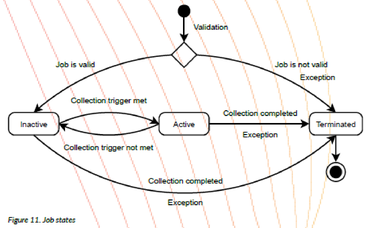


Figure 11. Job states

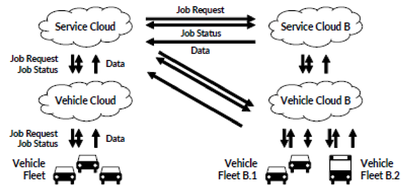


Figure 2. Multiple actor roles and interface

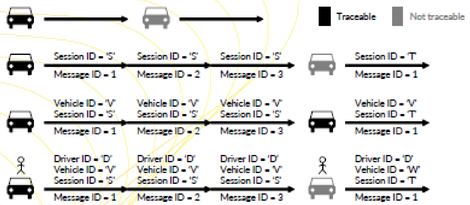
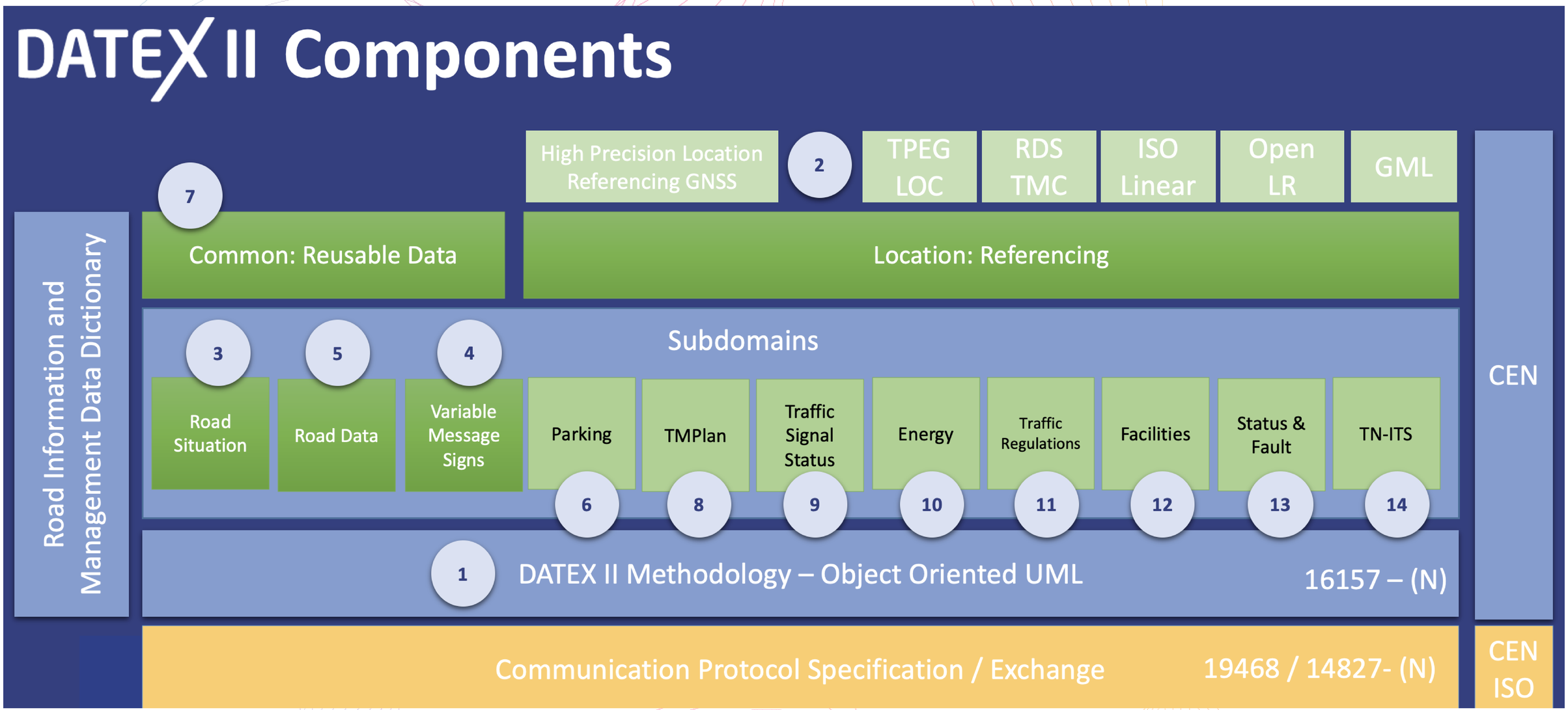
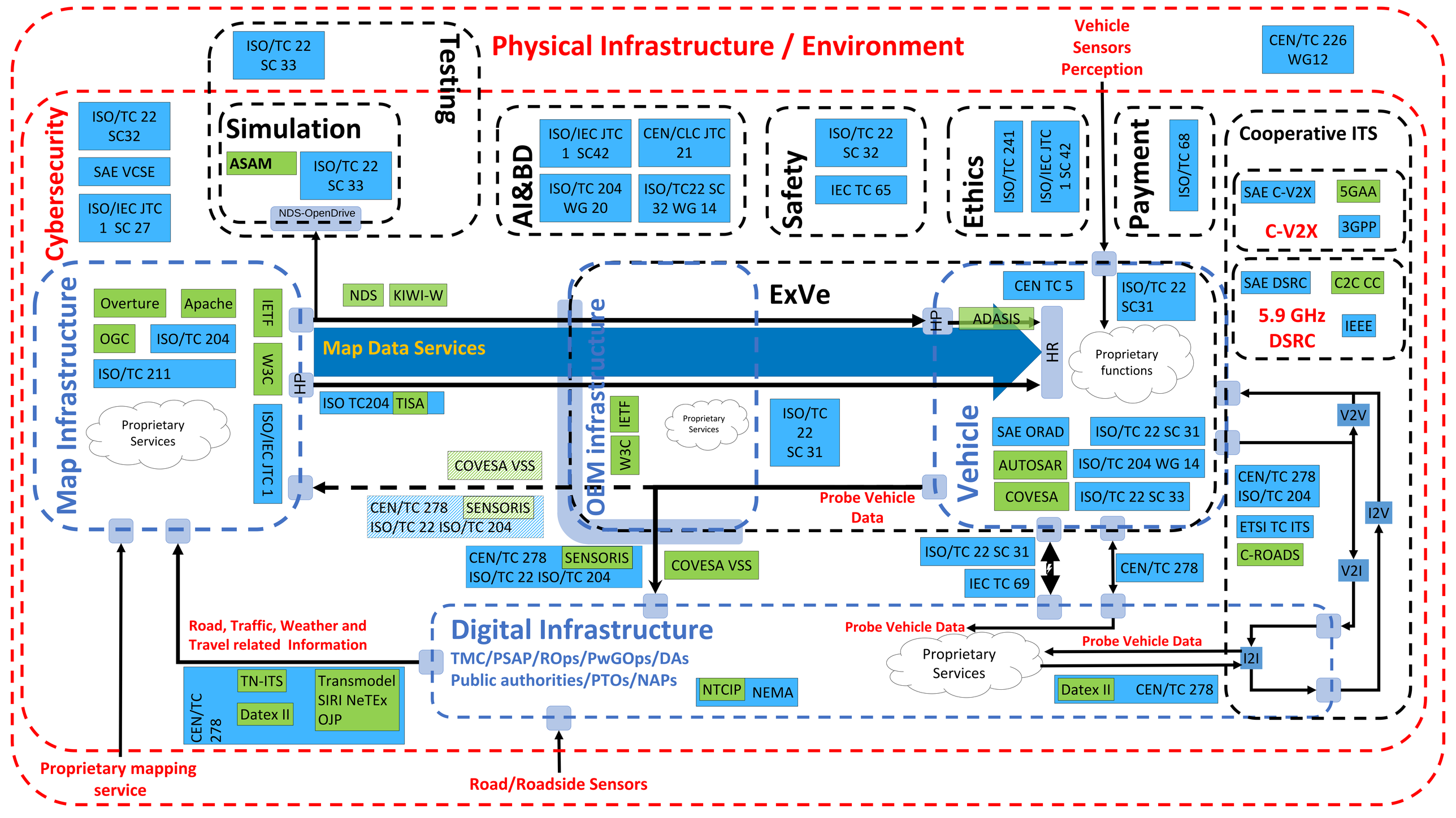


Figure 6. Identifiers and impact on privacy

DATEX II in a nutshell

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Safety
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C2C CC
5.9 GHz DSRC
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Overture
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COVESA VSS
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Probe Vehicle Data
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IEC TC 69
CEN/TC 278
Road, Traffic, Weather and Travel related Information
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TMC/PSAP/ROps/PwGOps/DAs
Public authorities/PTOs/NAPs
NTCIP
NEMA
Probe Vehicle Data
Probe Vehicle Data
Proprietary Services
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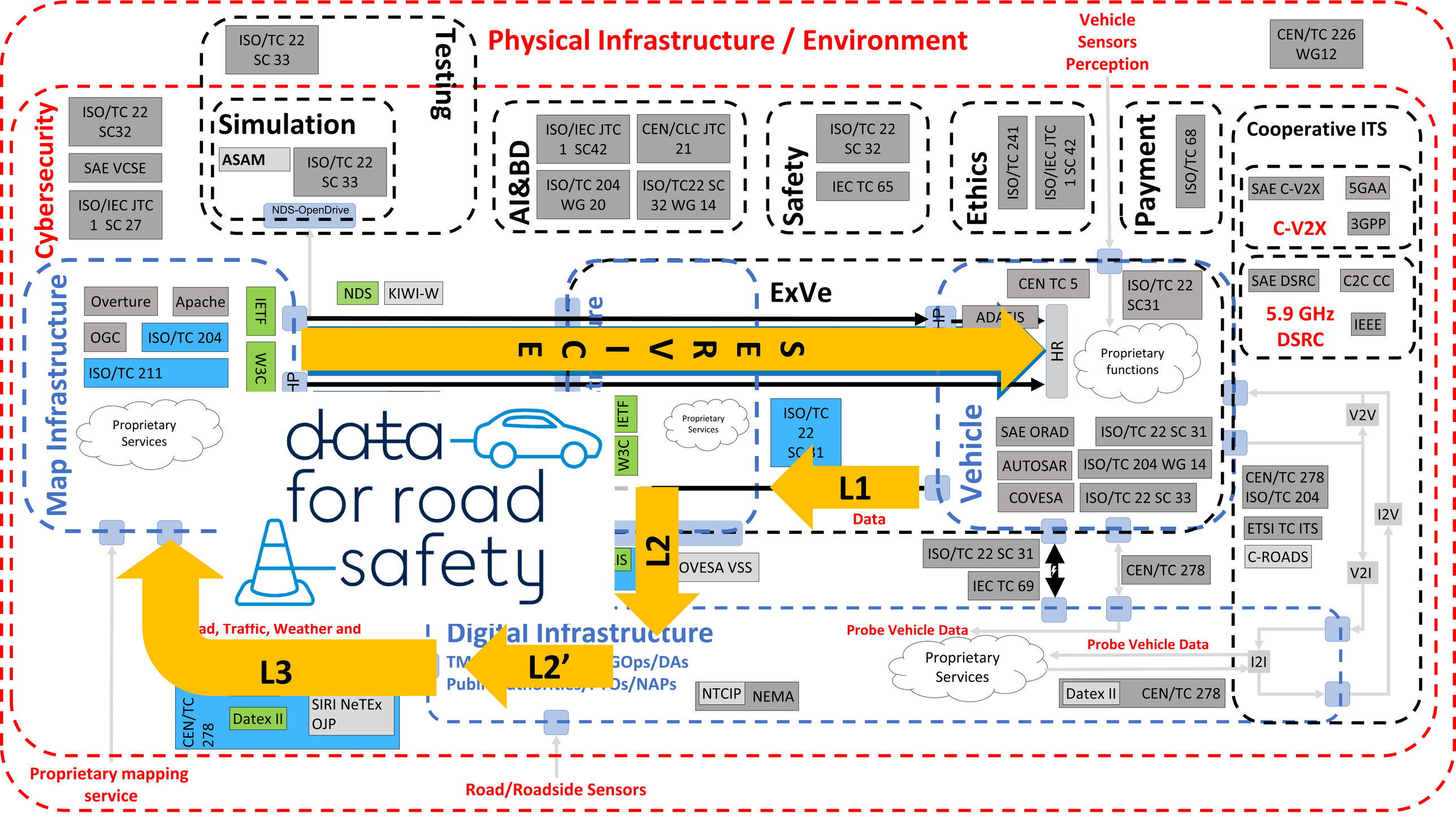
CEN/TC 278
CEN/TC 278
TN-ITS
Datex II
Transmodel
SIRI NeTEx
OJP
Proprietary mapping service
Road/Roadside Sensors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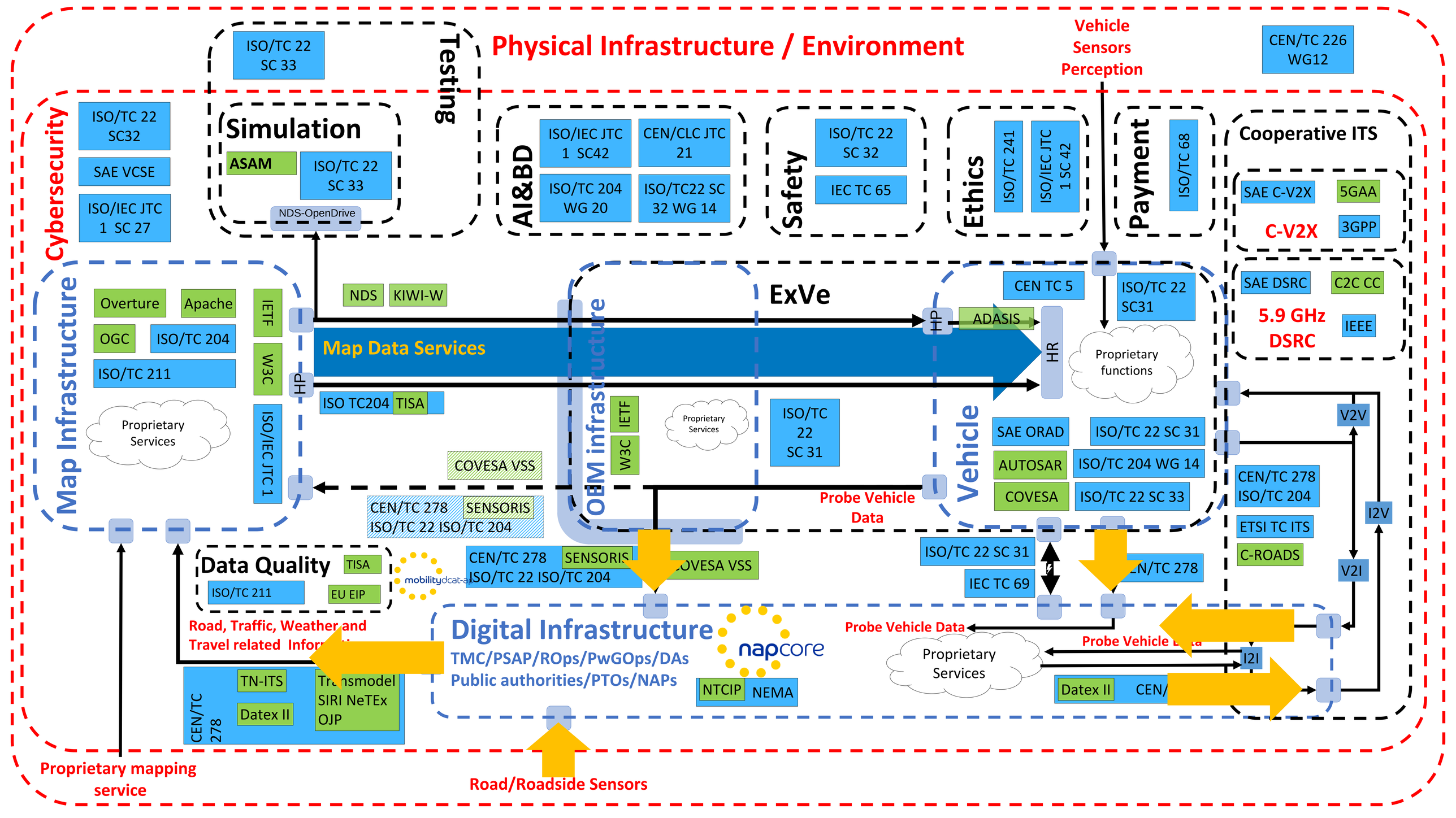
NAPs and EMDS

Mobility
Data Space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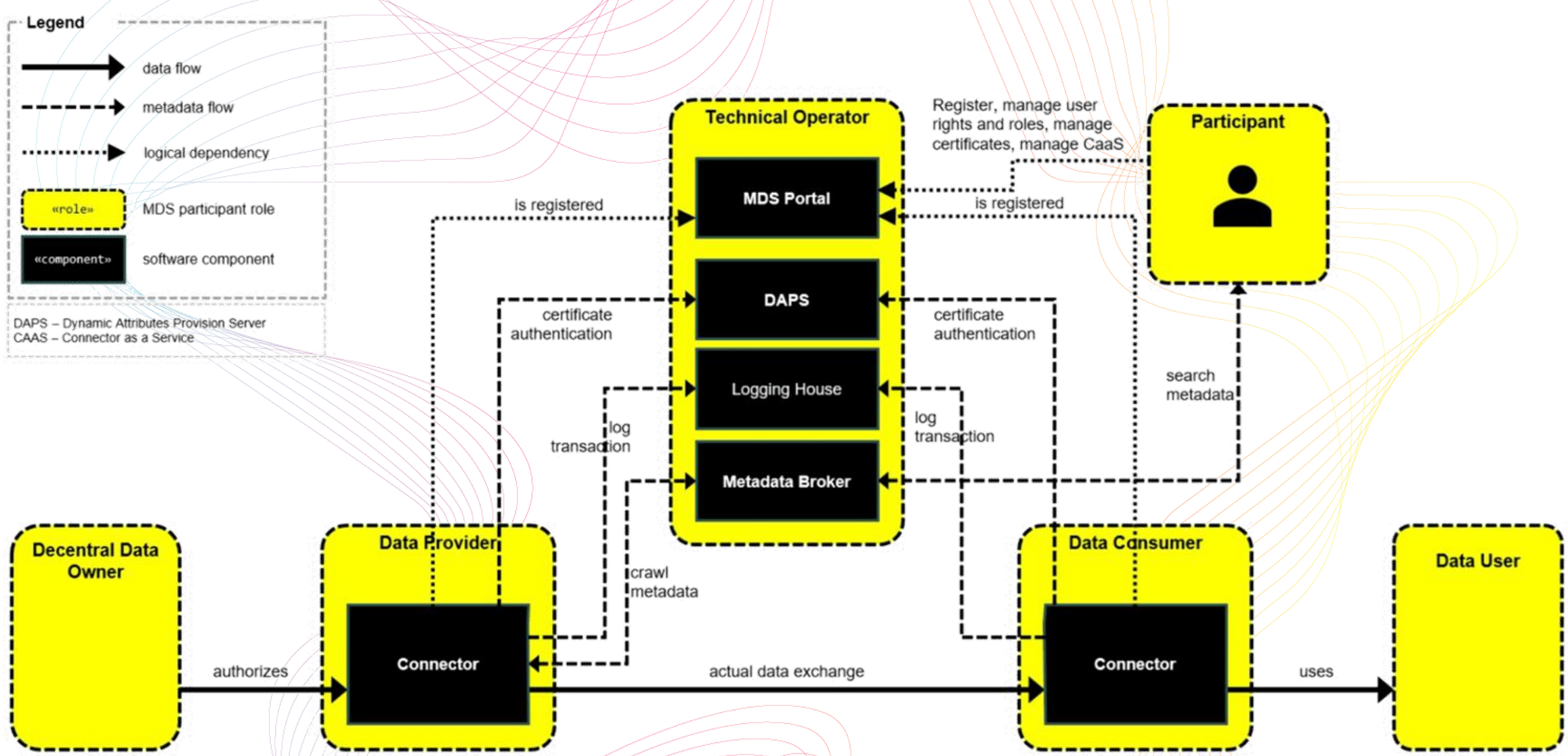
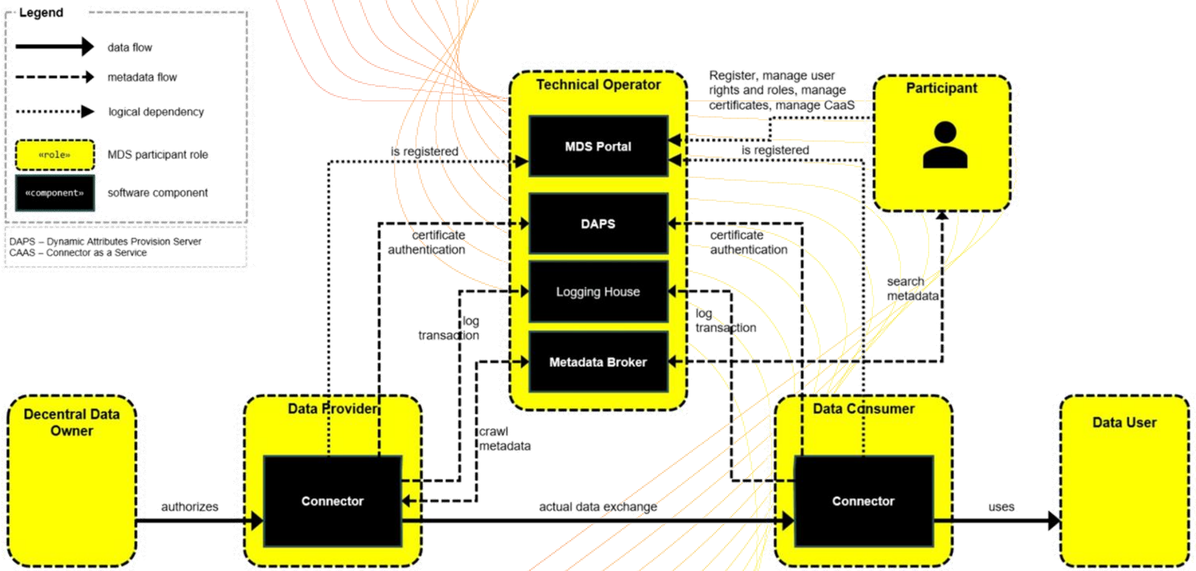
MDS architecture diagram



Mobility Data Space

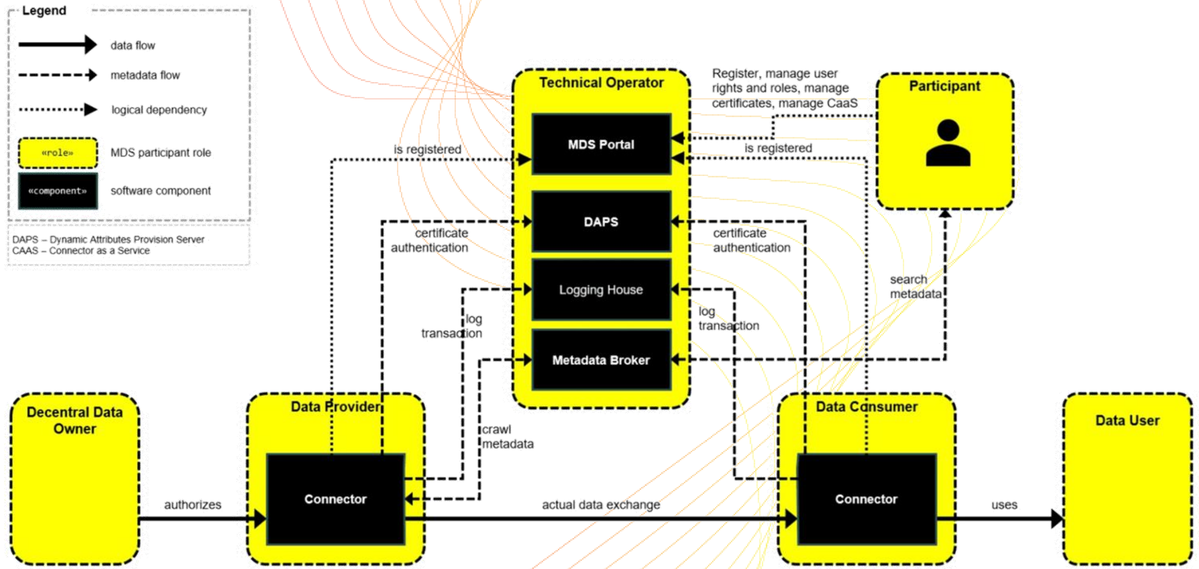
MDS architecture



MDS architecture

MDS overview:

- decentralized data space using DCAT-AP/mobilityDCAT-AP metadata standard;
- single standardized connector;
- data sovereignty with provider/metadata catalogs.



Data Quality

Data Quality requirements in the legal texts

SRTI 886/2013

Paragraph 11: To keep universal road-safety traffic information reliable and useful, Member States should set and monitor minimum quality criteria and targets for all event types and networks—and share their analyses and best practices with the Commission

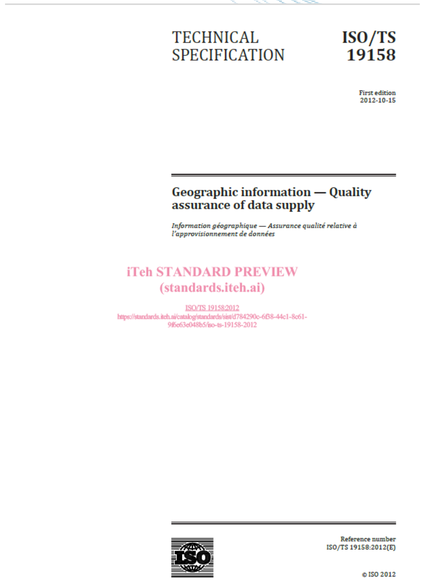
- The Safety-Related Traffic Information (SRTI), minimum quality is defined by the EU's European ITS Platform's "Quality Package" and assessed by criteria like location accuracy, event coverage, and classification correctness.

RTTI 2022/670

Paragraph 21: Member States and ITS stakeholders should be encouraged to cooperate to agree on common definitions of data quality with a view to use common data quality indicators throughout the traffic data value chain, such as the completeness, accuracy and up-to-dateness of the data, the acquisition method and location referencing method used, as well as quality checks applied.

- Traveler Information Services Association developed the RTTI 5 Star Rating specification for this purpose.

Data Quality relevant documents



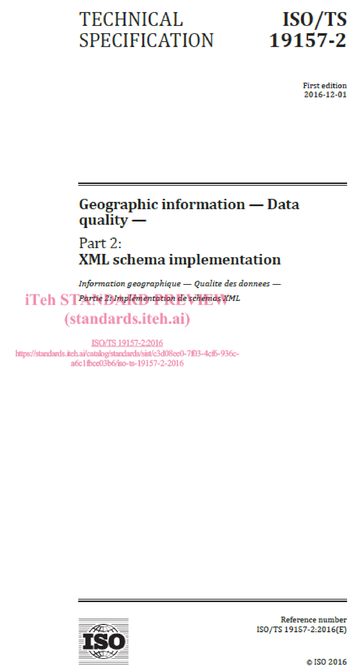
TECHNICAL SPECIFICATION **ISO/TS 19158**

First edition
2012-10-15

Geographic information — Quality assurance of data supply

Information géographique — Assurance qualité relative à l'approvisionnement de données

Reference number
ISO/TS 19158:2012(E)



TECHNICAL SPECIFICATION **ISO/TS 19157-2**

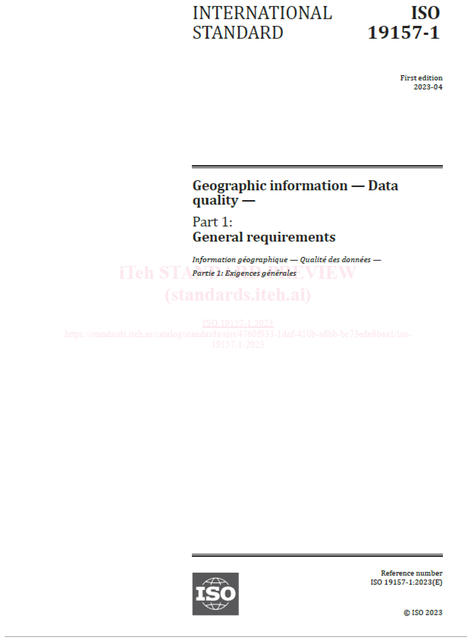
First edition
2016-12-01

Geographic information — Data quality —

Part 2:
XML schema implementation

Information geographique — Qualite des donnees —
Partie 2: Implementation de schemas XML

Reference number
ISO/TS 19157-2:2016(E)



INTERNATIONAL STANDARD **ISO 19157-1**

First edition
2023-04

Geographic information — Data quality —

Part 1:
General requirements

Information géographique — Qualité des données —
Partie 1: Exigences générales

Reference number
ISO 19157-1:2023(E)

EUEIP European ITS Platform

Quality of Safety-Related and Real-Time Traffic Information Services

Quality package

EU EIP SA 4.1: Determining Quality of European ITS Services

Version: 2.0

Date: May 15, 2019

Co-financed by the European Union Connecting Europe Facility

http://www.its-platform.eu

TISA Traveller Information Services Association

RTTI 5-Star Rating Specification ★★★★★

21 October 2025 / Version 1.0

Conclusions

Conclusions

- Data quality metrics need to be agreed
- Map input data (data elements, attributes, metadata) to the output needs
- Business model needs to be explored and established to make the data loop sustainable
- Support mobility data standardisation and harmonization to further strengthen interoperability
- Facilitate data access using standardised interfaces and simple authorization process (connector)
- Data is gold, but needs hard work to make value of it

Thank you! Merci! Danke!

a.csepinszky@mail.ertico.com