DATEX II

ASECAP DAYS

COSTA NAVARINO 2019

DATEX II supporting the extended ITS Services domain

from CCAM ITS Value Chain to logistic, inter-modality, urban, interurban support!

Costa Navarino, Messinia, Greece
29-31 May 2019

www.asecapdays.com

Fabrizio Paoletti
Autostrade per l'Italia

ITS standards and regulation

DATEX PSA organisation

Organized by

ASECAP
Association Européenne des Concessionnaires d'Autoroutes et d'Ouvrages à Péage

Overview

- ***autostrade // per l'Italia*** in Data Exchange & DATEX
- **DATEX** Project Organisation
- **DATEX II characteristics and evolutions:**
  - Support to **Road Network Management**
    - Ongoing **Standardisaton**
  - Support to **ITS Services** implementations:
    - **ITS Value chain**: the **evolving role** of Road Operators
    - **Extending domains:**
      - **DATEX II in Urban ITS, Traffic Regulations, CCAM, ADAS**

autostrade // per l'Italia @ DATEX II

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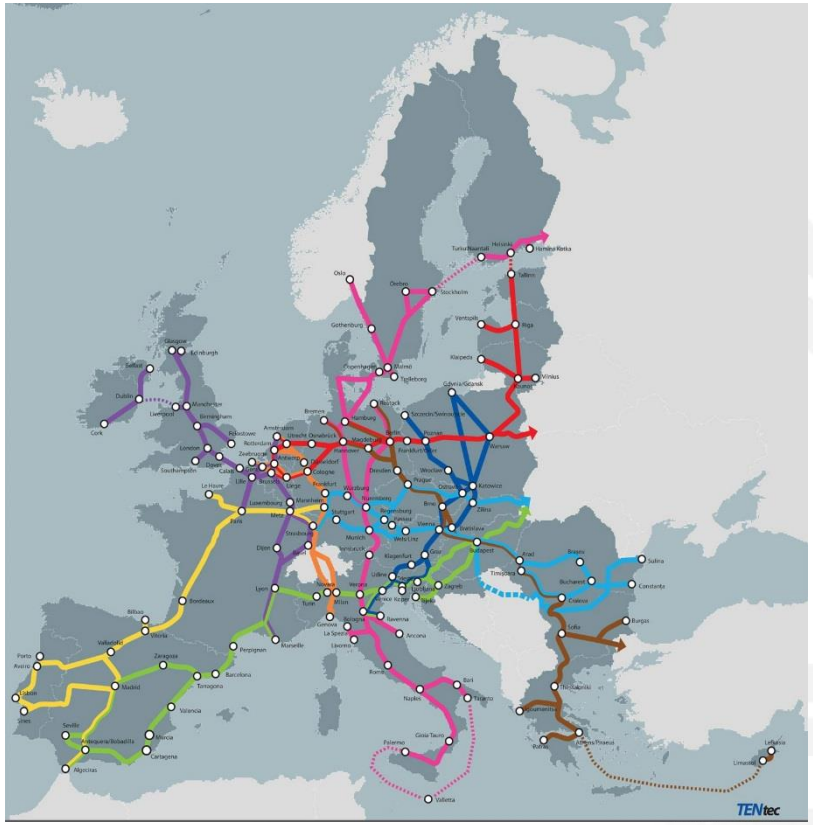
Autostrade group
- 2,964 km
- **13 TCCs**
- **1 TIC**
- 2.9 million vehicle per day

Italy Concessions
- 6000 km
- **+ 17 Concessions** operating TCC
- **1 National TIC CCISS**



- **motorways network**
- **State road**
- **Regional Roads**
- **Municipalities**

Distributed Road Network Management ⟷ **DATA EXCHANGE** ⟷ **DATEX II** ⟷ seamless **ITS Services** pan-european

DATEX II PSA organisation & activities

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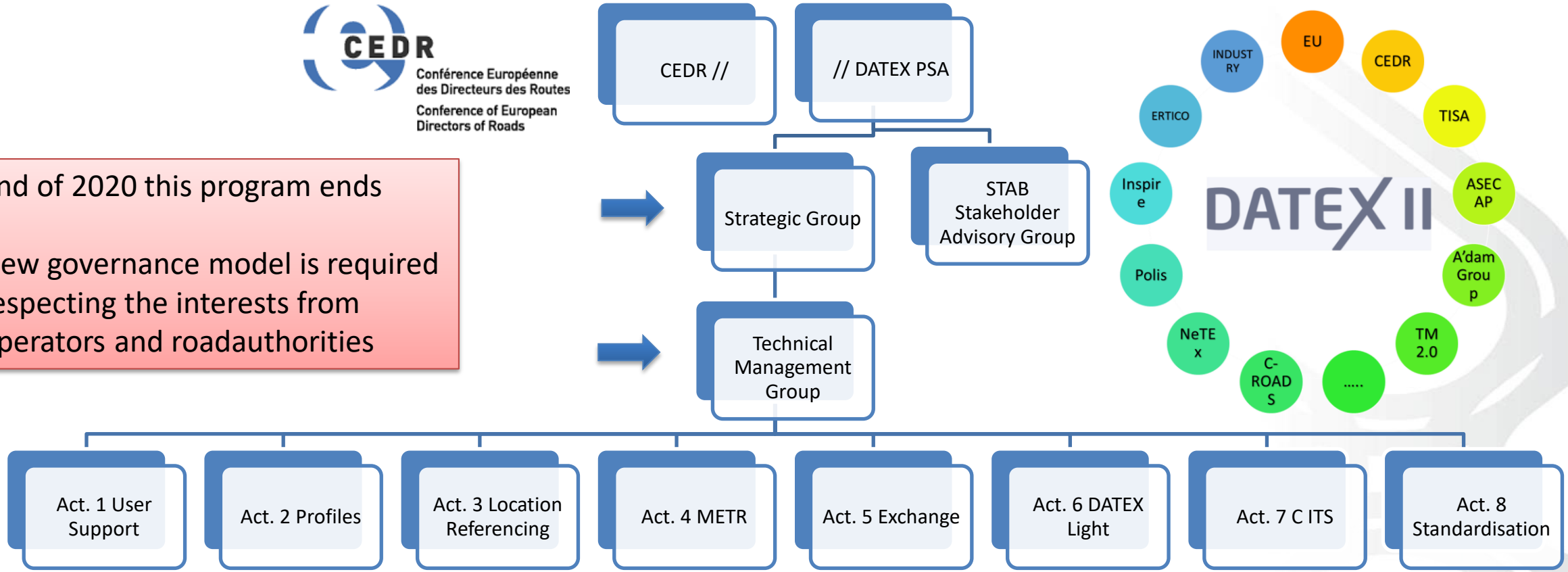
CEDR
Conférence Européenne des Directeurs des Routes
Conference of European Directors of Roads

End of 2020 this program ends

New governance model is required respecting the interests from operators and roadauthorities



European Commission

Some activities of the DATEX II organization are funded through EU CEF Programme Support Action (PSA) Agreement MOVE/C3/SUB/2015_547/CEF/PSA/SI2.733309 RWS

What is DATEX ?

DATEX II

- **standardised e-language for road traffic and travel data exchange** between:
  - **traffic control centres,**
  - **traffic information centres**
  - **service providers.**

CEN TC278/WG8
ISO TC204/WG9

Field of Application / ITS Services

Traffic Information

Traffic Management

Freight & Logistics

Upcoming ITS Services

Urban ITS

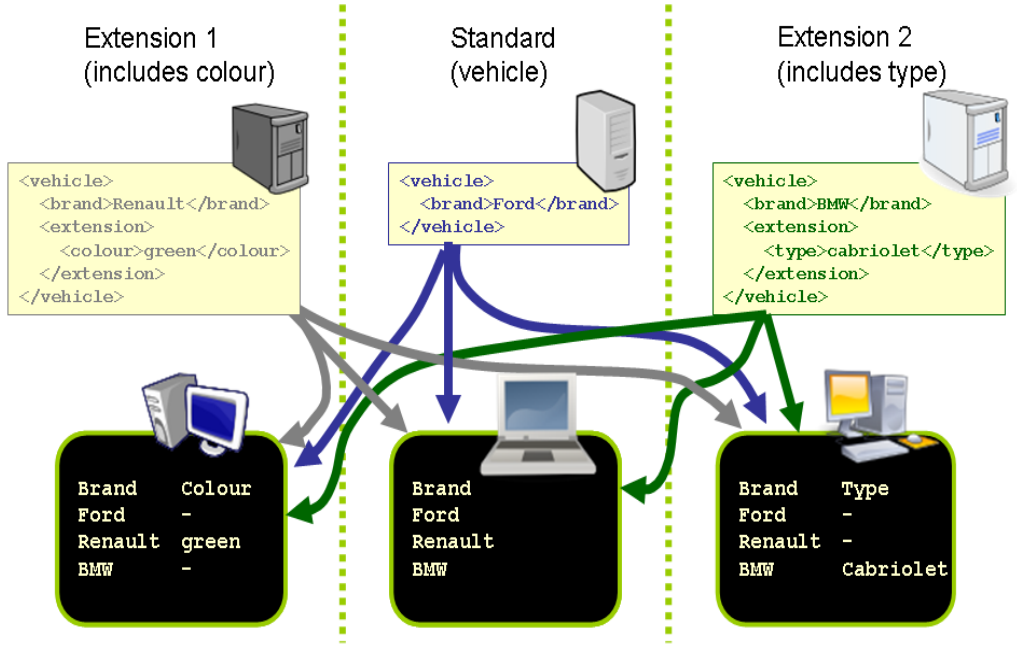
Traffic Regulations

***ADAS** Support (**C ITS, CCAM**)*

DATEX II characteristics

- DATEX II is an extensive information model for traffic and travel information, which separates the content and the exchange of information.
  - **makes use of mainstream IT technologies, e.g. XML, webservices.**
  - ***can be customized with profiles and extensions and adapted to your own needs.***

- **language independent** and can therefore be used by all road operators in Europe.
- **mainly a method and therefore sustainable** in time and an organization, which safeguards the standardization work.
- **covers the entire information chain**.



Modeling Language: UML
Coding
XMLSchema
.. ASN.1, **JSON schema**
Exchange Platform
http, SOAP Web Services
.. **JMS**

DATA Exchange in a Road Operator Vision

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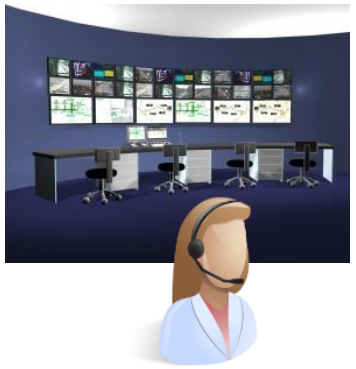
Goal: Information Delivery and Traffic Management



Monitoring

Decision

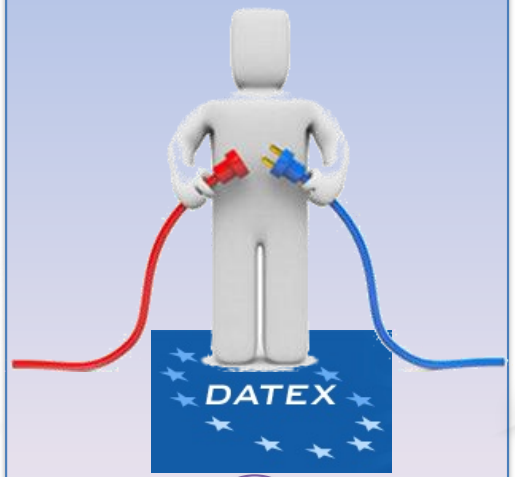
Operation

Centre to Centre Communication by DATEX

Monitoring

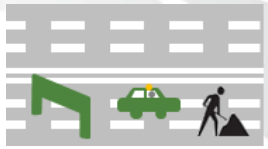
Decision

Operation



TCC 1 System

TCC 2 System



Road Operator Activities enabled by DATEX

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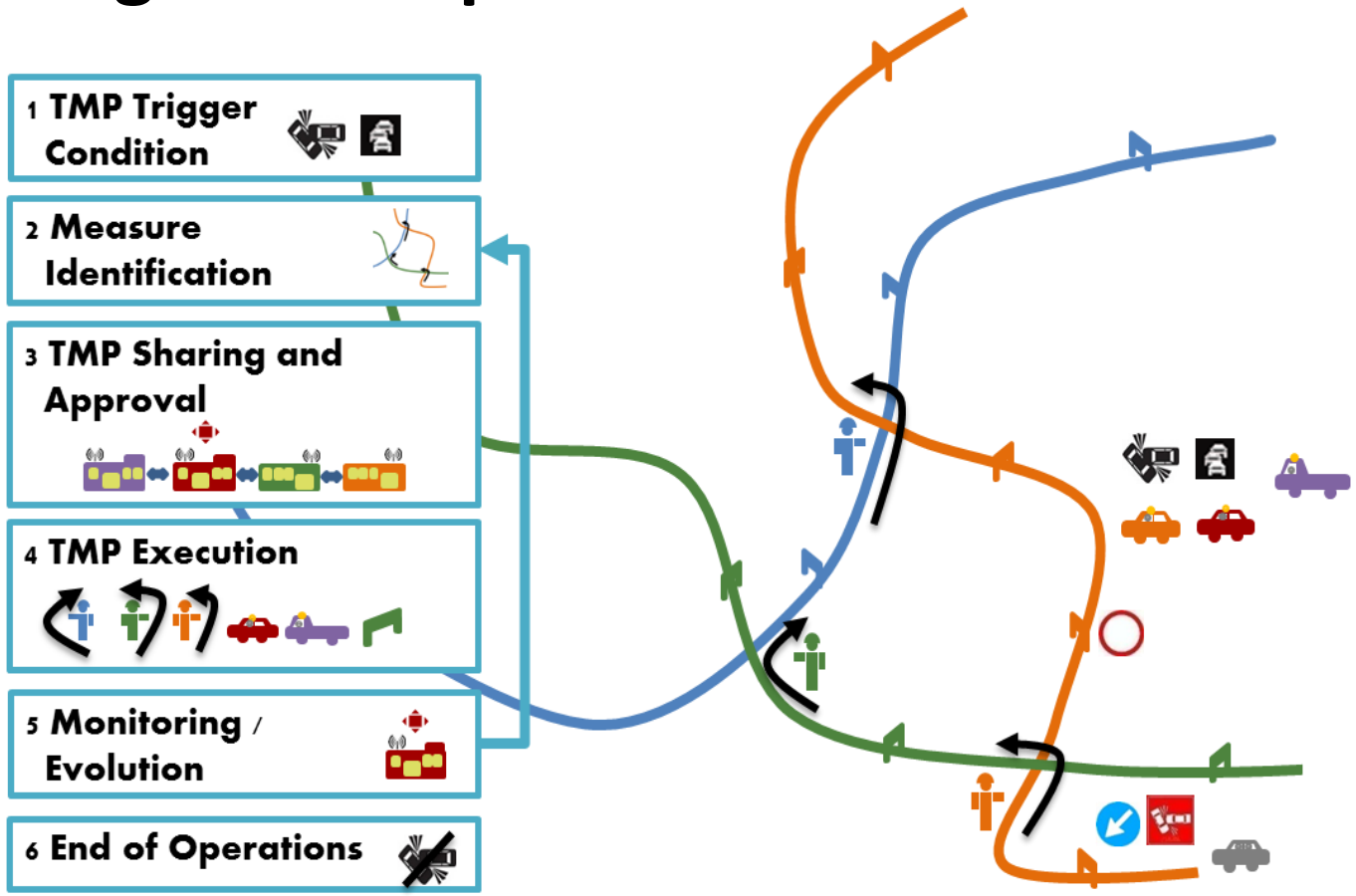
Traffic Information & Traffic Management Operations

- **Managing** Road Network
- in **Collaborative** way
  - **Traffic Management Plans**
  - **Althernative Paths**
  - **VMS Setting**
  - **Lane Control Systems**



NEW* VMS activation demonstrator

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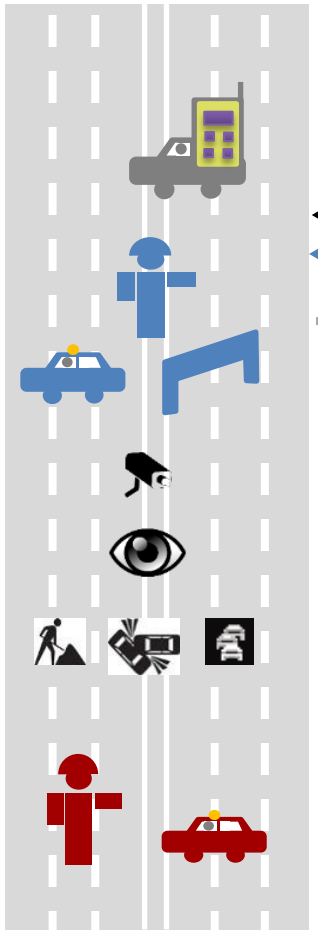
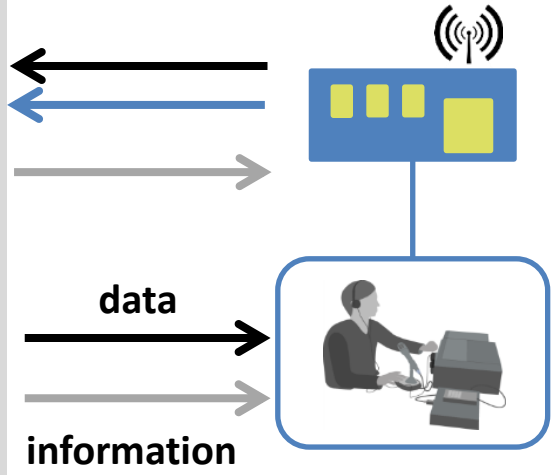
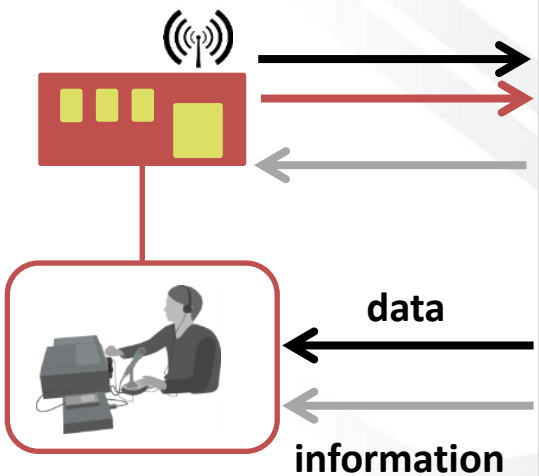
DATEX II

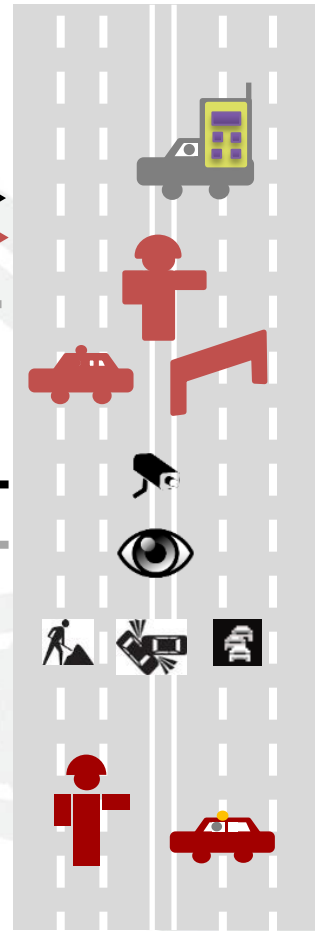
VMS Activation

1. → VMS Message proposal
2. ← Agreement on proposal
3. ← VMS Message activation
4. ←→ VMS Status ongoing Check
5. → VMS Message end
6. ← Feedback End of Message

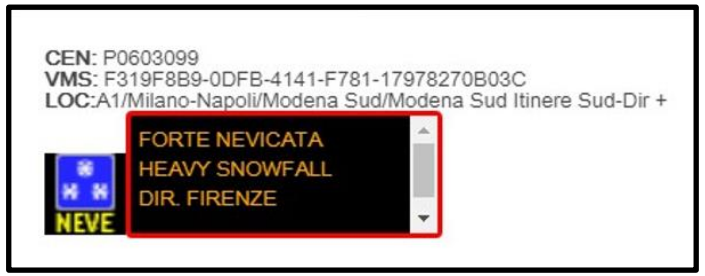




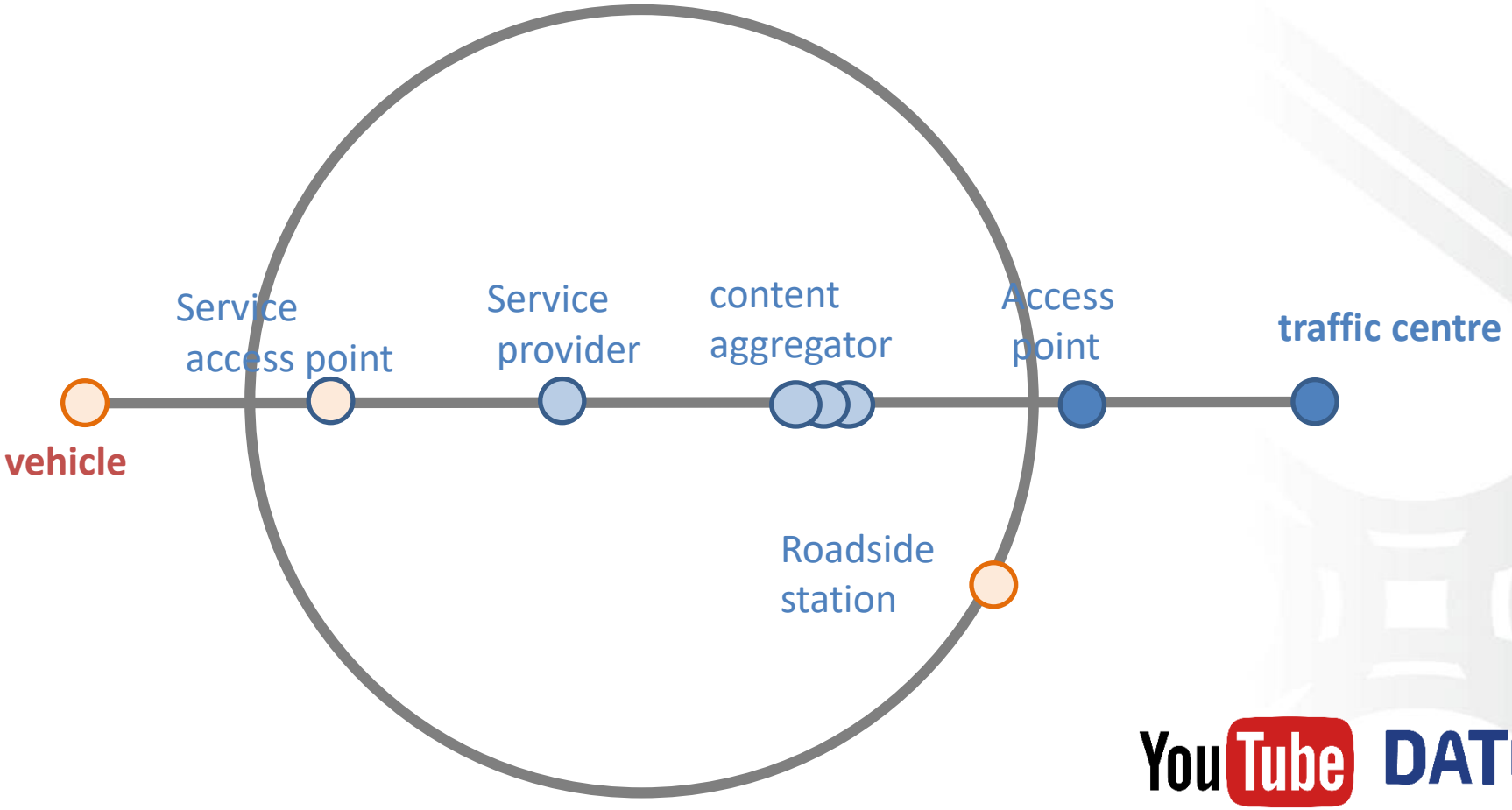




Collaborative ITS Services



C ITS / CCAM ➔ ITS Value Chain



YouTube DATEX II

www.youtube.com/watch?v=wC9gqXGmZE8

ITS Overall Architectures and Communications

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Infrastructure Manament

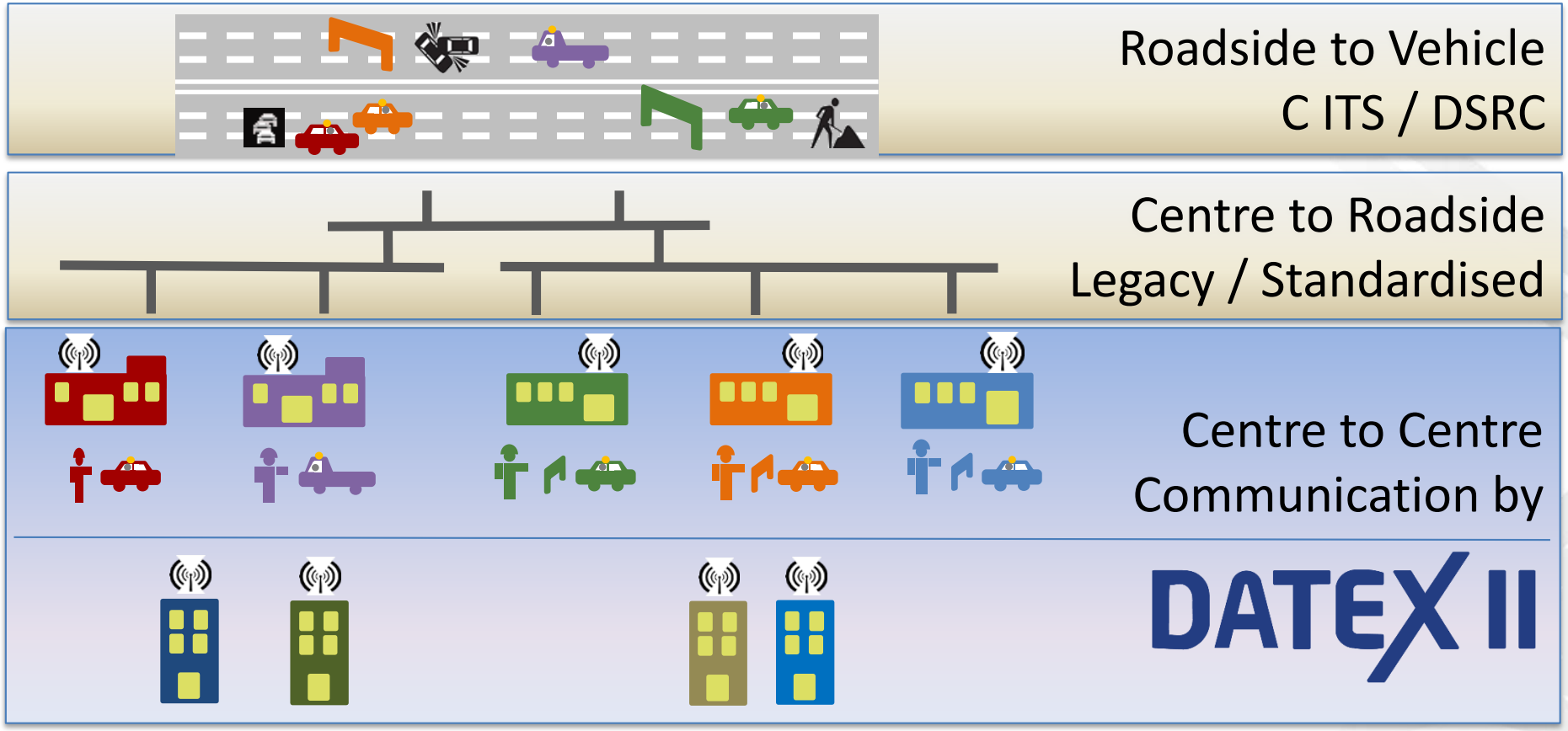
Road Operator TLC Infrastructure

Authorities
Rescue Services

Road Operators

Traffic Inf. Center
Tr.Inf / Tr.Mngmnt
Service Providers
Freight & Logistics
MaaS Providers

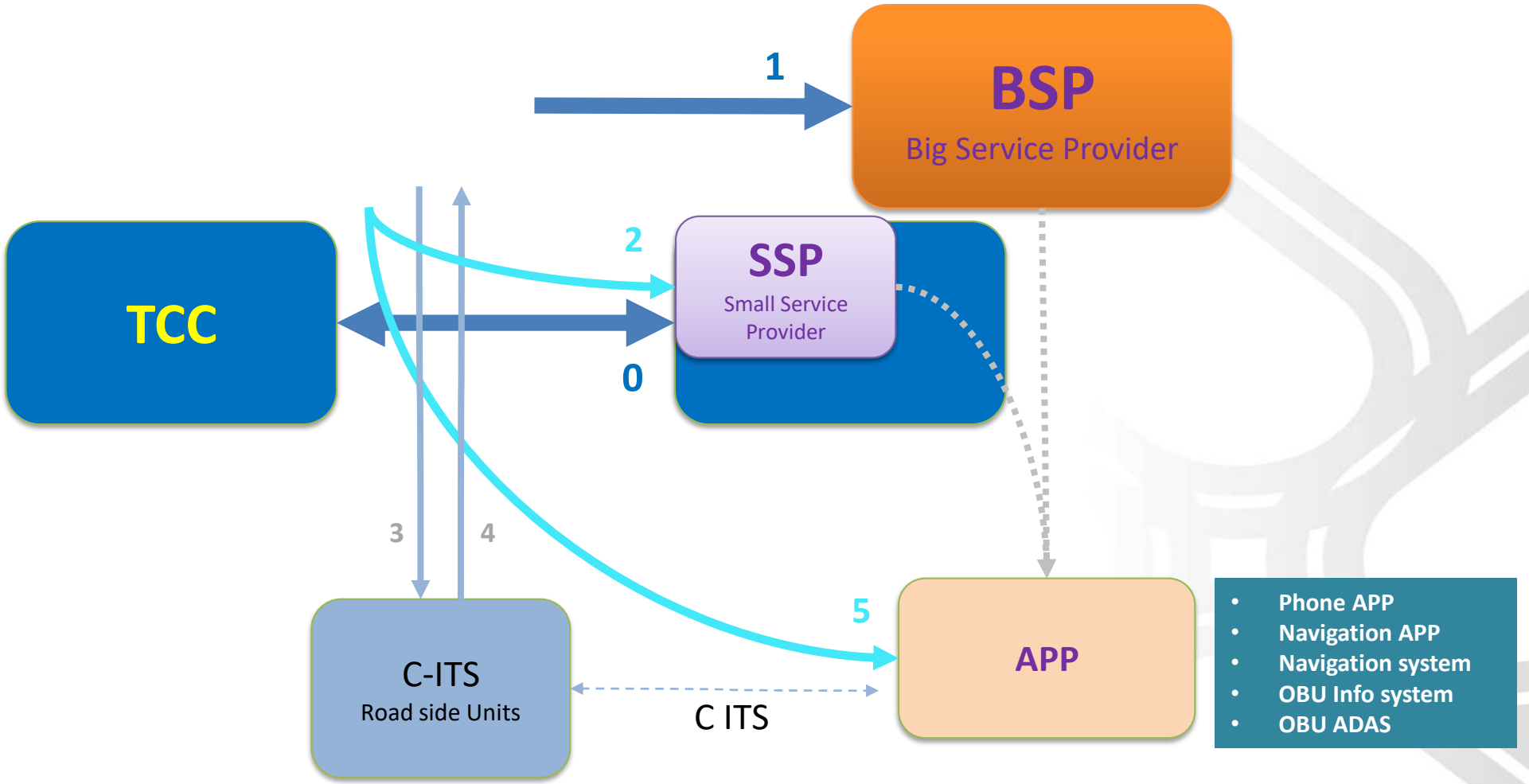
Road Users Customers



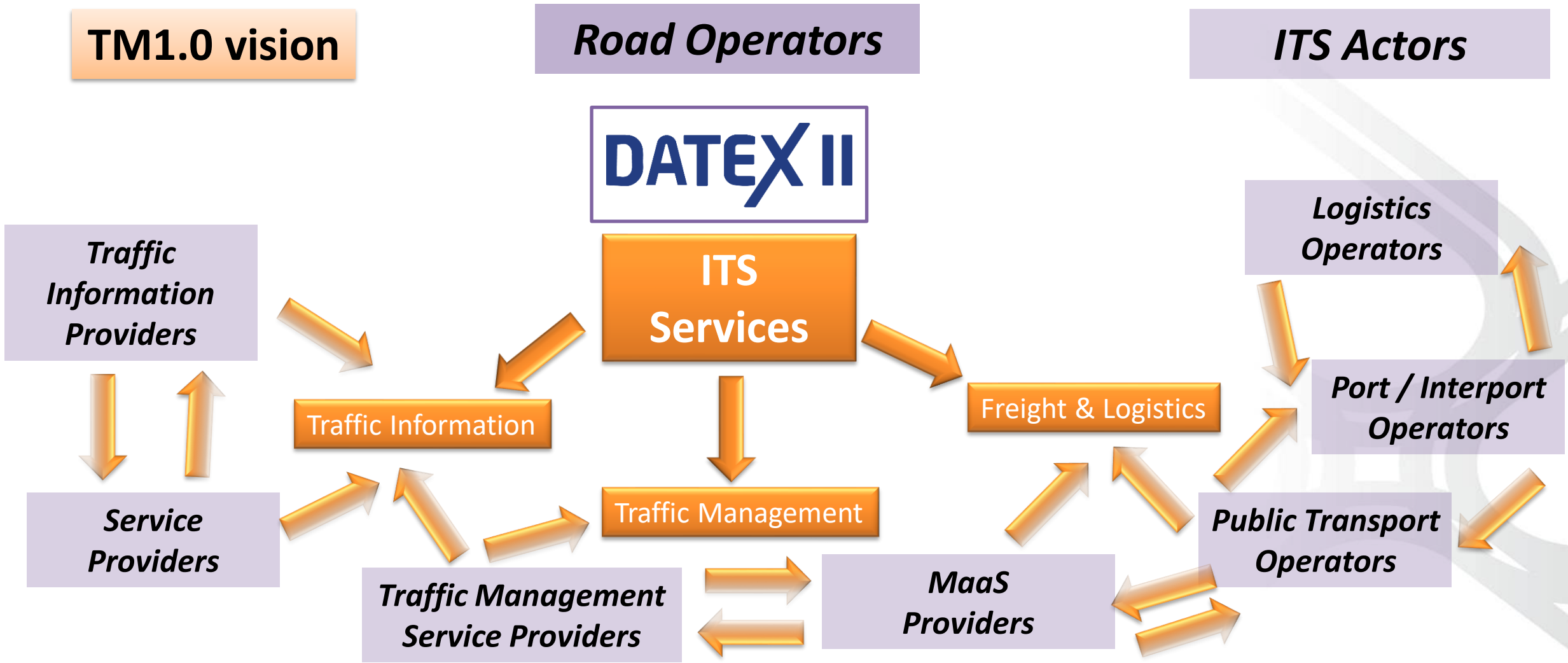
Standards Harmonisation & Interoperability issues

DATEX II & DII-Light Positioning

0. Original interface
1. DATEX XML full model
2. DATEX Light
3. Message protocol
4. Message protocol
5. DATEX Light



Road Operator Oriented ITS Services



Collaborative ITS Services Distributed Vision

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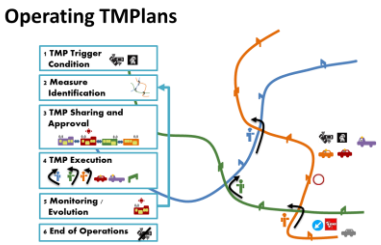
Operating TMPlans



Traffic Management SP

Road Operators

Logistics Operators

Port / Interport Operators

Traffic Information SP

DATEX II

Public Transport Operators

Service Providers

ITS Services

MaaS Providers

TM2.0 vision

Customer

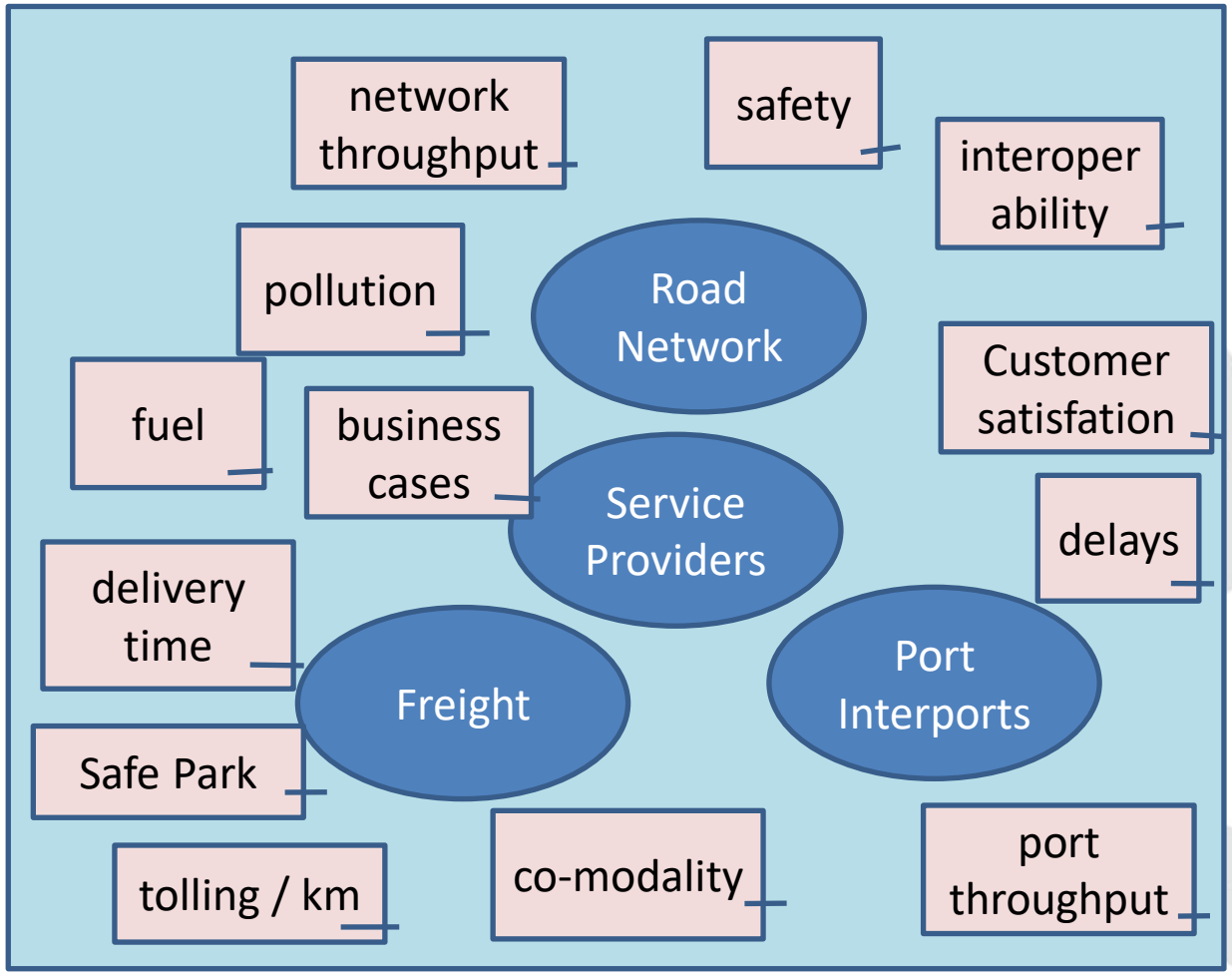
TM 2.0

www.tm20.org

Individual vs Global goals
Sustainability & Performance

LOGISTIC Chain project AEOLIX

- Complex Business case Systems
- Potential Synergy among
  - **Authorities / Road Operators**
  - **Port Authorities / Operators**
  - **Service Providers**
  - **Freight & Logistics**
- Challenge to achieve Improvement in all Business
  - **MANY COMMON GOALS**
  - **GLOBAL vs INDIVIDUAL KPI optimisation**



AEOLIX

http://aeolix.eu/

TM 2.0

www.tm20.org

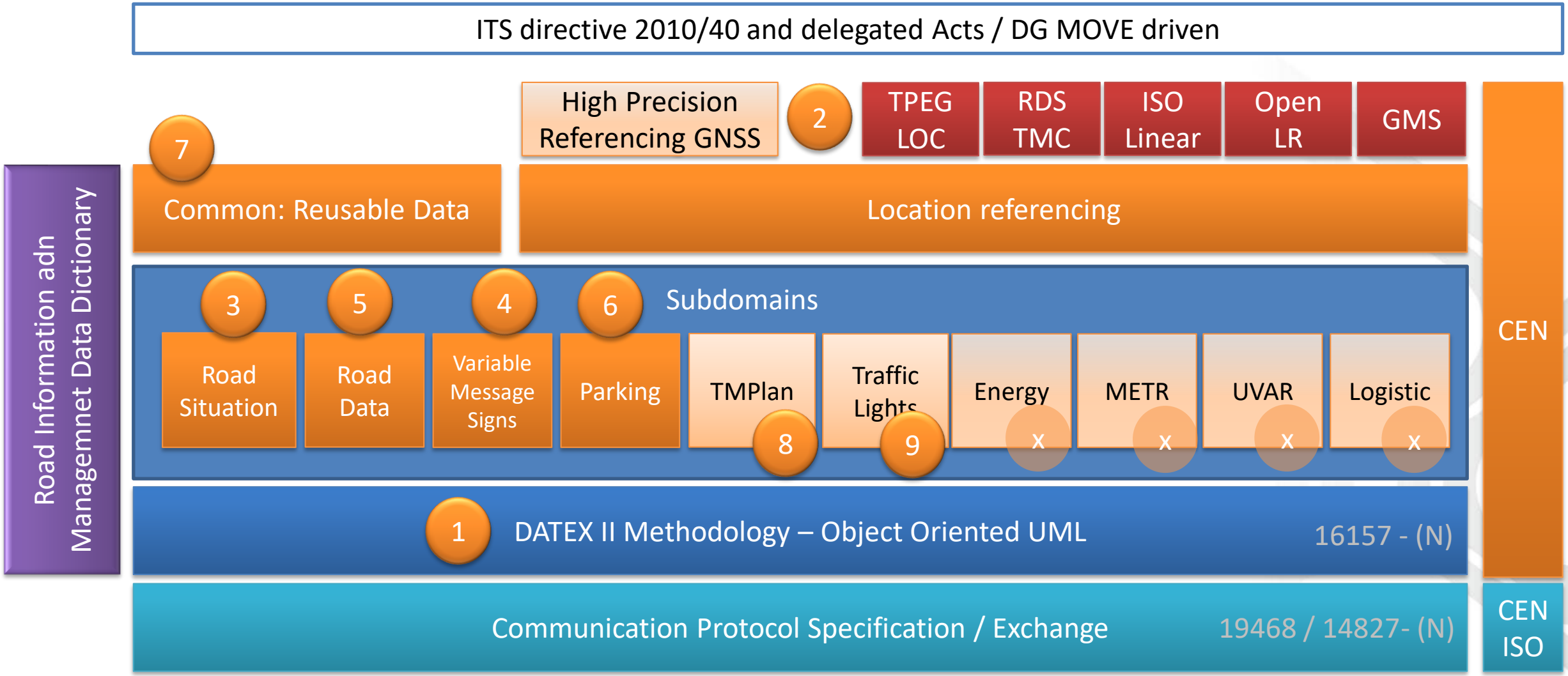
New task METR: Restrictions & Signs

CEN/TC 278
ITS standardization
www.itsstandards.eu

Management of Electronic Traffic Regulations

- Goals
  - encode traffic regulations electronically to be machine read, processed and correctly interpreted
  - Centralised National Databases
  - Information to service providers for In Vehicle Guidance
  - securely exchanged data in a traceable manner
- **e.g.**
  - Restrictions
  - Speed Limits
  - Lane Usage
- **Common Modeling activities**
  - **Location Referencing information improvement**
    - Urban Traffic
    - Lanes description / management

DATEX II Components



Conclusions

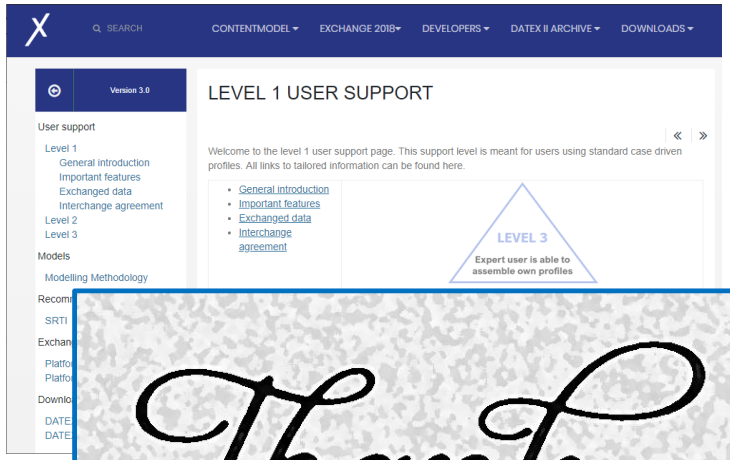
- **DATEX II** is a powerful tool **to enable ITS Services provision**
  - Stable, Extensible, Flexible, Technology ready, Reliable
- **Evolving ITS market and technologies** lead to perspective changes
  - **Manage Risk** from challenges to opportunities
    - **new business models, TM2.0 leading**
- **Requirements ITS directive EU 2010/40**
  - **Seamless Interoperable ITS Services in EU:**
    - Standardisation
    - Harmonisation / Profiling
    - Legal Framework
- **Shared Business goals / Coopetition**

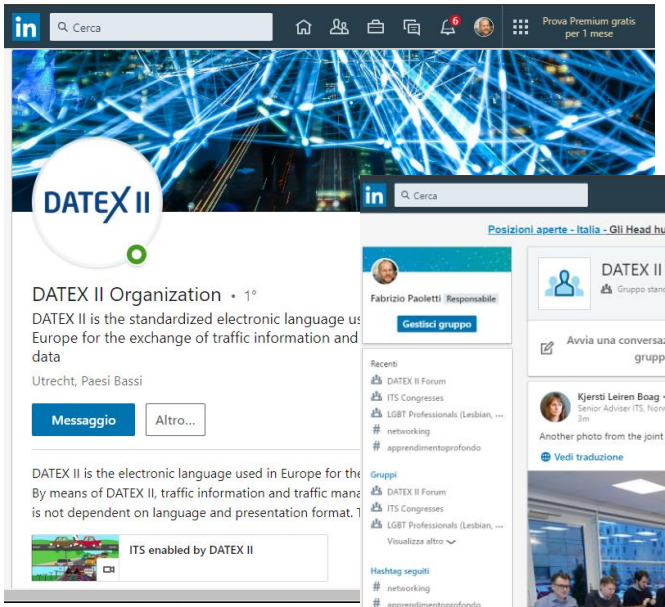
➔ Take Advantages ➔ Data Exchange ➔ DATEX II

and there is DATEX

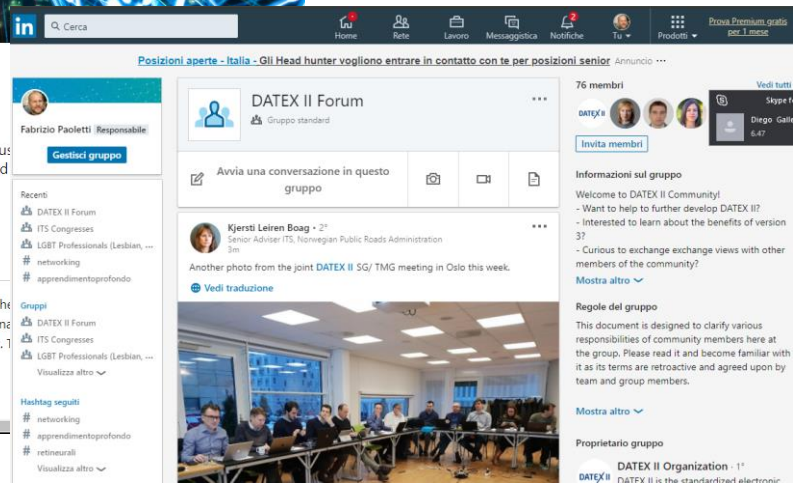
website
www.datex2.eu

Training and docs
https://docs.datex2.eu





Linked in
www.linkedin.com/in/datexii/



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