ASECAP DAYS
ISTANBUL 2023

Celebrating 50 YEARS OF Successful TOLL ROAD PROJECTS

COLLABORATIVE MOBILITY NETWORK MANAGEMENT ENABLED BY DATEX II

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Distributed Traffic Management in ASPI

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- Road Operator in advanced Digital Transformation
  - Focus on Digitalisation for
    - Road Information
      - Institutional Service Provider
    - Road Network Management
      - **Among several internal and external TCCs**
      - **Collaborative ITS Services development**
- Directly involved in
  - Standardisation Projects and Organisations (NAPCORE, DATEX II, CEN, ISO)
  - Deployment Projects (Eu Corridors, C Roads, etc.)

- **3000 km Network**
- **46.111 Million Km travelled in 2022**
- **9 operated (+ 3 owned) Traffic Managent Center + 1 Traffic Information Center**

- **Operating Several TM ITS Services: VMS, C ITS, Roadworks Accident and Emergency Management, Tunnels Safety System, Dynamic Lane Management**

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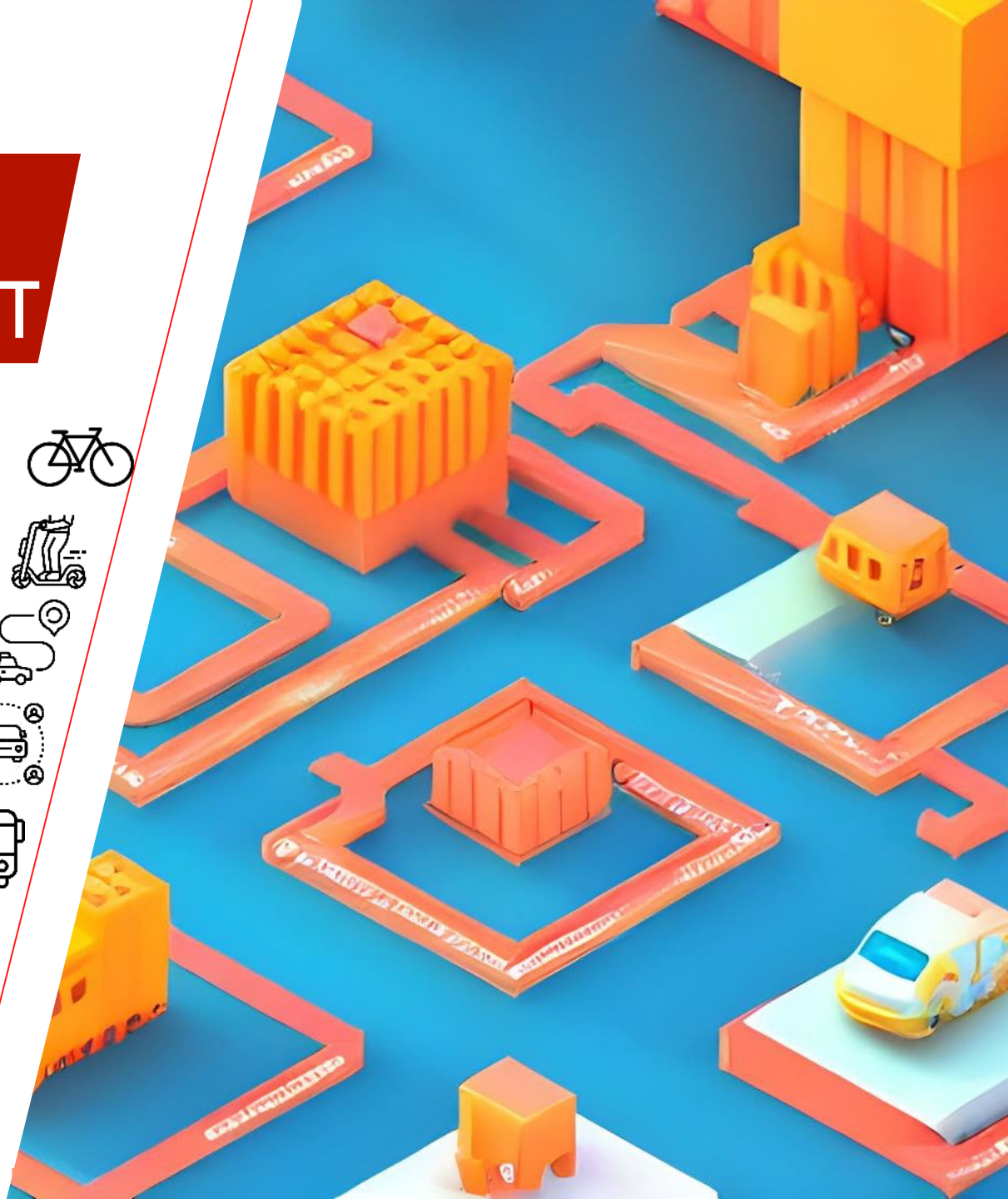
COLLABORATIVE MOBILITY MANAGEMENT

Mobility is the general issue in which all transport modes are involved.

- **ITS - Intelligent Transportation Systems**
- **CCAM - Connected, Cooperative Automated Mobility**

Stakeholder involved

- Infrastructure managers
  - roads, ports, airports, railways
- Authorities
- OEM
- Automotive sector
- Communication sectors
- Mobility Providers
- Service Providers



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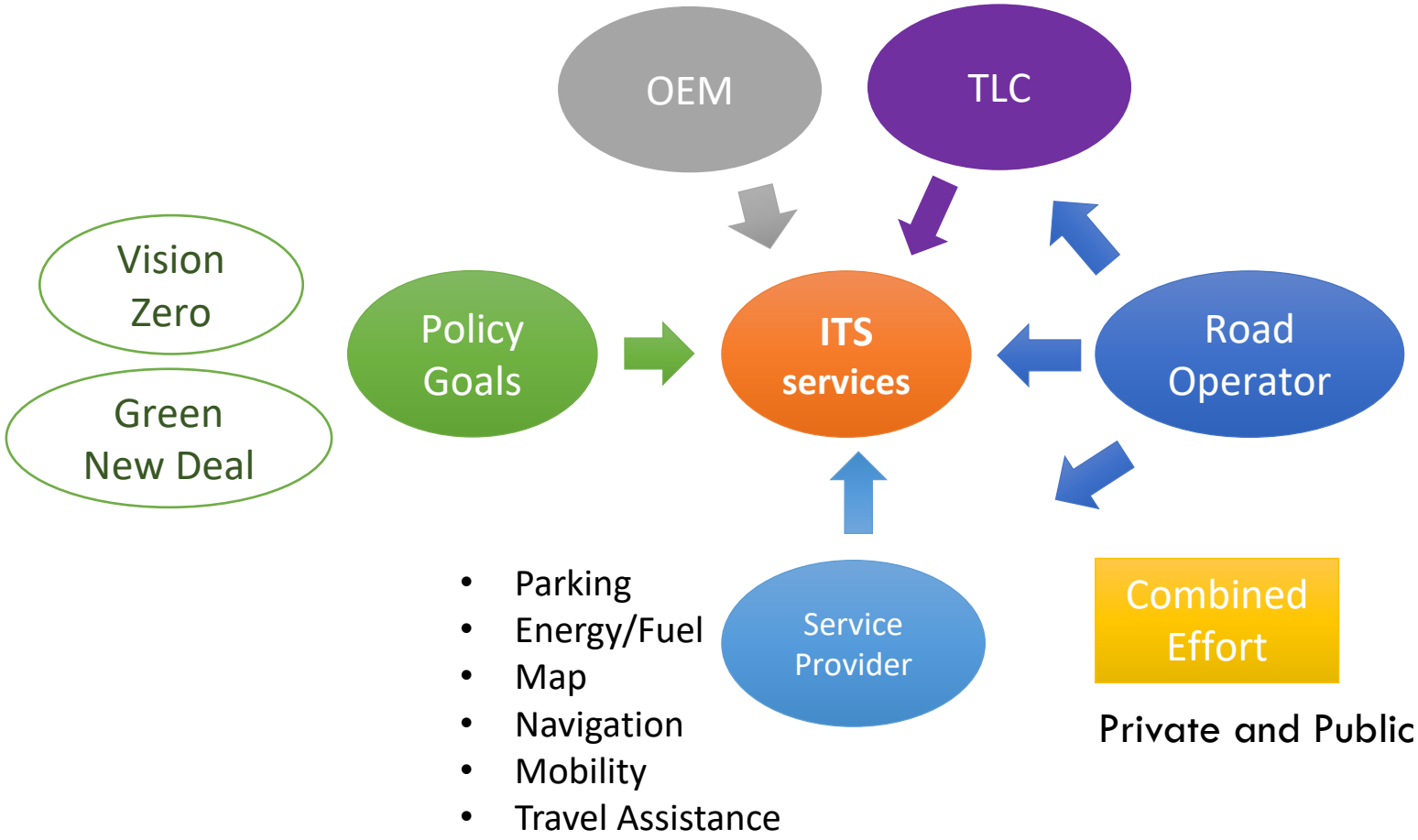
CCAM & ITS services landscape



Regulatory Framework For ITS Services

- ITS Directive
  - Delegated Regulations
  - (Parking, SRTI, RTTI, MMTIS)
- Data Act
  - Open Data
- AI Act
  - Critical infrastructure
  - Safety components
- NIS 2 directive on cybersecurity

KEY ISSUES IN THE MOBILITY SERVICES

- **Data Availability**
  - ITS directive and Data Act
  - Personal data protection
- **Data Quality**
  - Trust and authenticity
  - Cyber security
- **Collaboration among Member State**
  - NAPs/NAPCORE project
- **and among stakeholders**
  - Providing data
  - Enhancing data quality by several sources
- **Services harmonisation**
  - Services Evaluation
  - C ROADS / TM20 community
- **Artificial Intelligence involvement**
  - AI Act

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Standardisation and harmonisation initiatives

DR 670/2022 Art.5 & 6

Data users using the data referred to in paragraph 1 **and data holders shall collaborate** in order to ensure that any inaccuracies related to the data are signalled without delay to the data holder from which the data originates.

Regulatory frameworks and communities

napcore C-ROADS cen ISO

ASECAP CEDR POLIS

tomtom here Google Maps TISA

SHARENOW DriveNow EPA EUROPEAN PARKING ASSOCIATION CONEBI Confederation of the European Bicycle Industry

VOLVO STELLANTIS CAR 2 CAR COMMUNICATION CONSORTIUM acea

EU Commission, Parliament and Council
DG MOVE, CNECT, GROW, DPO, DIGIT

CEF funded projects, harmonisation and standardisation

Implementation, best practices, real-life experiences

Service Providers
Mobility Providers
Automotive / OEM

Cooperation, Collaboration, Coopetion initiatives

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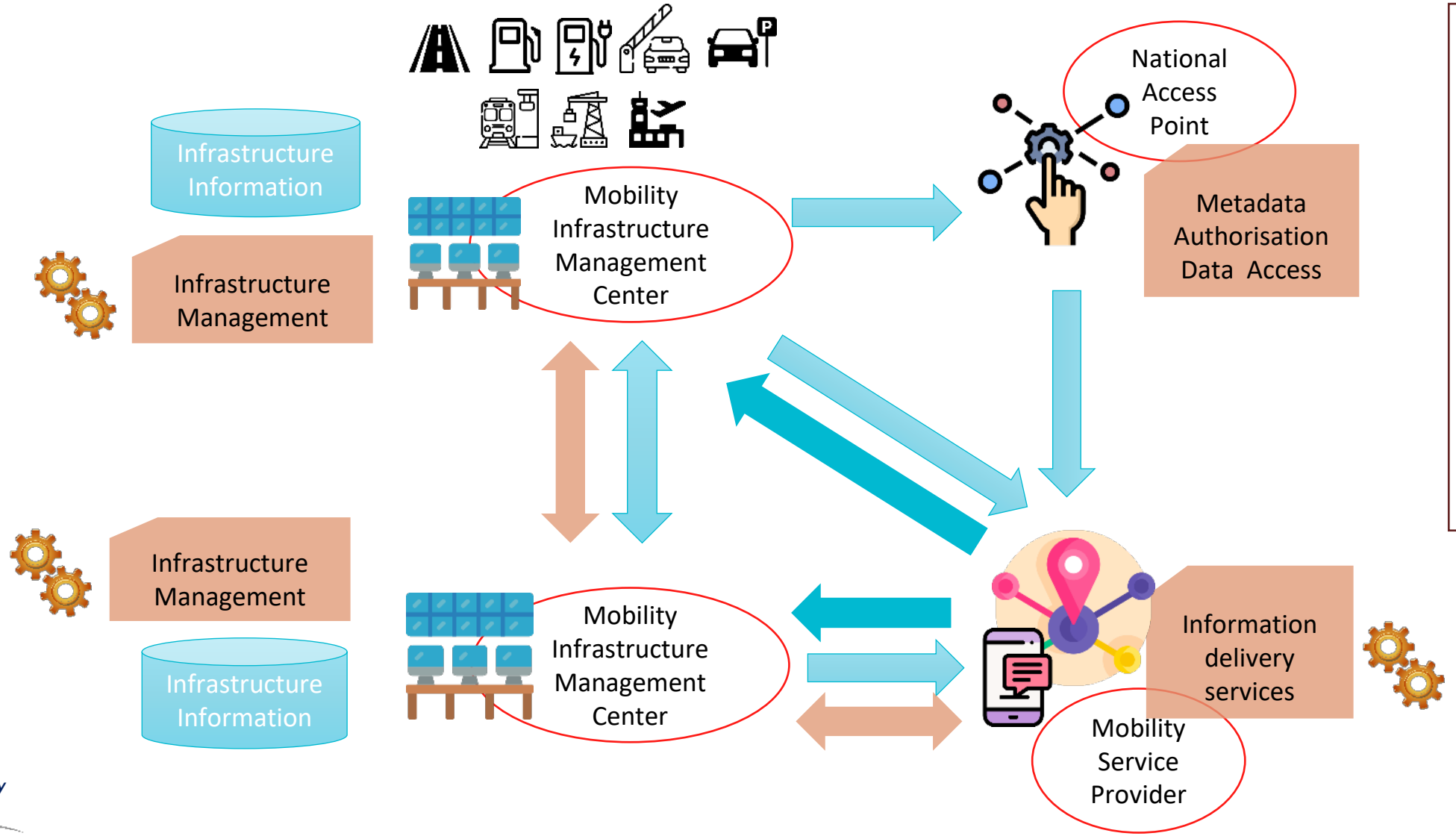
ERTICO ITS EUROPE

TM 2.0 ENABLING VEHICLE INTERACTION WITH TRAFFIC MANAGEMENT

CCAM stakeholder Exchange Ecosystem



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Data Exchange and Collaborative Traffic Management

Exchange Levels

1. Information Delivery
2. Processing
3. Collaborative Management

   Agreement and Monitoring

   1. VMS Setting
   2. TMPlan operation

In a secure and trusted environment

MOBILITY SERVICES COLLABORATION LEVELS

- **Basic**: Information Availability
- **Advanced**: reciprocal sharing and data fusion ➔Quality enhancement
- **Collaborative**: decision sharing and implementing combined effort
- **Orchestration**: network management collaborative sharing, decision, management
- **Coreography**: overall mobility network management to manage mobility demand and optimise troughput in the integrated multi-modal mobility network

TM 2.0
ENABLING VEHICLE INTERACTION WITH TRAFFIC MANAGEMENT

napcore

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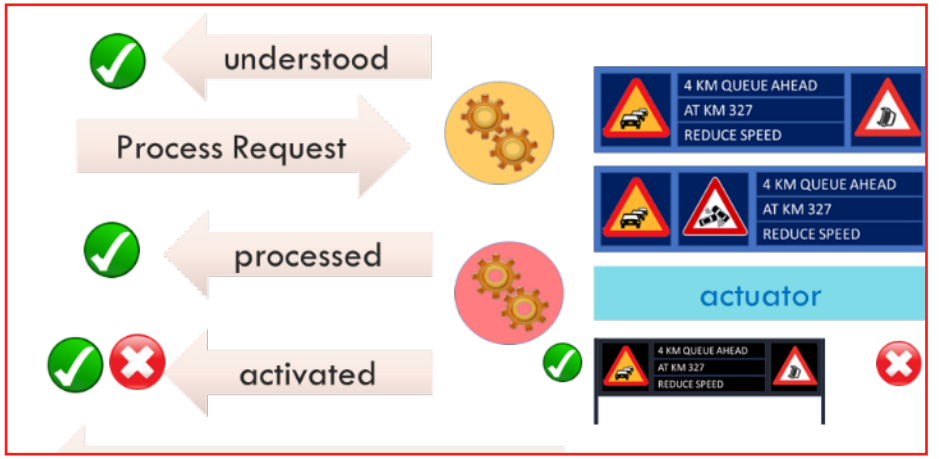
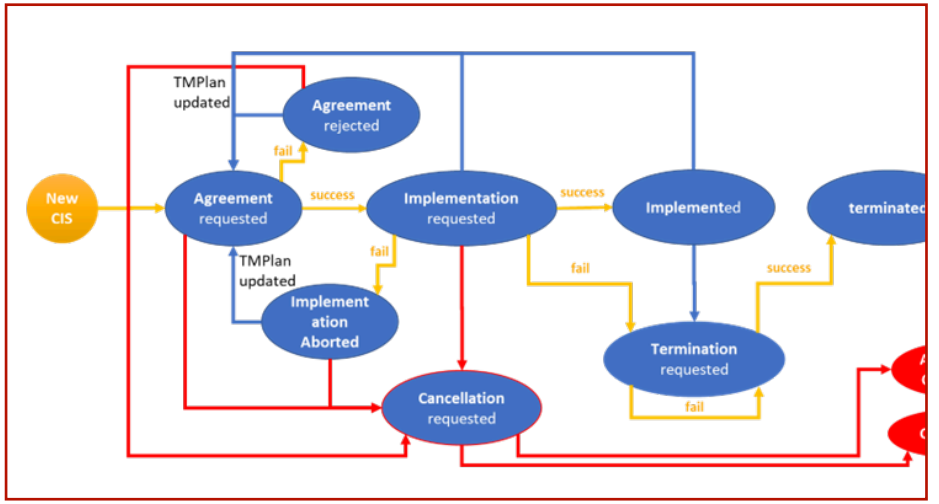
Collaborative ITS Services
Workflow and Failures Management

Use case examples

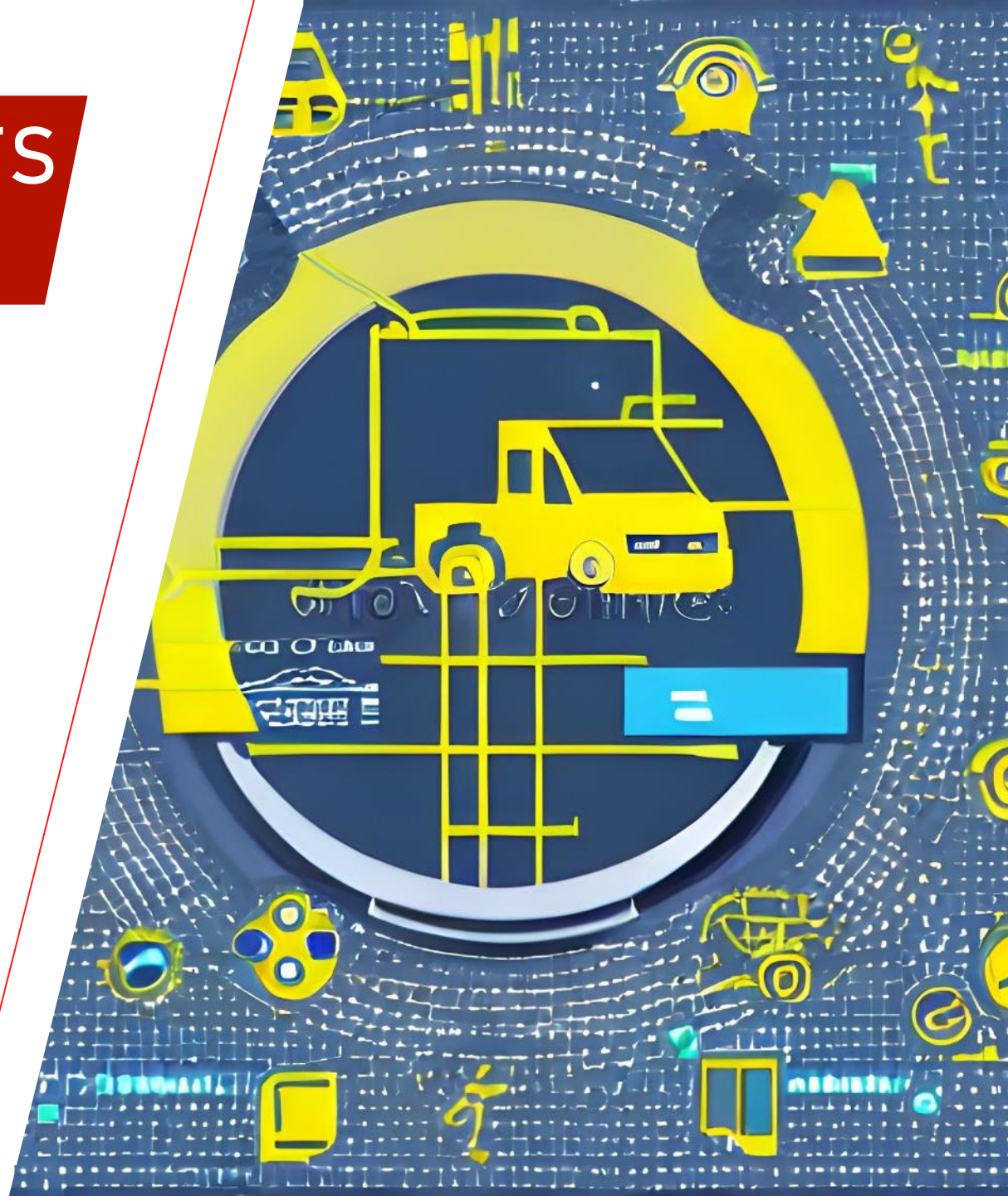
- Collaborative VMS Management based on Situation information exchange
  - VMS Fault management
  - Data source errors or processing errors management
    - Information Quality and Level of Service control
- C ITS Services implementation
  - IVIM for Rerouting / Long Corridor Information advice
- Traffic Management Plan agreement and implementation workflos
  - Fault of operation or activities
  - Unexpected situation to evolve and manage





CIS COLLABORATIVE ITS SERVICES ISSUES

- **Error management** In a trusted environment, after we can grant security and quality aspects, management failures or unpredictable situation can arise which lead not to able to implement a service after an agreement process.
- **Workflow management** need to be agreed among the involved stakeholders so all involved Traffic Managent Centers and Operators may share the same vision to manage the mobility network accordingly.



CIS WORKFLOW MANAGEMENT STANDARDISATION UNDERGOING

- **DATEX II Exchange 2020 CIS supports Collaborative Traffic Management**
  - VMS operation
  - TMPlan operation
  - From basic interactions to complex orchestration
- **Robust operational exchange requirements**
  - Simple Feedback Management
  - Complex Workflow description
  - In a secure and trusted environment
- **New requirements and harmonised specs**
  - Application processing hints linked to data and communication level
  - to be agreed and standardised
  - future development and new standardisation fields

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napcore DATEX II cen ISO

Conclusions

- **Data Avalaibility, Data Sharing enhancing Data Quality** are key directions to enhance Mobility Management.
  - in an increasing law mandatory framework.
- Digitalisation and Automation are leading towards **more and more complex modeling requirements** in order to achieve Mobility Management at the highest level in a **safe, reliable, efficient** way.
- **Harmonisation and Standardisation** undergoing with the dramatic technology level increasing.
  - backward compatibility issues managed by law framework.
- **Collaborative ITS Services** are more and more needed in operating orchestrated services in the CCAM mobility field.

Sharing experiences in **Collaboration and Coopetion** perspective in the technological community in all transveral sectors will be the key to success for future **Mobility Management** achievements.

THANK YOU

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