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Future Traffic Management

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Drawing the way into the future

Where do we want to go?

- Where are we now?
- What is important?
- How should the path look like?



The Deep Dive into the national TM System



Strategy and Implementation Preparation for Traffic Information through Integrated Traffic Management

Sept 2023 – Feb 2025

This project **analyses the status quo** in the traffic management and traffic information sector in Austria and **elaborates possibilities for further development**.



Ecological and Safe TRAffic systems by digitalising Law

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The project aims to develop recommendations for action to establish **digital road traffic legislation** based on selected use cases focusing on the increase of safety, efficiency and sustainability of the transport system and the respective benefits. Key aims are the **digitalization of traffic regulations** and **administrative processes**.



Urban Vehicle Access Regulations

Upgrading the Austrian ITS landscape to implement EU requirements on urban vehicle access regulations

Oct 2024 – Mar 2026

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Focus on additional signs.

SAM.AT



“G’scheiter statt Breiter” (transl. smarter instead of bigger)

The Challenge:

To find feasible and resilient alternatives to the prevailing practice to ease chronic congestion without the expansion of infrastructure

Drawing a clear picture:

Conducting an analysis of the current set-up and state of the existing Digital Transport Infrastructure with focus on national Traffic Information and Management Systems in Austria

Finding a new Focus to make a difference:

Cooperation, collaboration, communication among key stakeholders to become more efficient, sustainable and safe.

Elaborating Integrated Traffic Management

Integrated Traffic Management

Strategic transport planning

long-term and sustainable impact on traffic patterns

Planning

- **Analysis** of long-term capacities and utilisation as well as regular bottlenecks and overloads
- **Planning** mobility strategies based on transport policy objectives
- Ongoing **evaluation** of impact (KPIs)

Implementation

- **Development of infrastructure and services** in line with strategic planning
- Continuous **control and information**, based on strategies, new infrastructures and offers

Operational

situational influence on traffic conditions depending on the traffic situation, across all modes of transport

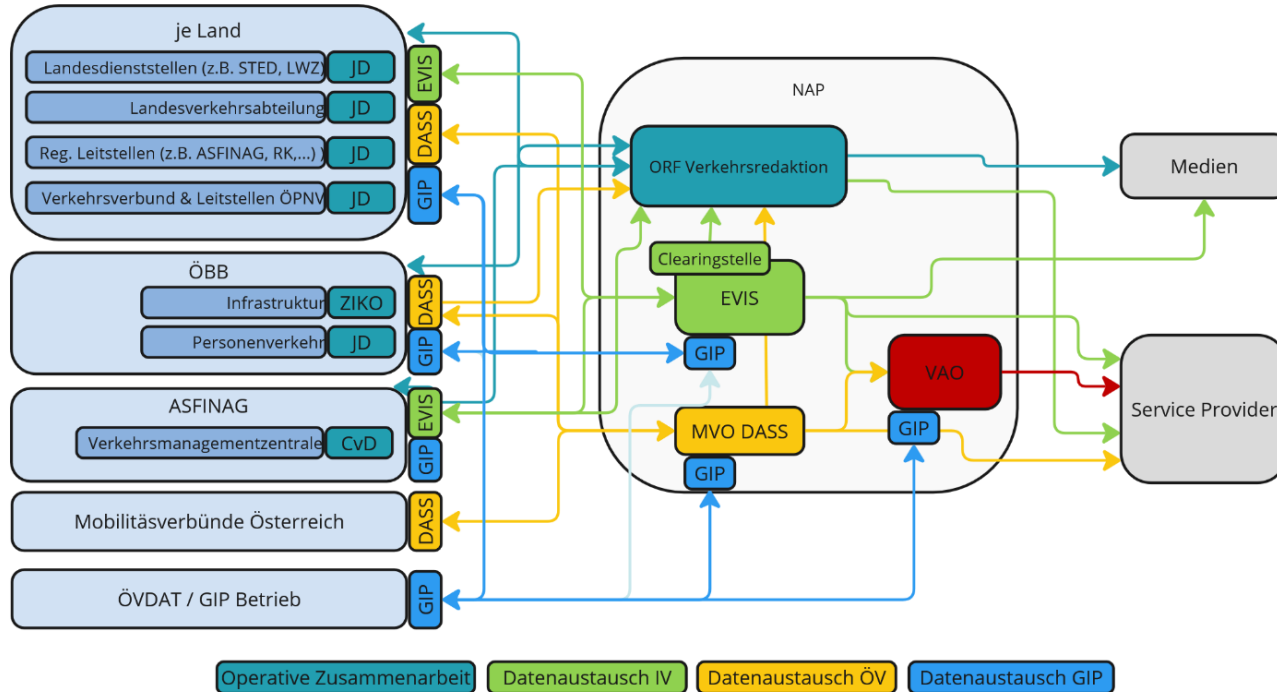
Control Strategy

- Development of control **strategies** for different traffic **scenarios**
- Development of **measures** for each scenario
- Ongoing **evaluation** of impact (KPIs)

Operation

- **Application** of control strategies for each traffic scenario
 - Control measures
 - Traffic information
- ...by utilizing of **all available services and infrastructures**

The Austrian Traffic Information Infrastructure



(Source SAM.AT - Functional system diagram)

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Status Quo of legal considerations

- Neither **traffic management** nor **traffic information** are legal terms that have found their way into basic legislation.
- There is no established model or systematic with regard to the **allocation of responsibilities** between the federal government and the states, or between the state and private actors.
- The existing legal framework shows a **high fragmentation of competences** in the transport sector, which makes it difficult to implement cross-modal measures such as the establishment of multimodal transport management.
- Rail transport and local public transport are mainly based on private law regulations. But often show **lacking flexibility** for cross-modal measures at the operational level due to contractual limitations.
- **EU regulations on traffic management and traffic information** are becoming increasingly important. On one side, they are often perceived to further complicating the fragmented national legal situation but on the other side they trigger harmonisation activities.

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5 Areas of action for improvement measures

Establishing strategic control

The aim is to establish traffic management based on a systematized **cooperation between transport companies**, subjected to concrete and **binding strategic targets**.

Focal areas:

- strategic traffic control
- impact analysis of traffic management measures
- traffic optimization
- public transport prioritization
- strategic infrastructure measures
- ...

Defining & strengthening responsibilities

The aim of this area is to establish a **resilient statutory basis for intermodal traffic management and information**.

Focal areas:

- defining and clarifying responsibilities
- raising awareness
- establishing a single point of contact
- ...

Creating a central platform for traffic information

The aim is to create a centralised, Austria-wide **24/7 traffic information coordination centre** to ensure consistent traffic information

Focal areas:

- cooperation between national editorial offices
- Networking
- Clearing
- Reliable, consistent public transport and private transport information
- ...

Improving cooperation between operational units

The aim is to **improve communication** between transport companies and units involved in operational transport management.

Focal areas:

- optimisation of operational processes
- communication from and with operational units
- technical networking
- ...

Adapting the legal framework

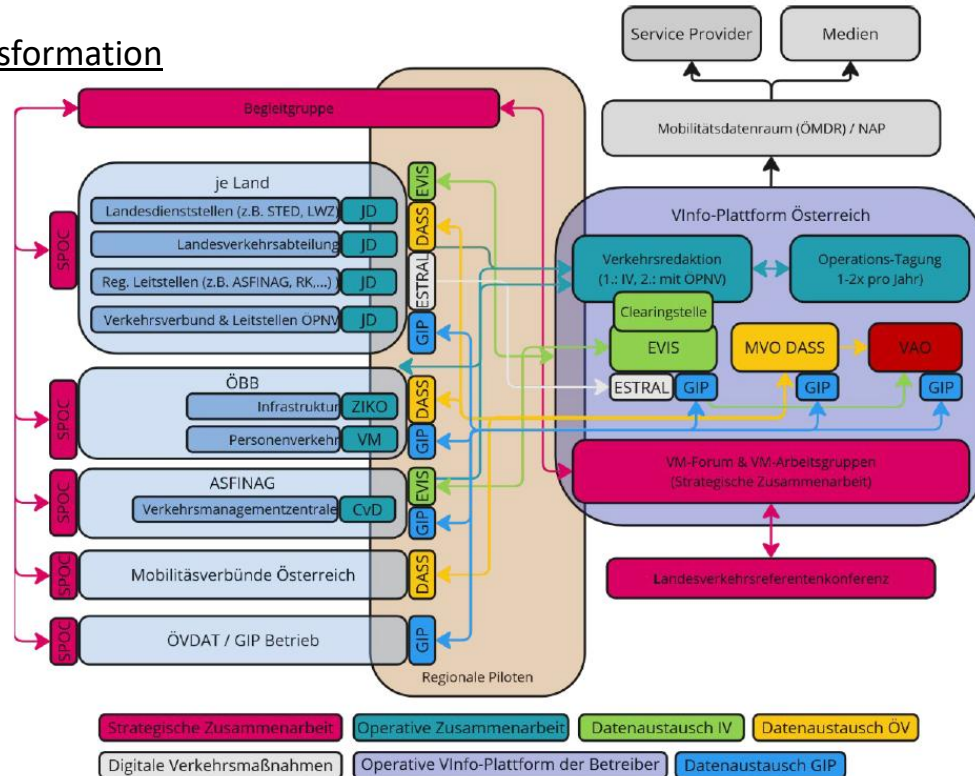
The aim of this action area is to create clarity regarding responsibilities and competences through **explicit legal regulations**.

These regulations act as legal framework to support and enable the objectives and aims set out in the other action areas.

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The Transformation



Project recommendations:

- 19 proposed measures
- 3 years implementation period

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Next Steps

- **A new Call for a follow-up project is out with focus on:**
 - Proof of Concept (PoC) – Implementation in one or more federal states
 - Key areas of research and demonstration: clear elaboration of an efficient **cooperation among stakeholders** within the federal state, **implementation of the SPOC** concept (Single Point of Contact), highlighting of necessary **infrastructure, regulations, and coordination processes**, harmonization and digitization of **traffic regulations** (e.g. departure restrictions)
 - Preparation for Austria-wide Rollout

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The challenge

- Legal: The current legal framework does not provide the possibilities for an **authentic promulgation in digital form**
- Organisational: Current **organisational processes** have to be adapted
- Technical & Quality: Among several **system performance issues**, it has to be ensured that there are no **contradictions to physical signs** on the street

Setting the frame:

Developing a common vision. Understanding the current processes, limitations and potentials.

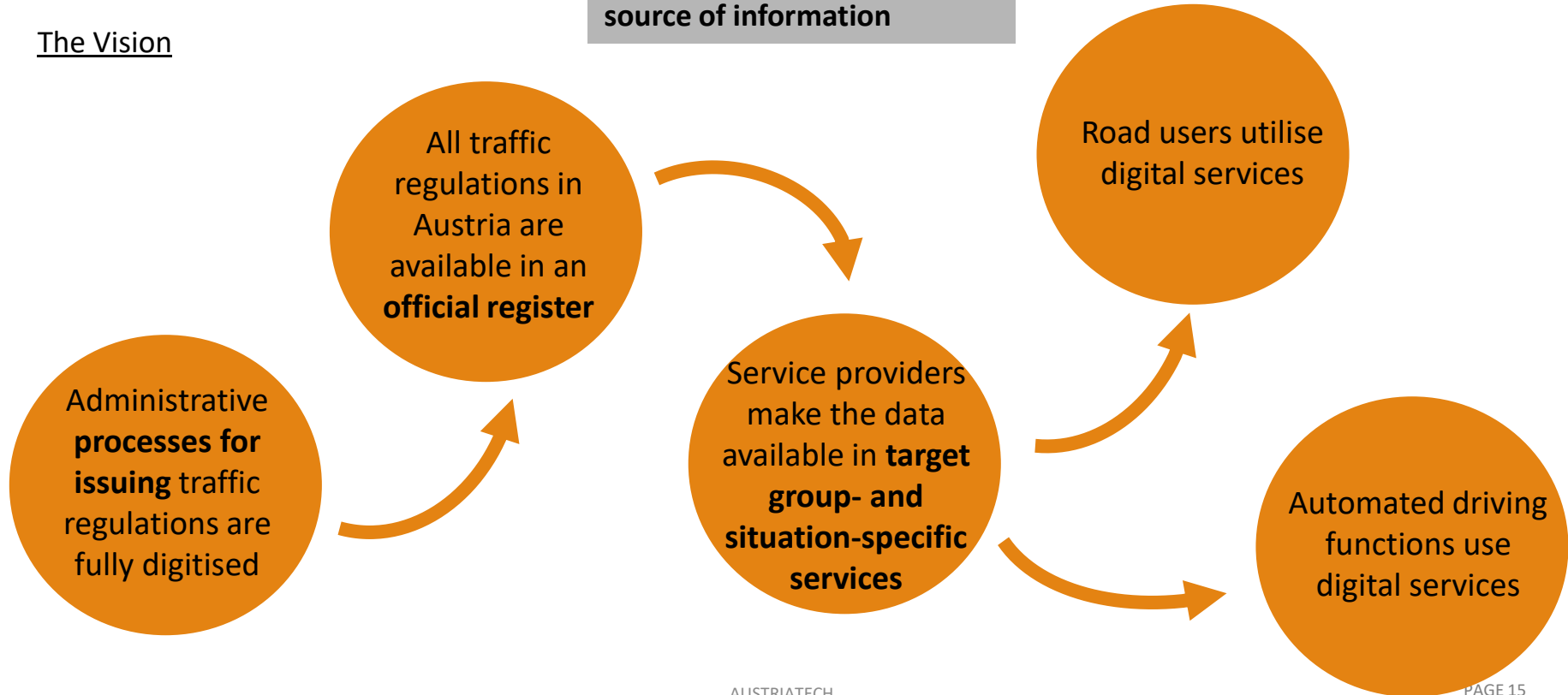
The focus:

Use Cases: UC1-Road closures and restrictions, UC2-Truck driving bans, UC3-Roadworks, UC4-Special regulations for electric vehicles

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The Vision

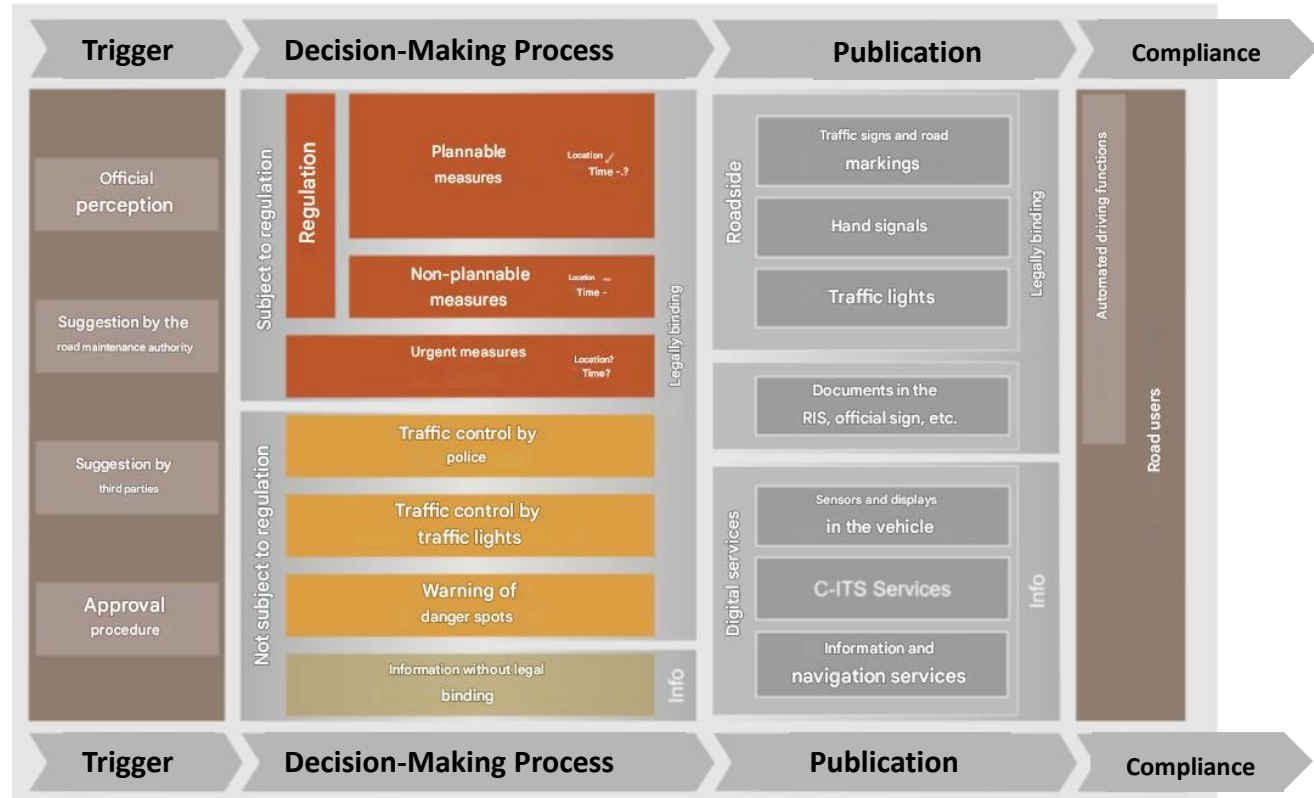
Digital data becomes the
primary and legally binding
source of information



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The Status Quo

of traffic regulations in in Austria



ESTRAL

Key Findings – Focus Trigger & Decision-Making-Process

It is essential to also fully digitize the process steps prior to the publication (trigger & decision-making process) otherwise the full potential of the digitalization of traffic measures cannot be optimal utilized

- These are the **official investigation procedure** and the **official decision-making process**
- These process steps have been revised in such a way that they follow a **uniform scheme** for
 - both plannable and non-plannable events,
 - as well as for the partially required subsequent documentation of the decision-making process as a result of the digitization of the inventory

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Key Findings – Focus implementation of the digital promulgation

Digital traffic measures will be published in a **new traffic-measure-register**, which is the central Austrian data pool with all currently relevant traffic regulations

- from permanent to temporary, dynamic and mobile traffic measures
- **all categories of the road network** are covered (=> authorities and road operators from all regional authorities have to be involved)
- service providers have access to this register of traffic measures and **integrate the legally binding traffic measures** into their services
- digitalization of **existing traffic signs and road markings** is required to **achieve completeness** of the underlying data

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Next Steps

Call for a follow-up project is out

- Objective and Expected Impact:
 - Development of a **proof of concept (PoC)** for an “**Austrian Traffic Measures Register.**” This register is intended to include all traffic measures in Austria and provide them in a machine-readable format
 - Establishment of **organizational and technical prerequisites** to provide a solid foundation for potential future adjustments to the legal framework
 - Development of methods and tool for:
 - Comprehensive digital recording of traffic measures for the selected use cases
 - Automated generation of digital traffic measures
 - Managing inconsistencies between physical and digital information, and different digital information sources.

Our (ATE) next Steps are :

- Active and regular input of national activities on European level

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UVAR_Austria

The challenge:

Making **supplementary signs** digitally fit.

Key challenge is on one hand the **technical mapping or mappability of UVAR in DATEX II** and on the other hand, on the adaptation of **existing governance structures** in order to be able to provide data on UVAR in the required quality.

Setting the frame:

Developing a clear understanding on of the technical possibilities and existing governance structure.

The focus:

Technical standards. Suggestion for a laxative catalogue for supplementary signs. Quality control of data and processes (NAP).

Use Cases: UC1-Road closures and restrictions, UC2-'Delivery Vehicles Only', UC3-Truck Driving Ban, UC4-Urban Zones



UVAR_Austria

Current Project Status:

Technical work: on-going – Focus on DATEX II

Governance Structures: key areas and processes were identified which are crucial for a successful and long-lasting digitalisation of supplementary signs to a high quality.

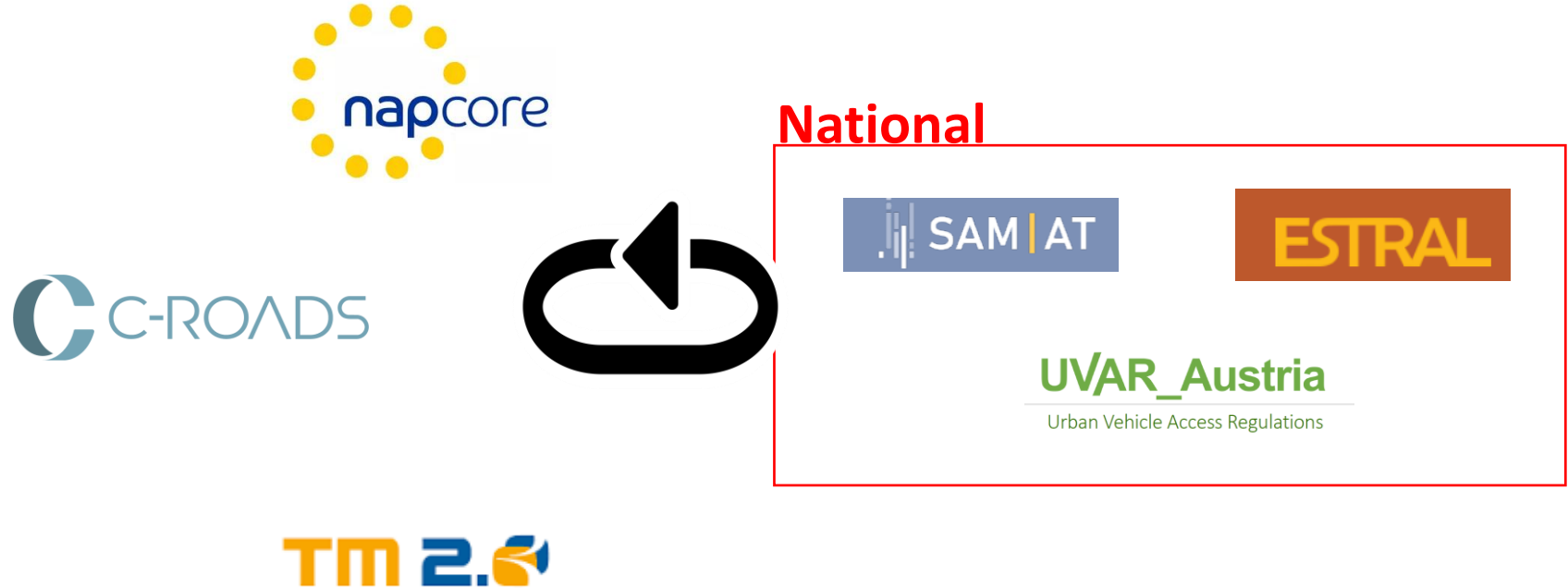
- Data Input (GIP, EVIS)
 - Centrally > high effort for input vs low effort for high quality assurance
 - De-centrally > low/now effort for input vs high effort and challenge for quality assurance
- Consistent training (material) for data input
- Acceptance and integration of new processes in daily routines
- Difference of regulation processes and regulation content across Austria > need to establish a nationally consistent minimum definition of content of regulations of traffic measures
- Obligatory use of data by service providers

UVAR_Austria

Suggestions for Next Steps:

- Adaptation of governance structures: set-up of regional **Competence Nodes** as service points for processes and digitalisation activities
 - Decentral solution
 - Data quality assurance
 - Decision making competence remains at federal states
 - Close link to region and local authorities and communities
 - Intra- and Inter-regional cooperation can be strengthened
 - Higher adaptation to changes in ITS regulations
- Presentation and mirror the national **technical solution** on European level and standardisation group(s) to ensure interoperability
- Harmonisation also of **national legislative framework** in European context

Austrian Expertise as part of European Cooperation



METR

What is the overall goal of METR (Management for Electronic Traffic Regulations)?

Enable an automated provision of digital traffic rules and regulations that machines can **understand** and **trust**.

Focus on automated driving functions and systems (L1-L5) and driver information systems (incl. L0).

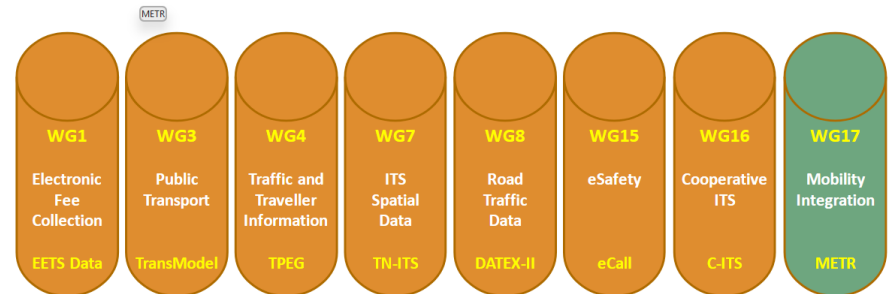
What is METR not?

It is NOT something new to replace DATEX, TN-ITS, C-ITS, TPEG, TransModel, etc.

On the contrary - it supplies these services with reliable data

EUROPEAN STANDARDS

CEN TC278 Intelligent Transport Systems (ITS)



METR



Why do we need METR?

- Across European countries traffic laws are often based on common sense, moral and ethics. This is difficult to impossible for machines to interpret.
- To ensure an **interoperable** and harmonized digitalization of the operations of road authorities, including rules and regulations within a **trusted** and secure setting.

UN Convention on Road Traffic

Chapter II, Article 8: Every vehicle shall have a driver.

*Chapter II, Article 7: Every driver, pedestrian or other road user shall conduct **himself** in such a way as not to endanger or obstruct traffic; **he** shall avoid all behaviour that might cause damage to persons, or public or private property.*

For example:

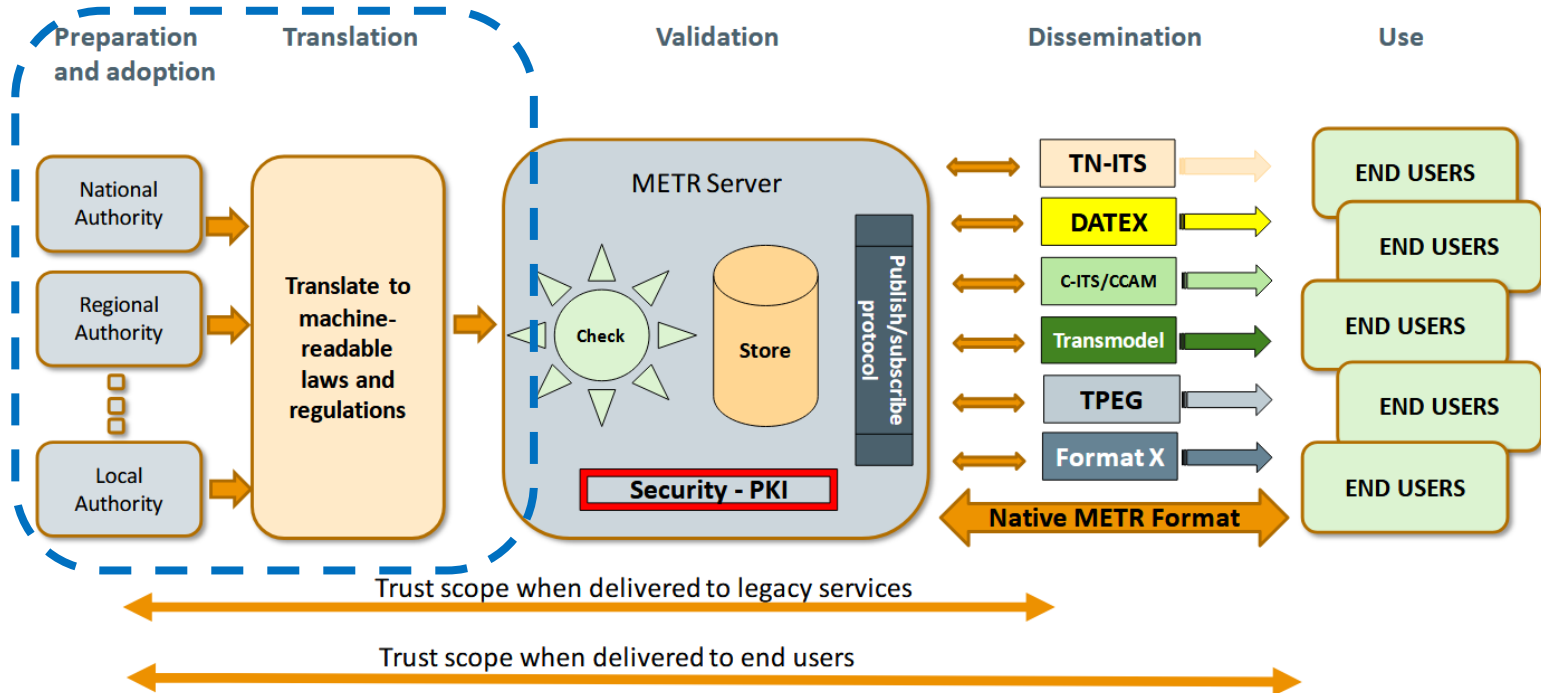
Imagine a car with L3/L5 automation from Portugal getting a mandatory convoy regulation in Norway.
How will it know how to react?

This L3/L5 equipped car must follow a genuine regulation but shall ignore a false regulation.
How will it know which is true or false?

METR



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Future Traffic Management Needs

- Resilient, robust, adaptive, agile
- Sustainable, proactive, fair, measurable and verifiable
- Interoperable, harmonised, cooperative
- Trusted, secure and safe
- Consistent and standardised
- Full Automation L3

Thank you for your attention!

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