Data needs, requirements and providers to create a concept for a data-sharing platform to support Road Operators' efforts to realize digitalization and to support cooperative automated driving

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The DIRIZON Project*

Project Goal:

To assist road authorities in identifying how Digitilisation and Cooperative Automated Driving (CAD) will effect their operations and interactions with relevant stakeholders.

Project Consortium & Structure:
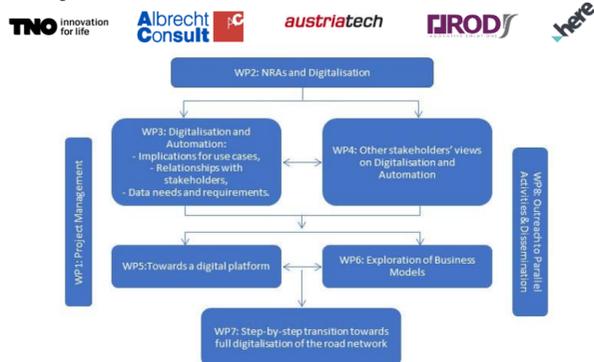
Work Package 3

• Presents 3 no. Use Cases including a future view of the process flow in each use case.

• Identifies a first draft of the data requirements and data quality criteria in providing the use cases.

• Assess entire eco-system where Road authorities and other actors can provide data through exploring the use cases of the future in which different Society of Automotive Engineers (SAE) levels of vehicles use the road.

Use Case 1: Provision of High-Definition (HD) Maps for Automated Mobility

Mapping in a machine-readable format to support a CAV's ability to understand its precise positioning, plan beyond sensor range, possess contextual awareness of the environment and local knowledge of the road rules.
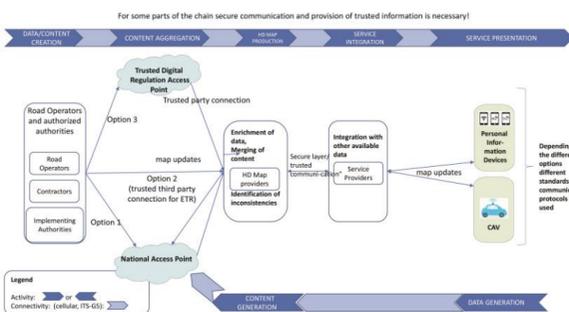
Data Needs for HD Maps

• Focused on which data quality criteria are appropriate, the identification of classes of data, and making initial suggestions for the data criteria.

• The initial suggestions are based on the EU-EIP [EU-EIP, 2018] as a starting point.

• Static data including; road model (geometry, road width, gradients, and junctions), road classification, lane model (number of lanes and link attributes), HD localization model (beacons, landmarks), locations of, for example, tolling stations.

Use Case 2: Distribution of Digital Traffic Regulations

Traffic regulations comprise of static and temporary (dynamic) regulations. These can be triggered by different sources:

• European legislation;

• New national and regional framework conditions;

• Current (pre-defined) situations to react on (e.g. weather-related, traffic condition related, environmental conditions).
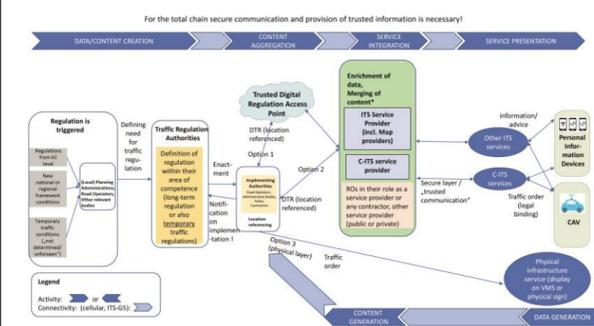
Data Needs for Digital Traffic Regulations

• The data will be both static and dynamic. Dynamic regulations include dynamic speed limits; road, lane and bridge closures; and road works.

• The definition of the specific content of the digital traffic regulation also needs further to be defined, standardized, and profiles need to be developed.

Use Case 3: infrastructure support for CAD

Infrastructure Support for Connected and Cooperative Automated Driving (ISAD) is digitized information, on top of the HD map and the digitized traffic regulations, to support CAV functioning.
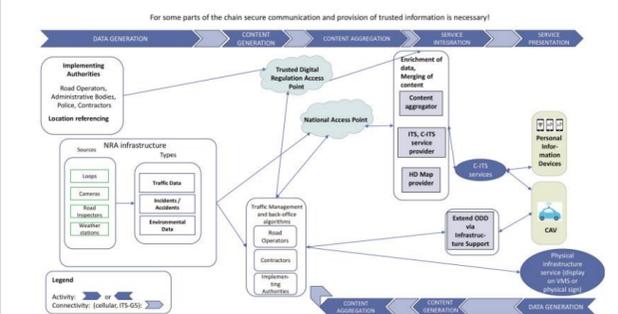
Data Needs for Digital Traffic Regulations

• Traffic volume, speed, occupancy, and travel times per lane, % of automated vehicles in the traffic.

• Safety-related data e.g. temporary slippery road, animal on the road, unprotected accident area, short-term road works, reduced visibility, etc.

Data Quality Criteria

• Geographical coverage

• Refreshment rate

• Availability

• Timeliness/ Latency

• Location accuracy

• Classification correct

• Event Coverage

• Variance

• Predictability

• Event coverage

*Further Information

The DIRIZON project ("advanced options for authorities in light of automation and **DI**gitalisation ho**RIZON** 2040") is a 2 year project funded under the CEDR 2017 Automation Call. Further details can be found on www.dirizon-cedr.com
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