Transport Technology Forum
Connected Vehicles Group

National Highways Digital for Customer

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Digital for Customer (DfC)

- One of three workstreams delivering our Digital Data and Technology Strategy (https://nationalhighways.co.uk/our-work/digital-data-and-technology/digital-data-and-technology-strategy/

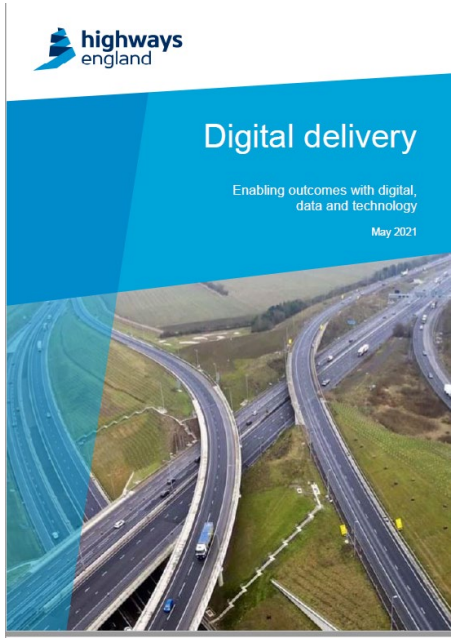
- Digital Design and Construction

- Digital Operations

- Digital for Customers

The vision for DfC is that:

Customers will be better informed and have trust in the journey information they access, ensuring that they feel safe and in control of their journey



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Description of the DfC services

Name	Type	Description
Road and Lane Closures	Data service	New data service to describe all planned and current lane and road closures resulting from incidents, accidents, spillages, roadworks, etc.
Speed Managed Areas	Data service	New data service to describe all Speed Managed areas due to roadworks, dynamic speed control to protect the back of congestion queues (MIDAS) and others.
Roadside Signs and Warnings	Data service	New data service to communicate roadside signs and warnings digitally e.g., debris on the side of the road.
Diversion Routes	Data service	New data service to describe Planned and Emergency Diversion Routes and the suitability of each route to types of road users (for example, motorway vs. non-motorway traffic) and types of vehicles (for example, car vs. HGV).
Road Limits and Features	Data service	New data service to describe features of the network (bridges, emergency areas, etc.) and limits of the road (width, max weight, etc.) for the freight industry
Customer Feedback	Supporting Service	Rollout of existing, but not yet fully adopted product – ECHO – with the resulting data joined with other datasets to produce "360 reports" e.g., "*tell me about junction X*"
Design Studio	Supporting Service	A new business model for National Highways to form and nurture strategic partnerships with private and public sector to collaborate, innovate and deliver customer outcomes together.
Roadworks Status Checker	Decision Support Tool (for Operations)	New tool to combine scheduled roadworks data with live floating traffic data. It is designed to check that the data communicated through the "Road and Lane Closures" data service is accurate
Diversion Route Manager and Status Checker	Decision Support Tool (for Operations)	New tool for Operations staff to manage the lifecycle of diversion routes, and to provide a live status of diversions using a checking tool for roadworks by other Road Operators [local councils].
Open Road Data Visualisation Platform	**Decision Support Tool (for Operations)**	**New tool, or evolution of Single View of the Network, to display data from OEMs (car manufacturers, under the Connected Services concept) and others on a map.**

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Open Road Visualisation Tool

- Will be developed from the Data for Road Safety (DFRS) ecosystem
- Initially for ingesting vehicle data for use internally by business areas such as:
    - National Travel Operations Centre
    - Regional Operations Centres
    - Severe Weather
    - Winter Maintenance
    - Road Safety
    - Asset Management

Discovery phase has just started. Plan is to go live in October 2024

Ambition is to allow all Local Authorities access to local as well as national vehicle data

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What is DFRS

- DFRS is made up of 24 partners who share Safety Related Traffic Information (SRTI) data based on reciprocity, free of charge.

Safety Related Traffic Information (SRTI)

- EU Directive 886/2013 states 8 data categories

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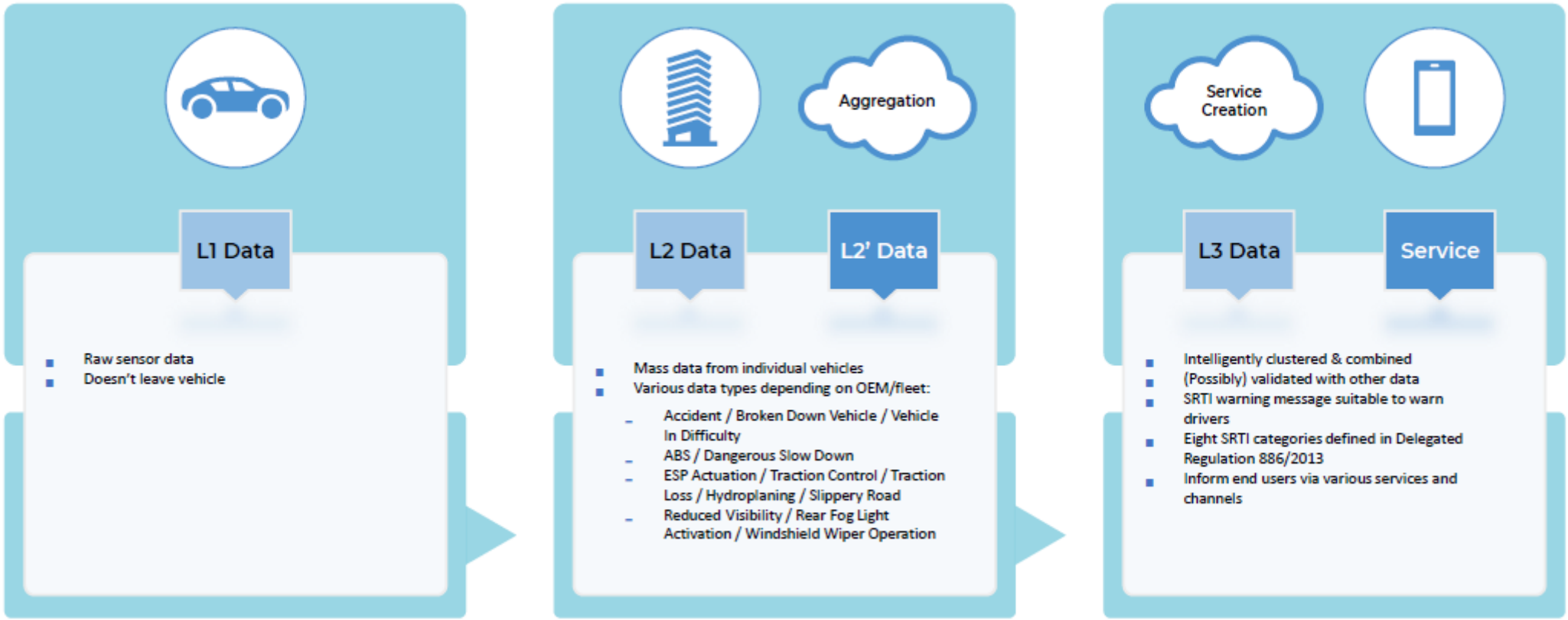
Types of Data



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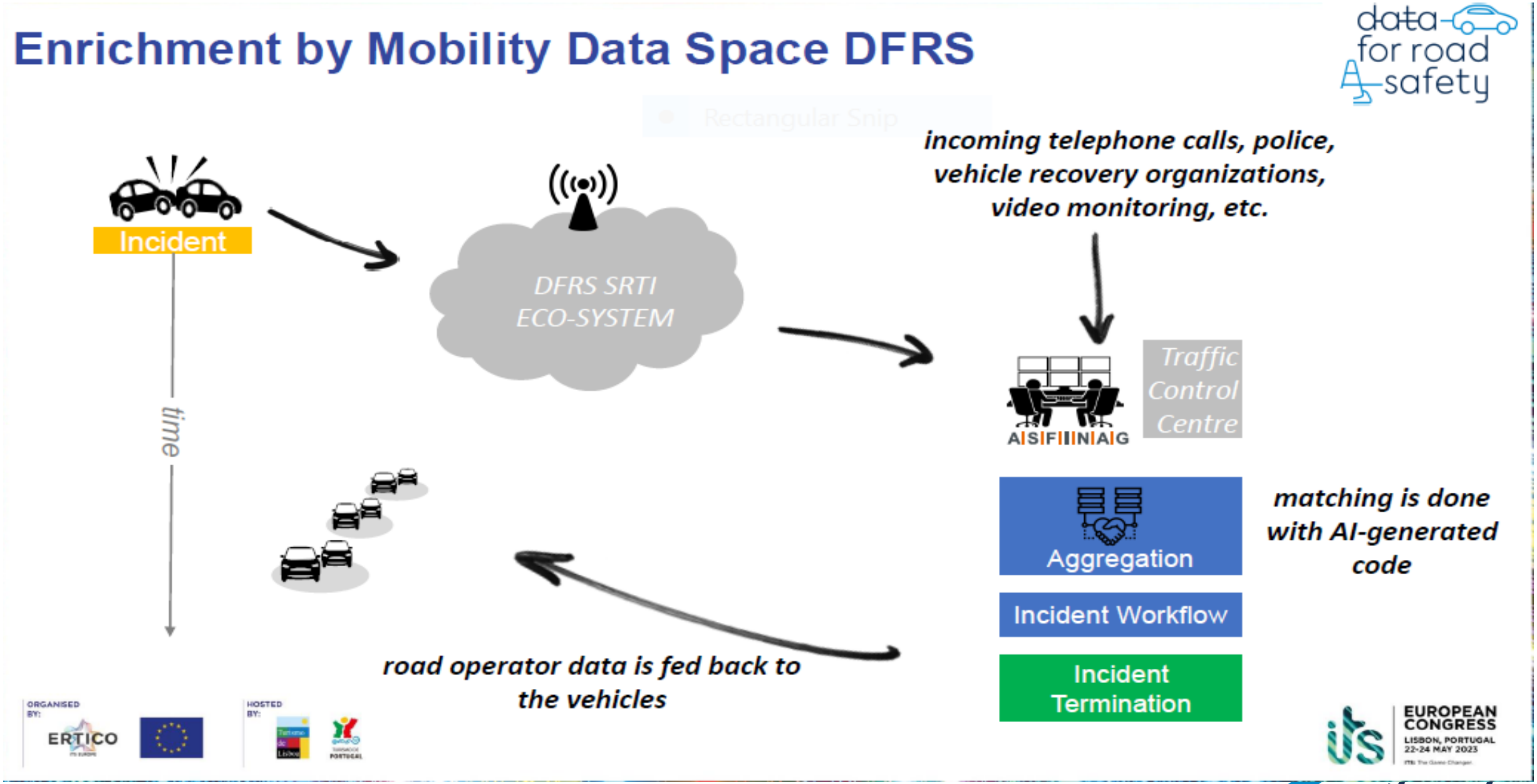
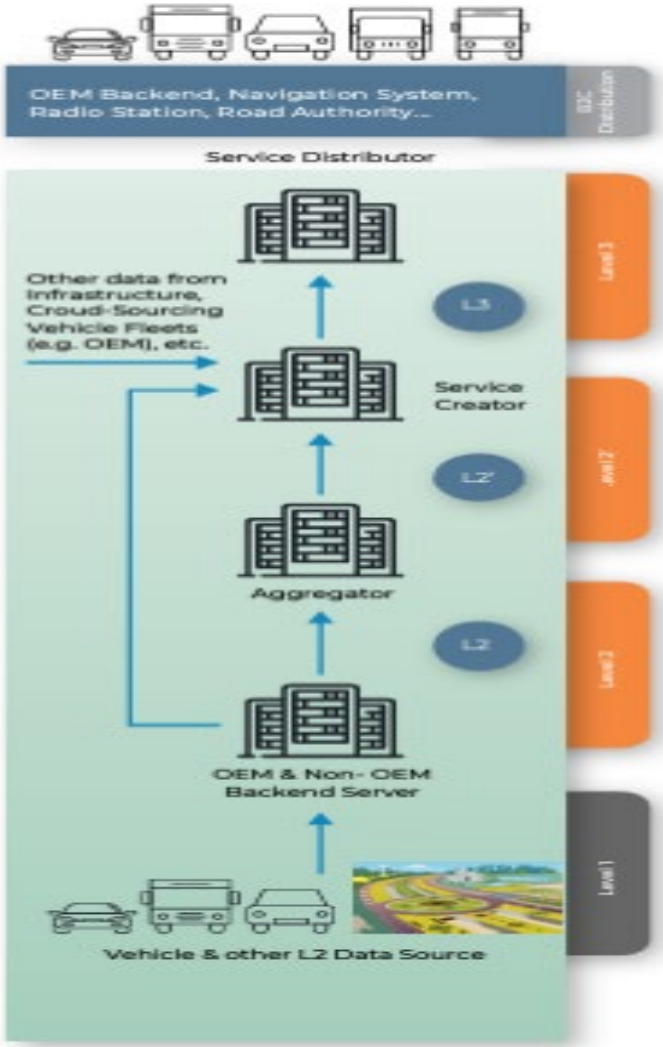
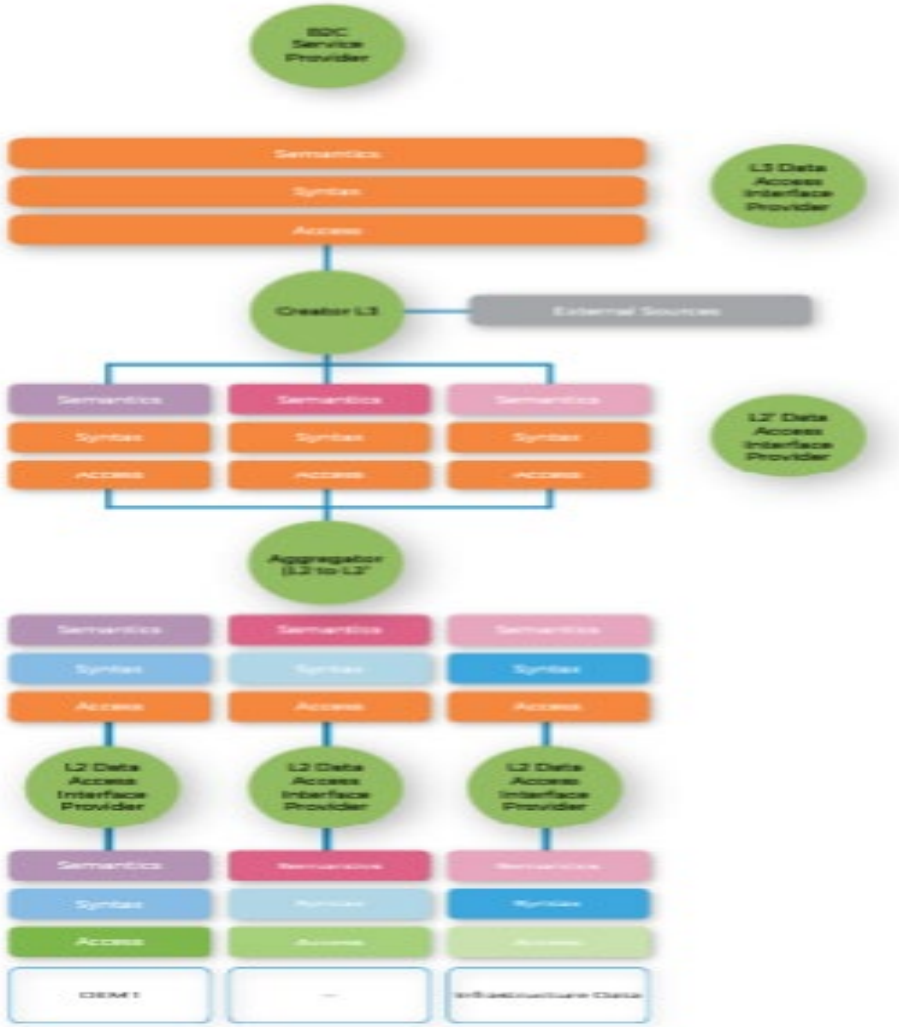
Data Flow in Austria



DFRS Ecosystem Architecture





https://www.dataforroadsafety.eu/images/Documenten/FINAL-Data_For_Road_Safety_Technical_Documentation_v1.05.pdf

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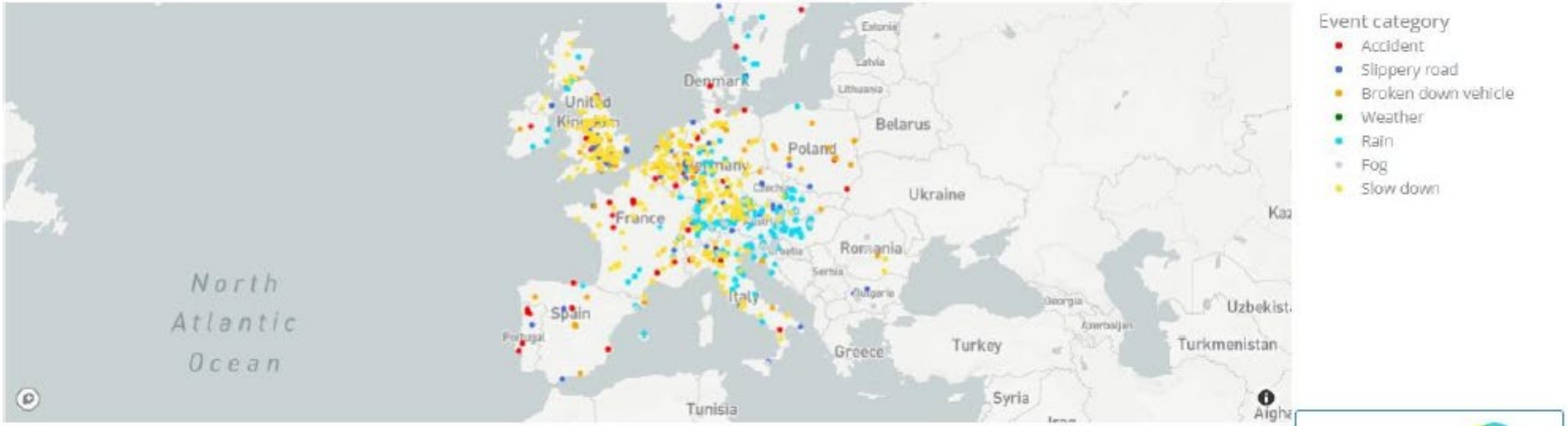
DFRS Live Map

The DFRS live map is a tool that provides a holistic view of safety-related events occurring in the past 48 hours. The dashboard features an interactive map displaying several incidents.



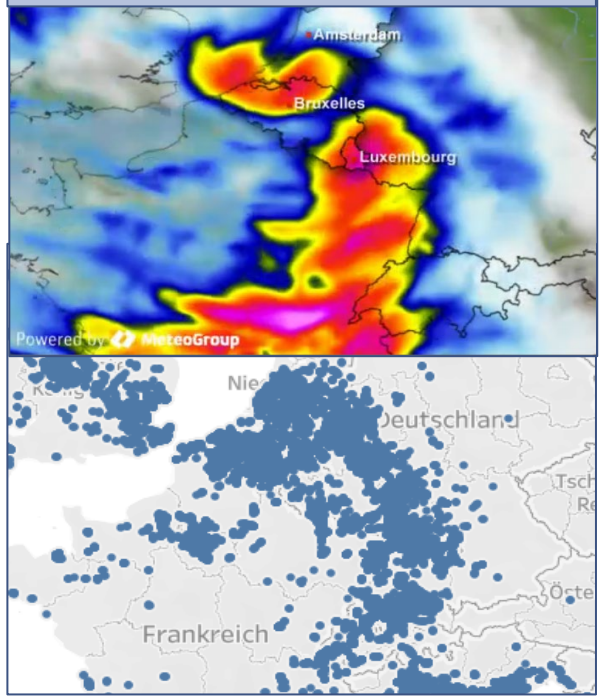
The DFRS live map is not contractually binding real-time data (delayed by 48 hours for presentation purposes).
Join DFRS for live data streams

Live Map is available from the DFRS website:
http://data-intelligence.post.lu/dfrs/

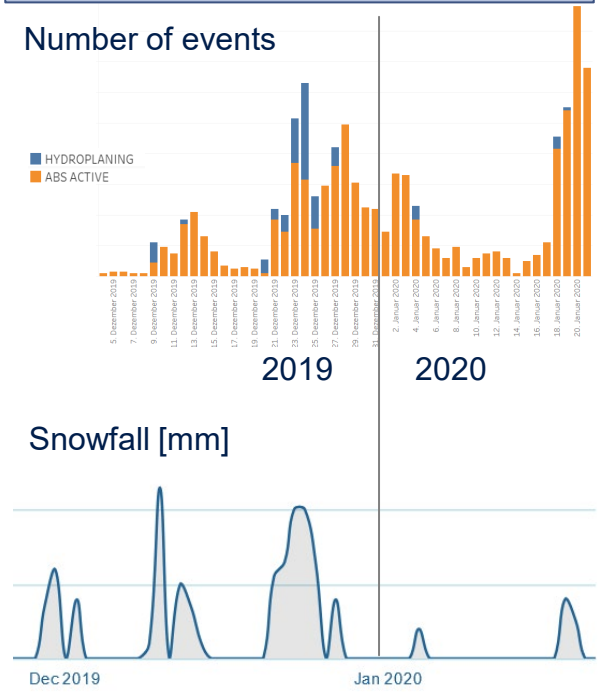
Data quality – Validation of event types

1	Event Type	» Hydroplaning (correlate with precipitation) » ABS activation (correlate with snowfall) » Accident (comparison with DEXTER reports) » *Broken down vehicle (no validation possible due to lack of independent sources)*

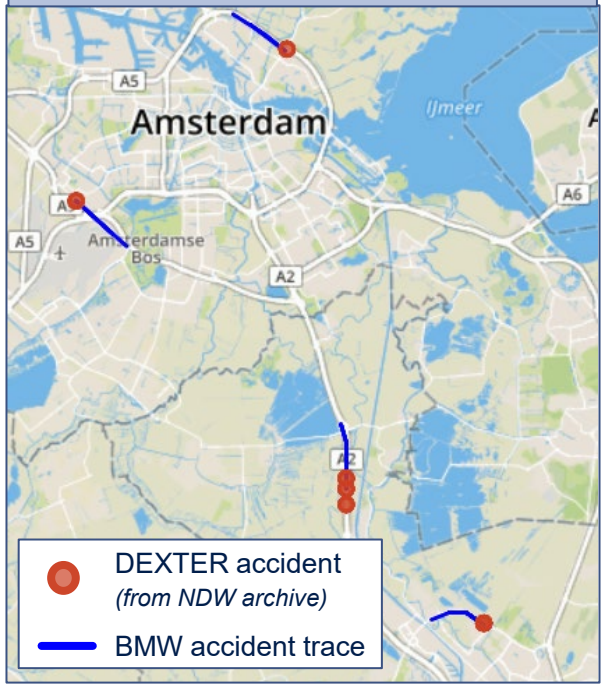
Rain map and hydroplaning events on Dec 13, 07:00 CET



ABS activations and snowfall in the town of Davos



Accident events and DEXTER reports in the same 2 hour window



The delivered events appear valid and can be confirmed by other, independent data sources.

A first exploratory data analysis of 10 days (May 6 to May 15, 2020) shows the characteristics of delivered event types

Events per Provider (10 days)

Event Type	Source BMW	Daimler	Ford	NIRA	Volvo
ABS ACTIVE	27.674				
ACCIDENT	1.718				
adverseWeatherCondition_Adhesion			6.149		
adverseWeatherCondition_Precipitation			23.103		
adverseWeatherCondition_Visibility			3		
BROKEN_DOWN_VEHICLE	121.830	911			
HYDROPLANING	458.609				
slipperyRoad				48	
vehicleInDifficulty					6.951

L2 Data | L3 Data

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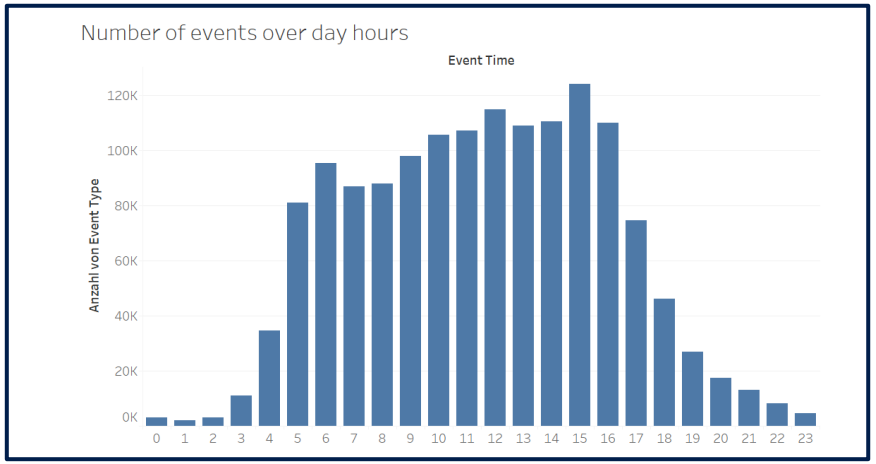
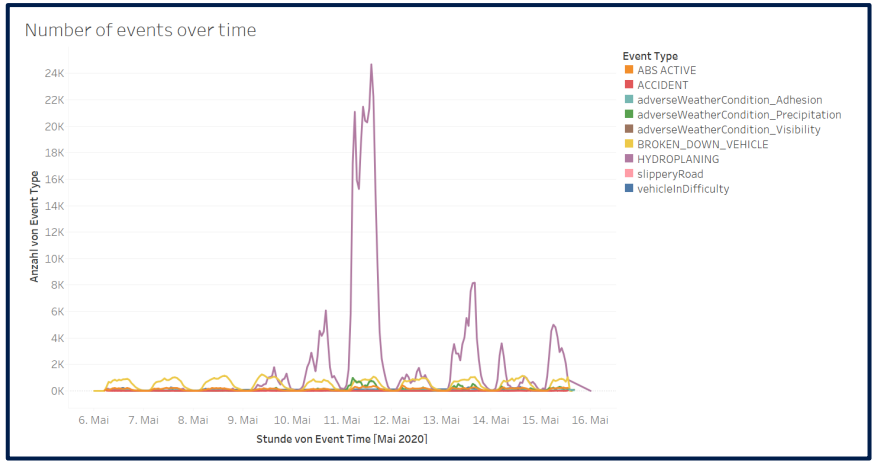
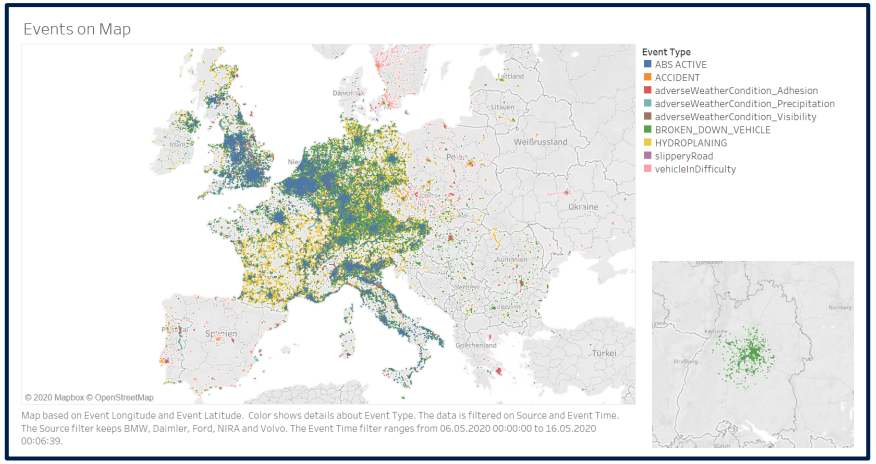


The data shows a bit the rush hour peaks, however rush hour is slower than usual due to Covid-19 crisis





Analysis of 10 days data (May 6 to May 15, 2020), shown per provider and per event.

	# Events	Peak analysis	Time distribution	Coverage

OEM1

Event Type	Source BMW
ABS ACTIVE	27.674
ACCIDENT	1.718
BROKEN_DOWN_VEHICLE	121.830
HYDROPLANING	458.609

OEM 2

Event Type	Source Daimler
BROKEN_DOWN_VEHICLE	911

OEM 3

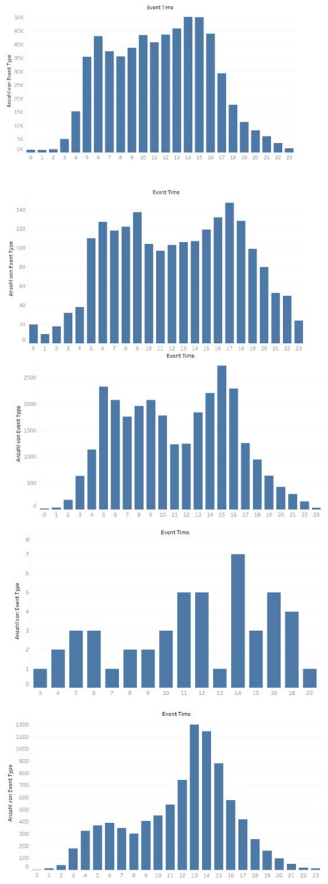
Event Type	Source Ford
adverseWeatherCondition_Adhesion	6.149
adverseWeatherCondition_Precipitation	23.103
adverseWeatherCondition_Visibility	3

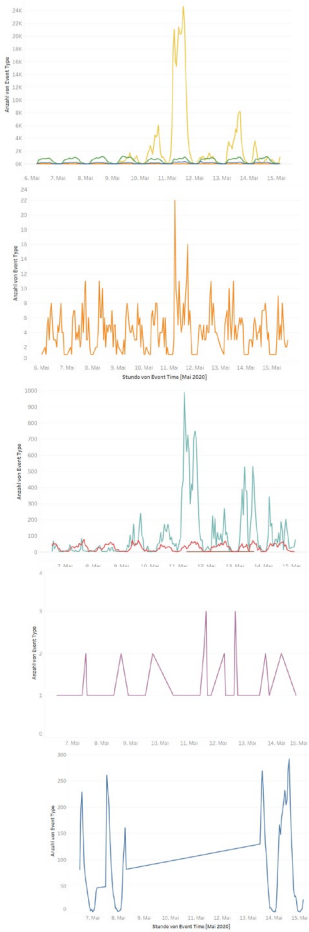
OEM 4

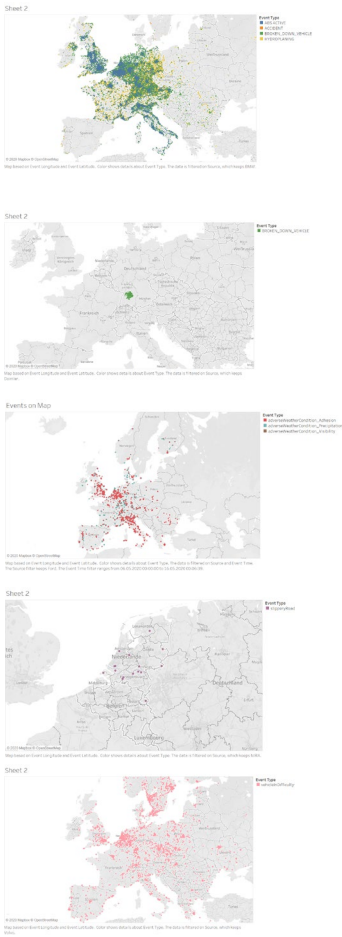
Event Type	Source NIRA
slipperyRoad	48

OEM 5

Event Type	Source Volvo
vehicleInDifficulty	6.951







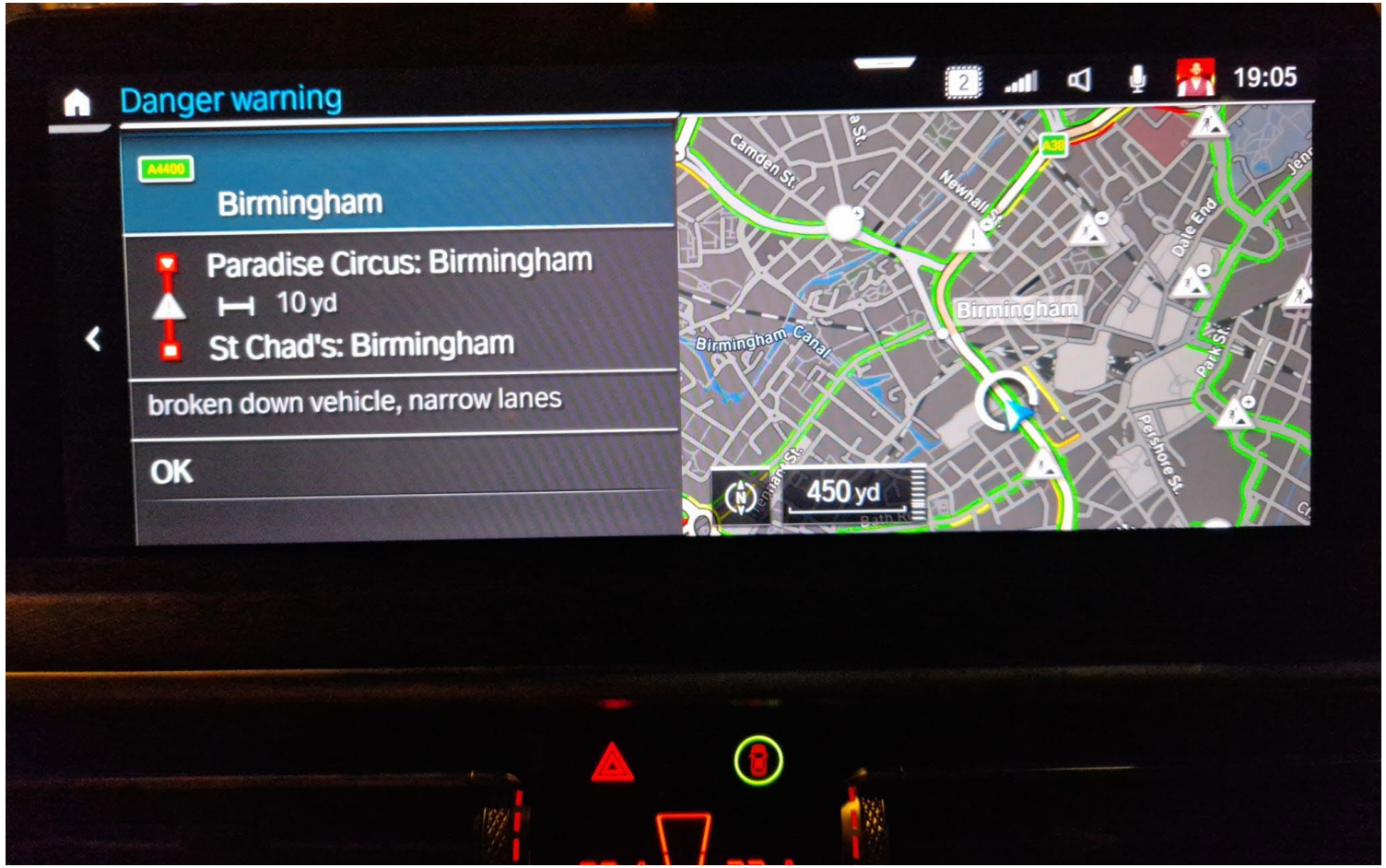
SRTI data to vehicles

Vehicle data is turned into information such as lane closures, speed restrictions, congestion, that can be sent to vehicles built by the OEM members of the consortium.

Car screen shows

6 road works warning

and 1 broken down vehicle



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Any Questions?

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