

**EasyWay**



Annual Forum 2010



# Shortcut to the future.

Lisbon • November 16<sup>th</sup>-18<sup>th</sup>





**Shortcut to the future.**

Lisbon • November 16<sup>th</sup>-18<sup>th</sup>

Using DATEX II on the basis of an OTS2  
protocol stack for I2I-Communication

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## Overview

**3** examples of Using DATEX II for I2I-Communication:

### 1. Established

Connection of two ITS Central Stations

Project: sim<sup>TD</sup>

### 2. Prospective

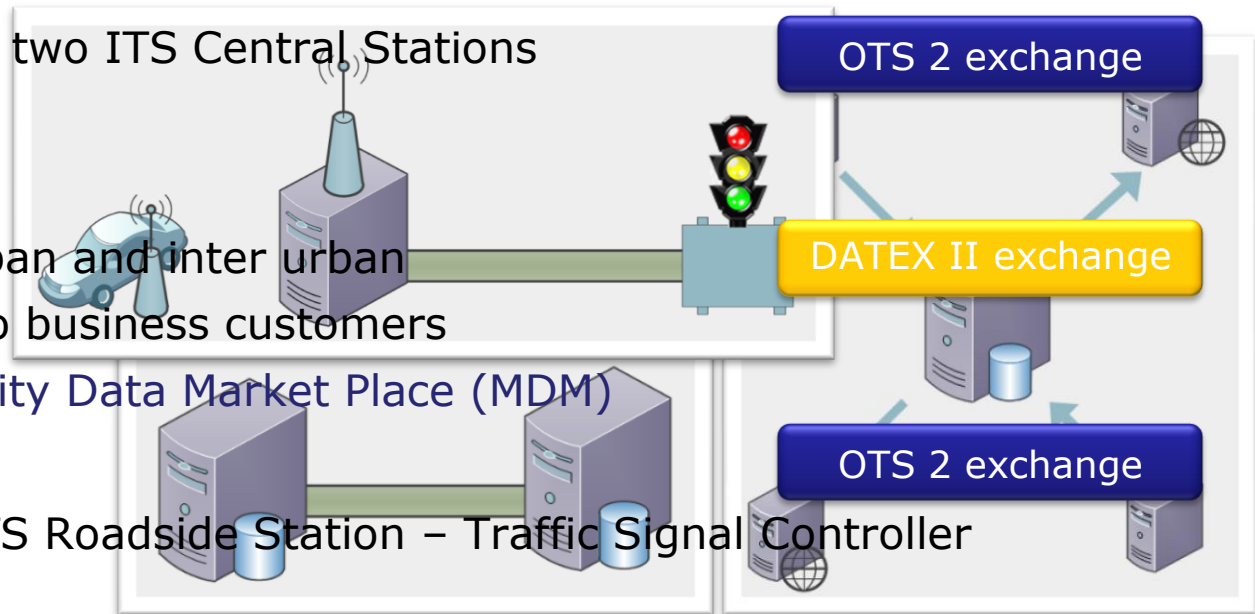
Delivering urban and inter urban  
Traffic Data to business customers

Project: Mobility Data Market Place (MDM)

### 3. Innovative

Connection ITS Roadside Station – Traffic Signal Controller

Project: sim<sup>TD</sup>



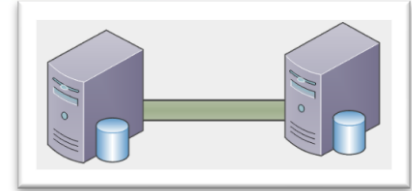
## The C2X-project sim<sup>TD</sup>

### sim<sup>TD</sup> - „Safe and Intelligent Mobility - Test Field Germany“

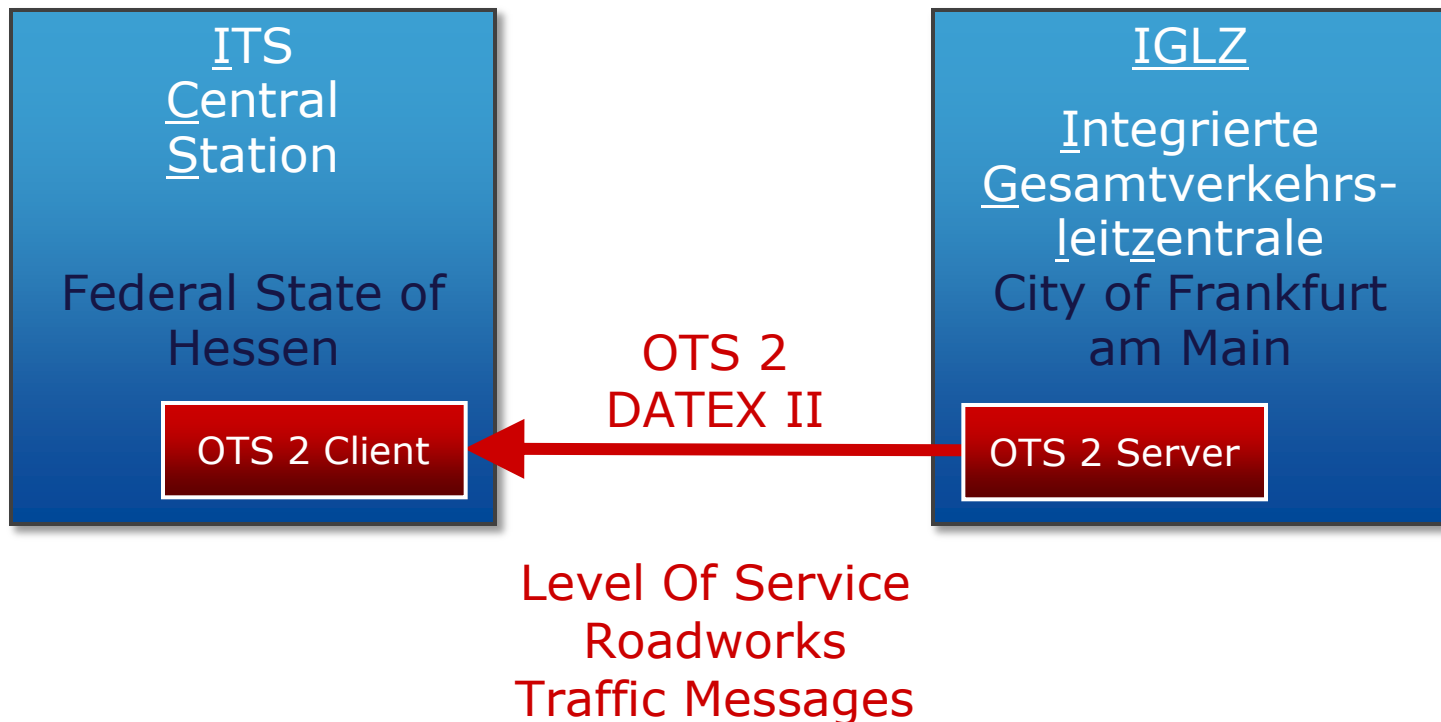
- is a field trial which is shaping tomorrow's safe and intelligent mobility through testing and evaluating C2X communication and its applications
- builds upon results from various C2X R&D projects: SAFESPOT, COOPERS, CVIS, AKTIV, .....
- 9/2008 - 2012
- partners are German OEMs, suppliers, telecom operators, academia as well as the Federal State of Hessen and the City of Frankfurt/Main.
- is co-funded by several ministries:

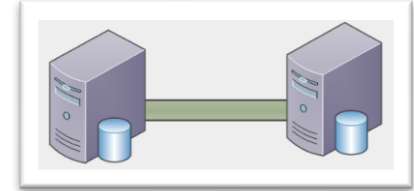


More details at  
[www.simtd.de](http://www.simtd.de)



## 1 Connection of two ITS Central Stations





## Example: Conversion of Alert C Traffic messages

206	TrafficElement - Accident - <b>accidentType</b> = <b>fuelSpillageAccident</b>
207	TrafficElement - Accident - <b>accidentType</b> = <b>chemicalSpillageAccident</b>
208	TrafficElement - Obstruction - <b>obstructionType</b> = <b>dangerousSlowMovingVehicle</b> NonManagedCause (Cause)
210	TrafficElement - Obstruction - <b>obstructionType</b> = <b>shedLoad</b>
211	TrafficElement - Obstruction - <b>obstructionType</b> = <b>damagedVehicle</b>
212	TrafficElement - Obstruction - <b>obstructionType</b> = <b>brokenDownHeavyLorry</b>
213	TrafficElement - Obstruction - VehicleObstruction - <b>vehicleObstructionType</b> = <b>vehicleOnFire</b>
214	TrafficElement - Obstruction - GeneralObstruction - <b>obstructionType</b> = <b>obstructionOnTheRoad</b>
333	<i>no modeling in DATEX II possible, has to be done via OTS 2</i>
335	TrafficElement - Accident - <b>accidentType</b> = <b>accidentInvolvingBuses</b>
336	TrafficElement - Accident - <b>accidentType</b> = <b>oilSpillageAccident</b>
337	TrafficElement - Accident - <b>accidentType</b> = <b>overturnedVehicle</b>

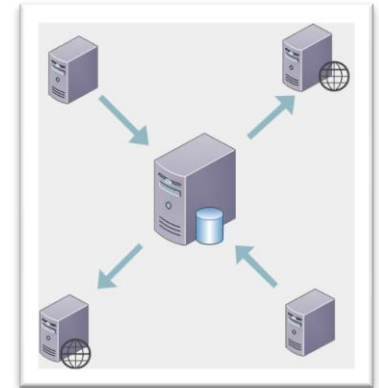
333: „Scene of accident cleared“ – not intended in DATEX!

### Timetable:

- implementation in progress
- testing in 2011
- operation afterwards



## 2 Delivering urban and intern urban Traffic Data to business customers



Innovation Program of the German Federal Government

Metadata Platform Traffic Information



Federal Ministry  
of Transport, Building  
and Urban Affairs

Metadata Platform Public Traffic

Metadata Platform Individual Traffic

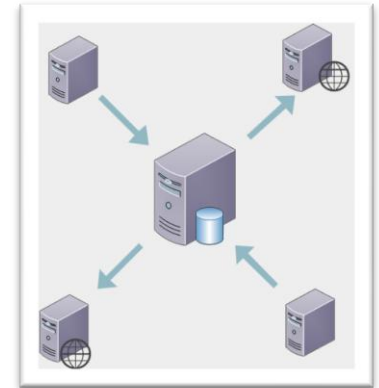
System



Mobility  
Data  
Marketplace



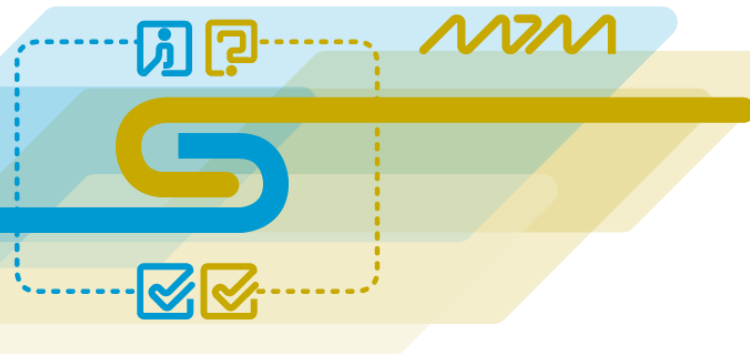
## The Mobility Data Market Place



traffic data  
supplier



data  
processing  
service  
provider



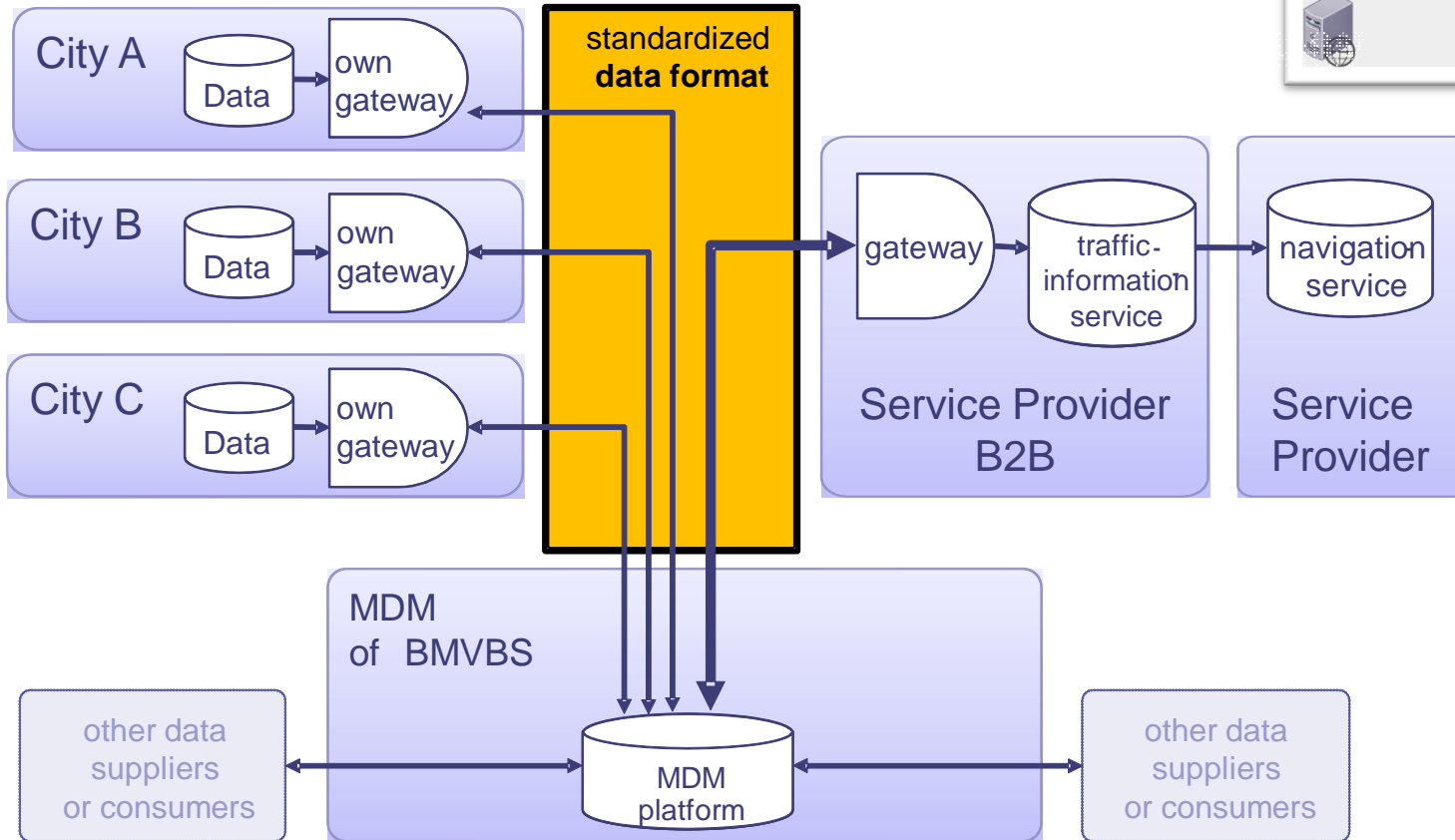
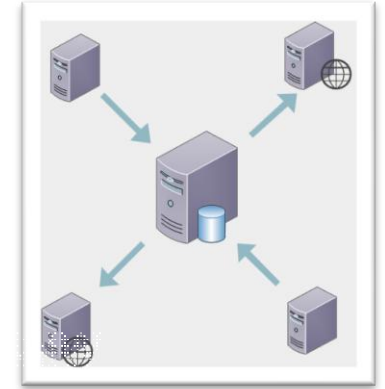
mobility  
service  
provider



informed and  
oriented road  
user



## Suppliers and Consumer



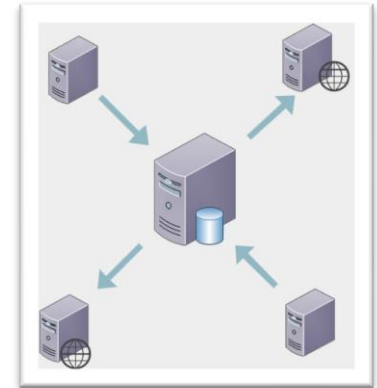


## Mobility Data Market Place

- Is based upon the publish subscribe principle
- Multiple data providers (cities, regions, privates like motorway service areas, ...)
- Multiple data consumers/information brokers
- Both DATEX II exchange and data model can be used both for delivering and for consuming the data
- Data models are harmonized amongst compatible user groups
- Either the provider systems are upgraded or 3<sup>rd</sup> parties offer conversion services (like usage of ETRS89)

### **Data envisaged to be offered during pilot phase on MDM (→ 2013):**

- measurement sites and measured data, Level Of Service
- parking (urban and inter urban)
- traffic messages, traffic jam information on roadworks
- strategic routing





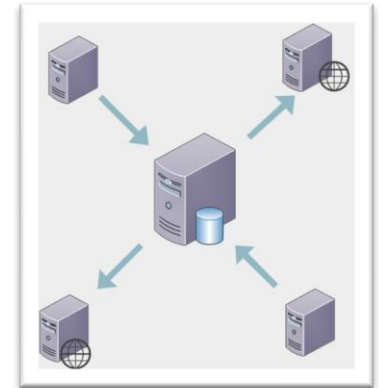
## Data envisaged to be offered during pilot phase on MDM (until 2013)

### Urban data:

- measurement sites and measured data
- car parking
- level of service
- traffic messages
- strategies
- webcams (no video-information itself)

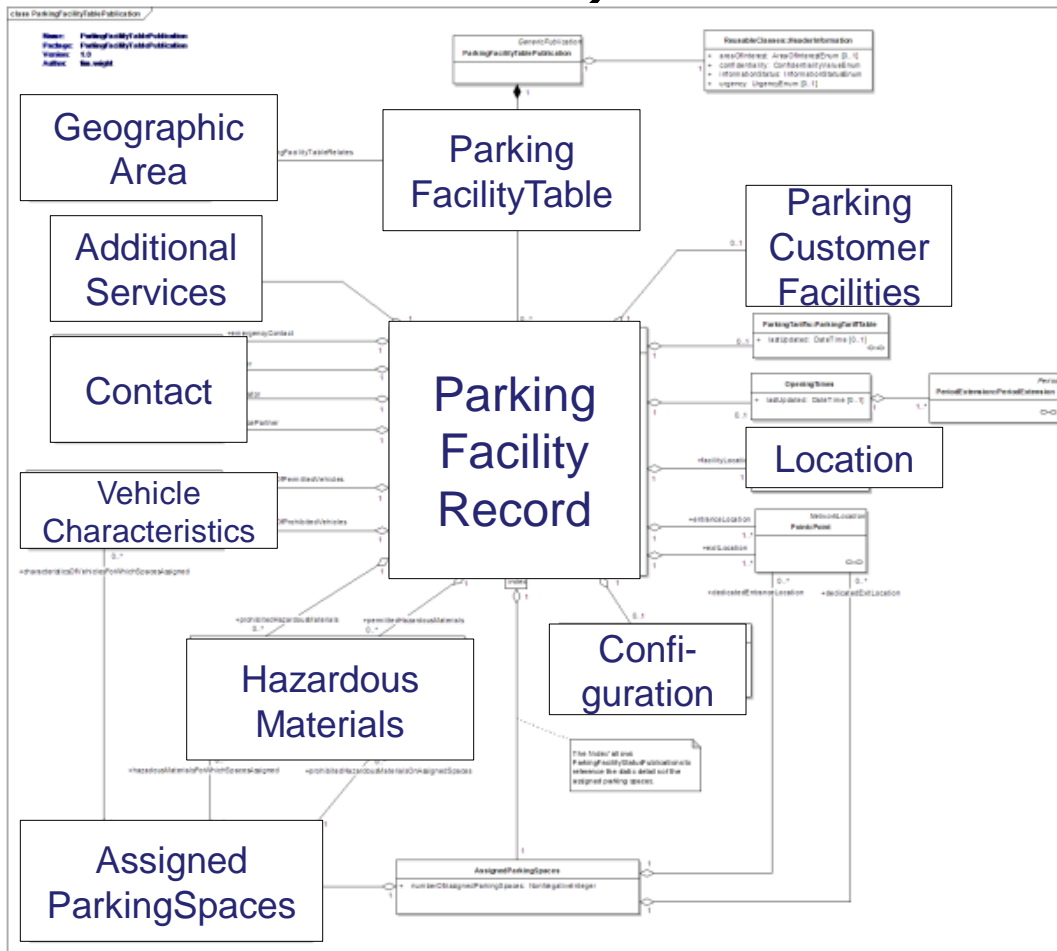
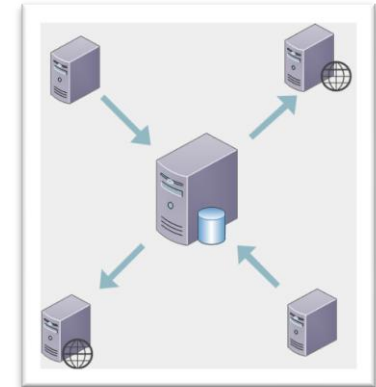
### Inter urban data:

- strategic routing
- truck parking
- traffic jam information on roadworks



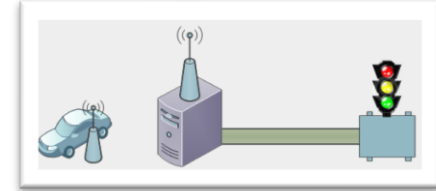


## Example: Extension for Parking-Data (cars and trucks)



Level B Extension  
(GenericPublication)

Model can be discussed  
on DATEX Forum  
[www.datex2.eu](http://www.datex2.eu)



## 3 Connection ITS Roadside Station - Signal Control Unit

- Connecting an ITS Roadside Station (IRS) to the urban traffic management backbone and traffic signal controllers
- Radio communication link for the C2I communication standardised by ETSI based on 802.11p

Local traffic adapted signal control

vehicle data (e.g. position, speed, PT or emergency information) sent to Traffic Signal Control

→ improving signalisation, substitute traditional detectors

Traffic signal phase assistant

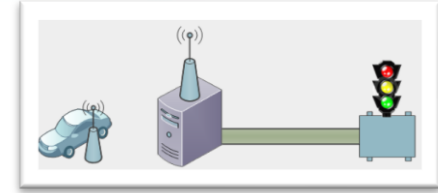
traffic signal information (e.g. green- and red-phases, time to signal-switch) sent to IRS

→ broadcasted to vehicles and displayed in the dashboard

'High resolution' intersection-topology

detailed topology provided to vehicles when approaching junction

→ lane level accuracy for exact trajectories



## Functions using DATEX I2I

Local traffic adapted signal control

vehicle data (e.g. position, speed, PT or emergency information) sent to Traffic Signal Control

→ improving signalisation, substitute traditional detectors

Traffic signal phase assistant

traffic signal information (e.g. green- and red-phases, time to signal-switch) sent to IRS

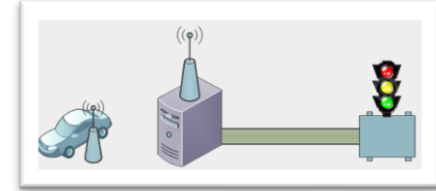
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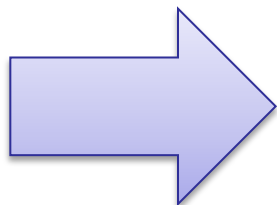
## OTS 2 / DATEX II



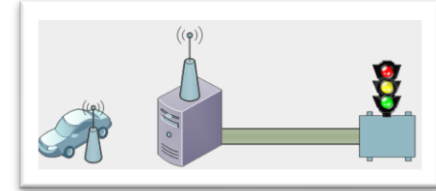
### Why choosing OTS 2 with DATEX II?

**OTS 2** (*Open Traffic Systems*) ...

- is a sophisticated exchange mechanism from current standardisation effort for urban traffic management
- is used for interoperable communication between applications and components from different vendors
- is specified as Web Service based on XML-schemas for Protocol Data Units and a WSDL
- protocol part is more refined than DATEX II exchange spec
- adapts the DATEX II data model which provides valuable input and is easy to extend

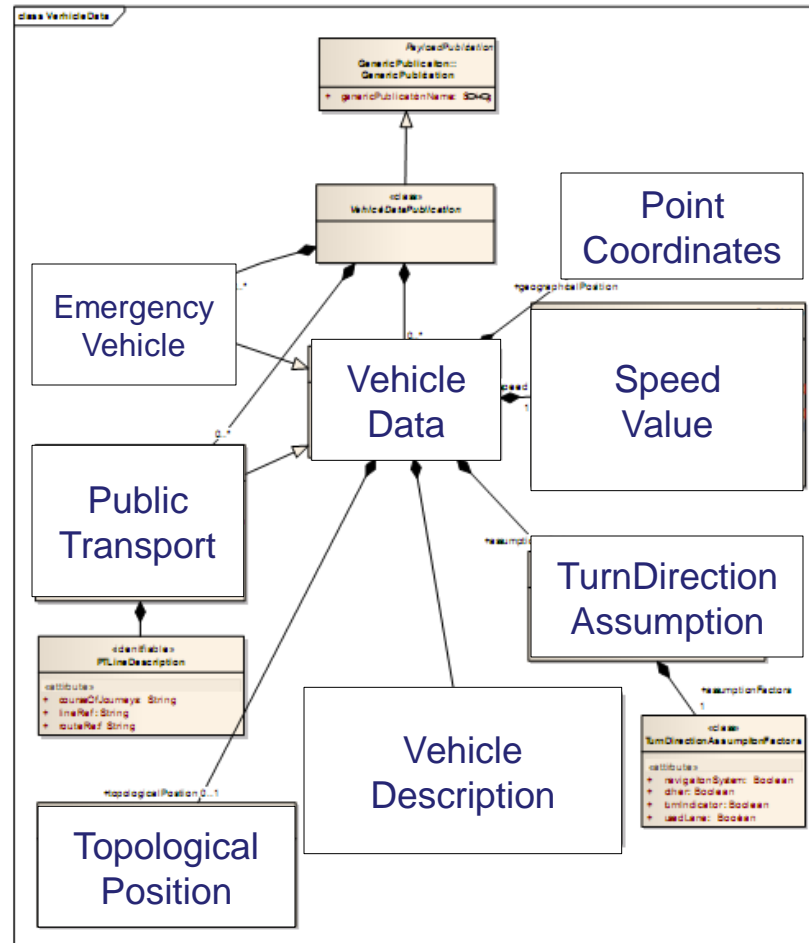


Using the OTS 2 protocol with an extended DATEX II-data model („Level B“) was the solution!



## Example: VehicleData

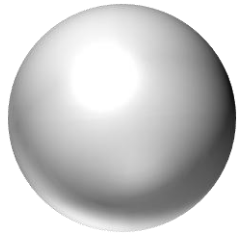
Level B Extension  
(GenericPublication)



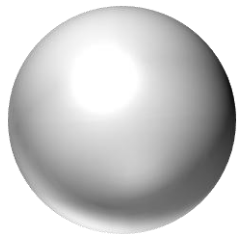
Discussion on DATES  
forum **coming soon**  
[www.datex2.eu](http://www.datex2.eu)



## Summary



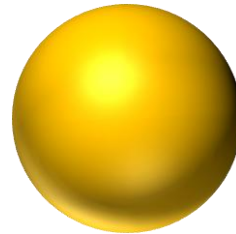
DATEX II provides an excellent structure to extend its data-model for the purpose of Infrastructure to Infrastructure related functions



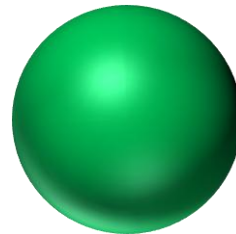
The DATEX II level B-extensions can be a basis for further developments in the traffic-control environment



OTS 2 provides a useful protocol to exchange these DATEX II messages



DATEX II covers established approaches as well as visionary ones



Thank you for listening!