

# City2Navigation (C2N)

Reference architecture for linking public traffic management with private routing services

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9 June 2021

DATEX II PSA Webinar



FE 77.0511/2017





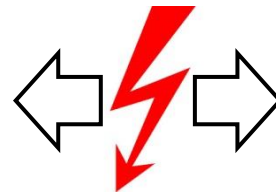
# Starting point for C2N

## Public traffic management



Diversion to the right

Improve / optimize efficiency of overall traffic in a city



## Private routing service



Drive straight ahead

Improve / optimize routing for individual road users



# Objectives / results of City2Navigation

Development of an

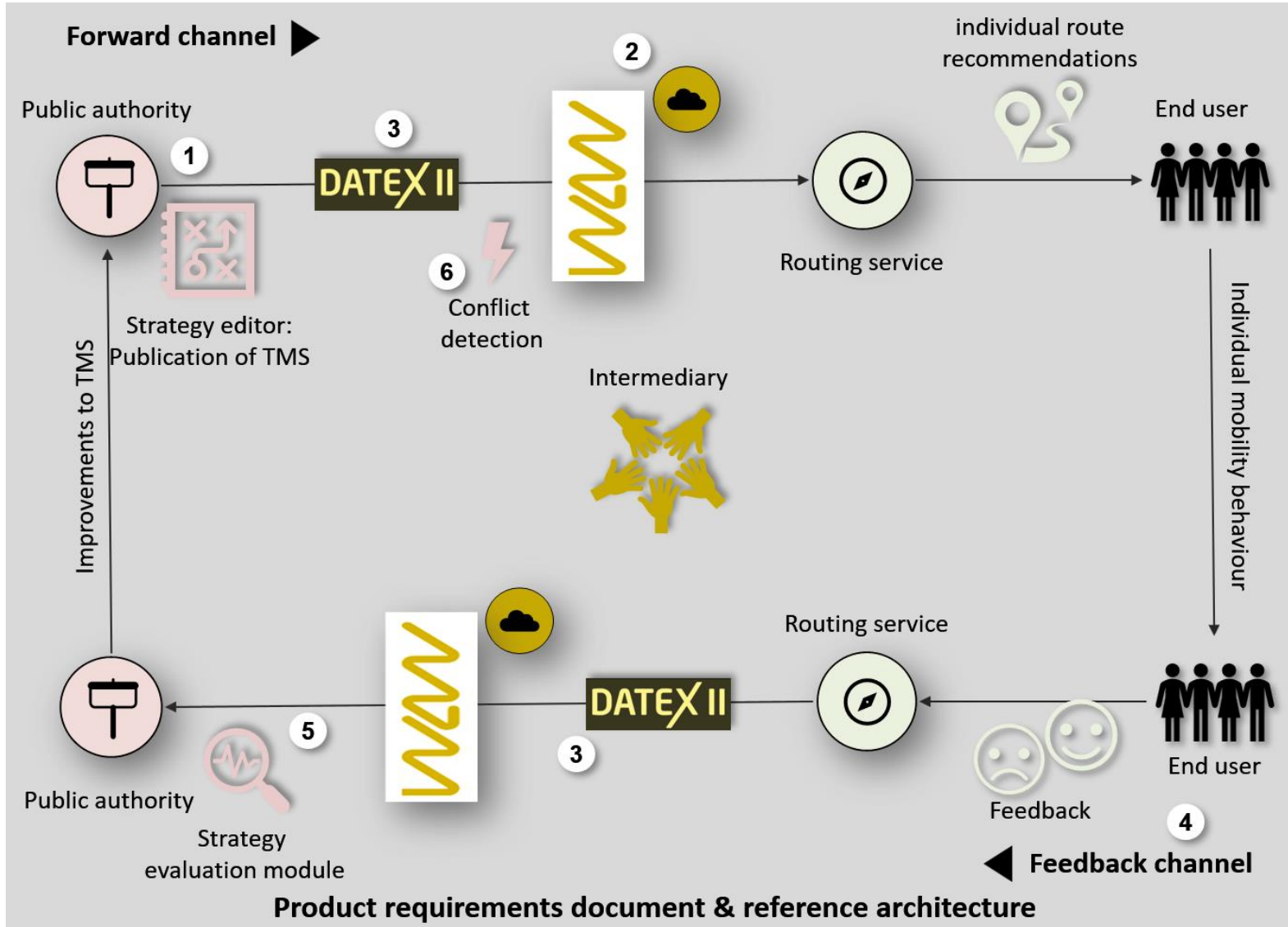
- **ITS reference architecture**,
- appropriate **DATEX II profiles**,
- specification for a so-called **strategy editor** (product requirements document),
- **cooperation and implementation** concepts, as well as
- comprehensive **toolbox** for implementation projects.

for a German-wide **C2N service** linking public traffic management with private routing services



**Standardisation** of the C2N service  
(but no implementation)

# Elements of C2N service



- 1 Strategy editor: Activation of TMS
- 2 MDM (= German NAP)
- 3 DATEX II publication
- 4 User feedback channel
- 5 Evaluation of TMS
- 6 Conflict detection of TMS

TMS = Traffic management strategy

# Content of typical TMS message

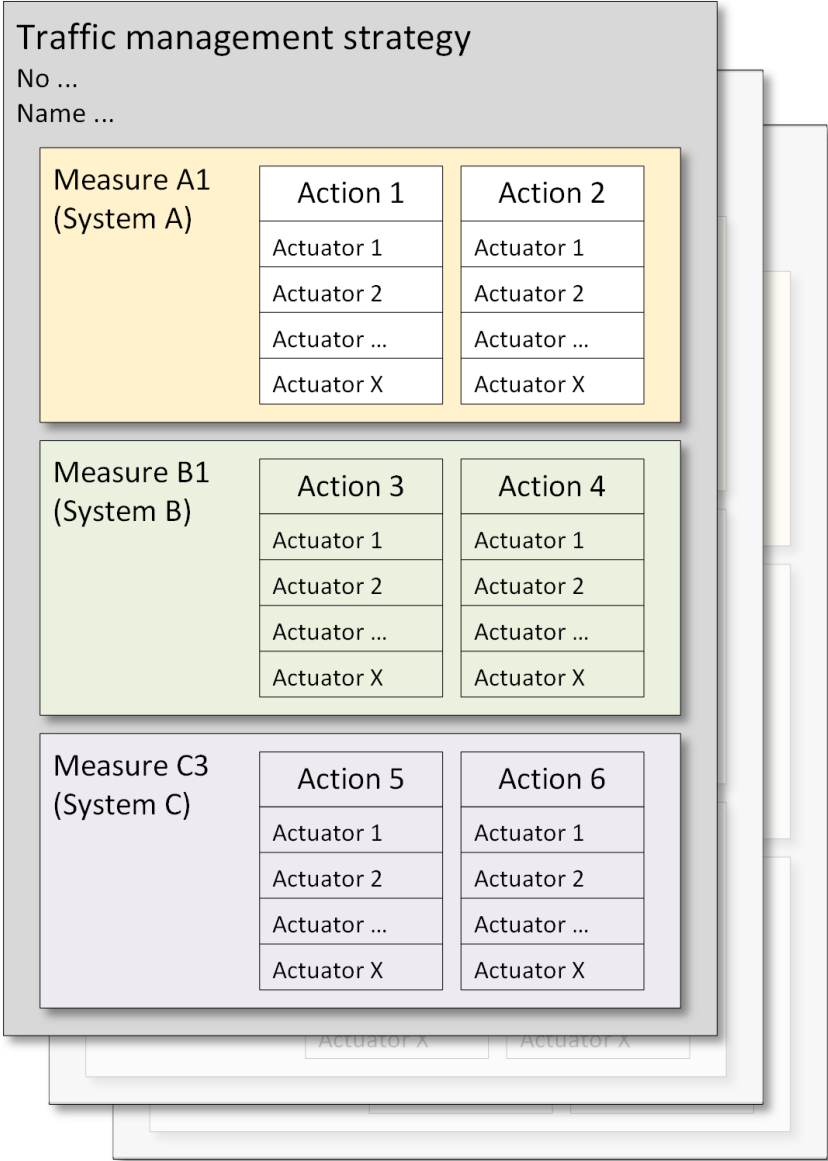
- Measures, actions and actuators (incl. spatial reference)
- Information about the triggering event
- Other useful information

Today



- Reasons for activation of a TMS
- Bindingness and prioritisation
- Period of validity and activation status
- Target groups, modes, trip purposes, vehicle types, specific traffic

Future





# DATEX II basics applied

## Following existing DATEX II elements used

- ReroutingManagement
- ReroutingManagementEnhanced
- TrafficManagementPlan
  - TmplanTablePublication
  - TmplanOperationPublication
  - TmplanImplementingAction
- Cause
- Validity

ReroutingManagementEnhanced2

## Proposals for DATEX II extensions

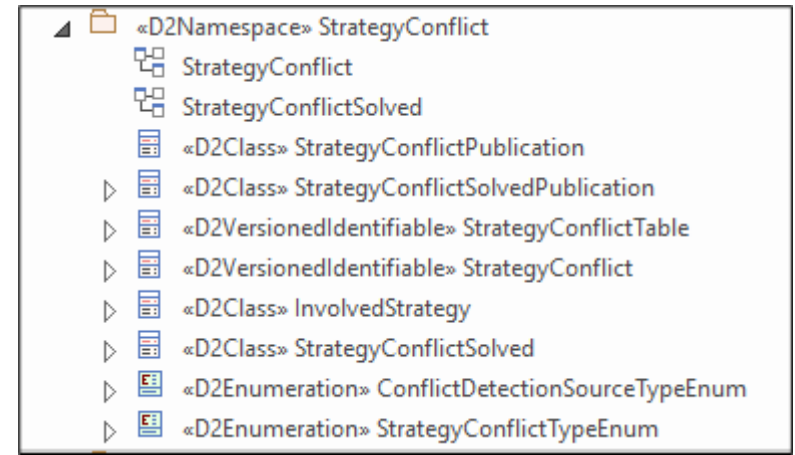
- Bindingness / prioritisation
- Strategy type
- Routes to specific destinations
- Prioritisation of routes
- Public transport measures
- Location information on capacity-enhancing measures
- Capacity restricting measures

## New profiles

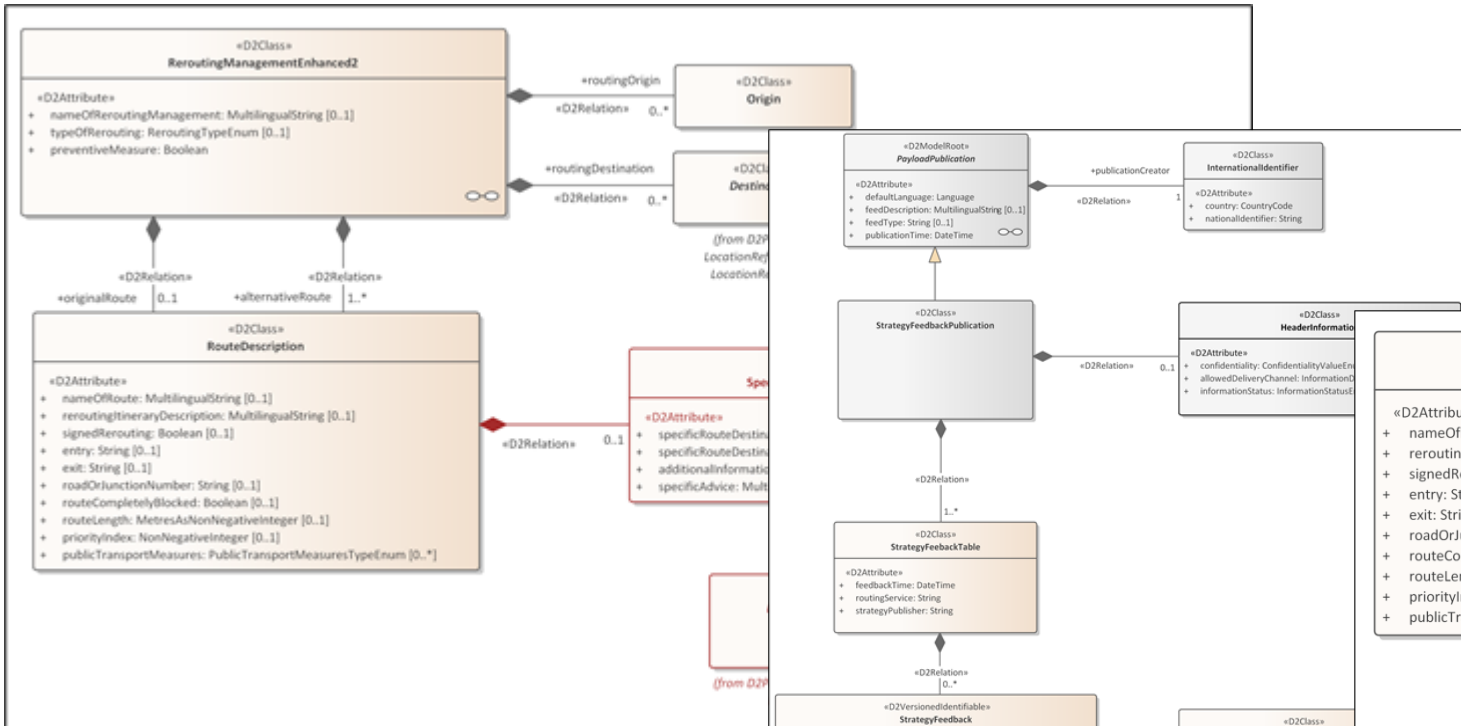
- Conflict message
- Cancellation message
- Feedback channel (1+2)
- Georeferencing



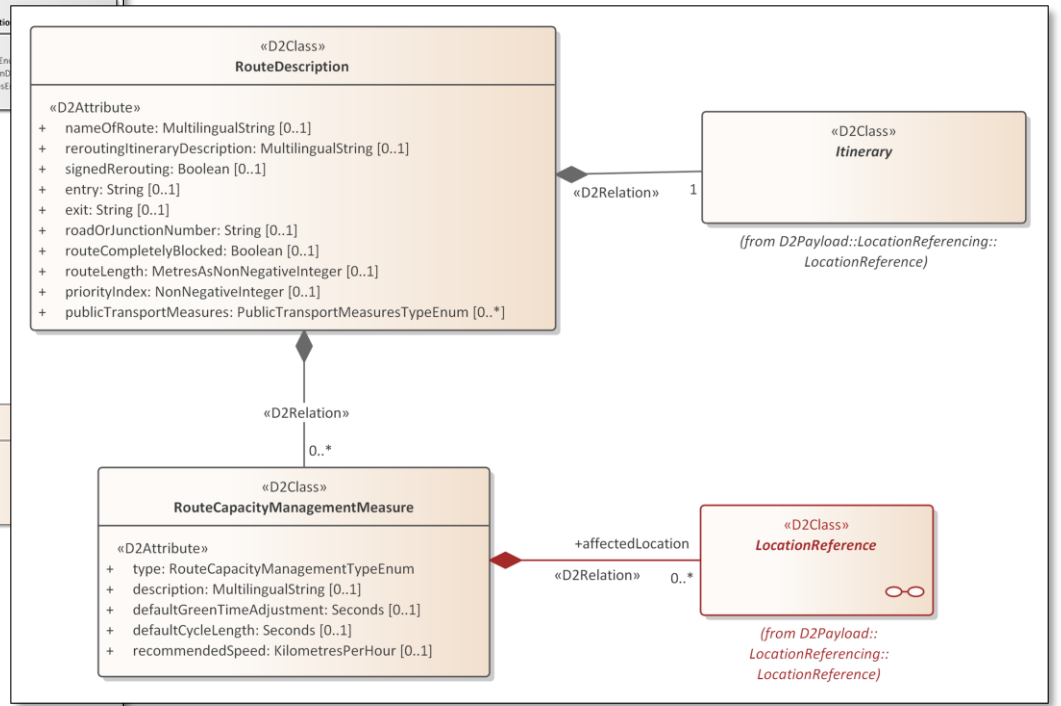
# UML (examples)



New namespace for strategy conflicts



Routes to specific destinations



Location reference for capacity enhancing measures

Feedback channel (2)



# Conclusions

- Results of City2Navigation will be published soon online by BASt
- City2Navigation (**C2N**): Complementing **C2C** and **C2X** communication
- Necessary service to ensure that **municipalities** retain possibilities for future **traffic management**
- Required service to allow **autonomous vehicles** in cities
- C2N = Building block for **future digital traffic management** (IVS Aktionsplan Straße) and implementation of Directive 2010/40/EU of the European Parliament and of the Council
- Vision:







**Thank you very much!**

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