DATEX II User Forum
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Tim Lange, BMW Group
Strategic Routing – Requisite for Smart Urban Navigation
The nightmare of drivers and authorities
Let’s talk about…

- Initial Situation
- Objective and Challenges
- Technical Realisation
- Projects and Outlook
Let’s talk about…

Initial Situation

Objective and Challenges

Technical Realisation

Projects and Outlook
State of the art: GPS navigation and HR traffic info

• 20 million navigation systems in Germany
• High-resolution (HR) traffic info even in urban areas
• No link between route planners and traffic management
• Dynamic routing takes control
• Drivers rely on navigation systems

GPS navigation is part of the traffic system

1 source: ADAC e.V..
Expectations are sometimes conflicting

Drivers expect routes to be
- fast & efficient
- safe & comfortable
- comprehensible
- consistently reliable

Authorities intend traffic to be
- stick to priority roads
- avoid sensitive areas
- follow signage
- satisfy ecological constraints

Current urban navigation makes both sides unhappy
Strategic Routing is the key in complex traffic situations.

- Strategic Route
- Dynamic Route
- Standard Route
Strategic Routing as part of traffic management

Conventional Route

Standard Route

Zero-Emission Route
Let’s talk about…

Initial Situation

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Technical Realisation

Projects and Outlook
Dissolving conflicting interests by cooperation

- Cooperate with city and road authorities
- Acquire their store of local knowledge
- Establish link to traffic management centres
- Integrate content into the routing service
- Deliver optimal and environmentally adaptive routes

Strategic Routing creates win-win-win situation
Drivers and authorities benefit from Strategic Routing

- Routes conform to strategic road network
- Routes incorporate dynamic strategic deviations
- Routes take advantage of traffic measures
- Routes avoid congestion pro-actively
- Routes are aware of road events
Identifying the main challenges to be overcome

- Terms and conditions for sharing traffic data
- Worldwide data acquisition
- Adaptation of routing algorithms
- Standardisation of protocols for data exchange

BMW is contributing to DATEX II enhancements
Let’s talk about…

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Putting together the puzzle pieces for Strategic Routing

Online connectivity between
- traffic management centre
- service provider
- on-board navigation device

Standardised protocols
- DATEX II on back-end side
- TPEG on vehicle side

Continuous assurance of
- information quality
- high availability (24/7)

Transparency of information to
- increase driver’s acceptance
- create confidence
Traffic management meets personal navigation

Traffic Situation
Road Works
Special Events
Infrastructure

Traffic Management Center

Service Provider
Backend Routing Service

Priority Networks
Traffic Measures
Route Recommendations

DATEX II
TPEG

STRATEGIC ROUTING

On-line Alternative Route

EasyWay
BMW is participating in DATEX II standardisation

**OTS 2 Route Advice**
- Developed in Dmotion
- TMC location reference
- Special use case

**BASt’s Strategic routing DATEX II extension**
- Migration of OTS 2 route advice to DATEX II
- Greater flexibility

**BMW’s DATEX II enhancements regarding traffic management measures**
- Lane Management
- Traffic Light Management
- Capacity Management
Let’s talk about…

Initial Situation

Objective and Challenges

Technical Realisation

Projects and Outlook
## Extract of past, current and future projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Duesseldorf in Motion (2009)</td>
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<tr>
<td>BASt’s Mobility Data Market (2012)</td>
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<td>Transport for London &amp; Olympic Games (2012)</td>
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<td>ITS Vienna Region &amp; ITS WC (2012)</td>
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What’s next

• Continue cooperative projects with cities & road authorities
• Spread vision of Strategic Routing
• Promote DATEX II as uniform interface
• Extend DATEX II for further use cases
• Transfer prototypes to productive system

Bring Strategic Routing onto the road
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