The role of co-operative systems for efficient intermodal transport management

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Intermodal land transport

Why does it not really happen on a large scale?
Today:

truck transportation is the most comfortable way to organise door-to-door delivery (for industry and logistics service provider) even for distances beyond 300km

- low risk to keep contracted QoS
- low effort to order/organise
- seamless tracking information
- low cost
Truck transportation vs intermodal transportation (2)

Multimodal transportation:
- higher effort for planning
- higher risk to keep contracted QoS
- higher transport time
- higher effort for handling
- no seamless tracking information service
- lower cost???
Passenger transport

Individual transport by car:
- most comfortable, even increased by navigation systems and integrated traffic information
- most of the time less time consuming
- more expensive

Multimodal:
- complicated trip planning – lack on reliable information with single access (pre-trip, on-trip)
- most of the time no door to door service
- less cost
Key issue for multimodal transportation

Information:

- reliable planning data (for route, traffic and travel time)
  - reliable interoperable traffic prognosis on all modes
- real time information on deviations against planning
  - seamless tracking on all modes
- comfortable one stop shop booking
Basics on co-operative systems for traffic management

3 pillars:

- Infrastructure to vehicle communication (I2V)
- Vehicle to vehicle communication (V2V)
- Autonomous vehicle systems (ADAS)
Traffic control - today

Traffic control

distributed

Inland navigation
Sea navigation

Individual Traffic

central

Rail

Air
Trends based on ITS developments

More central responsibility:
• Automatic traffic data logging
• Traffic information
• Traffic control

Less central responsibility:
• more information into the vehicle
• Decision support system for the train driver, for the captain

• Improved use of existing infrastructure
• Linking of transport modes via reliable information
Future

**Co-operative Traffic Management/Organisation**

Providing a highly precise and reliable set of data for
- traffic information
- traffic prognosis
- traffic and transport planning
Is it only a vision? Examples for actual R&D

- Road: COOPERS, CIVIS, SAFESPOT
- Rail: ETCS, ERTMS
- Waterways: RIS
- Maritime: VTMS
- Air: SESAR
COOPERS Project vision

Toll Operator

TISP

RDS-TMC

Surface temperature ≈2
Humidity >85%
EPS aktive
Co-operative systems - rail
Co-operative systems – waterways

RIS
Key role of ITS applications on infrastructure side

• Improve utilisation of existing infrastructure
  ▪ More vehicles through the infrastructure
  ▪ Increase service quality and reliability by traffic control

• Allocate demand to available capacities (road, rail, etc.)
  ▪ Multimodal approach

• Manage crucial bottlenecks
  ▪ Strategic transport network management
On mobility demand side

Synergies in ITS deployment

• Implementing ‘intelligence’ into the whole transport system generates huge amount of data of highest quality.

This data have to be used for a new generation of individualised mobility services to encourage change of mobility demand (persons and goods) with acceptable comfort, less growing demand on additional infrastructure capacity and reduced impact to environment.
Summary

Within the frame of upcoming restrictions for road transport in respect of:

- CO2 emission
- Fossil fuel consumption
- Land use/lack on capacity on road
- Accidents
- Congestions

A change of transport organisation will happen for both cargo and passenger – precise data out of co-operative traffic management will contribute to future solutions
Thank you for your attention

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