

Coopers – Co-operative Systems for Intelligent Road Safety



Special Session 03: ICT
for Cooperative Energy-
Efficient Traffic

COOPERS – cooperative traffic management

Monday, 1:30pm - 3:00pm

A.Frötscher, AustriaTech



Co-funded by the EC, FP6 IST-Programme



Topics

- Project vision
- Partners
- Areas of work in COOPERS
 - Roadside data acquisition
 - Traffic control center – TCC applications
 - Road side transmitter
 - On board unit
 - Information services
- Test and demonstration sites
- Conclusions





COOPERS

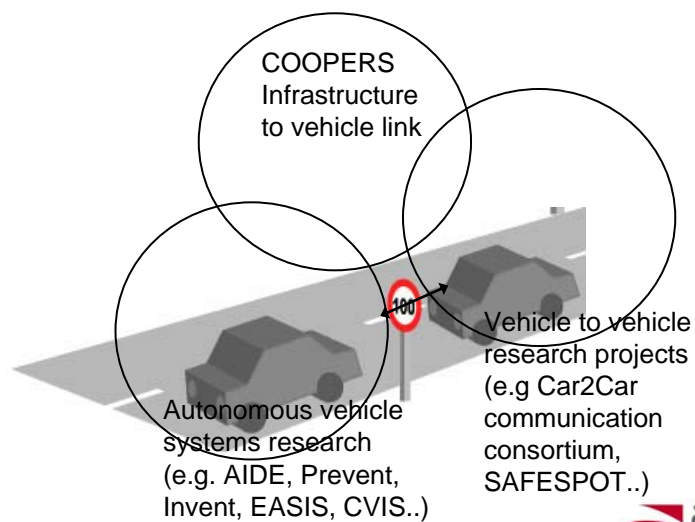
Project facts:


COOPERS – Co-operative Systems for Intelligent Road Safety

- Integrated Project of the 4. IST Call, FP6
- Project with 39 partners, coordinated by AustriaTech
- Project Budget 16,8 Mio EURO, 9.8 Mio EURO EU - Contribution
- Start on 1. February 2006
- Duration of 4 years



Transport management view:





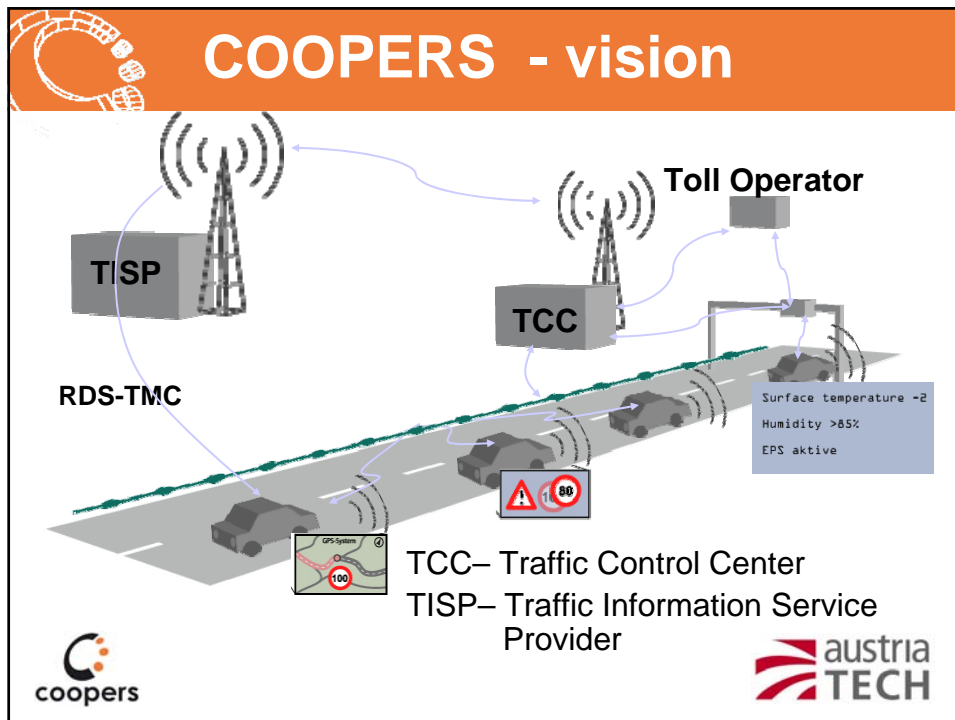



COOPERS

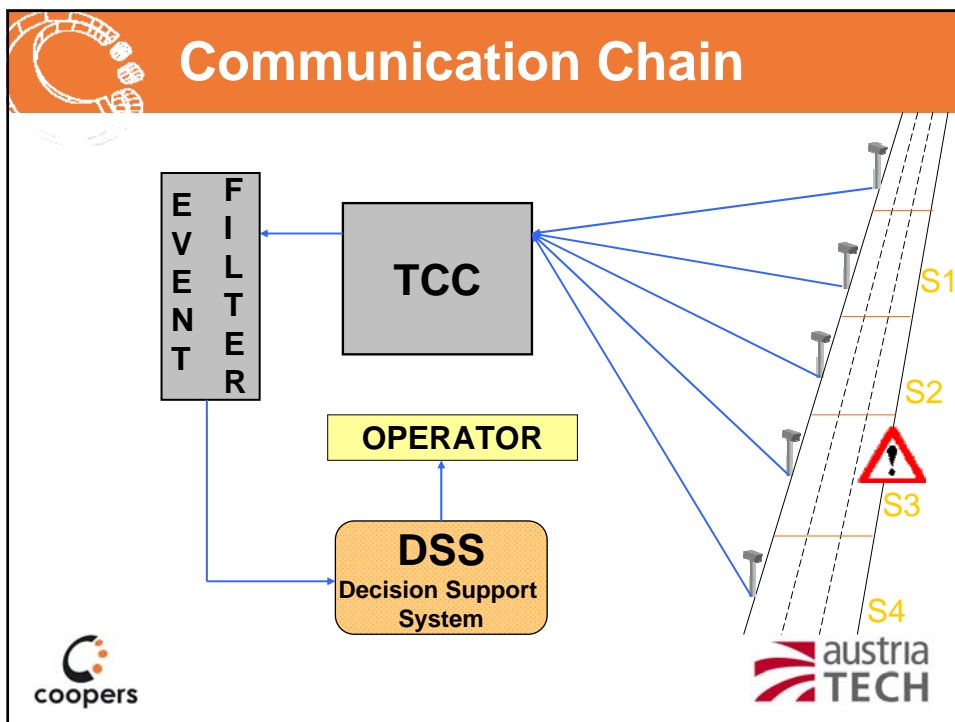
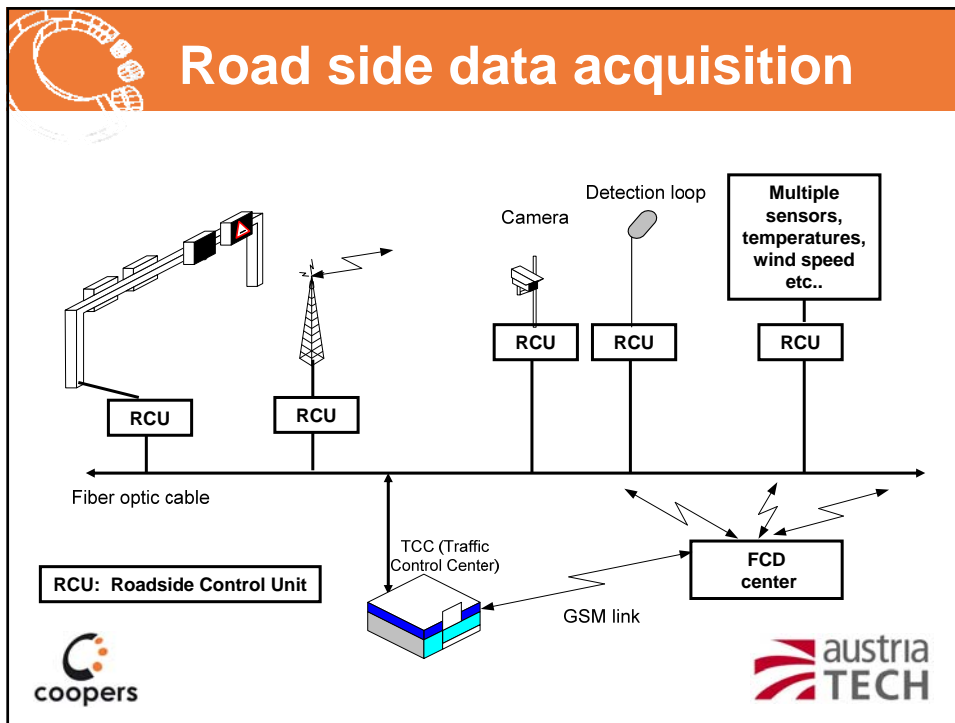
VISION

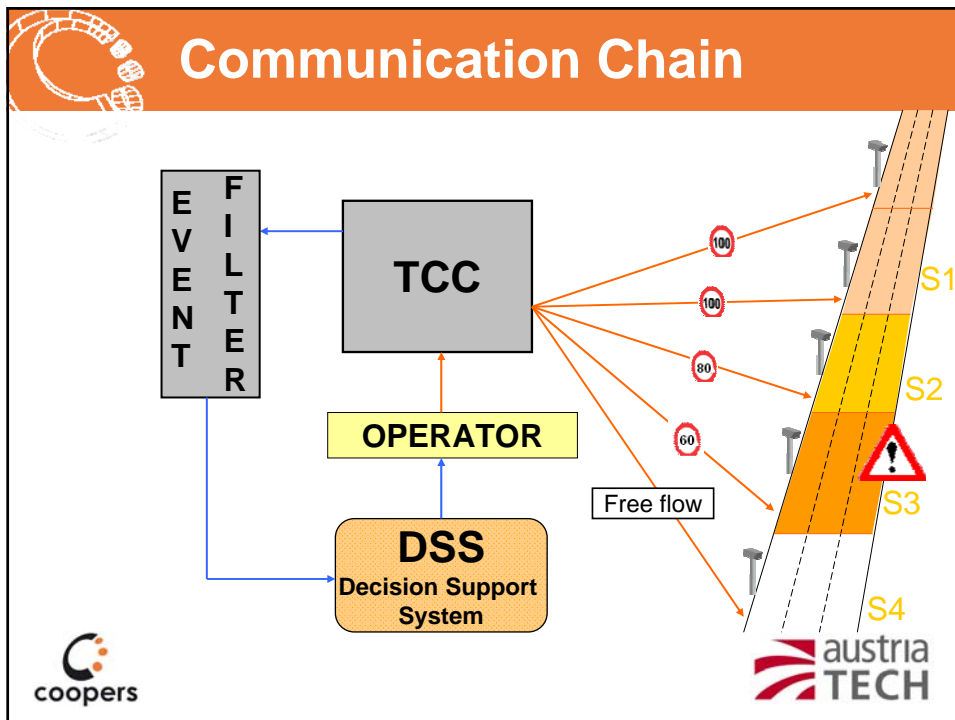
Vehicles are connected via continuous wireless communication with the road infrastructure on motorways, exchange data and information relevant for the specific road segment to increase overall road safety and enable co-operative traffic management.



- ## Areas of work in COOPERS
- Roadside data acquisition
 - Roadside and on-board unit configuration
 - Traffic control center – TCC applications
 - Information services and test methodology
 - Simulator and demonstration
- coopers** logo on the left and **austria TECH** logo on the right.





I2V communication

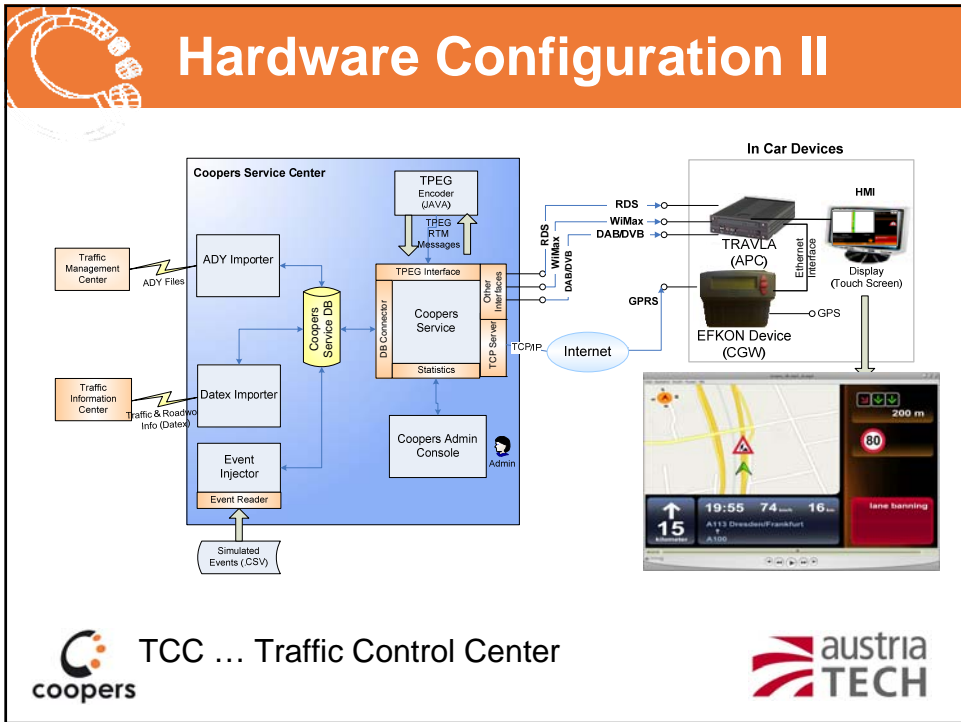
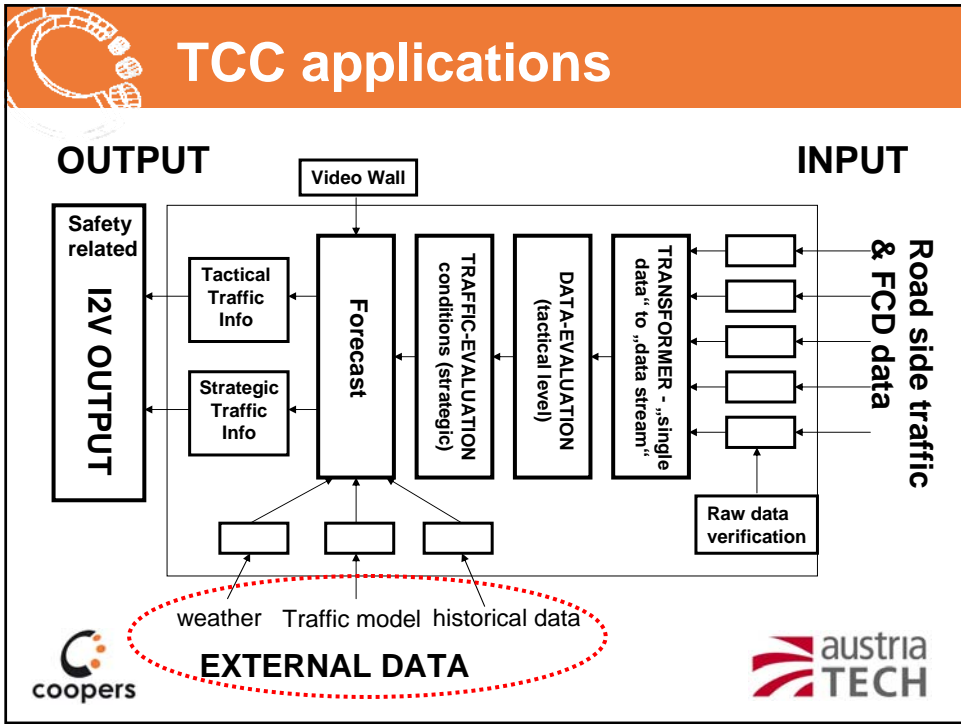
The following communication media will be evaluated in COOPERS:

- DAB / **DVB-H**
- GPRS / WIMAX
- CALM IR / **CALM M5**

- Common message set and use of TPEG-RTM standard for all communication media
- Enhanced message set to cover all COOPERS services under development



MGMT	<road_traffic_message message_id="2049334" start_time="2007-11-23T13:01:13+0" accidents number_of="1" />
CONTENT	<position position="driving lane 1" /> <restriction restriction="blocked" />
LOC	<WGS84 latitude="51.613156" longitude="-3.757987" /> <direction direction_type="eastbound" />

<http://www.bbc.co.uk/travelnews/xml/>



Information services - 01

- S1. Accident/incident warning
- S2. Weather condition warning
- S3. Roadworks information
- S4. Lane utilization information
- S5. In-vehicle variable speed limit information
- S6. Traffic congestion warning



Lane Utilisation Information



12 kilometer

18:18 56 km/h 16 km

A13 Dresden/Cottbus/Ragow
↑
A113

200 m

lane banning
merge to the right lane



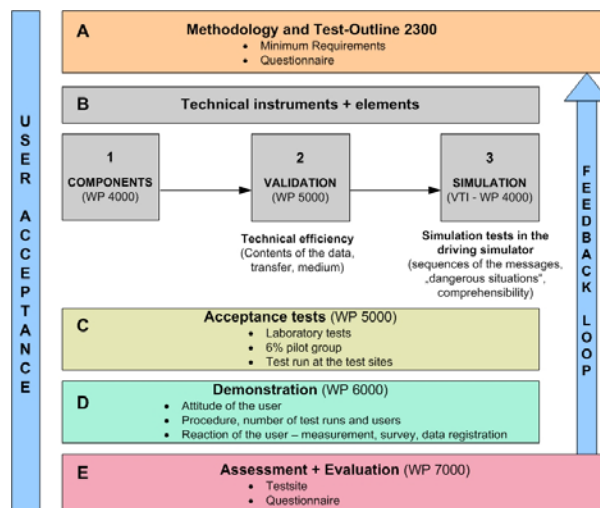


Information services - 02

- S7. ISA with links to infrastructure
- S8. International service handover
- S9. Road charging to influence demand
- S10. Route navigation – estimated journey time
- S11. Route navigation – recommended next link
- S12. Route navigation – automatic road map update



Test methodology



Driving Simulator scenarios

- Heavy fog
- Sudden traffic congestion formation
- Ambulance approach
- Wrong-way driver

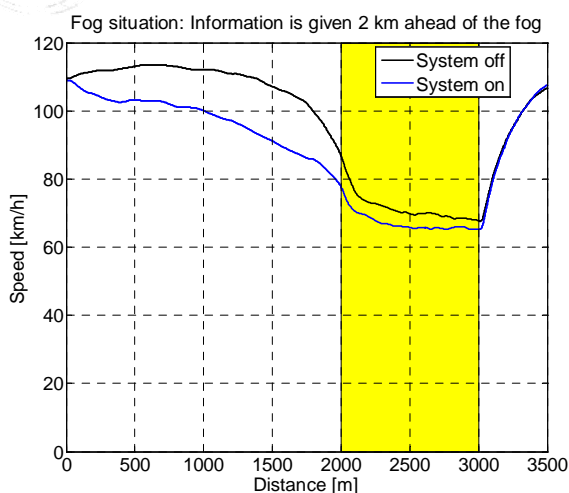


Monitoring of

- Driver behaviour (speed, acceleration, headway, steering angle...)
- Stress level (eye movement...)



Driving simulator results:

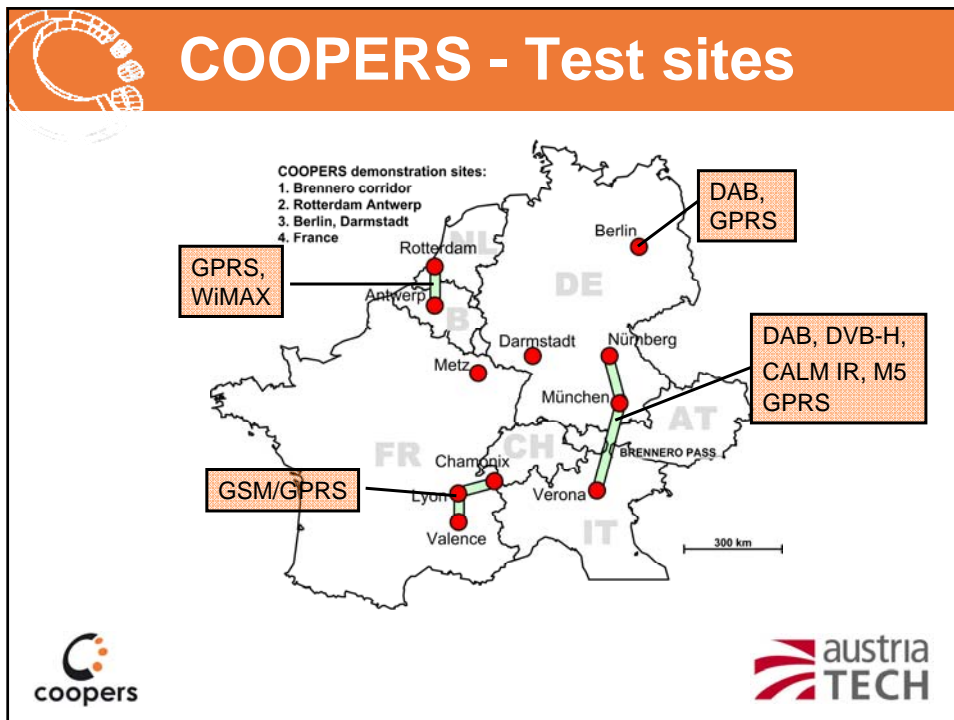


Read: at 500 m distance average speed (92 km/h with system on – 108 km/h with system off)

Driving simulator results

- Mean speed - Fog
- more than 90 % of drivers reacted to the warning
- reduced their driving speed by 14 %





Conclusions:

- Expanding traffic management capabilities of infrastructure operators is absolutely necessary to contribute to energy efficiency
- COOPERS results from the driving simulator show that drivers reduce their speed by 10% after a warning
- COOPERS results from simulations in Berlin show, that deviating only 5 % of vehicles on a critical road segment keeps traffic fluent and saves energy
- But investments in data acquisition networks and TCC applications are high

Logos: coopers, austria TECH



Contact Information:

Alexander Frötscher
Martin Böhm
AustriaTech

Gesellschaft des Bundes für technologiepolitische
Maßnahmen GmbH
Federal Agency for Technological Measures Ltd.

Donau-City-Straße 1, A-1220 Vienna, Austria
tel +43 1 2633444 64 fax +43 1 2633444 10
Email: alexander.froetscher@austriatech.org,
martin.boehm@austriatech.org

www.austriatech.org www.coopers-ip.eu

