Cooperative Intelligent Transport Systems

...providing for sustainable transport

Soeren Hess
General Manager
Car 2 Car Communication Consortium
Soeren.Hess@car-2-car.org
www.car-2-car.org
Develop and deploy ITS
Cooperative ITS - V2V V2I

700 members from 60 countries driving ICT Standardisation
Member and consensus driven
European Commission acceptance - regulatory role
ETSI TC ITS standardisation activities for ITS

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Why cooperative ITS

Transport EU-25, road accidents

- 41,600 fatalities
- 1.4 million accidents involving injury
- Costs €200 bn/Y or 2% EU GDP
- 2.0 million injuries

Source: DG TREN-Statistical Pocket Book 2004

reasons for accidents

86% involve drivers

- Too fast – too close: 31%
- Wrong lane: 26%
- Right of way: 26%
- Enter exit/turning: 13%
- Others (alcohol): 30%
- Driver mistakes: 30%

Source: Verkehr in Zahlen 2003, Deutscher Verkehrs-Verlag

50% improvement by co-operative driver assistance

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Fatalities on the roads in Europe – EU policy goals

ITS deployment is needed now.
Transport is essential to Europe

- EU transport sector: 11% of GDP
- 15 million jobs
- 13% of households spending
- Important industry that makes a major contribution to the functioning of European economy
- Road Transport: 44% of Freight – 2.3% annual growth
  85% of passengers – 1.9% annual growth

European Transport Policy aims to provide safe and efficient mobility while respecting the environment
Driver assistance to avoid crash

Focus in safety shifts towards accident avoidance and collision mitigation.

Active Safety
Active safety has become the new battleground.

Passive Safety
Passive safety has become a commodity.

Information
Foresighted driving

Support
Warning & assistance systems

Intervention
Active vehicle control

Crash probability
Distance

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Driver assistance by ITS

- Traffic safety life-saving
- Traffic efficiency
- Congestion control
- Value added services
- Location based services

Simple sensors: Worse than the driver
Complex sensors: As good as the driver
Communication: Better than the driver

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Decarbonisation of EU transport –

The big picture

- GHG emissions from transport +32% during 1990-2005
- Transport largely dependent on oil
- Strong need for increased mobility
  - Prediction for 2000-2020: freight transport +50 %, passenger transport +35 %
- EU targets by 2020
  - 20 % reduction of GHG gases (/30%)
  - 20 % increase in energy efficiency
  - 10 % renewable transport fuels
- ICT plays an important role!
Action Plan for the Deployment of ITS

Part of Greening Transport Initiatives

Action and measures

Transport efficiency
- Logistics chains management
- RTTI services
- Cooperative systems (V2V, V2I, I2I)

Greening of Transport
- Electronic Toll Collection
- Navigation and eco-driving
- Green transport corridors

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The European Green Cars Initiatives

- Part of the European Economic Recovery Plan 2008
- Public-Private Partnership
- Loans by the European Investment Bank (4 B€), research component 1 B€ (DGs RTD, INFSO, TREN)

Research topics:
- Transport electrification, lower emission trucks, greener internal combustion engines, logistics and transport system optimization, biofuels and hydrogen fuel cells
- DG INFSO contribution 110 M€, ICT for Fully Electric Vehicles (FP7 Calls 4,5,6)
European Large Scale Action - ELSA

- The EC is considering to support a set of focused projects of significant scale and duration that cut across the innovation cycle to develop modern pan-European service infrastructures.

- Mobilization of resources:
  - grants for R&D, pre-commercial procurement and support for innovation and

- Deployment, using a variety of instruments

- ELSA in Transport focuses on energy efficiency and safety

- FP8 Timeframe, 2014 onwards (ramp-up actions under FP7?)
Mission:
“To develop a combination of cooperative systems and tools using vehicle-infrastructure communication to help drivers sustainably eliminate unnecessary fuel consumption, and road operators manage traffic in the most energy-efficient way.”

Goals:
- Show that a combination of cooperative systems will reduce fuel consumption by 20%
- Develop eCoMove use cases, system concept and architecture
- Develop a common V2V & V2I platform based on CVIS project results
- Develop a strategic model of macroscopic energy consumption for an entire road network
- Develop, test and validate the applications: ecoSmartDriving, eco Freight & Logistics, and ecoTrafficManagement & Control
- Assess applications in 4 field trials (3 cities & 1 interurban motorway)
- Assess implementation issues, carry out a cost-benefit analysis, and propose an implementation roadmap

Coordinator:
ERTICO ITS Europe
Project in negotiation phase
Total costs: ±22.5 M€
EC contribution: ±13.7 M€
Start date: Q1/2010
Duration: 36 months
The road towards standardisation

Guidance/Consolidation

- CAR 2 CAR
- COM Safety

Standardisation

- ETSI World Class Standards
- CENELEC
- CEN
- ETSI Standards on the move
- IETF
- ISO
- IEEE

Specification

- R&D Projects 2009
- simTD
- PReVENT
- GST
- SAFESPACE
- SEVECAm
- CVIS
- coopers

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Cooperative ITS

Ad hoc networks by Cooperative awareness messages

V2V – V2I – I2I

Conflict Areas

Conflicting Vehicle

Vehicle under Consideration
Communication architecture

- Developed within R&D in pre standardisation
- Basic set of applications
  - Cooperative Awareness message
  - Facilities - Local Dynamic Maps
  - GeoNetworking
  - Media 5.9 GHz - other systems
  - Security - privacy
- Standardisation in ETSI TC ITS
  - First set of standards ready 2009
  - International cooperation
- EC Standardisation Mandate
Field Operational Tests

- **SIM-TD** (Safe and Intelligent Mobility – Test field Deutschland)
- German vehicle manufacturers – suppliers-
- Deutsche Telekom
- State of Hessen
- Technical universities.
- Sept 2008 – September 2012
- Safety – traffic efficiency and Value-added services
- Roll out scenarios
- Test and validation
- Verification of functions and requirements

- Similar FOT
  - France – Sweden and Italy
Roadmap towards deployment

- Standardisation → 2013
- Field Operational Tests
- Infrastructure facilities
- Achieving 10%+ penetration

- International coordination
- Traffic efficiency and non safety support functions
- Safety applications to meet policy objectives…..

Guess for implementation ……..

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Business projection – Impact Assessment

- Safety related applications
  - reduction of fatalities
  - avoid accidents
  - reduction of consequences

- Traffic efficiency
  - Traffic jam in Germany €17 billion every year – EU €50 bn+
  - Reduction of fuel consumption supporting the Green Agenda
  - Public private partnership

- Value added services
  - Real time driver/passenger support
  - Local based services
Thank you for your attention
- Good luck for the COP15 in Copenhagen

Søren Hess
Car to Car Communication Consortium
soeren.hess@car-2-car.org