

# **Aktuelle EU-Aktivitäten bei der Weiterentwicklung kooperativer Mobilitätslösungen**

## *EU Activities to Develop Cooperative Mobility Systems*

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### Summary

- About cooperative mobility systems
- Key development activities
- Standardisation
- Policy and non-technical issues
- Outlook for deployment



Fig. 1: Summary

“In the future, vehicle communication will be the key to many exciting driving innovations, not only by interconnecting systems, one vehicle to another, but also by linking the vehicle with the driving environment.”

(Volkswagen Group of America)



Fig. 2: Quotation 1

“We believe that in the future cooperative systems can make a substantial contribution to easing congestion, improving traffic safety, reducing the environmental impact of traffic and delivering a better service to the road user..”

(Dutch Ministry of Transport)



Fig. 3: Quotation 2

## What are cooperative systems?

- Systems that exchange information, interact & cooperate...
- using vehicle-to-vehicle (V2V) and...
- vehicle-to-infrastructure (V2I, I2V) communication...
- to enable a wide range of possible applications & services...
- for safety, efficiency, environment & mobility.



Fig. 4: What are cooperative systems?

## A system concept

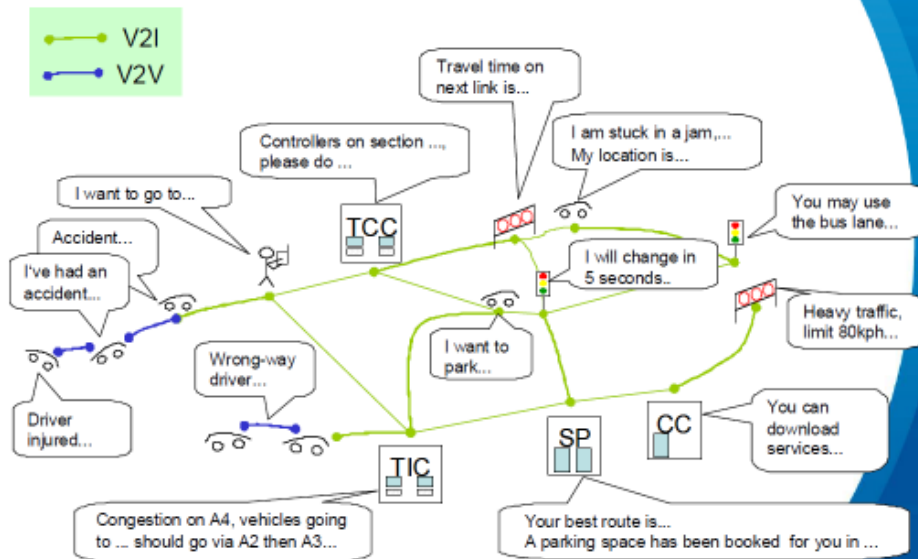


Fig. 5: A system concept

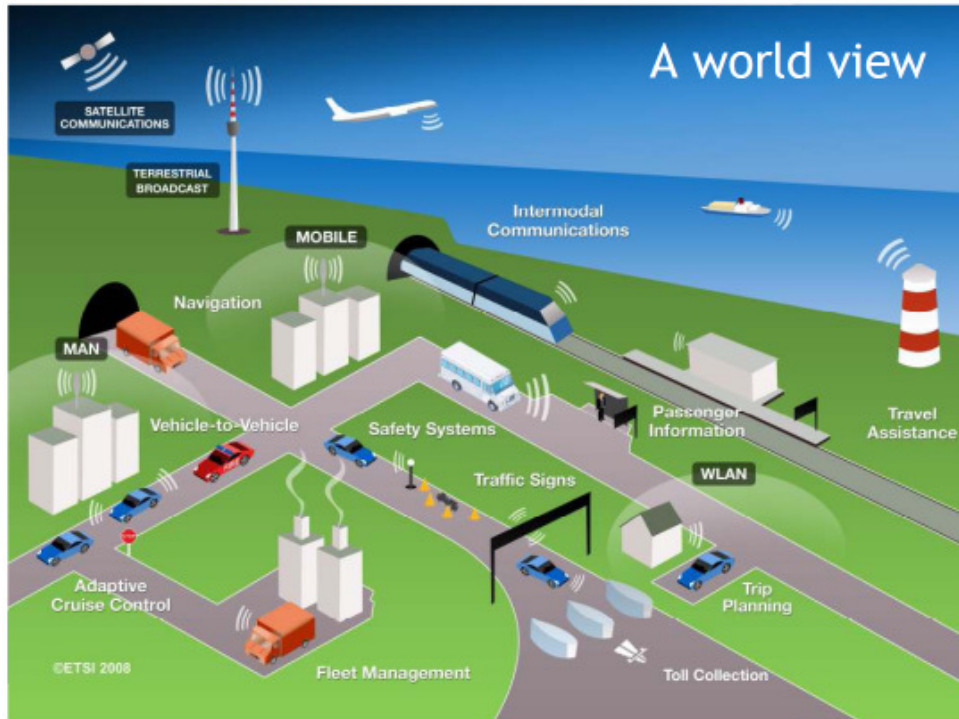


Fig. 6: A world view

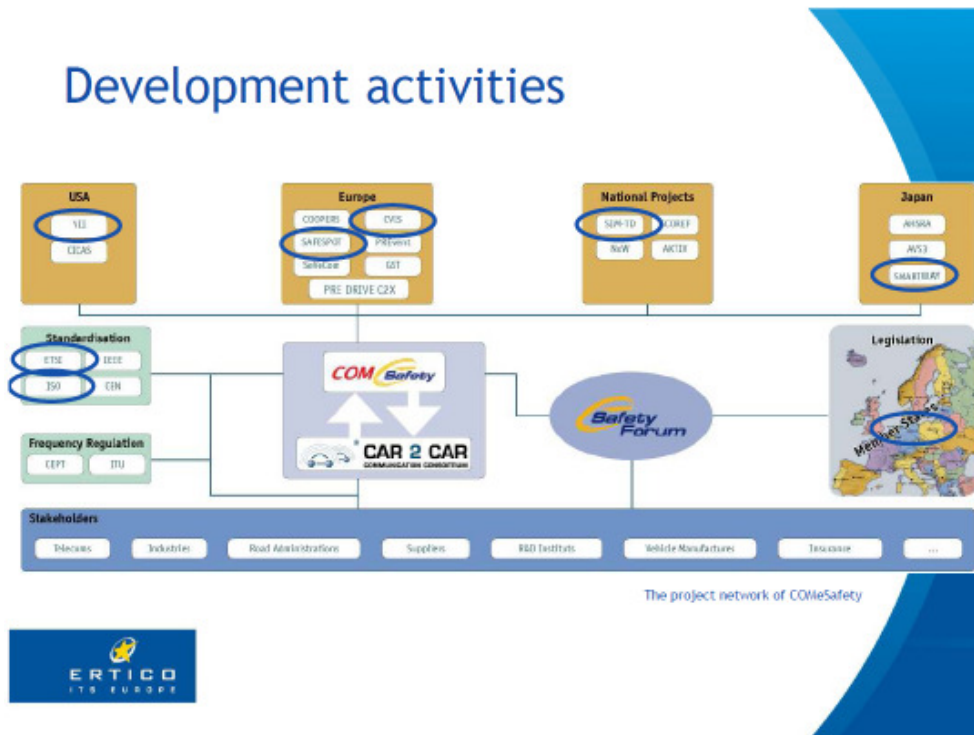


Fig. 7: Development activities

## EU-funded development projects

- CVIS
  - Universal platform & applications for cooperative vehicle-infrastructure & vehicle-vehicle systems
- SAFESPOT
  - V2V platform for driver safety-margin assistant
- COMeSafety
  - Common cooperative systems architecture
- SEVECOM
  - Secure vehicle communications
- GeoNet
  - Geo-addressing for Vehicle Ad-hoc NETWORKS (VANETs)



Fig. 8: EU-funded development projects

## European demonstration projects

- SIM-TD
  - Large-scale V2V, V2I field trials in Frankfurt area
- AKTIV
  - National German project for Traffic Management, Cooperative Cars and Active Safety
- innovITS Advance
  - UK testbed for cooperative systems
- PRE-DRIVE C2X
  - prepares large scale field trial for vehicular communication technology
- FOT-Net



Fig. 9: European demonstration projects

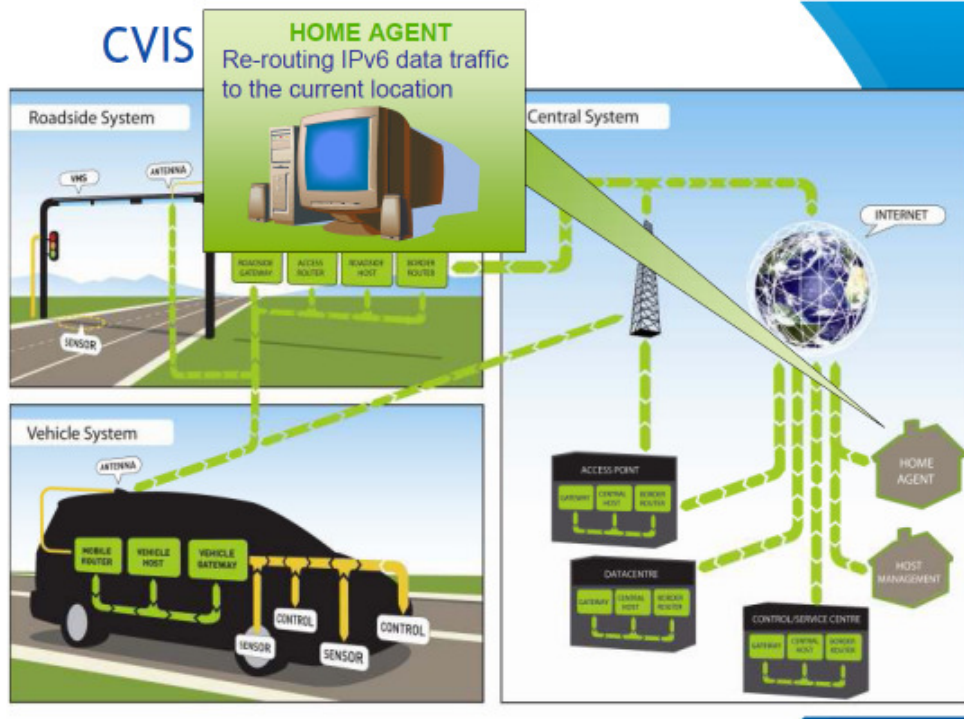


Fig. 10: CVIS

## Standardisation

- Reserved spectrum: 30 MHz at 5.9 GHz
- Safety-related ITS applications



Fig. 11: Standardisation



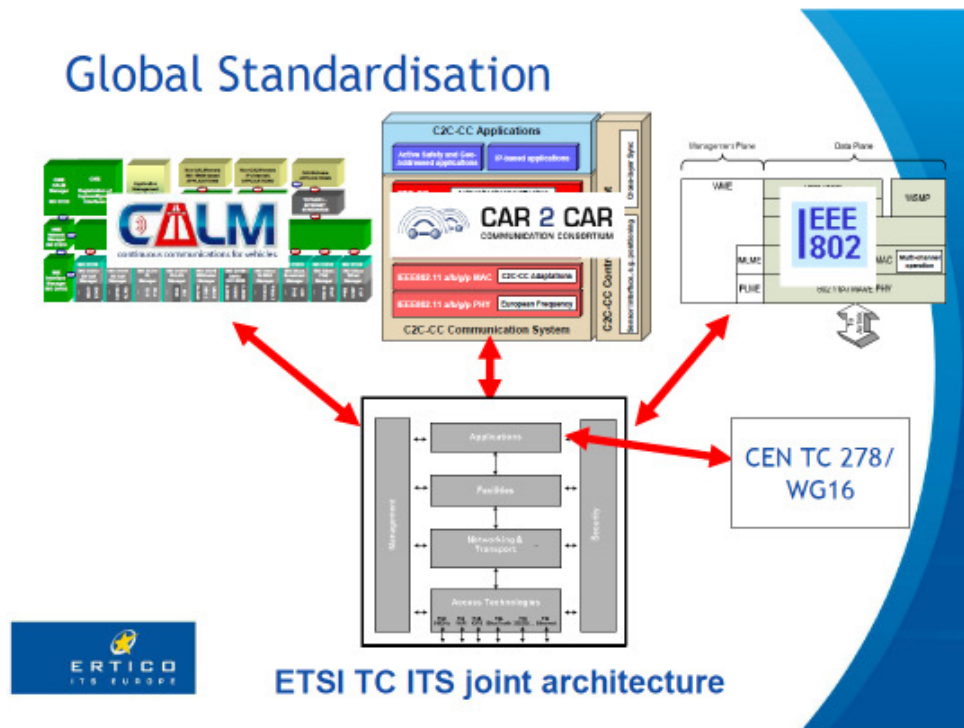


Fig. 12: Global Standardisation

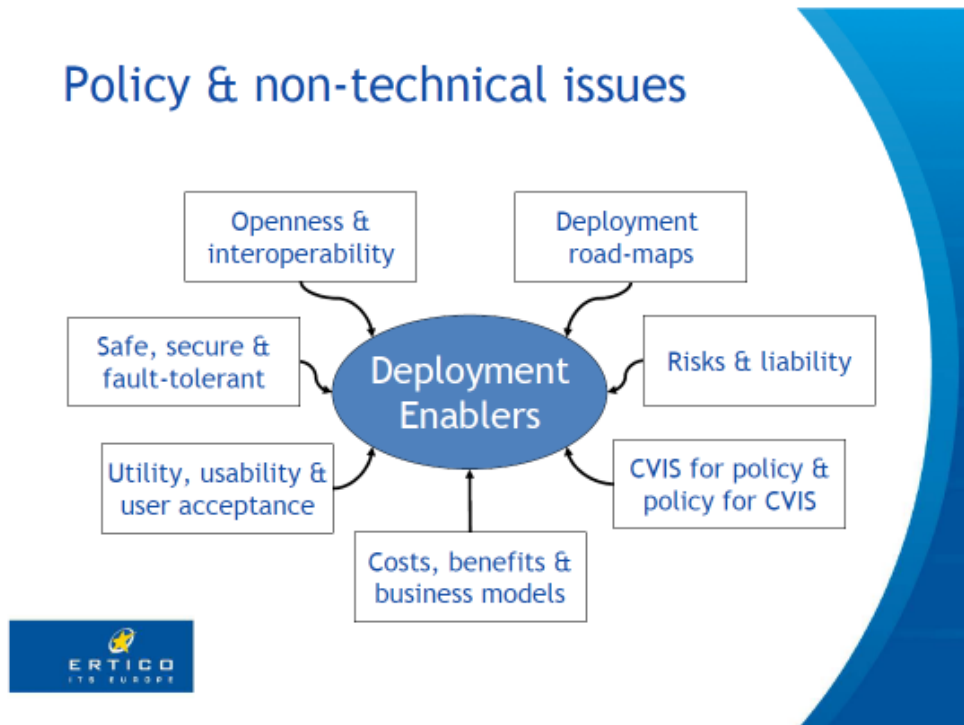


Fig. 13: Policy & non-technical issues

## Requirements for deployment

- Standards
  - communication systems, networking
  - core facilities & application interfaces
  - data exchange protocols
- Harmonisation
  - one architecture & reference specification: all vehicles, all roadside equipment
  - basic set of applications: available everywhere
  - one concept linking vehicle & infrastructure
- Validation
  - large-scale trials, impacts, costs, benefits...



Fig. 14: *Requirements for deployment*

## Requirements for deployment

- European policy framework
  - policy towards cooperative systems
  - privacy & data protection
  - liability definition
- Agreed roadmap for deployment
  - on-board equipment in vehicles
  - roadside equipment & integration
- Partnership for deployment
  - vehicle + infrastructure + government



Fig. 15: *Requirements for deployment*