European Activities towards Cooperative Mobility

CARS 21 WG1 MEETING
Brussels, 21 February 2011

Juhani Jääskeläinen
Head of Unit, ICT for Transport
European Commission
Directorate General Information Society and Media
• Digital Agenda for Europe
• About the Challenges in Europe’s Transport Sector
• Addressing the Challenges with ICT
  – Overview
  – Research in ICT for Transport
• Deploying Cooperative Systems
  – The ITS Action Plan and Directive
  – eCall
  – Other Actions
• About the future research
On 19 May 2010 the Commission launched the Digital Agenda for Europe (DAE) – One of the EU2020 Flagships

- Europe's strategy for a flourishing digital economy by 2020.
- Maximise economic and social benefits from ICT
- Reinforce ICT Research and Innovation
The Challenges in Europe's Transport Sector

- Safety
- Congestion
- Energy Efficiency & Emissions
- Growth in demand
- Balance between modes
- Make better use of research and developments including ICT
- Increasing urbanisation
- Ageing of Europe's population
Role of Cooperative Mobility

Cooperative Mobility means the interconnection of vehicles and infrastructure, to create and share new kinds of information, leading to a better cooperation amongst drivers, vehicles and roadside systems.

An attractive solution contributing to the European goal of safer, cleaner, and more efficient and sustainable traffic solutions.
Towards the zero vision

ZERO Vision

Passive Safety
ADAS
COOP. Systems

European Commission
Information Society and
Innovation

2006
20XX
0
20
40
60
Addressing the Challenges - Overview

- Policy Framework
- Research & Development
- European Large Scale Actions
- Pilots
  - Field Operational Tests (FOTs)
  - Standards
- User Awareness
- Regulation
- International Cooperation

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>EU-METI Coop. Agreement</td>
</tr>
<tr>
<td>2006</td>
<td>EU-US joint declaration</td>
</tr>
<tr>
<td>2007</td>
<td>EU-MLIT Signature</td>
</tr>
<tr>
<td>2008</td>
<td>EU-Japan MoC</td>
</tr>
<tr>
<td>2009</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
</tr>
<tr>
<td>... 2020</td>
<td></td>
</tr>
</tbody>
</table>

- ITS Action Plan
- Intelligent Car Initiative
- eSafety Forum
- Future Internet PPP
- European Green Cars Initiative
- ELSA / EIP in Transport
- eCall Pilots
- CIP Pilots
- Other pilots
- Cooperative Systems
- Autonomous Vehicle Systems
- eCall Standards CEN/ETSI
- ETSI in ITS
- Cooperative Systems standards
- Choose ESC! campaign
- eSafety Challenge
- eSafety Aware!
- ITS Committee
- eCall regulation
- Tri-lateral cooperation
- Japan
- USA
Addressing the Challenges
The Intelligent Car Initiative

A policy framework for actions in the area of Safer, Cleaner and Smarter Vehicles

1. Coordinate and support the work of relevant stakeholders, citizens, Member States and the Industry through eSafety Forum

2. Support research and development in the area of smarter, cleaner and safer vehicles and facilitate the take-up and use of research results

3. Create awareness of ICT based solutions to stimulate user’s demand for these systems and create socio-economic acceptance
Research supporting ICT for Transport
What have we done so far?

2002
- Call 1: Intelligent Vehicles & Mobility Services
- 14 projects
- 80 M€ grant

2003
- Call 4: Moving to Cooperative Systems
- 22 projects
- 92 M€ grant

2004
- Call 4

2005
- Call 1

2006
- Call 4

2007
- Call 1

2008
- Call 2

2009
- Call 4

2010
- Call 5

2011
- Call 6

2012
- Call 7

2013
- Call 8

7th FP
- Low carbon multimodal mobility & freight transport
- 10 projects
- Budget: 53 M€

- Cooperative Systems for energy efficient & sustainable mobility
- 12 projects
- Budget: 50 M€

6th FP
- Intelligent Vehicles & Mobility Services
- 14 projects
- 80 M€ grant

- Moving to Cooperative Systems
- 22 projects
- 92 M€ grant

- Safety & Energy Efficiency in Mobility
- 14 projects
- 57 M€ grant

- Fully Electrical Vehicle
- 12 projects
- 48 M€ grant

- Mobility of the Future
- 10 projects
- Budget: 20 M€

- Cooperative Systems for energy efficient & sustainable mobility
- 10 projects
- Budget: 37 M€

17 February 2010, Brussels


ADOPTED 8 JULY 2010!

Scope: Road transport and interfaces with other modes
- coordinate and accelerate deployment of ITS
- make road transport more sustainable
Deploying Cooperative Systems
The pan-European eCall
Deploying Cooperative Systems

Preparation for policy decisions → Policy decisions to support deployment

Research projects
- Framework Programmes
- New research ideas and proof of concept

FOTs
- Framework Programmes
- Assessment

Pilots
- Competitiveness and Innovation Programme
- Pre-deployment

Deployment
Deploying Cooperative Systems
Taking a Global Approach

- Russia
- South Korea
- Japan
- Canada
- USA
- India
- Australia
## Deploying Cooperative Systems
### International Cooperation

<table>
<thead>
<tr>
<th>Initiative</th>
<th>&lt; TBC &gt;</th>
<th>EC DG INFSO (The Intelligent Car Initiative, RTD actions)</th>
<th>Ministry of Trade and Industry (METI), Energy Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Political support</strong></td>
<td>Strong political support by Federal and State DOT’s</td>
<td>Strong political support to initiatives at EU level Special push on ICTs for Energy Efficiency</td>
<td>Strong political support to realize the potential of IT on energy saving Specific targets for the transport sector</td>
</tr>
</tbody>
</table>
Deploying Cooperative Systems
Aiming at Globally harmonised standards

Guidance/Consolidation
- CAR 2 CAR
- COM Safety

Specification
- PRE-DRIVE
- CVIS
- GST
- coopers
- SEVECOM
- simTD
- SAFESPOT
- PReVENT

Standardisation
European
- ETSI
- CENELEC
- CEN
- ETSI Standards on the move

Global
- ISO
- IEEE
- IETF
- ARIB JP
- ITU
About the future research

Where do we go from here?

- Smart Cities
- Intelligent Co-operative Systems
- Smart Connected Electro-Mobility
- Automation
- Future Internet Technologies
- New virtual mobility concepts
About the Future Research
ICT for Cooperative Systems

- New cooperative and pro-active traffic and travel management and control strategies
- Co-operative V2V and V2I safety applications
- Co-operative Mobility Services
- Addressing interaction between the driver, the vehicle and the infrastructure
- Addressing barriers in the adoption, user acceptance and deployment of services; liability, privacy, reliability and security
Increasingly seen as the only long-term option

Potential to improve significantly safety and energy efficiency

With over 90% of accidents being caused by human error, the impact of high levels of automation is clear

Platooning of vehicles has a potential of significant increase in road use efficiency and reduction of fuel consumption.
About the Future Research
The European Green Cars Initiative

- Benefits of the **fully electric vehicle**:
  - Up to **40% energy saving**
  - Reduced fossil fuel **dependence** & environmental impact
  - Socio-economic impact:
    - **12 million jobs** & international competitiveness

Industry is driving this initiative (66%) & largely benefits from it

- Following the feedback from stakeholders like EGCI Ad-hoc Advisory Group, ERTRAC, EPoSS, SmartGrids ...

Energy storage systems
- Vehicle Stability Control
- Electric Drive & Electronic components
- Communication Architecture

ICT
- V2G
- Safety
- V2X
About the Future Research
FI-PPP structure and approach

Key characteristics:

Large-scale projects: Integration will not happen in many small projects and hence projects need to be of sufficient scale to achieve effective integration.

Complexity requires flexibility: Hence the programme is structured around a three-phase approach.

Systematic programme approach: Projects have clearly identified roles within a bigger puzzle. Collaboration and synchronisation between projects will be key to success.

Facilitate open sharing of project foreground: IPR issues must not hinder collaboration.

Integrate application sector competences with ICT competence – in this way the PPP aims to enhance all sectors.

Lead by example: large-scale trials will be employed to prove the scalability and viability of the concepts developed.

Synergy - build on existing results and resources: Time and scale dictate using what is already achieved in Europe.
Thank you for your attention!