The Intelligent Car Initiative
European Commission

European Commission
Directorate General Information Society and Media
ICT for Transport

25 January 2006
On June 1, 2005 the Commission adopted the initiative “i2010: European Information Society 2010 for growth and employment”

The **Intelligent Car** is one of the i2010 Flagship Initiatives.

The objective is to improve the quality of the living environment by supporting ICT solutions for **safer, smarter and cleaner mobility of people and goods**.

- **Smarter** improve efficiency and safety.
- **Safer** prevent and mitigate the impact of accidents.
- **Cleaner** contributing to reduce polluting emissions.

... addressing environmental and safety issues arising from increased road use
1. Congestion:

- In the EU, congestion costs amount to 50 billion € per year or 0.5% of Community GDP, by 2010 this figure could go up to 1%
- The number of cars per thousand persons has doubled since 1975
- The overall distance travelled by road vehicles has tripled in the last 30 years and
- There are 7 500 km or 10% of the network being affected daily by traffic jams
2. Energy Efficiency & Emissions

• In 2002 the transport sector consumed 338 MToe representing **31% of the EU total energy consumption**

• Road transport consumed 281 MToe, or 83% of the energy consumed by the whole transport sector.

• Road transport CO2 emissions account for 835 million tonnes per year representing 85% of the total transport emissions

• **Up to 50% of fuel consumption caused by congested traffic situations and non-optimal driving behaviour.**
3. Safety

- Target to half road fatalities by 2010 set by EU “White Paper”
- There are **still over 40,000 fatalities** on the Euro 25 roads every year,
- 1.4 million accidents cost of around 200 billion €/year representing 2% of the EU GDP
- **Human error is involved in almost 93% of accidents** and in almost three-quarters of the cases, the human mistake is solely to blame.
Intelligent Car Systems

provide new intelligent solutions that contribute to solving the important **societal challenges** related to transport:

- Reduce the number of fatalities and injuries on the roads and material damage
- Increase overall performance of the transport systems
- Contribute to a more efficient use of fuels
eCall if all vehicles were equipped by 2010:
• Reduction in fatalities between 5% and 15%
• Savings up to a maximum of 22 billion €.
• Reduced congestion times between 10% and 20% with additional cost savings of between 2 to 4 billion €.

Adaptive Cruise Control (ACC) only 3% of the vehicles equipped:
• Could save up to 4,000 accidents in 2010.

Lateral Support with a penetration rate of only 0.6%, in 2010:
• 1,500 accidents could be saved.

Better traffic management through improved software and real-time traffic data:
• Could reduce of up to 40% of traffic standstill and congestion
The problem of market implementation

- Market implementation takes too long
- Most intelligent systems are not yet on the market.

- ABS → 20 years to full penetration;
- ESP → 10 years to reach 40% of market
- ACC → more than 25 years since development phase and yet a very low penetration rate).

Main reasons

- legal barriers,
- competitive situation of the automotive sector
- high cost of intelligent systems
- lack of customer demand
- lack of information
EUROTEST survey

- Sample of almost 2800 drivers
- Only half the drivers were familiar with existing basic in-vehicle technologies providing active and passive safety
- Only 50% of them knew what an ABS does
- Survey conclusions: “more needs to be done, on both the European and national level, to raise the awareness about safer, cleaner and more economical driving”.
Objectives of the Intelligent Car Initiative

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

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.
The i2010 Intelligent Car Initiative will build on the work of the eSafety initiative and follow a three – pillar approach:

1. The eSafety Initiative and eSafety Forum
2. RTD in Information and Communications Technologies
3. Awareness raising Actions
First Pillar: The eSafety Forum

- Established in 2003 and has now over 150 members representing all road safety stakeholders
- Aims at removing the bottlenecks to market implementation through consensus building among stakeholders and recommendations to the Member States and the EU
- It has established so far eleven industry-led Working Groups that work on priority topics. It has produced a consistent number of valuable reports
- The Forum will ensure the links with parallel and complementary activities in the domain of intelligent transport systems.
eSafety Forum: the Completed WGs

- **Heavy-Duty Vehicles WG**
  Chair: J. Trost – DaimlerChrysler

- **Real-Time Traffic and Travel Information WG**
  Chair: Prof. G. Siegle – BOSCH

- **Digital Maps WG**
  Chairs: A. Bastiaansen – TeleAtlas, Y. Moissidis – Navteq

- **Human Machine Interaction WG**
  Chairs: A. Stevens – TRL, C. Gelau – BAST, A. Pauzie – INRETS

- **Accident Causation Analysis WG**
  Chair: M. Hollingsworth – ACEA

Final Reports are available at the websites.
eSafety Forum: The Active WGs 2006

Steering Committee
Chair: A. Vits – EC

eSafety Support

Plenary Sessions
HL Meetings

eCall
Driving Group
Chairs:
M. Nielsen – ERTICO
W. Reinhardt – ACEA

Communica-
tions WG
Chair: U. Daniel, Bosch

Research and Technological Development WG
Chairs:
U. Palmqvist – Eucar
G. Pellischek – CLEPA

User Outreach WG
Chair: J. Grill – AIT/FIA

International Cooperation WG
Chair: J. Bangsgaard - ERTICO

Service Oriented Architectures
Chairs:
<TBC>

Implementation Road Map
Chairs:
H-J Mäurer – DEKRA
Prof. R. Kulmala – VTT
• The Intelligent Car Initiative activities **build upon the achievements and results of EU Framework Programmes** on research and technological development.

• The long-term objectives of the Intelligent Car Initiative will be **part of the ICT priority in FP7**

• The research priorities of the Intelligent Car fully support the **ERTRAC strategic research agenda**.
PReVENT will develop, test and evaluate safety related applications, using advanced sensor and communication devices integrated into on-board systems for driver assistance.

- 52 partners
  - Industry
  - Public Authorities
  - Research Institutes

- Start 1/2/04, 4 years

- Total Cost 55M€

- EU funding 30 M€
Goal: open and standardised framework architecture enabling end-to-end in-vehicle telematics services

- March '04 – 3 years.
- 21, 5 M€
- EU: 11 M€.
- 49 partners

www.gstproject.org
### Why Co-Operative Systems?

#### Preventive and Active Safety

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<tr>
<th>Information</th>
<th>Support</th>
<th>Intervention</th>
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<tr>
<td>Foresighted driving</td>
<td>Warning &amp; assistance systems</td>
<td>Active vehicle control</td>
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#### Passive Safety

- Crash
- Safety systems
- Rescue systems & services

#### Crash probability

- Traffic information
- Hazard warning
- Stop sign violation
- Road conditions
- Lange merging
- Emergency braking
- Traffic efficiency
- Traffic adaptive cruise control

- Restraint syst.
- Airbags
- Materials (energy absorption)
- Emergency vehicle clearing
- eCall

### Applications

- Car to Car Communication
- Cellular Communication

Source: Car2Car Consortia
The awareness pillar of the Intelligent Car Initiative will promote, active information dissemination to a wide audience:

• To raise drivers and policy maker’s **knowledge about the potential of intelligent vehicle systems**

• To stimulate **user’s demand** and create socio-economic acceptance.

• To **facilitate the deployment** of mature technologies and systems in the initial phase of market penetration

• To encourage stakeholders initiatives supporting i2010
Main Actions

- Follow-up of the 2nd eSafety Communications on eCall
- Produce the HMI Recommendation (early 2006)
- Investigate the use of incentives, address the spectrum needs
- Future research in Co-Operative Systems, RTTI, intermodal transport (FP7)
- Assess the impact of ICT-based systems through extensive Field Operational Tests (FP7)
- Set up conformance testing and performance assessment programme
- Raise user awareness through regular events, TV series and documentaries & benchmarking
- Establish the “eSafety Communications Platform”
- Support stakeholders initiatives
Implementation of the Intelligent Car Initiative

- Commission Communication to be adopted on 15 February 2006
- Launching event on 23 February in Brussels (Autoworld)
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eSafetySupport website
www.eSafetySupport.org