How to Improve Safety with ITS

18th ICTCT Workshop on Transport Telematics and Safety

European Commission
Directorate General Information Society and Media

ICT for Transport

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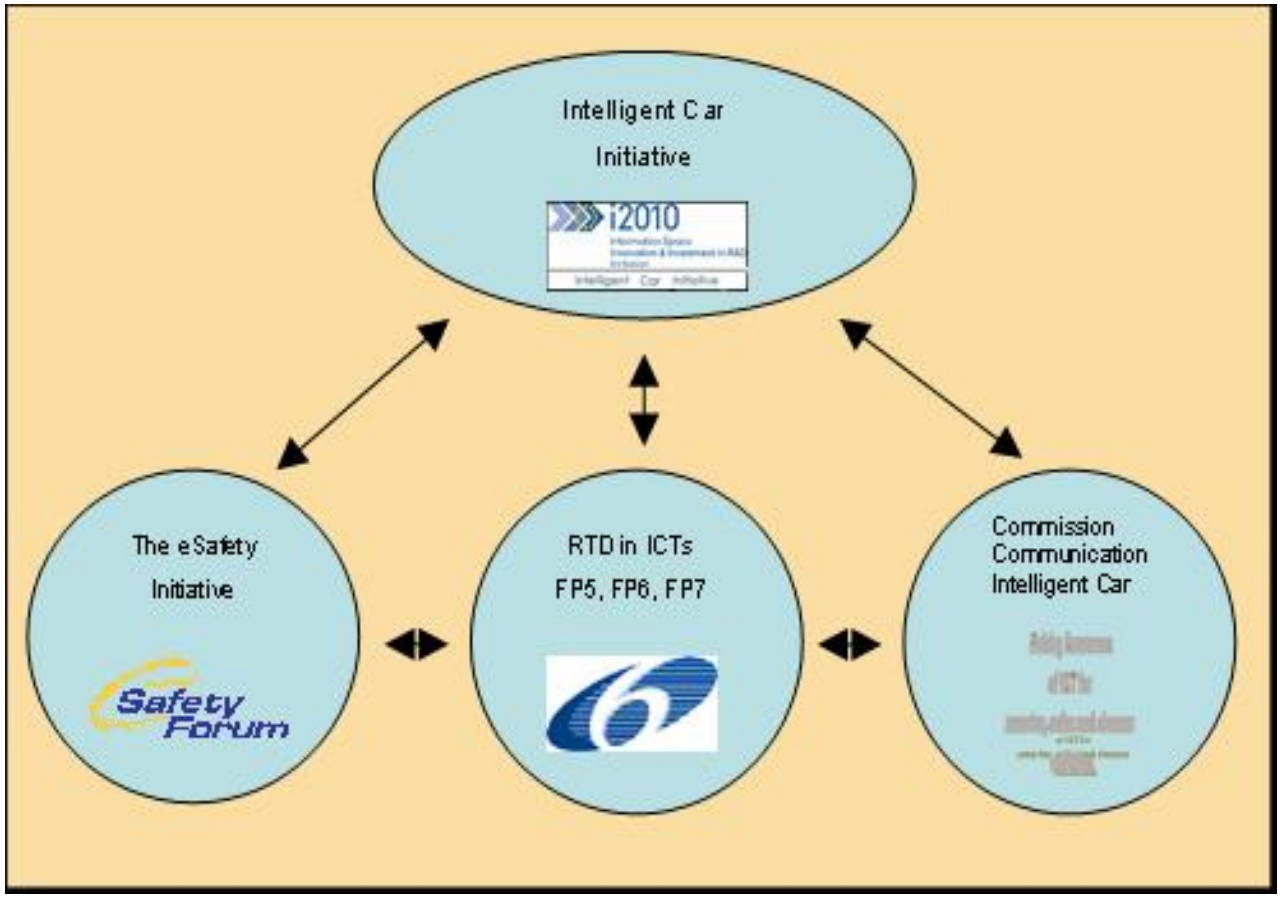
The Political Framework

With the objective to improve the quality of the living environment by supporting **ICT solutions for safer smarter and cleaner mobility of people and goods**, the Commission is following a three – pillar approach



(1) The eSafety Initiative

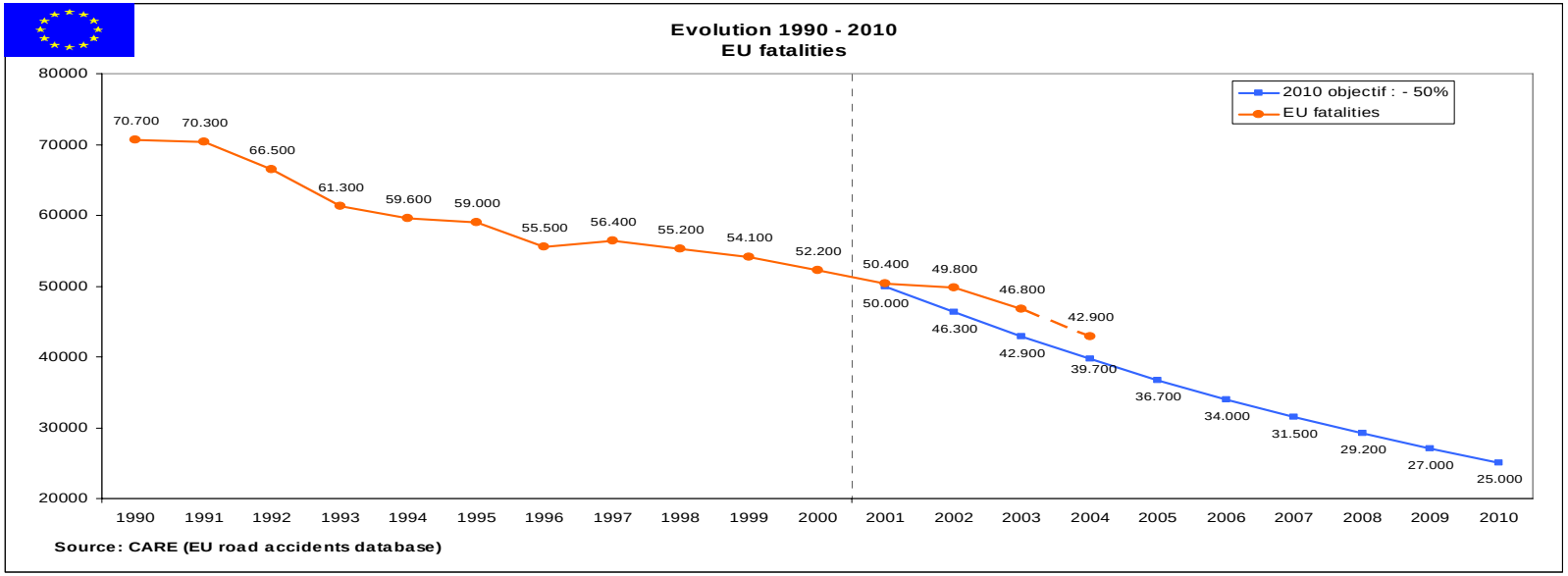
(2) RTD in Information and Communications Technologies

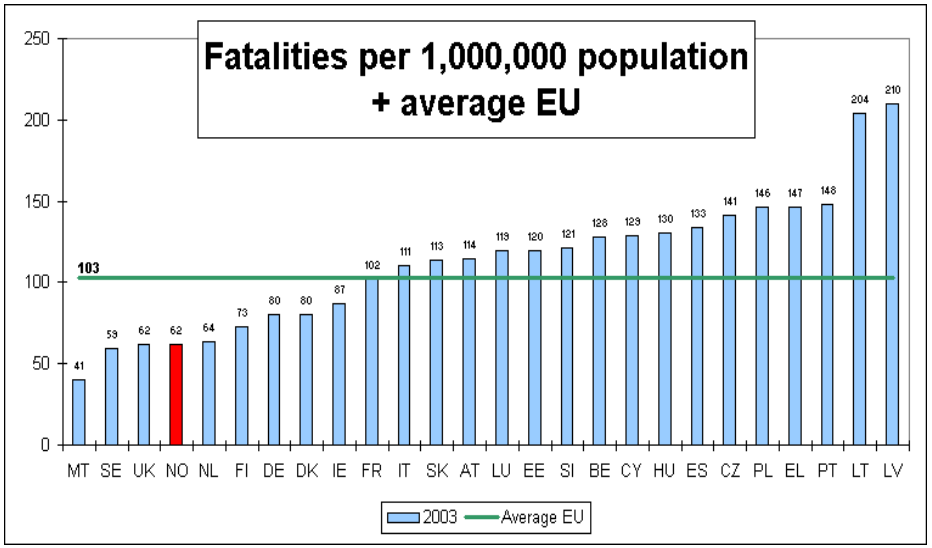
(3) Commission Communication on Intelligent Car

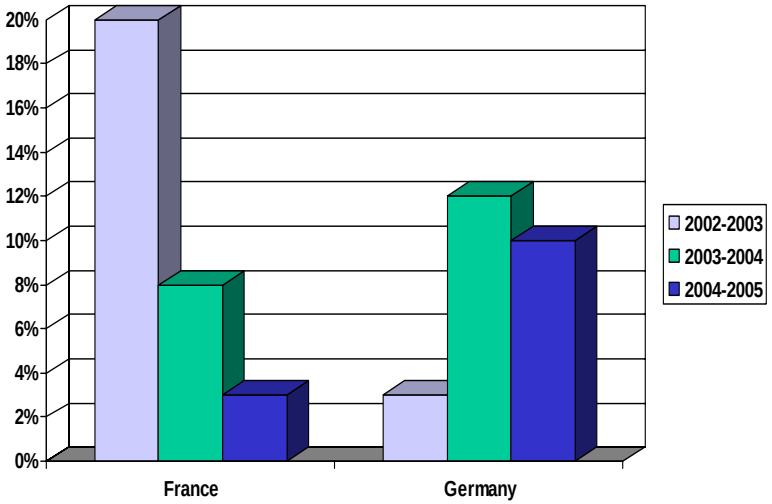
Road Safety in Europe (1)

- The White Paper on European Transport Policy for 2010
- Goal: To halve the number of fatalities by 2010
- Measures:
  - **Shared Responsibility**
  - **Road Safety Action Plan (2003)**
  - **eSafety Initiative (2002)**
- Mid-Term Review in September 2005:
  - **Still over 40.000 fatalities per year**
  - **Still over 1.8 million people severely injured in road accidents per year**

Road Safety in Europe (2)

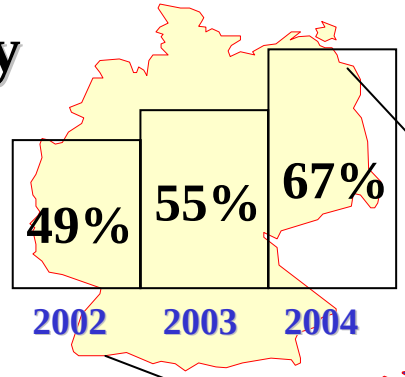






Road Safety in Europe (3)

Germany

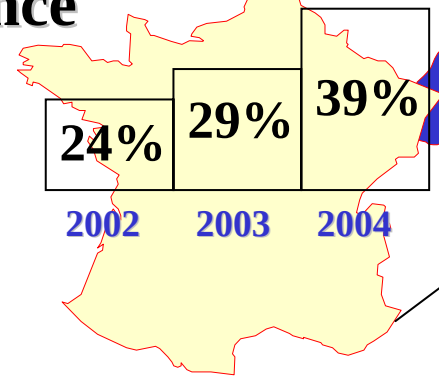


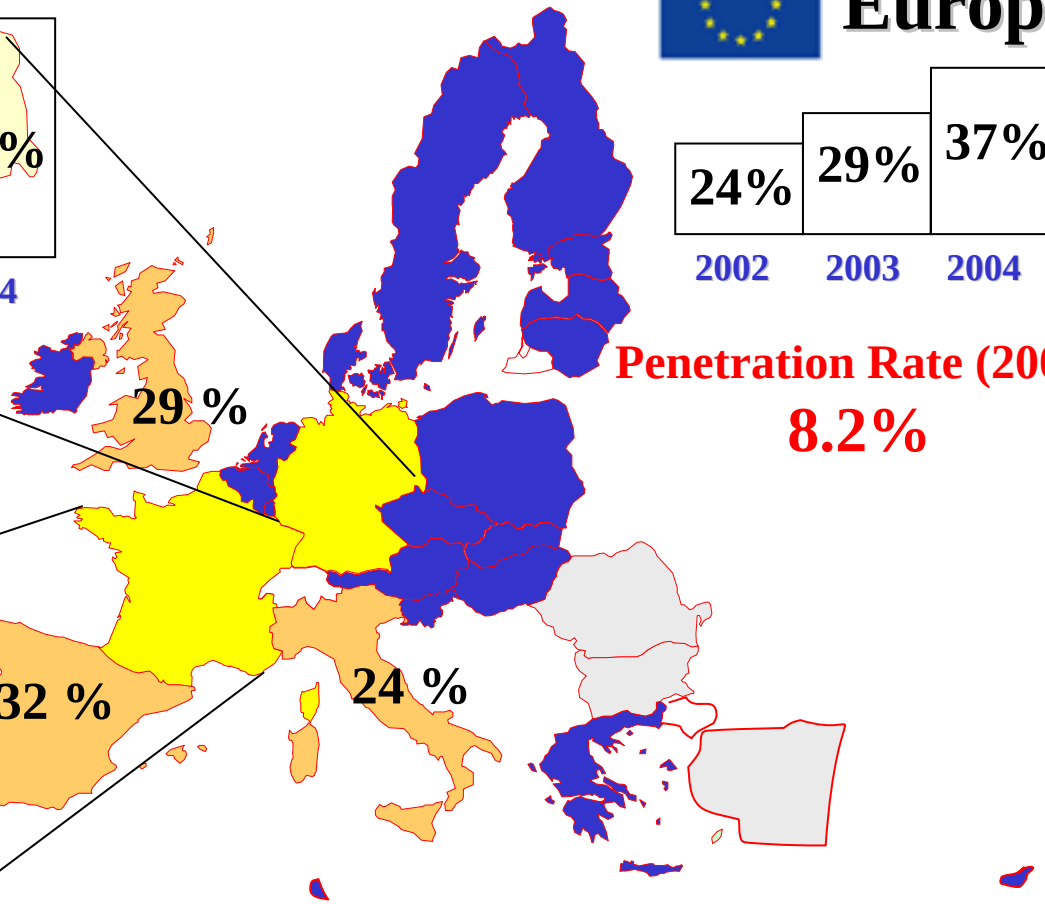
Europe

Penetration Rate (2004)

8.2%

France





ESP Installation rate in New vehicles in 2004

Source: Robert Bosch GmbH

The *e*Safety Initiative

The *eSafety Initiative* was launched in 2002 as a *joint initiative* of the European Commission, industry and other stakeholders.

It aims at accelerating the development, deployment and use of Intelligent Integrated Safety Systems that use Information and Communication Technologies (ITC) in intelligent solutions, in order to *increase road safety and reduce the number of accidents on Europe's roads.*

The 1st eSafety Communication

"Information and Communications Technologies for Safe and Intelligent Vehicles"

- Adopted on 15 September, 2003
- Recommendations for all key stakeholders (Commission, Member States, Industry)
- Key recommendation: Establishment of the eSafety Forum

COMMISSION OF THE EUROPEAN COMMUNITIES

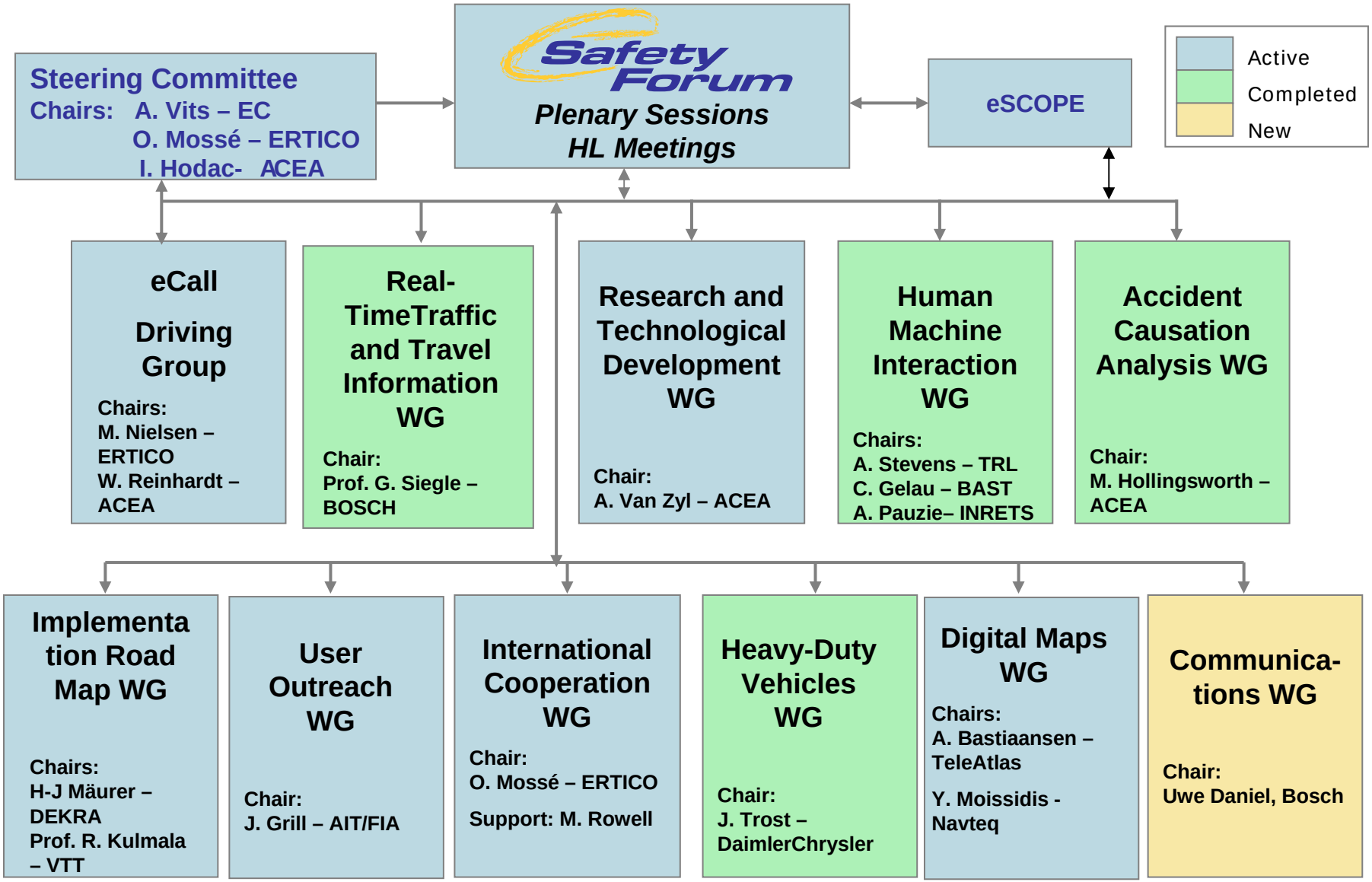
Brussels, 15.9.2003
COM(2003) 542 final

COMMUNICATION FROM THE COMMISSION
TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

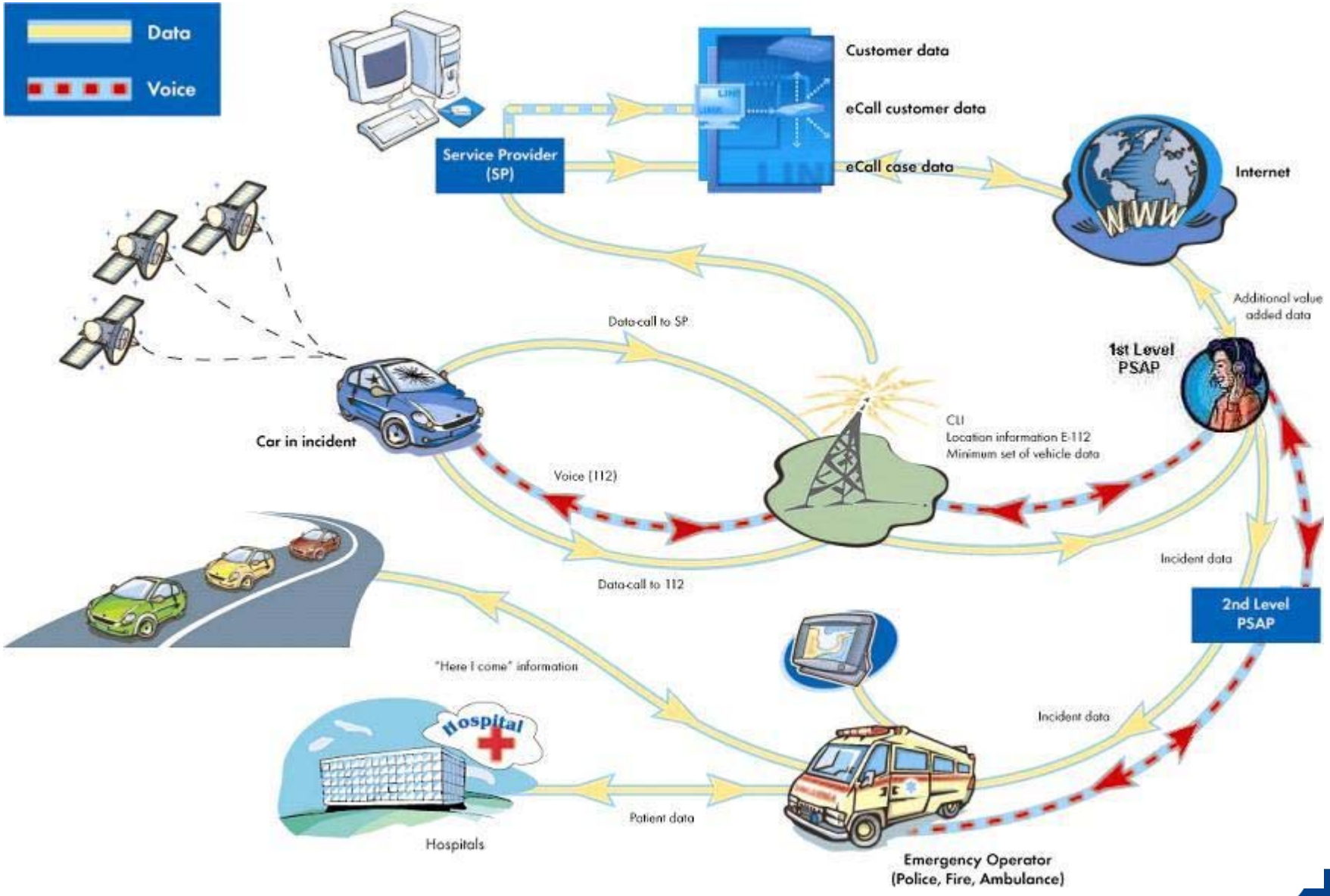
Information and Communications Technologies for Safe and Intelligent Vehicles

(SEC(2003) 965)

The eSafety Forum



eCall: The Technical Principle

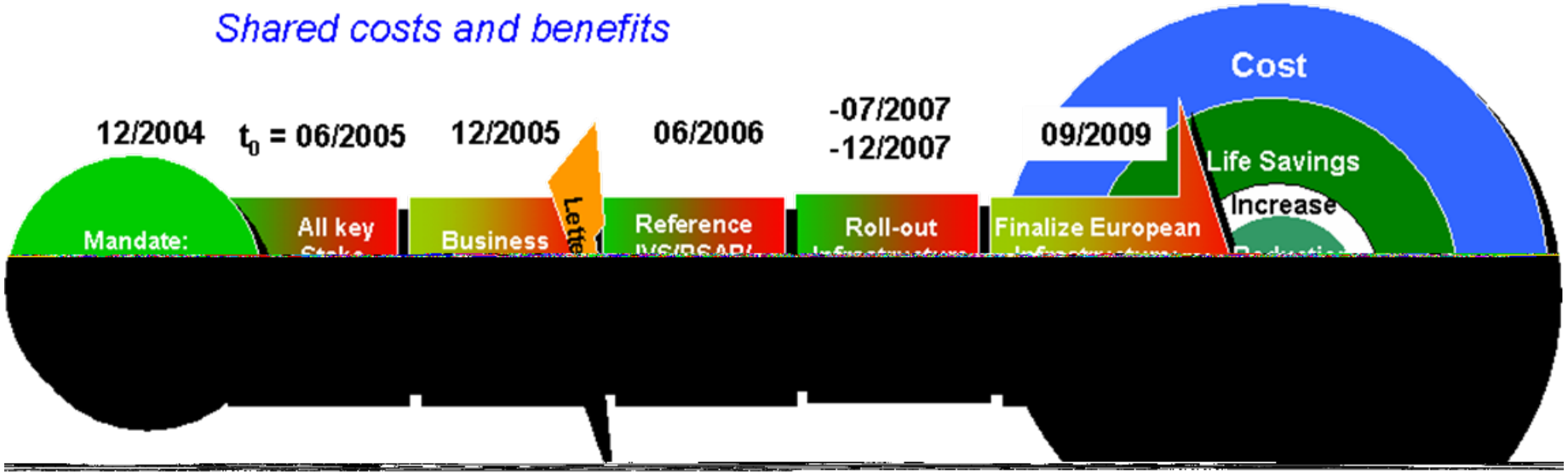


eCall: Plan to succes

Low cost in-vehicle eCall functionality as standard option

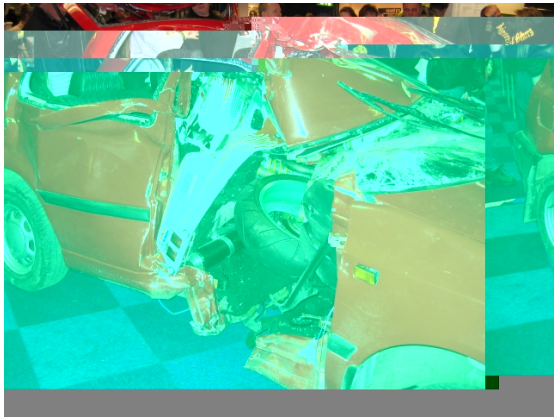
Common specifications and reference design

Shared costs and benefits



Bringing eCall to Citizens

- Adopted on 14 September, 2005
- Significant progress towards the full-scale roll-out of eCall has been achieved
- **But: Roll-out can be delayed if the national and regional governments do not invest in the necessary infrastructure for eCall**



eCall: Actions for the Member States

1. The Member States should sign the eCall MoU
   - Lack of signatures threatens to delay the eCall implementation and weakens the commitment of industry
2. The Member States should promote 112 and E112
   - the Member States should promote the use of 112 and take steps for accelerating the introduction of location information in their public wireless networks
3. The Member States should upgrade their PSAPs to handle location-enhanced E112 calls and eCalls
   - The infrastructure at PSAPs should be in place at the latest at the end of 2007
4. The Member States should provide adequate location-enhanced emergency services and language support
   - For maximum benefit, the whole emergency chain should be upgraded

eCall: HL Meeting 18 October 2005

The Member States:

- Supported unanimously the realisation of a pan-European in-vehicle emergency call service,
- Signed the Memorandum of Understanding (MoU): Greece, Italy, Lithuania and Slovenia, joining Finland and Sweden
- Announced that they had initiated the signature procedure: Czech Republic, Cyprus, Denmark, The Netherlands and Germany;

HMI: European Statement of Principles (ESoP)

- Published by EC in 1999 and Expanded by Expert Group 2001
- Includes “headline” principles for design of HMI, explanations, definitions and examples
- No specific criteria or verification procedures
- Required updating in some technical areas

EUROPEAN COMMISSION
Directorate-General Information Society
Directorate-General Energy and Transport
Directorate-General Enterprise

REPORT OF AN INDEPENDENT EXPERT GROUP
ON THE EXPANSION OF THE PRINCIPLES

LAID DOWN IN THE COMMISSION RECOMMENDATION OF 21
DECEMBER 1999 ON "SAFE AND EFFICIENT IN-VEHICLE
INFORMATION AND COMMUNICATION SYSTEMS" (2000/53/EC)

July 2001

- European vehicle manufacturers (ACEA) gave self-commitment

HMI: eSafety WG Recommendations

Producers should:

- **Apply good design principles**
- **Supply a secure fitting kit (if not built-in)**
- **Provide clear instructions for product use**
- **Disable functions not intended to be accessed while driving**

Vehicle manufacturers, device manufacturers and service providers should:

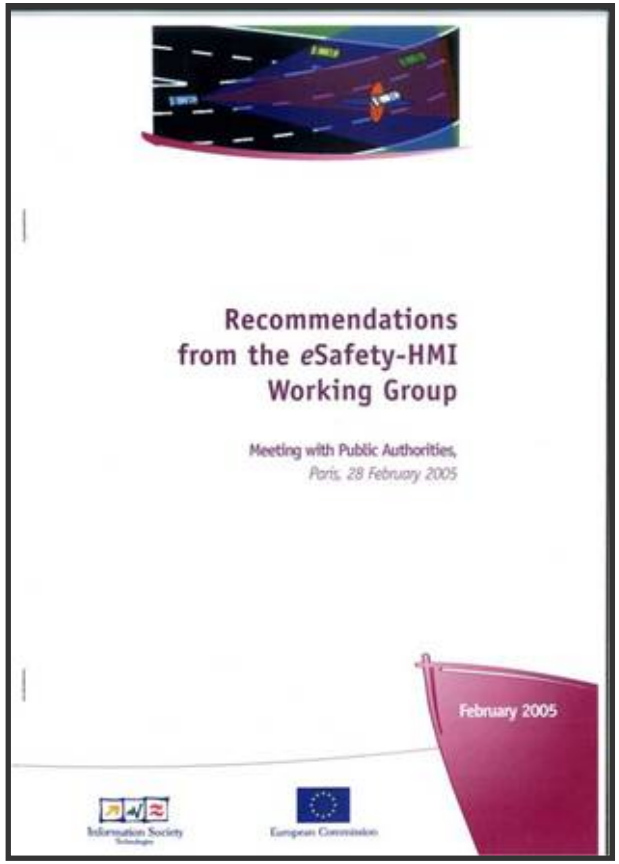
- **Co-operate to develop smart interfaces**

Member States should:

- **Take measures to ensure secure fixing of devices**
- **Take actions on the misuse of visual entertainment systems (e.g. TV, video games)**

EC should:

- **Further develop and promote the European Statement of Principles on HMI**



HMI: Timetable for new ESoP

1. Expert Group
   April – October 2005

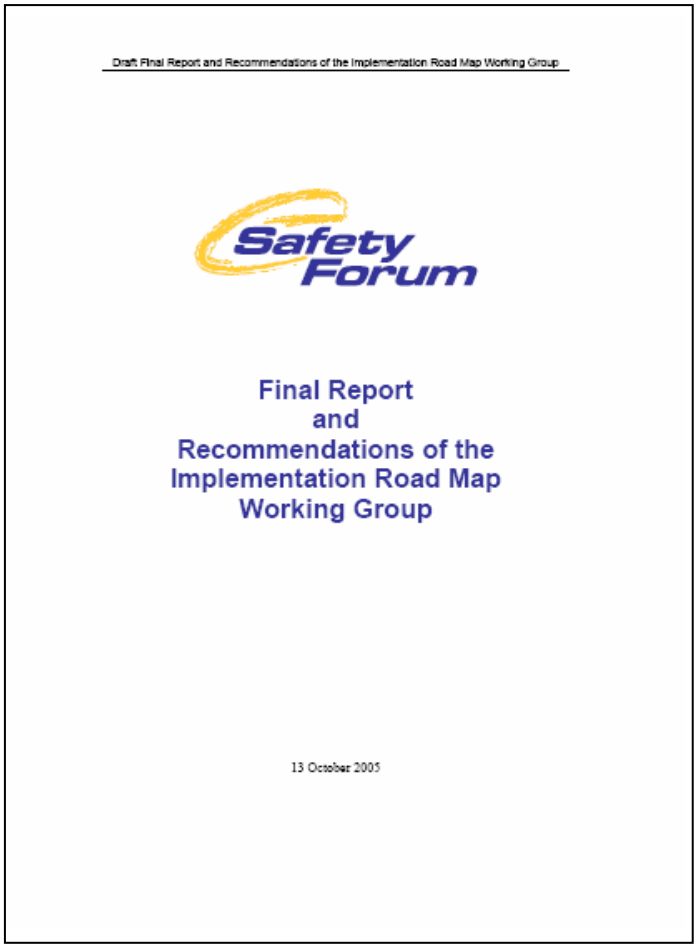
2. Information Workshop
   June 29, 2005

3. Member States - High level meeting
   October 18, 2005

4. 3rd eSafety Communication Winter 2005 :
   EC Recommendation, including new ESoP

Road Map: Final Report

- WG Final Report published in October 2005
- welcomed by the HL Meeting 18 October 2005
- Need to update regularly
- Involvement of key stakeholders needed

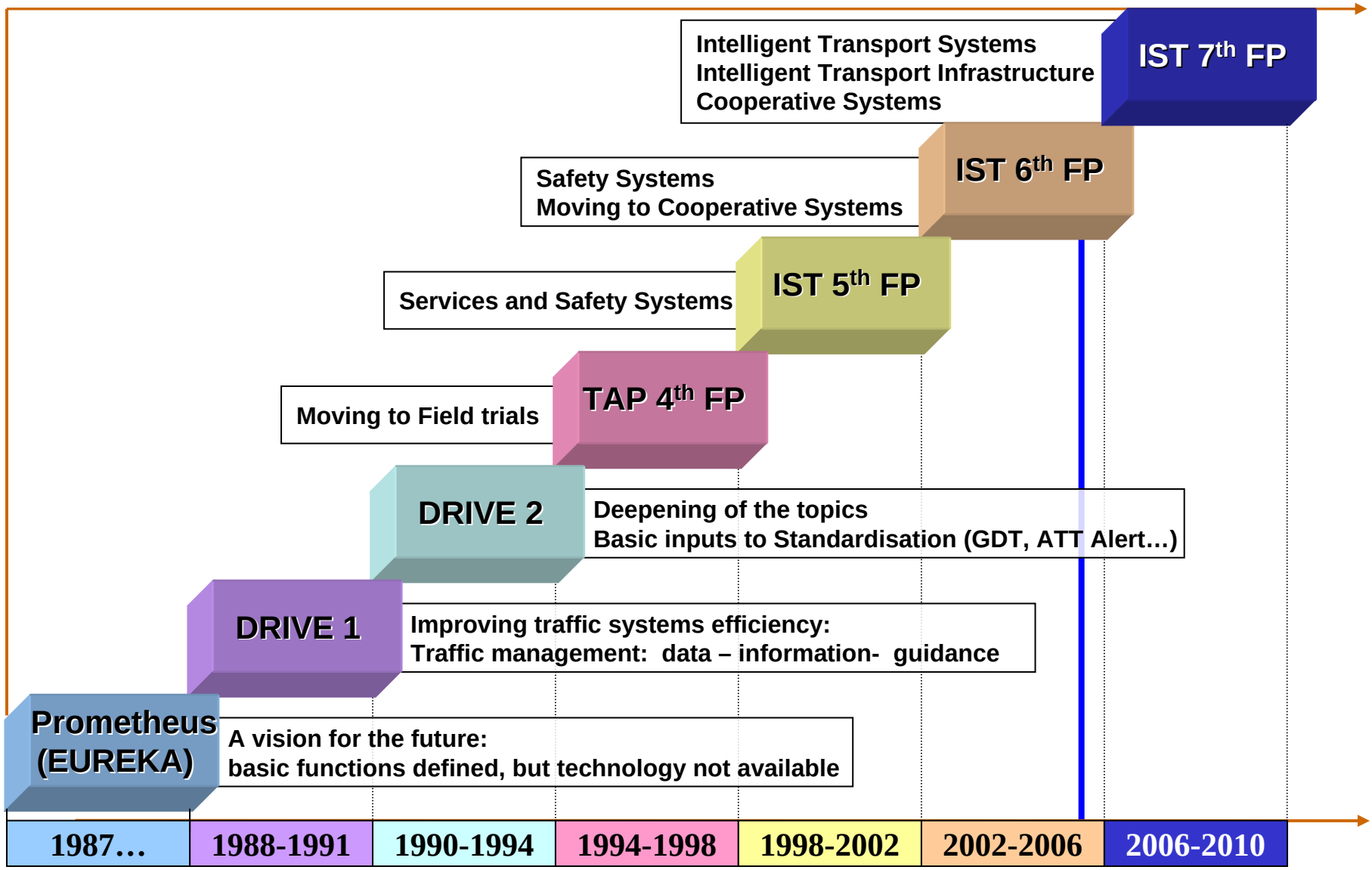

Draft Final Report and Recommendations of the Implementation Road Map Working Group

Safety Forum

Final Report
and
Recommendations of the
Implementation Road Map
Working Group

13 October 2005

Moving Towards Co-operative Systems



The 5th FP: Major Achievements

Some examples in the area of…

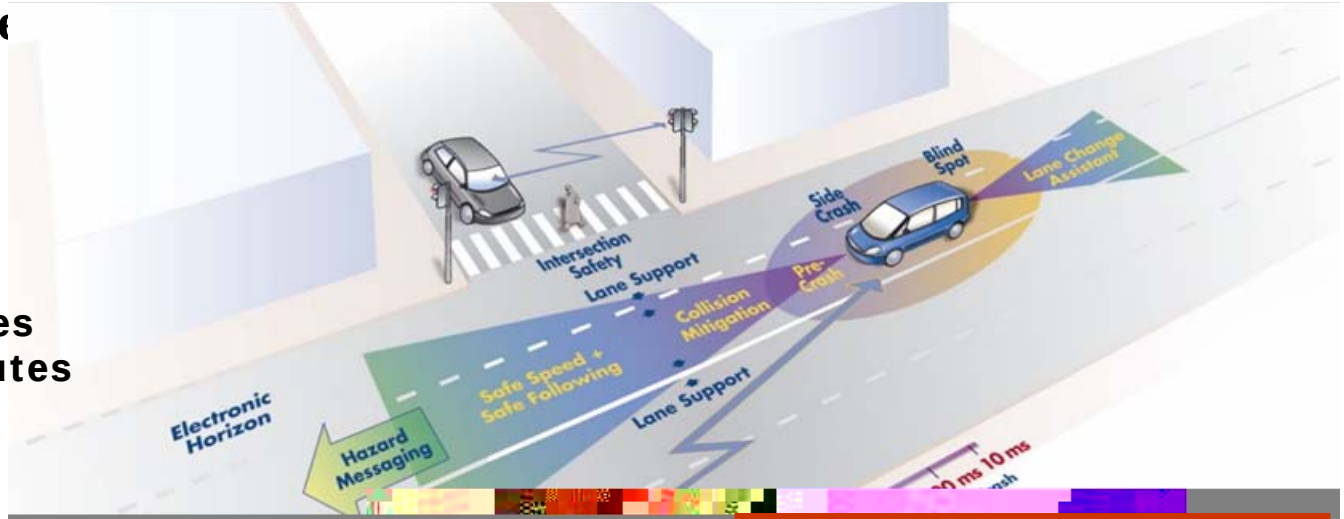
In-vehicle Applications and Integrated Safety

- Driver status monitoring, collision warning and mitigation
- Autonomous and cooperative driving
- Human-machine interaction
- Next generation of sensors, digital maps for ADAS

Supported by regulatory work – e.g. frequency allocation for 24 GHz Short-Range Radar

The 6th FP: Call 1 projects (1)

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**
- **1/2/04 4 years**
- **Cost 55M€**
- **EU funding 30 M€**

4 Function fields

8 Vertical Subprojects

3 Cross-functional activities

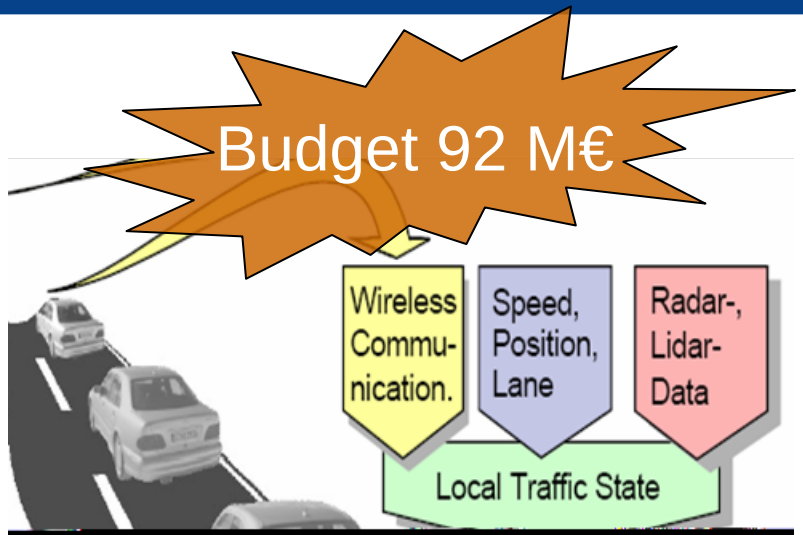
3 Horizontal Subprojects

The 6th FP Call 4: Co-operative Systems

Co-operative Systems will enhance the support available to drivers and other road users.

They will provide for significant improvements:

- **Greater transport efficiency**
  - **Making better use of the capacity of the available infrastructure**
  - **Managing varying demands**
- **Increased safety and comfort**
  - **Improving the quality and reliability of information used by advanced driver assistance systems**
  - **Allowing the implementation of advanced safety applications**



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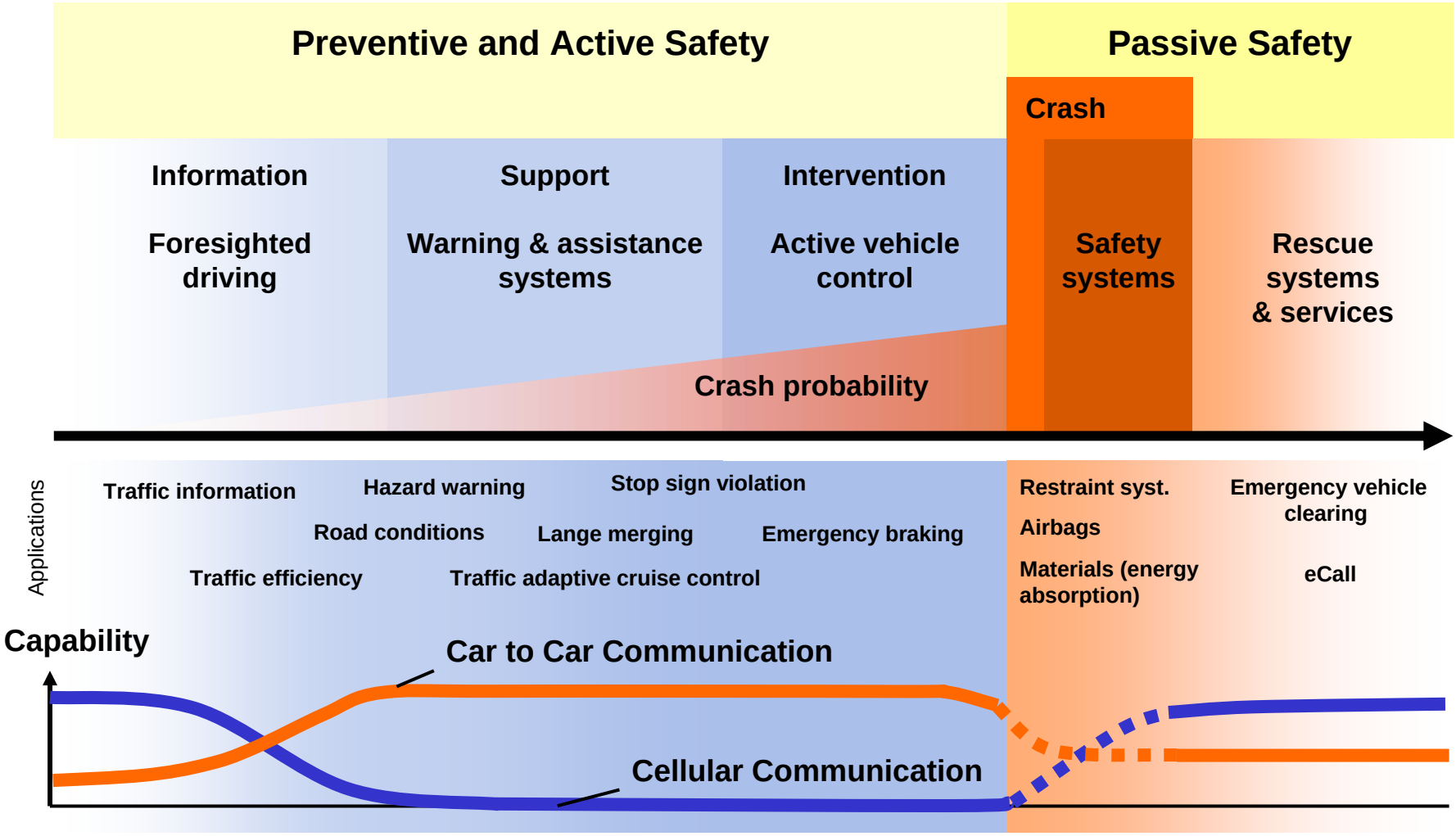
Active Safety with Communication



Source: Car2Car Consortia

The 6th FP Call 4: Proposal CVIS (IP)

The Integrated Project focuses on **V2V** and **V2I** cooperative systems **for greater transport efficiency**

CVIS will develop and integrate into a *"CVIS platform"* unit basic and enabling technologies

such as

- a multi-channel communications and network platform
- a highly accurate positioning and local map module
- an open software environment for applications

allowing a vehicle to share urgent information **V2V** and **V2I** with

- immediate roadside infrastructure
- infrastructure operators
- service providers

New tools for **"cooperative monitoring"** will

- deliver real-time traffic information over the entire road network
- augment the information available to local control functions such as intersection controllers

22 M€
48 months
75 participants

research → development → demonstration → assessment

The 6th FP Call 4: Proposal SAFESPOT (IP)

SAFESPOT aims at using **V2V** and **V2I** communications **to extend the "perception" of autonomous vehicle-based systems.**

Developing a *"Safety Margin Assistant"*, the IP will extend "in space and time" the safety information available to drivers

by

- using an **open, flexible and modular communication architecture**
- developing the **key enabling technologies**
  - accurate relative localization
  - ad-hoc dynamic networking
  - dynamic local traffic maps
- developing a new generation of **infrastructure-based sensing techniques**
- testing scenario-based applications to **evaluate the impact** and **end-user acceptability**
- defining the practical **implementation** of such systems (especially in the interim period when not all vehicles will be equipped)
- evaluating the **liability aspects**, **regulations** and **standardisation** issues

20.5 M€
48 months
49 participants

The 6th FP Call 4: Proposal COOPERS (IP)

COOPERS aims at developing **innovative solutions for an I2V** Communication infrastructure**,** which will be **integrated with V2V** communication systems

in order to

develop holistic cooperative systems, which will cope with the increasing demands of road transport **in a safer, more efficient and environmental sustainable way**.

EC contribution:
9.8 M€
48 months
39 partners

Coopers brings together the vision of road operators, which will research with the other stakeholders **on**

- **technological**
- **operational**
- **liability issues**

related to I2V communications within a 3 steps approach to ensure its take-up.

i2010: Introduction

A European Information Society for growth and employment – Adopted 1 June 2005

i2010 is a joint effort of the EC, Member States and economic actors aiming to accelerate the take-up of knowledge society in Europe

It proposes **three principal lines for action**:

¾ **A single European Information Space**

I. The completion of a Single European Information Space which promotes an open and competitive internal market for information society and media

¾ **Innovation and investment in research**

II. Strengthening Innovation and Investment in ICT research to promote grown and more and better jobs

¾ **Inclusion, better public services and quality of life**

III. Achieving an Inclusive European Information Society that promotes growth and jobs in a manner that is consistent with sustainable development and that prioritises better public services and quality of life

i2010: Flagship Initiative (1)

To raise the visibility of the vital contribution of ICT to the quality of life, the Commission proposes to launch flagship ICT initiatives on key social challenges.

One of the initial priorities is the

"Intelligent Car flagship initiative"

a powerful tool

- to contribute to overcome the transport sector problems
- to boost Information and Communication technologies' take up
- to improve the quality of life
- to improve the European industry competitiveness.

– It is mainly target to the citizen, who cannot be expected to invest in technology unless its benefits and use are clear.

– The EU Member States will provide their political support for technology take-up and dissemination and deployment campaigns.

– ICT are seen as the most important set of tools enabling the industrial players to improve their competitiveness.

i2010: Flagship ICT Initiative (2)

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

In this context, the Commission proposes to launch a “quality of life” flagship ICT initiative on …

Intelligent Car

Smarter

Intelligent communication and interaction with other Vehicles and with the Transport infrastructure to improve efficiency and safety.

Cleaner

Improve traffic management through intelligent driver assistance systems (including Real-Time Traffic and Travel Information (RTTI) and multi-modality), thus contributing to reduce polluting emissions.

… addressing environmental and safety issues arising from increased road use

Safer

Active ICT-based safety systems and devices helping to prevent and mitigate the impact of accidents.

Conclusions

Europe is moving towards "smarter vehicles" and safer and more efficient transport through eSafety, i2010 and RTD funding. The challenge is deployment:

- **The take-up of new safety systems has been too slow**
- **A large number of safety technologies are ready or under development, but without joint actions their full potential will not be exploited**
- **Increasing User awareness is of key importance (eSafety, i2010)**
- **Co-operative Systems can offer new levels of safety and efficiency, but need effective international collaboration**

More information

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INFSO-G4@cec.eu.int

eSafety Web-site:

http://europa.eu.int/information_society/programmes/esafety/index_en.htm

***e*Safety on CORDIS website:**

www.cordis.lu/ist/so/esafety/home.html

eScope website

www.eScope.info