



# The PReVENT Integrated Project: Approach and Organisation



# Presentation Overview



- Objectives of PReVENT
- Background and approach
- Organisation of PReVENT
- Relevant areas
- Relevant expected results
- Global planning and phasing



# Main objectives



**IP PReVENT** will develop, test and evaluate **safety related applications**, taking advantage of advanced sensor and communication devices integrated into on-board systems for driver assistance.

## IP PReVENT

- contributes toward rapid market introduction
- links to and co-operates with national and European programmes
- supports and is in line with European eSafety initiative



# Focus on preventive and active safety



New systems which use **advanced information and communication technologies** in new intelligent solutions for improved road safety can reduce the number of accidents on our roads, in particular when **the accident can still be avoided or at least its severity reduced**. We know that almost 95% of the accidents are due to the human factor.

*e-safety initiative*

Depending on the significance and timing of the danger, the systems will **alert** the drivers as early as possible, **warn** them and, if they do not react, **actively assist** or ultimately **intervene**.





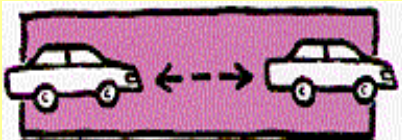
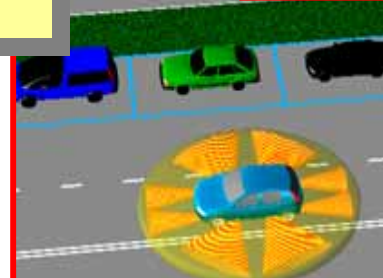
# Background and Approach



# Background



Relevant RTD work and experience within EU research programmes



ADAS systems in the market by EU industries



A number of factors still limit the full deployment for the benefit of users, mainly:

- Cost of systems
- Limited sensor performance and data interpretation
- Lack of system maturity

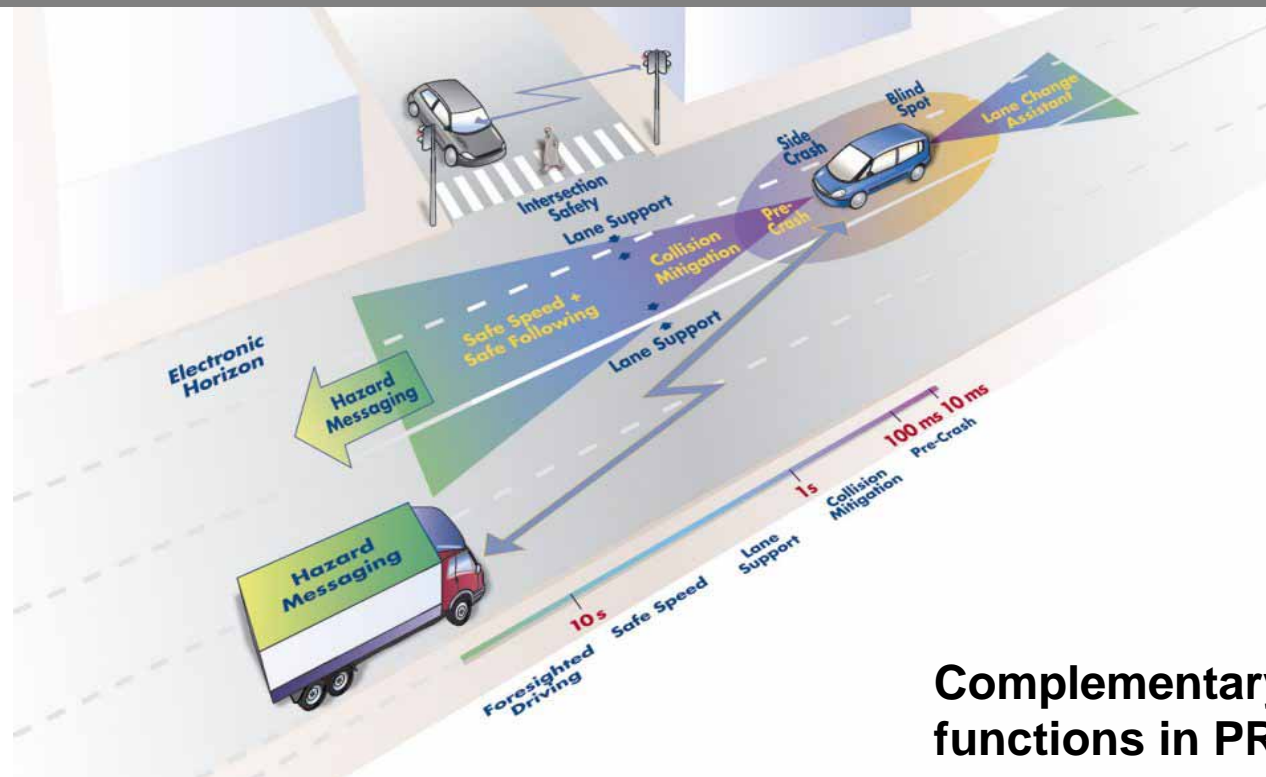


# Approach



From „Driver Assistance“ to overall safety functions :

- Accepted by drivers
- Possibly always available
- Countermeasures to dangerous situations



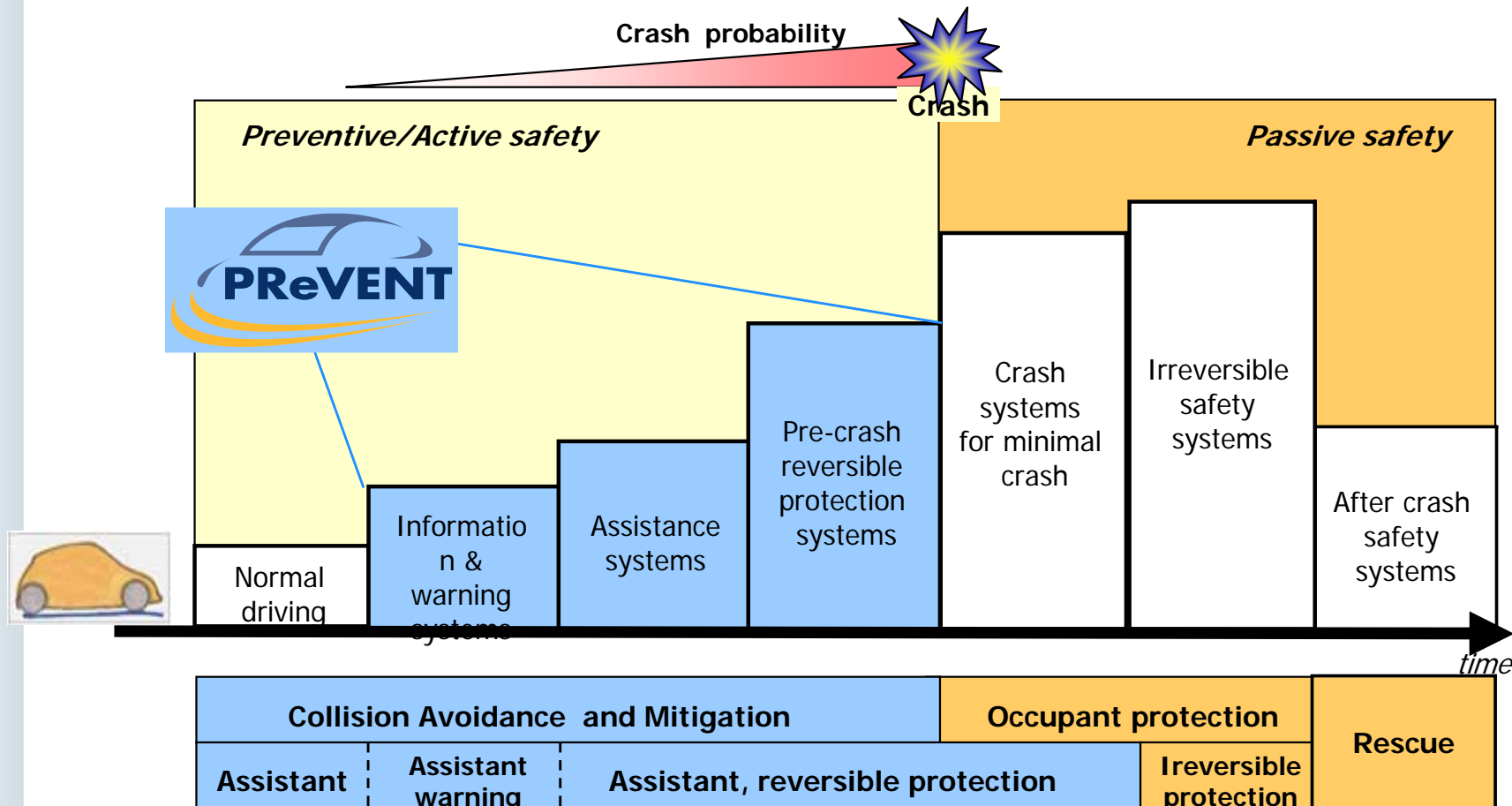
**Complementary  
functions in PREVENT**



# Approach



Harmonised progression of interventions and integration of **preventive, active and passive safety**

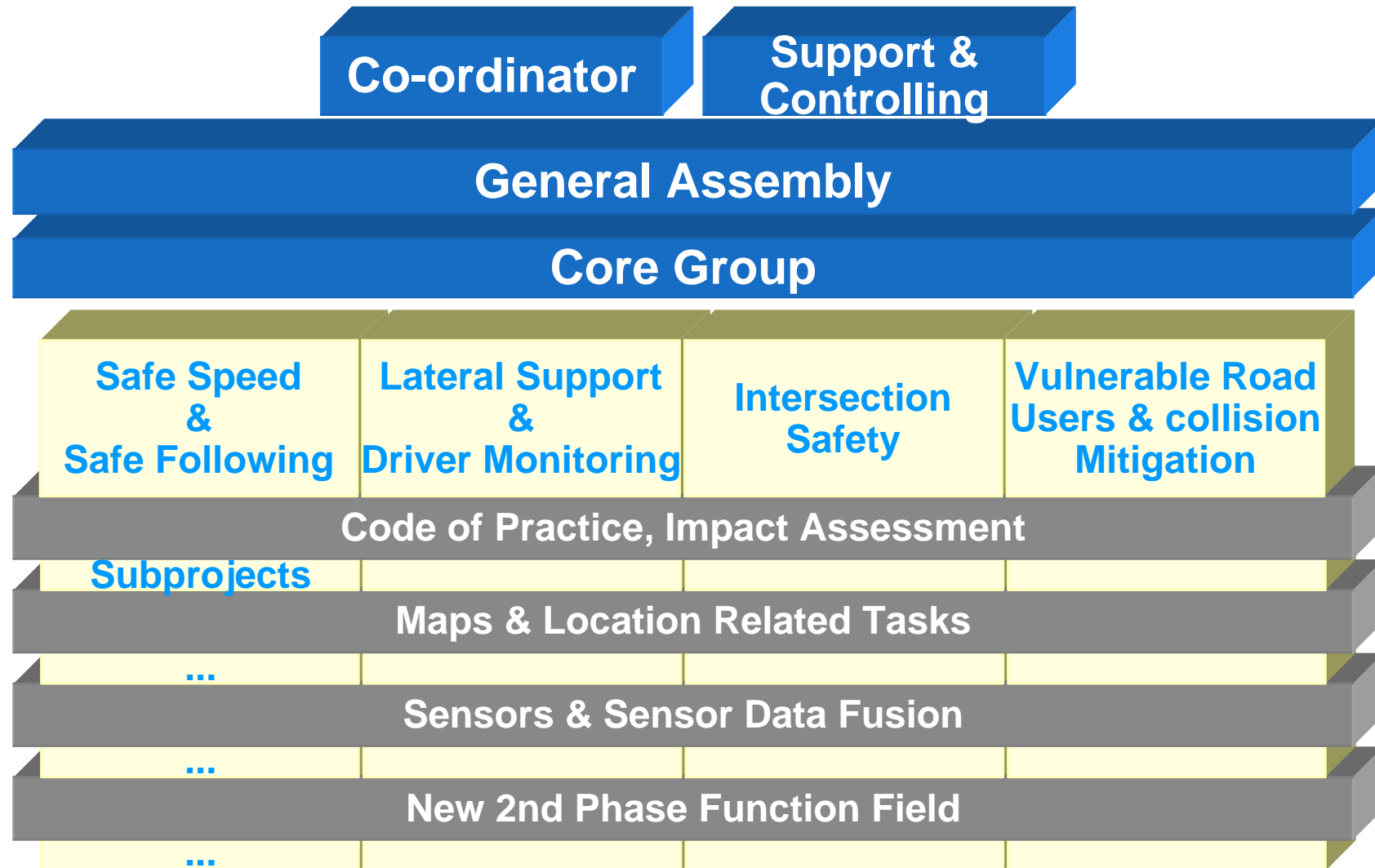




# Organisation of PReVENT



# Structure and Responsibilities



# IP PReVENT Consortium



**52 Partners from Industry, Public Authority, Institute, University, Public Private Organisation:**

**12 OEMs:**

DCAG, AUDI, BMW AG, BMW F+T GmbH, CRF, FFA, PSA Peugeot Citroen, REGIENOV, SEAT, VTEC, VOLVO CAR, VW

**16 Suppliers:**

BLAUPUNKT, BOSCH, DELPHI, FCS, IBEO, IMITA, LEW, NAVIGON NAVTECH, PHILIPS, SAGEM, SIEMENS, SIEMENS VDO, TELEATLAS, TRW CONEKT, VDO

**24 Institutes & others:**

AVV, CERTH/HIT, CIDAUT, CNRS IDFA, ERTICO, FHG, FORGIS, FORWISS, ICCS, IMC, INRIA, INRETS, LCPC, LUND, MW, NTUA, TNO, TUC, TRANSVER, TRL, UNI HANNOVER, UNIPR, UNISI, UNITN, VTT



# Advantages of the IP approach



## General Assembly

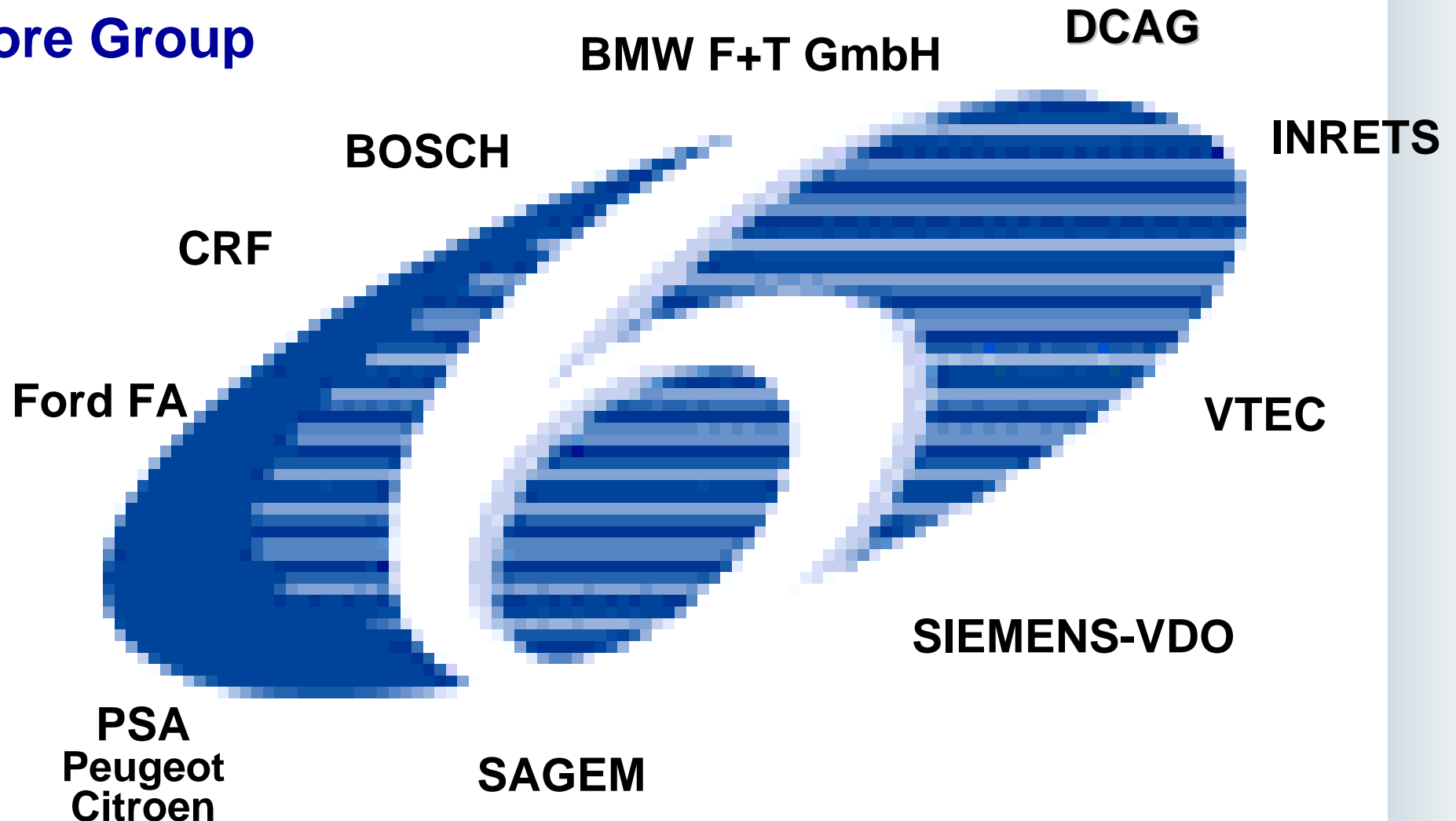
- Interaction at Consortium level
- Presentation of progress and main results
- Synchronising the activities
- Sharing plans for the next phases
- Possibility for all partners to present ideas and raise questions



# IP Co-ordination and Steering



**Core Group**



**IP Managers : ERTICO & IMC**



# IP PReVENT Phase 1: 4 Function fields - 8 Vertical Subprojects



## Safe speed & Safe following

SASPENCE: Safe speed and safe distance  
WLDW: Wireless local danger warning

## Lateral Support & Driver Monitoring

SAFELANE: Situation adaptive system for enhanced lane keeping support  
LATERALSAFE: Lateral support and driver diagnostics

## Intersection Safety

INTERSAFE: Intersection safety

## Vulnerable Road Users & Collision Mitigation

APALACI: Advanced pre-crash and longitudinal collision mitigation  
Collision mitigation and protection of road users  
COMPOSE: Use of active range cameras for RU protection and collision mitigation  
USERCAMS:



# IP PReVENT Phase 1: 3 Cross-functional activities



## Code of Practice, Impact Assessment

**RESPONSE:** Code of Practice for ADAS

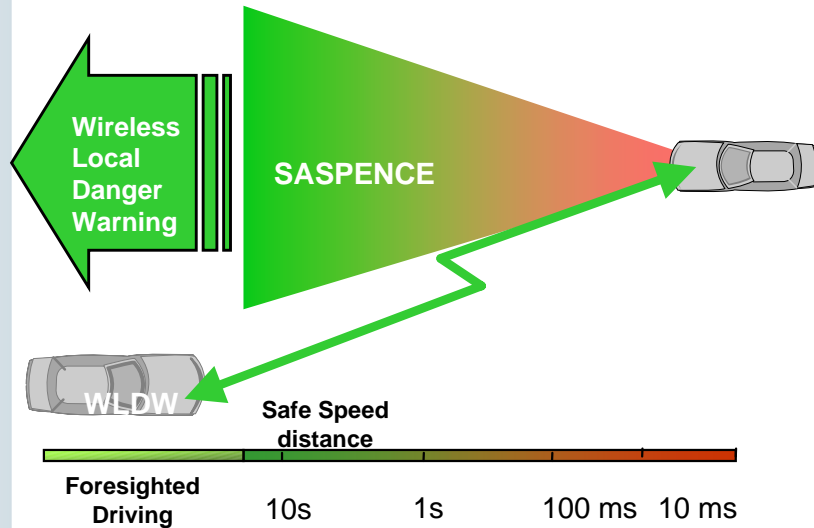
## Maps & Location Related Tasks

**MAPS & ADAS:** Development, test and validation of digital MAPS and standard interface to ADAS

## Sensors & Sensor Data Fusion

**PROFUSION:** Robust and optimised perception by sensor data fusion

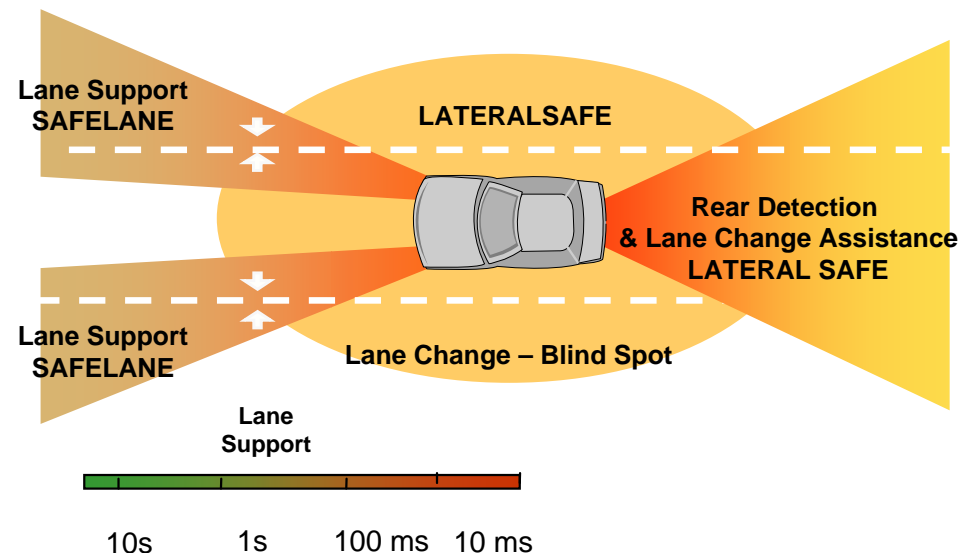


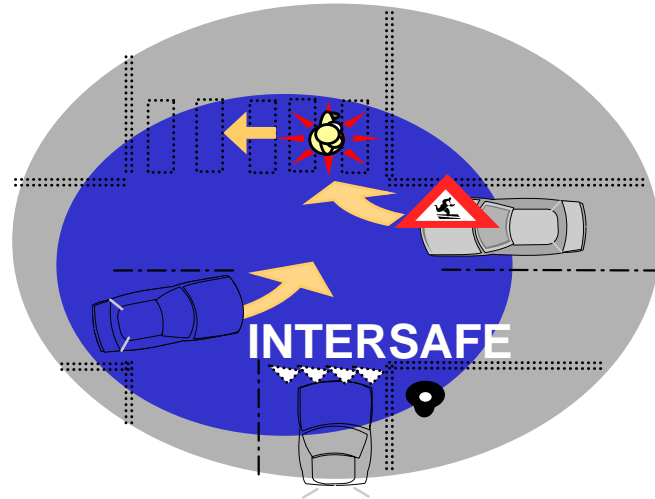


**Safe speed and distance** focuses on accident situations related to excessive speed or too little headway, typically with an obstacle or a curve ahead.

The function considers data obtained by on-board sensors and received by communication regarding the situation ahead (road condition, traffic, weather,...).

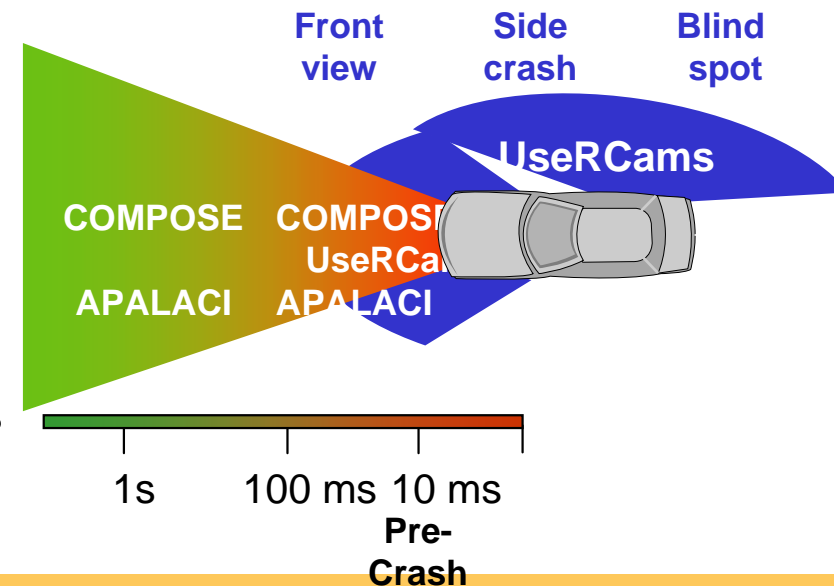
**Lateral Support and Driver Monitoring** introduces a cluster of safety applications in order to support the lane keeping task and to prevent lateral/rear related accidents, especially in adverse or low visibility conditions. Driver monitoring systems are linked to these applications.





**Intersection safety** covers applications related to approaching or passing intersections, with emphasis on the cooperation between infrastructure and vehicles.

**Vulnerable Road Users and Collision Mitigation** covers the phase close to a crash, offering safety functions able to mitigate the effects of a collision and finally to interact with on-board restraints systems, to optimise their action and provide enhanced occupant protection. The recognition of vulnerable road users is a fundamental issue for these applications.



# Relevant Areas and Main Results



# Relevant expected results



The introduction of preventive safety systems will be favoured by **project results** in three main areas:

## Improved situation capture

- Advanced sensor devices
- Communication components / systems
- Reliable processing

## Application oriented developments

- Demonstrations of relevant functions
- Warning and control strategies
- Code of Practice
- Interface for navigation maps
- Assessment methods

## Harmonisation of safety functions



# Improved situation capture

## Selection of results



### Safe speed & Safe following

- Communication technologies to improve the detection, locating and evaluation of hazards
- New sensorial devices integrating obstacle detection and communication

### Lateral Support & Driver Monitoring

- Lane-keeping support system for situations with poor road and environmental conditions

### Intersection Safety

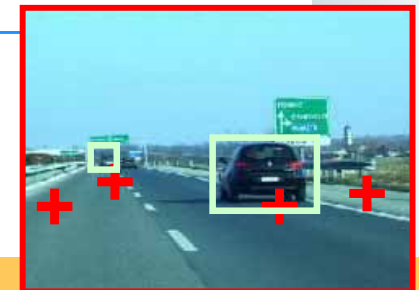
- Concepts for sensors and communication aimed to road markings and crossing traffic recognition

### Vulnerable Road Users & Collision Mitigation

- Active 3D sensor technology for pre-crash and blind spot surveillance
- Location and classification of obstacles (cars, pedestrians, bikes, etc.)

### Horizontal activities

- Concepts for advanced maps, sensors & sensor data fusion (ProFusion)
- Legal framework for ADAS implementation



# Application oriented developments

## Selection of results



### Functional subprojects

- Driving at safe speed and distance in different traffic and road situations
- Integrated driver support system for handling critical lateral support in all traffic scenarios
- Warning strategies and devices (e.g: active accelerator)
- Intersection warning application including on-board and infrastructure systems
- Active collision mitigation systems based on the integration of sensors and actuators
- Autonomous or semi-autonomous braking applications



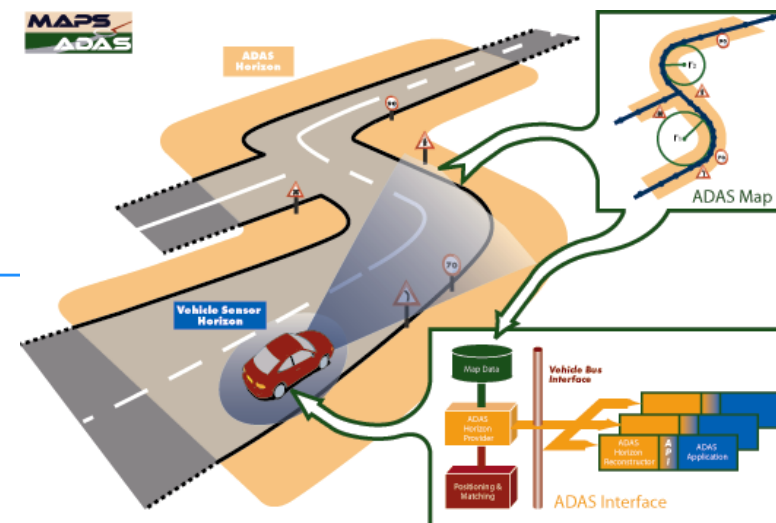
# Application oriented developments

## Selection of results



### Horizontal activities

- Code of Practice for Development and Testing (RESPONSE 3)
- Standard for an interface between ADAS and map data (MAPS&ADAS)
- Approach for impact assessment and comparable assessment of applications (2ndphase)
- Exhibition of results in 2007:  
Roadshow – common demonstration - 21 test platforms



# Application oriented developments Demonstrator vehicles



## Safe speed & Safe following

Two demo cars (Saspence)  
Four test vehicles (WLDW)

## Lateral Support & Driver Monitoring

Two demo cars (Lateralsafe)  
Two demo trucks + one car (Safelane)  
One truck simulator (Lateral safe)

## Intersection Safety

Two demonstration cars  
Driving simulator system

## Vulnerable Road Users & Collision Mitigation

Four demo cars (Apalaci, Compose)  
Car + truck with 3D sensor (Usercams)



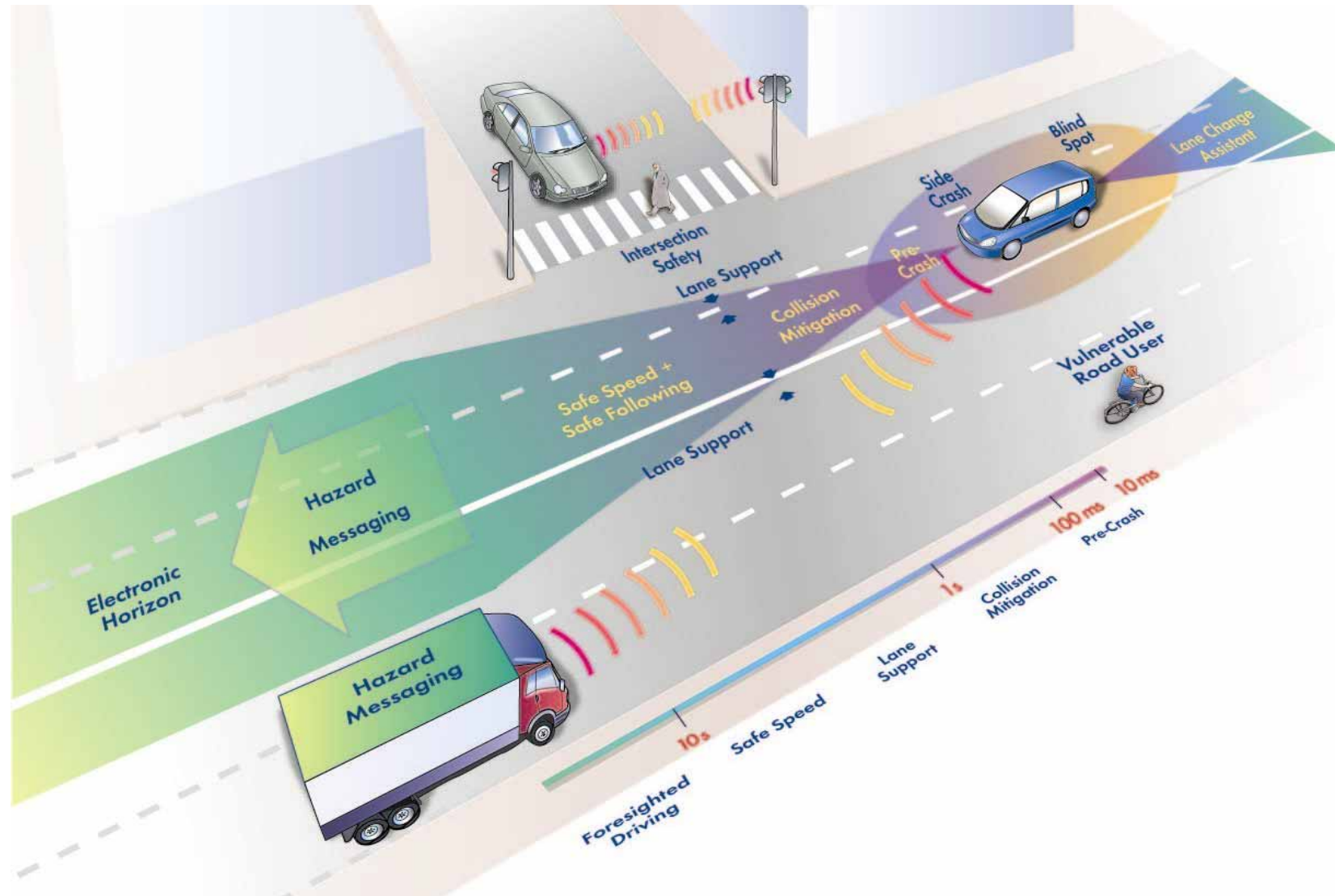
# Harmonisation of safety functions



- Cooperation within the IP structure
- Common enabling procedures and tools
- Complementarity of applications (time / space schemes)
- Integration projects in coming phases



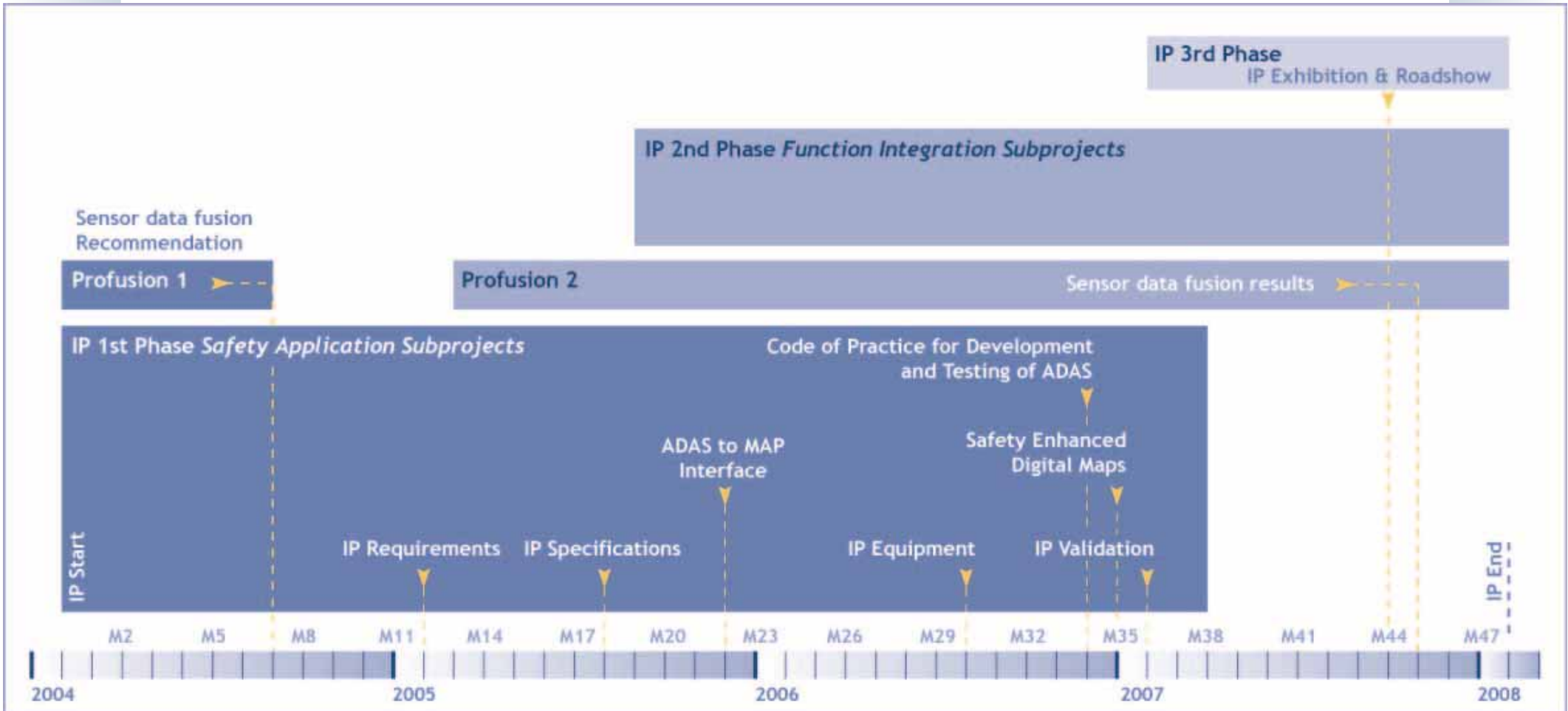
# Integration of functions



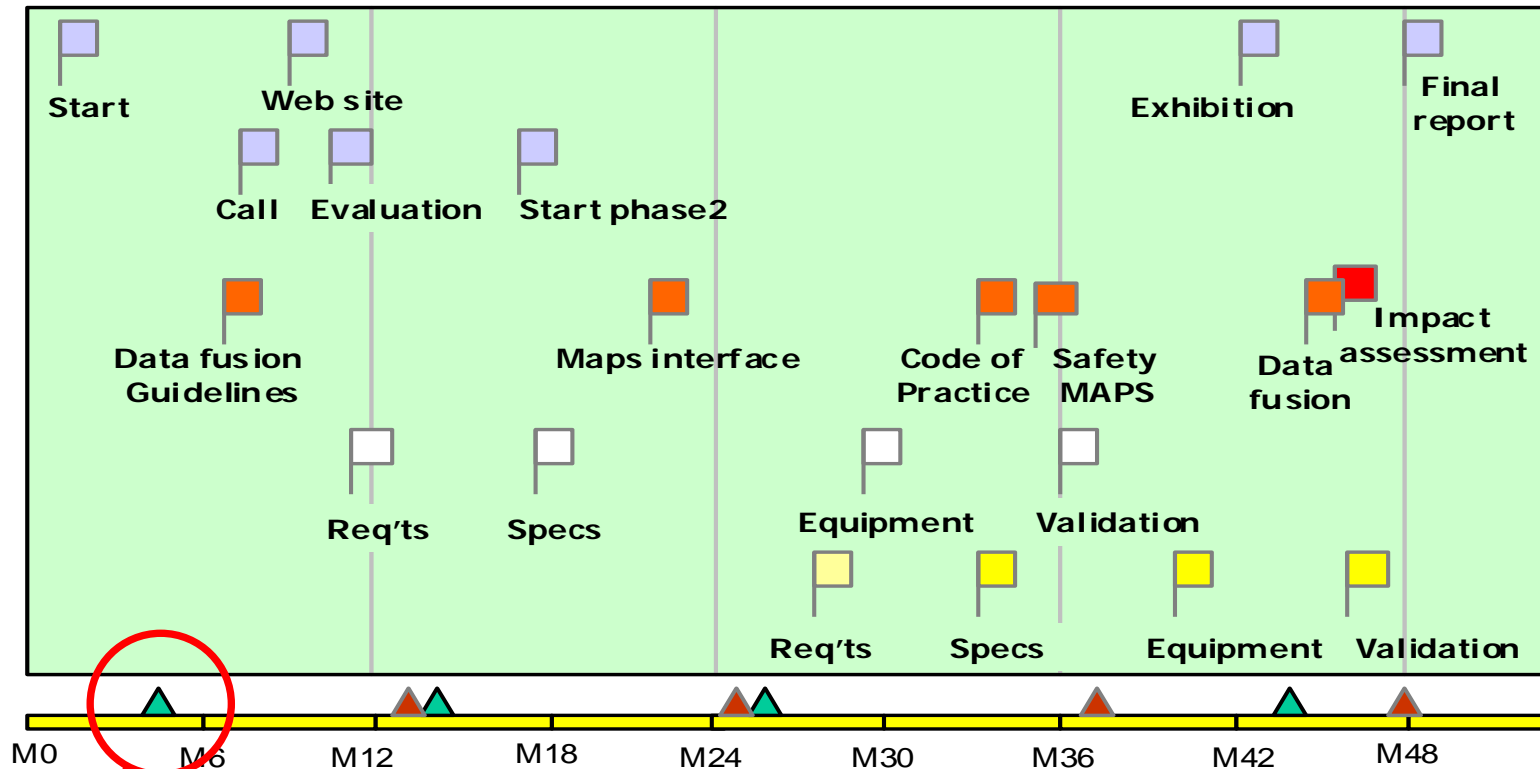


# IP Planning





# PReVENT IP Milestones



**18-19 May 2004**

### SYMBOLS FOR MILESTONES AND EVENTS

	Overall management		<u>General Assembly</u>
	Cross functional		Annual Review
	Functions phase 1		
	Functions phase 2		

