



# What do road operators expect from cooperative mobility?

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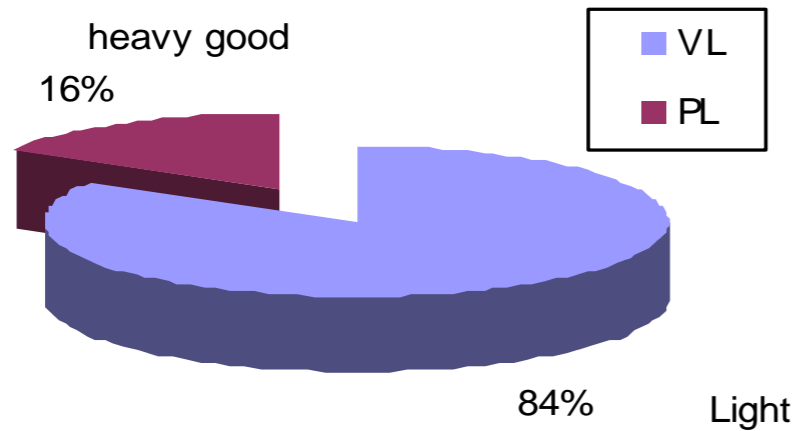
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Ministerie van Verkeer en Waterstaat

# Experience of Toll road network

- ❑ 8500 km network
- ❑ 15 members in ASFA
- ❑ 81 billion km travelled



- In past 15 years:
  - » Traffic X 2
  - » Risk of fatalities / 4

Le réseau autoroutier concédé



# Safety report in the last decade

## Network of ASECAP members

### Decrease in number of deaths

Austria	2002-2008	-47%
France	2002-2008	-49%
Italy	2002-2008	-48%
Portugal	2004-2009	-21%
Spain	2000-2009	-62%

A first ITS technology result with automatic speed enforcement

# Mission of road operator

- ❑ To act a public service ( toll operators under concession contract with ministry)
  - ❑ Safety-incident management
  - Traffic management
  - (charging - Toll collection)
- ❑ Responsible for performance in safety and mobility (measurable indicators)
- ❑ Deal with all the traffic (all drivers, all cars, and lorries, all trips)

# Safety factors on road



## Infrastructure design



regulations



monitoring



Road side equipment

## OPERATION ITS

# Traffic network

- Numerous road operators networks
  - TERN - Motorways
  - Other national highways Networks
  - Secondary networks
  - Urban networks
  - Connexion with public transports networks
- But a unique connected network for the traveller
- Similar objectives and visions of all operators

# The challenge in the future

- To optimize the infrastructure
  - To face an increase of Traffic (+ 30-50%)
  - To face the objective of zero accident (number of fatalities /2 in next 15 years)
  - To face the objective of zero congestion
  - To face a target reduction of CO2 emission

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**ITS and cooperative systems a tool for this new challenge ?**

# Existing intelligent technologies used for traffic management

- Infrastructure data collection (monitoring)
  - Magnetic loops, camera, radars, weather stations,...
- Traffic Control Centres (processing)
- Real time information with VMS
- Electronic Toll collection lanes
- In car information: radio -RDS TMC  
Web; mobile phone
- Traffic management: automatic incident detection, speed regulation, lane banning,.....



# Exemple: Real time and traffic management

## 8500 KM

- ⇒ 1 080 variable messages sign displays - every 15 km in average
- ⇒ 8000 km coverage FM 107.7 radio (with traffic information bulletin every 15 min)
- ⇒ 8 000 km RDS-TMC service for vehicle navigation system - updated every 3 minutes
- ⇒ 2 000 km of travel time information (on network critical stretches)
- ⇒ Common traffic data based of the motorways companies managed by Autoroutes-traffic available on website

# Exemple:Real time and traffic information 8500 KM

- ⇒ **Traffic sensors**
- ⇒ **3 000 cameras : 500 km automatic detection management**
- ⇒ **2500 ETC lanes**
- ⇒ **510 weather stations**
- ⇒ **71 traffic control centres including 8 central control centres**
- ⇒ **8200 km of fibre optics**
- ⇒ **80 fixed radars plus mobile ones (Speed control)**
- ⇒ **...**

# More services to be implemented

- With the deployment of:
  - Dynamic speed control and speed alert
  - Real time incident detection and information
  - Freight management, hazardous goods,...
  - Freight parking
  - Seamless traffic information
  - Cross border traffic management plan
  - Dynamic road charging
  - Others . . .

# Coordinated Deployment at european level with Easyway - 2007-2013

25 member states:

- Traveller information services
- Freight and logistic services
- Traffic management services
- Supported by monitoring (including data exchange between TCC)
- + European guidelines for PanEuropean functional specifications



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From traditional ITS ...to Cooperative systems

# Cooperative traffic management

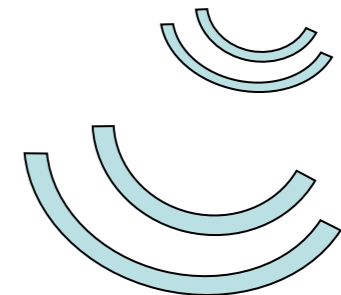
***An improvement of road traffic operation to respond to the new challenge ?***

Generalisation of V2I and I2V communication in real time, and satellite positioning

V2I: improve data collection for TCC (more precise and more rapidly)

I2V: improve driver information (more precise more located)

***extend possibilities of traffic management***



# Example of user benefits

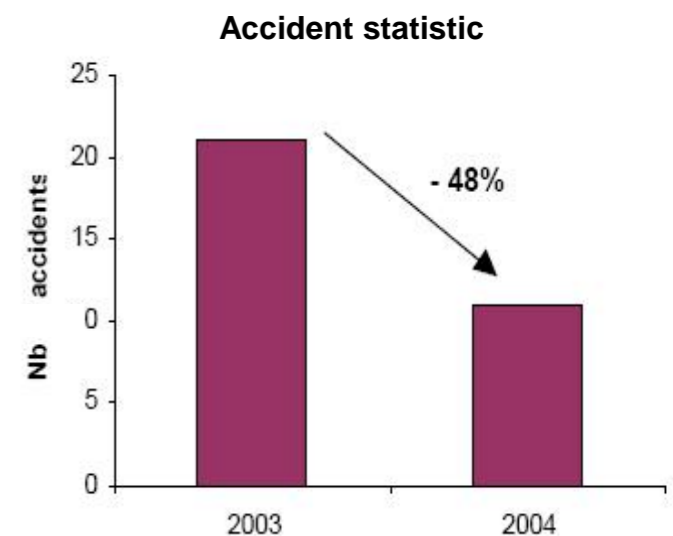
- Speed control on A7 busy corridor in summer time

Increase of traffic volumes by 10%

- Decrease of accidents by 48% (77% for injuries)
- More than 30 000 hours of congestion « saved »
  - » An average “time gain” per vehicle of 10% on the corridor
- A very good appreciation of the operation :
  - » **87% of the drivers think the operation was useful or very useful**



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# In car speed limit information and ISA

- Permanent speed limit
  - Support to automatic enforcement
  - Decrease of risk of fatalities by 40% between 2002 and 2007
- Temporary speed limit
  - Safety of users and workers in work zone
- Dynamic speed limit
  - Support to speed control

# On board emergency call

- **Objective: Reduction of incident detection time**
  - 1 300 injuries accident
  - 19 000 accidents
  - 330 000 breakdowns

**15% over accidents in fatalities**

# Emergency call

Infrastructure based

In car



**Preliminary evaluation:  
5 minutes earlier in average with in car information**

# Cooperative management benefits

**increase Road operators possibilities of traffic management**

**by completion of existing intelligent infrastructure:**

- **New “Variable Message Signs” in the car**
- **New “Emergency boxes” in the car**
- **New “Traffic sensors” in the car**

# 3 factors of success of cooperative traffic management

- 1- New actors in traffic management (automotive industry, telecom industry, equipment and content providers,...) work with road operators.
- 2- The business model recognizes the economic value all along the chain of the information production.
- 3- To give evidence that each driver needs on board reliable traffic information: quality and consistency on all networks

# Challenges

- ➔ To start a virtuous circle between Road operators and in car equipment and services providers,
- ➔ Use of different communication media (long, medium and short range) with roaming possibilities (DATEX2, CALM and TPEG standards)
- ➔ To create a network of Cooperative platforms connected to TCCs and in-car services providers

**coop**erative

Conference 2010

**mobility**