



# TOWARDS EFFICIENT, SAFE AND SUSTAINABLE TRANSPORT IN EUROPE: THE ROLE FOR INTELLIGENT TRANSPORT SYSTEMS (ITS)

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# Road transport challenges

Three main challenges:

1. reduction of **congestion**/optimum use of existing capacity: road congestion costs = average 1% of GDP in EU

2. increase traffic **safety**: 41 100 fatalities on the EU roads in 2005



## Road transport problems

**3. address the negative impact on environment and climate change while increasing energy efficiency and reducing the dependency on fossil fuels**



# European Commission Transport Policy White Paper

## **EC Transport Policy White Paper 2001, revised in 2006: « Keep Europe moving »**

- Cooperative systems based on vehicle-to-vehicle and vehicle-to-infrastructure communications can in the longer term improve considerably the efficiency of traffic management, safety and congestion management.

# European Commission Transport Policy White Paper

- Road infrastructure must become intelligent and send and receive information to and from the vehicles, and collect information on road conditions such as weather hazards and accidents to optimise the operation of cooperative systems.
- Launch of a major programme to roll out intelligent infrastructure for road transport (ITS roadmap).

# Potential ITS systems and services for **more efficient road transport**

## Traffic information services

- Real-time and seamless (cross-border, pre-trip and on-trip) road traffic information and dynamic navigation
- Real-time high-quality public transport information
- Integrated multi- and intermodal journey planning
- Parking guidance and reservation systems



# Potential ITS systems and services for more efficient road transport

## Traffic management systems

- Traffic monitoring, incident detection/verification
- Data and information exchange and sharing
- Traffic management, also cross-border, based on variable message signs, ramp metering etc.
- Urban traffic control systems

## Traffic demand management systems

- road pricing, congestion pricing, access management systems



# Potential ITS systems and services for **more efficient road transport**

Freight management systems

→ Radio Frequency Identification (RFID) for identifying, tracking and tracing of cargo

Positioning systems (GALILEO)

Priority systems for public transport

Electronic payment systems and interoperable electronic toll collection systems



# Potential ITS systems and services for **safer** road transport

Reliable information provision on static speed limits on the whole road network

Real time traffic information

Truck/coach specific route navigation

Alcolocks

Interactive driving simulators



# Potential ITS systems and services for **safer** road transport

Electronic Stability Control (ESC)

Collision avoidance and mitigation systems

Emergency braking systems

Intelligent cruise control

Lane departure warning and lane keeping  
systems

eCall (emergency call)

Safe speed, including speed alert



# Potential ITS systems and services for **safer** road transport

Incident detection and verification systems

Traffic management systems which keep traffic in a stable situation (ramp metering, variable speed limits etc.) or warn traffic upstream of accidents/meteorological conditions or reroute traffic (variable message signs)

Vehicle to infrastructure communication

Enforcement systems (speeding)



# Potential ITS systems and services for **safer** road transport

Dangerous goods tracking and tracing  
throughout all the modes

Emergency management and Disaster  
Response systems

Public Safety Answering Points need to be  
adapted to be able to respond to eCalls.



# Potential ITS systems and services for cleaner road transport

Journey planners

On-trip route guidance (navigation + parking)

Eco-driving tools (tyre pressure monitoring systems and gear shift indicators)

Pay as you drive insurance

Demand-responsive public transport systems supported by innovative IT planning and communication tools.

# Potential ITS systems and services for cleaner road transport

**Travel demand and mobility management can reduce road traffic levels or channel it to routes and areas that are less sensitive.**

- Journey planning (supporting modal shift)
- Road charging (with environmental criteria)
- Environmental zone access control (in urban areas with high air pollution)
- Public transport priority schemes (in urban areas)



# Potential ITS systems and services for cleaner road transport

**If traffic is already on the road its environmental impact can be reduced by**

Network monitoring (with regard to air quality and emissions)

Speed management

Traffic & access control (with priority for clean vehicles)

Traffic information and route guidance





# Potential ITS systems and services for cleaner road transport

- Hazardous goods transport tracking and tracing systems
- Systems for proper enforcement of speed and access control measures

# Conclusions

- Intelligent Transport Systems offer valuable opportunity for active management of existing infrastructure in order to alleviate the negative impacts of road transport and realise additional road capacity.
- The level of deployment of ITS systems and services in the EU Member States varies considerably. The challenge is to ensure that the benefits of implementing ITS are fully exploited across Europe.

# Conclusions

- Need for more collaboration across jurisdictional and organisational boundaries and more active participation of all 'stakeholders'. The European Commission is instrumental and has an important role to play in facilitating these processes with the aim of developing a Europe-wide interoperable framework that facilitates seamless mobility of people and goods for our citizens.

# Conclusions

- There is a range of ITS related initiatives underway both in individual Member States and at the European level. Work has started to assimilate all these activities into a cohesive ITS deployment strategy that can encourage wider take-up of ITS-based solutions that contribute to the provision of efficient, safe and sustainable transport in Europe.