Measure 64: European Research on new clean car technologies and ITS application to transport

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Policy Package: **1B:** Road Investment and technologies
Measure 64: The available new clean car technologies and ITS will in future need to be given greater Community support, especially under the 6th framework programme of research.
What is the problem being addressed ? In accordance with the proposal put forward in COM(2001) 279 Annex IV - (1) of the White Paper stresses the need to develop technology apt to provide safe and clean modes of transport (in particular Clean Urban Transport), ensuring that climate change be a major theme of Community policy for research and technological development and for national research programmes, as required by the 6th Community Environment Action Programme. Following sections of the same Annex concern the deployment of intelligent transport systems used to create the European Rail Traffic Management System [(1).2] and large scale Intelligent Road Transport Systems. It is a two-pronged approach aimed at reaching the same goal: to improve the quality of the European transport system.
Measure's costs and benefits: The cost of technological interventions aimed to improve safety and cleanliness is quite hard to assess, since it is the result of a multitude of industrial decisions, experimentations and attempts to market penetration. As regards Intelligent Traffic Systems, the EC has funded between 2001 and 2006 RTD studies to the amount of 200 M€ which are expected to generate 1.2 G€ of investment. Benefits hoped for have been estimated in a decrease of 20% of travel times and in an increase of 10% in road and rail links capacity and of 15% in safety.
Legislative implementation at the EU level: A wide encompassing legislation to standardise technological systems or Intelligent Traffic Systems does not exist and would be quite premature -- except in the case of computerised control systems aiming to monitor motorway traffic, detecting accidents and emergencies and routing traffic along more pervious paths. These motorway control traffic systems would benefit considerably from adequate integration and standardisation at border interface locations.
What are the objectives ? The measure wish to promote the diffusion of new cleaner technologies and ITS applications. The adoption of methane, electric, hybrid and diesel-electric engines for public transport is spreading irregularly and it would be hard to assess their penetration. The same can be said for ITS. In the Feira EC Meeting of June 2000 the goals were identified of achieving by 2002: 50% of EU using traffic and travel info services; 50% of motorways equipped with systems to manage traffic, detect accidents and congestion and with the same 112 emergency call number. Said goals appear to be lagging.
Interactions with other WP measures: As noted with regard to Measure 74 concerning the Galileo satellite navigation system, the latter will interact positively with ITS innovative measures supplying to them needed detailed real time information and data.

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Output indicators: The output of the measure can be monitored using the following key indicators: • Adoption of methane, electric, hybrid, engines, fuel cells (hydrogen or gasoline) in significant proportion as indicated by statistical surveys. Vehicle manufacturers announcing decisions to mass produce said engines and fuel systems. • Number of road navigation systems adopted in new vehicles and extension of networks monitored in real time by real time guidance systems. • Number of Member States having adopted and installed, interconnected and integrated Motorway control and monitoring systems. With regard to road navigation systems, there are several on-going interurban road ITS projects in Europe,

such as those mentioned in the table below taken from SPECTRUM D3 (source: ERTICO, http://www.ertico.com/its_basi/succstor/success.htm):

Project	Functions/tools	Short description
AA (Automobile Association) ITS Services (UK)	On-trip traffic information Pre-trip travel information Breakdown and emergency alerts	Telematics can make the traffic information that the AA has been broadcasting for many years more easily available to drivers. Drivers can consult the AA operator on the best road to choose and the time a trip will take. A telematic unit provides verbal assistance or gives visual instructions. The display can also be used to transmit route requests.
ADAC ITS Services (Germany)	On-trip traffic information Pre-trip travel information Breakdown and emergency alerts Fleet management	ADAC has incorporated telematics in its assistance services, to provide the fastest and most efficient help possible, with the final purpose of problem-free mobility. Members can contact one of the five ADAC assistance centres in case of a breakdown. ADAC provides traffic information, based on input from the police and 40,000 jam busters (reporting traffic jams). From the ERIC (European Road Information Centre) system, information on traffic, weather and road conditions in European countries is available.
AUTOROUTE-INFO: Motorway Paris-Lyon (France)	On-trip Traffic Information	The CSA - the regulatory body in charge of broadcasting in France - has allocated a unique frequency all over the country to FM radio broadcasts targeted to motorway drivers. This decision incited motorway operators to provide radio services combining entertainment and travel information. Such services are now operational along several thousands of kilometres of motorways.
CCATS & CCIDS: Video-Based Solutions for Data Collection and Incident Detection (Europe)	Incident Management	Traficon video and image processing technologies can be used for both traffic data detection and real-time incident detection. Traficon has co-operated with research centres and universities in Belgium, and has been supported by the Flemish Government. Since 1987, Traficon has successively introduced a Camera and Computer Aided Traffic Sensor (CCATS), Camera and Computer Aided Incident Detectors (CCIDS) and Video Image Compression (VIC).
Inter-urban Traffic Management (Austria)	On-trip Traffic Information Lane Control Incident Management	A 55-kilometre long section of the Munich-Salzburg highway has been equipped with a Bosch traffic management system, consisting of 37 observation points and 28 display points placed at 0.9 to 2.5 km intervals. In addition, 137 Variable Message Signs, 140 double induction loops and nine radar sensors were integrated. The traffic management system operates automatically and uses on-line traffic data, indicating vehicle type and speed and traffic density.
M25 Controlled Motorway Project (England)	Speed Management	The Highways Agency introduced a Controlled Motorways Pilot scheme on the M25 motorway (London Ring Road), between the A3 Junction 10 and the M4 Junction 15, with the purpose of controlling speed and lane discipline and their effects on traffic flow and safety. The evaluation of the project showed that the majority of the drivers obeyed the speed limits and that excessive speeding diminished significantly. Lane utilisation improved due to a better spread of traffic over the different lanes.
Trafficmaster - On-trip information on Motorways and Primary Routes (UK)	On-trip Traffic Information	Trafficmaster sensors have become a familiar sight on UK motorways. Installed on motorway and trunk road bridges at approximately two miles intervals, the 2,400 sensors monitor the flow of traffic. When the speed beneath a particular sensor drops below 30 mph, it transmits the details live to Trafficmaster's National Traffic Data Centre. This forms the main on-road infrastructure of the system, which runs in parallel with over 1,500 radio beacons placed on motorways and near motorway junctions, to warn motorists of impending traffic problems before they join the motorway and so allow them time to choose another, non-motorway route.

With regard to the indicator about interconnected and integrated Motorway control and monitoring systems existing in the Member States, the most important issue would be to ascertain also the interoperability of these systems with those of adjacent Member States. One of the domains of intervention in the Euro-Regional Projects is now dealing with the interconnection of traffic information centres. The idea in a nutshell is that the information collected in the Domain of Road Monitoring is available at as many locations as it would be useful. This information is going to be available via two routes to the traveller: through traffic management systems and directly as traveller information.

Outcome indicators: intermediate impacts on transport markets

In so far as the 5th and 6th Frameworks research projects are going to produce commercial applications, the market will be influenced by the availability of new and cleaner car technologies as well as new ITS applications. Therefore, market indicators shall concern the market penetration of these new products and systems and revenue and employment impacts in the sectors concerned.

Outcome indicators: final impacts on transport users and non users

The main expected impact of the diffusion of cleaner car technologies will be a change in the fuel mix and the consequent reduction of road transport emissions.

The diffusion of ITS is expected to improve the overall transport efficiency in several contexts, depending on the typologies of applications. For instance, the spread of ITS on inter-urban road links as well as in the urban environment should help to reduce congestion thanks to the anticipated real time information the users may have, and the consequent adaptation of their behaviour (e.g. choice of un-congested routes etc.).