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Safety and Security**

**EXTR@Web Project**

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## Abbreviations and Acronyms Used

ACC	Adaptive Cruise Control
ADAS	Advanced Driver Assistance System
AG	High level Advisory Group (to the EXTR@Web project)
AIS	Automatic Identification System
ASC	Adaptive Speed Control
ATM	Air Traffic Management
BG	Benchmark Group (associated with the EXTR@Web project)
CEEC	Central and Eastern European Country
CFIT	Controlled Flight Into Terrain
CRM	Crew Resource Management
DG TREN	EC Directorate-General for Energy and Transport
DMS	Driver Monitoring System
EC	European Commission
EFTA	European Free Trade Association (Norway, Iceland, Switzerland, Liechtenstein)
EPOG	Eye Point of Gaze
ERA	European Research Area (EU, EFTA and CEECs)
ERTMS	European Rail Traffic Management System
EXTR@Web	Exploitation of Transport Research Results via the Web (DG TREN FP 5 Accompanying Measure project)
EU	European Union
FLR	Forward Looking Radar
FP 4 (5, etc)	EC Fourth (Fifth, etc) Framework Programme
GIS	Geographical Information System
ISA	Intelligent Speed Adaptation
PAG	Programme Analysis Group (part of EXTR@Web project)

RTD	Research and Technical Development
SAR	Search and Rescue
SMS	Safety Management System
(s)SA	(shared) Situational Awareness
TM	Threat Management
TRKC	Transport Research Knowledge Centre; TRKC website at <a href="http://ec.europa.eu/transport/extra">ec.europa.eu/transport/extra</a>
USM	Urban Safety Management

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# 1. Introduction

This paper provides a structured guide to the results of Research and Technical Development (RTD) projects relating to **Safety and Security**, carried out in transport research programmes throughout the European Research Area (ERA).

It is one of a series of 28 papers. Two further from an original set of 30 transport themes – i.e. Long-distance Transport and Financing Tools – have been discontinued as separate reports, though all related projects will eventually be covered elsewhere in Thematic Research Summaries.

	Paper no.	Transport theme
Dimension 1	1.1	Passenger Transport
	1.2	Freight Transport
	1.3	Urban Transport
	1.4	Rural Transport
	1.5	Regional Transport
	1.6	EU Accession Issues
Dimension 2	2.1	Air Transport
	2.2	Rail Transport
	2.3	Road Transport
	2.4	Waterborne Transport
	2.5	Other Modes
	2.6	Intermodal Transport
Dimension 3	3.1	Economic Aspects
	3.2	Efficiency
	3.3	Equity and Accessibility
	3.4	Environmental Aspects
	3.5	User Aspects (incl. ergonomics, quality, choice and rights)
	<b>3.6</b>	<b>Safety and Security</b>
Dimension 4	4.1	Decision-support Tools
	4.2	Information and Awareness
	4.3	Infrastructure Provision (incl. TENs)
	4.4	Integration
	4.5	Intelligent Transport Systems
	4.6	Regulation / Deregulation
	4.7	Land Use Planning
	4.8	Transport Management
	4.9	Pricing, Taxation and Financing Tools
	4.10	Vehicle Technology

Of the more than 5600 projects from research programmes the Transport Research Knowledge Centre (TRKC) ultimately has considered, a total of **520** projects deal partly or fully with the issues of **Safety and Security**.

## 1.1 How to use this paper

It is recommended that you use this paper to locate RTD (Research and Technical Development) results on sub-themes where you have a particular interest, rather than reading the paper from start to finish:

- Start in Section 2 to get an overview of the scope of the particular theme.
- Read Section 4 that summarises the findings for each sub-theme of interest to you.
- Consult Annex I to identify the individual projects, be they of European or national origin, relating to a particular sub-theme.
- If this is the first time you have used one of the series of thematic research summaries, it is strongly recommended that you read Annex II. This explains the background and purpose of the EXTR@Web project, and the basis upon which information in this document was selected and analysed.

The other sections of this paper can help you to gain an overall picture of the **Safety and Security** theme, associated policy issues, the background of project EXTR@Web and a summary of the editorial team for thematic research summaries.

The analysis in this paper is the responsibility of the EXTR@Web project team, and does not represent the official viewpoint of the European Commission.

## 1.2 The link to the Transport Research Knowledge Centre website

Further details on individual projects can be obtained from the Transport Research Knowledge Centre (TRKC) website at: [ec.europa.eu/transport/extra](http://ec.europa.eu/transport/extra)

The TRKC website includes summaries and full final reports of individual projects, as well as a variety of analyses, and publications prepared by the EXTR@Web project.

How to best use the online resource:

- The 'Projects & Analysis' section allows the user to specify a project-wide search on 'Publication date', 'Origin', 'Document type', 'Mode', 'Sector', 'Geographic area', 'Policy objective' and 'Tool', or any combination of these criteria.
- This may be complemented, or superseded, by the flexible 'Free text search'.
- On the query result screen, free text search criteria may be refined, as appropriate. Further tick boxes here allow limiting query results according to 'Project status' (five levels).
- Query results are presented in a table, which allows for sorting by column (click on relevant column header for alphanumerical sorting).
- Project-specific summaries may include links to project websites, or provide contact details for the project, where available.

It should be noted that the online Transport Research Knowledge Centre will be updated frequently, though dependent on input from project co-ordinators.

Other parts of the TRKC website cover transport research at Programme level, and expand on transport related issues, e.g. in the 'Links', 'Events', 'Glossary' and 'FAQs' sections.

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## 2. Scope of theme

### 2.1 Definition of theme

**Safety** implies freedom from danger. The ultimate level of safety desired by human beings is to be in a situation without any risk of personal accident, injury or material damage. In reality, this is impossible because a widespread set of dangers cannot be avoided completely. So safety generally refers to the level of danger that is socially acceptable in a real-life situation.

In the case of transport safety, risk arises when human beings are exposed to any part of the transport system. Different levels of risk attach to different modes and to different activities. The acceptable level of risk is judged according to the choices made by individuals – as operating staff, drivers or passengers.

The safety performance of a technical system is the measurable consequence of the extent to which it behaves as expected, with and without the interaction of human beings. The objective is to come as close as possible and reasonable to the ideal safety performance.

**Security** is the undertaking to protect human beings, transport means and transport infrastructure against unauthorised and unexpected actions of any kind.

Safety issues concern the means of transport (such as vehicles) and the infrastructure of transport (such as roads), as well as human beings involved directly or indirectly in any transport operation. When the transport safety system, or the infrastructure on which the transport system operates, fails to behave as designed, there are often serious consequences. Such failures also decrease the efficiency of a transport system.

Elements of transport systems have to be tested and validated, concerning their ability to fulfil their functions and the consequences of malfunctions and failures. Safety issues affect operations, requiring ongoing organisation and expenditure to maintain levels of safety. Safety must be described in terms of the risks to different categories of transport users, as well as non-transport users who are in proximity to the transport system or suffer from the consequences of transport. Safety often is measured in terms of the numbers of fatalities, injuries and property damage per km, or the risk of serious injuries in percentage terms, or perceived safety in qualitative terms.

### 2.2 Topics included in theme

**Safety** is a high priority affair within the transport sector across all modes. All Member States provide some guidelines for achieving similar goals:

- Safer transport systems;
- technical standardisation; and
- improved training.

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Major topics to categorise safety aspects are:

- Transport means;
- transport infrastructure; and
- human performance and behaviour (including operation).

The topic involving human beings can be structured in terms of the affected groups of users and non-users.

**Safety of users**

- Drivers; and
- passengers.

**Safety of non-users**

- Other drivers and passengers;
- other modes;
- general public; and
- high risk groups.

Besides standardisation and regulation, improved (safety) procedures, and safer design, the implementation of Intelligent Transport Systems can contribute to overall safety in transport, e.g. through telematics based traffic control and driver assistance. Within the freight transport area, a further safety topic is the transport of hazardous goods.

The above summary of topics describes the principal breakdown of technical, organisational and managerial aspects that come under the theme, whereas Chapter 4 of this document reflects sub-themes according to actual priorities in transport research policy.

## 2.3 Significance of theme

In the year 2002, roughly 50,000 persons were killed and around 2 million injured by car related accidents in the 25 EU Member States alone. The number of injured persons may be even higher, by a factor of two, due to under-reporting of minor incidents. These statistics demonstrate the significance of the theme. [3]

The greatest share of victims is due to the road sector. Road accidents are estimated to cost 45 billion Euros per year – 15 billion Euros for medical care, police involvement and vehicle repairs, and 30 billion Euros in lost economic production due to fatalities or injuries. With 50,000 victims annually, the avoidance of a fatal accident would save 1 million Euros on average. Hence there is an economic justification for taking measures costing up to one million Euros in order to save a single life ("the million Euros rule").

Other modes like air and rail are much safer, but especially in aircraft accidents the chance of survival is very limited. Not only are the human tragedies of great importance, but also the external costs associated with accidents having a significant economic impact.

The external costs of transport related accidents are roughly estimated at 1.5% of gross domestic products. The socio-economic importance of safety for the European economy is obvious. There can be no real transport efficiency without transport safety.

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### 3. Policy context

#### European policy objectives related to theme

The 2001 Transport White Paper [5] has been putting considerable emphasis on "*placing users at the heart of transport policy*", acknowledging that users' prime concern remains road safety which is perceived as not having improved substantially.

While road transport is still the most dangerous among all modes, the resulting costs in terms of human lives are of equal concern.

Eventually, the Maastricht Treaty provided the EU with the legal means to establish a framework and introduce measures in the field of road safety. However, in the absence of proper road safety policies in some Member States, the overall situation is still waiting for a sea change. Though integrated action taking account of human and technical factors and designed to make the trans-European road network a safer network is proposed, the goal of reducing the number of deaths on the road by half remains an ambitious one.

Though responsibility for taking measures to halve the number of road deaths by 2010 will fall chiefly to the national and local authorities, the European Union too needs to contribute to this objective, not just through the exchange of good practice, but also through action at two levels:

- Harmonisation of penalties; and
- promotion of new technologies to improve road safety.

To that respect, the 2006 mid-term review of the Transport White Paper [2] stresses that concerted action to further improve vehicle design and technology, including technologies for accident avoidance and vehicle infrastructure co-operation ("e-Safety"), and road infrastructure and driver behaviour must be taken.

Concrete actions to reach the road safety targets are hence:

- Implementation of an integrated approach to road safety which targets vehicle design and technology, infrastructure and behaviour, including regulation where needed;
- organisation of awareness efforts, such as annual road safety days;
- review and completion of safety rules in all other modes;
- strengthening the functioning of the European safety agencies and gradually extending their safety-related tasks.

The September 2001 terrorist attacks in the USA have spurred several activities related to the security of the European transport system. Legislation and the introduction of quality control schemes have since boosted security levels in aviation and the maritime sector. However, the extension of security rules to land transport, including urban transport and train stations, and intermodal logistics chains is still pending. As a secondary aspect, a level playing field among all modes of transport needs to be ensured where the costs of security measures must not distort competition.

The 2006 mid-term review of the Transport White Paper [2] hence proposes the following actions in the field of security:

- Examination of the functioning and costs of current security rules in air and maritime transport, and proposing adjustments where needed on the basis of experience and in order to avoid distortion of competition; and
- reflection on the need to extend security rules to land and intermodal transport and critical infrastructure.

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## 4. Synthesis of findings from completed projects

Research projects contributing to the theme of **Safety and Security** can be broken down to the following sub-themes:

- Reporting and common guidance;
- assessments;
- transport operation;
- transport infrastructure and vehicles;
- driver, passenger and non-user safety;
- qualifications/behaviour; and
- working conditions.

You may wish to further consult the following Thematic Research Summaries that present research findings which are complementary to those covered in this paper:

- D2.E-2.1 Air Transport;
- D2.E-2.2 Rail Transport;
- D2.E-2.3 Road Transport;
- D2.E-2.4 Waterborne Transport;
- D2.E-3.2 Efficiency;
- D2.E-3.5 User Aspects; and
- D2.E-4.10 Vehicle Technology.

Results from the following **46** projects have been included in this Thematic Research Summary:

Research sub-theme	Contributing projects
Reporting and common guidance	DUMAS; HALTI; S-CBB; VERA2
Assessments	ADVISORS; BOJCAS; CHAMELEON; SAFET; SAMNET; SEAM; SUNFLOWER
Transport operation	ESCUGIBRI; NAUPLIOS; NOPSEURA; S240B; SAMRAIL; SIMTAG; THEMES; The study of relations between telematics and road safety
Transport infrastructure and vehicles	COMPOSIT; FUIRORE; INDICATORS; LI-KUTUS; PODS IN SERVICE; RESPONSE 2; S205Q; The promotion of walking and cycling on village roads
Driver, passenger and non-user safety	212034: Extending CabinAir; DENSE TRAFFIC; ECBOS; GOING-SAFE; IMMORTAL; S101D; Air travel & venous thrombolism; Review of research on school travel; Safety of children in road traffic in connection with child safety equipment in motor vehicles
Qualifications/behaviour	ESSAI; R000238497; S214G; S224J; TRAINER; VIRTUAL; The long-term effects

Research sub-theme	Contributing projects
	of hands free legislation on mobile phone use
Working conditions	LOCOPROL; TALIS; VINTHEC II

Detailed findings and policy implications for individual projects can be found in Annex I. Please refer to acronyms and project titles, respectively, listed above.

## 4.1 Reporting and common guidance

### 4.1.1 Research objectives

In the area of reporting and (common) guidance, the research aims to understand the different reports and protocols for handling accidents within Europe, with a particular focus on the maritime and road sectors. Based on this knowledge, a common framework for unified reporting will be developed. This should provide a basis for deriving specific safety measures, such as a "black box" for ships.

### 4.1.2 Main findings

An Urban Safety Management (USM) framework for the design and assessment of urban safety initiatives, bringing together the existing knowledge on the effects of safety measures with the overall planning and management of urban safety programmes has been devised. The framework considered both interactions between engineers, politicians and the public, and the interactions with other urban initiatives. It produced individual country 'state of the art' reports, along with an overall summary, and launched town studies based on the new framework. Eventually, it paved the way for linking the design framework to a design manual that provides information and guidance on individual measures and their effectiveness.

The issue of cross-border enforcement in the road sector has been addressed by drafting the text for a future Directive, and by devising the eNFORCE concept for an organisational network to facilitate cross-border enforcement. The draft Directive defines which parts of the enforcement chain should be conducted by the Member State in which a violation takes place and which parts need to be transferred to the Member State where a vehicle is registered, and how different agencies responsible for enforcement within each Member State should interact with others at a European level. The eNFORCE concept defined how a cross-border enforcement network could be established in the EU, being responsible for coordinating and managing the 'operation' of cross-border enforcement as well as for monitoring its progress and maintaining the enabling tools as necessary.

A Finnish study discussed the options for conducting automatic speed enforcement through the involvement of police (likely to be constrained by limited resources), municipalities and road authorities. While the classic scheme relies on police issuing conditional fines, administrative payment would allow for more municipal participation. In general, administrative payment was found to decrease the amount of police work more than conditional fines since preliminary investigations are not performed.

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Based on the analysis of the existing chain of information in maritime transport which led to the definition of blocking nodes in the chain and to the identification of all administrative processes that could be avoided, reduced or improved, the functional architecture of a secured cargo black box application which allows tracking and tracing of vessels at all times has been devised. The focus was on a multipurpose business platform suited to acquire, enter, store and secure relevant data. Features of the novel architecture include a reliable transmitter to localise ships and supply information on transport of the goods, identification and certification software to confirm goods delivery, a remote data operations centre, a server platform to distribute and exchange data to end-users, and a security management entity to cover all security aspects of the system, based on modern satellite, Internet and biometric technologies integrated into a data acquisition chain operating automatically and reliably in near real-time.

## 4.2 Assessments

### 4.2.1 Research objectives

In the area of assessment, methods are being analysed and/or developed to assess safety impacts or to provide risk analysis, mostly supported by simulations. This is mainly for the air and waterborne sectors.

### 4.2.2 Main findings

A thematic network on road tunnel safety, drawing on the European Directive 2004/54/EC, has summarised and exploited the outcomes of six individual FP5 research projects. It developed a global, though flexible and non-restrictive approach to tunnel safety incorporating both performance based and prescriptive approaches, and produced Best Practice European Guidelines covering topics such as the current state of practice, accident and incident detection and traffic management, evacuation intervention management, post accident investigation and evaluation, harmonised risk assessment, and integrated tunnel safety management systems.

Starting off with comprehensive assessments of road safety, driver comfort, network efficiency and environmental impacts, an EU study has developed a risk analysis method based on failure mode analyses and applied to behavioural, legal and organisational risks of a set of Advanced Driver Assistance System (ADAS) subsystems such as Adaptive Cruise Control (ACC) on the motorway, intervening Intelligent Speed Adaptation (ISA) in urban areas, a warning type Driver Monitoring System (DMS) for professional drivers, and an integrated ADAS (IAS). This was accompanied by the identification of major legal, institutional, socio-economic, financial, organisational and user acceptance ADAS implementation problems. Finally, strategies to overcome implementation barriers for priority future scenarios for ACC, ISA, DMS and IAS have been devised.

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A research project on the potential to improve car restraint systems, defined a concept of pre-crash applications and implemented them in a demonstrator car. Among the features have been:

- Advanced sensor equipment including compact multi-beam lasers, short range radars, laser scanners and active stereo video sensors for the detection and classification of objects;
- crash prediction algorithms delivering good predictions of the time to impact and of the impact speed and position; and
- tools and methods for an effective evaluation with innovative approaches to test 'crash' or 'quasi-crash' conditions.

A comparative study looking into road safety programmes in Sweden, the United Kingdom and the Netherlands has found generally similar approaches but different ways of implementing policy measures for the three categories of vehicle, road and road user. Room for further improvements in well-established safety fields in all three countries was identified with the potential to benefit from the other countries ensuring collective experience is used effectively. A summary report has listed various nation-wide risk factors which can be used by other countries as indicators of the level of safety that is achievable in relation to different aspects of the road safety problem. The key objective behind all efforts from the safety programmes evaluated is the EU target to substantially reduce road casualties.

In the area of advanced airframe technology, design guidelines for primary composite bolted joints based on analyses and tests, and basic research information on the behaviour of composite bolted joints has been compiled.

Two software tools for automated creation of three-dimensional finite element models of bolted joints were developed, which enable this complex task to be performed quickly and reliably. Progressive damage analysis methods were developed and applied to predict failure of composite bolted joints loaded quasi-statically and in fatigue. Finally a tool for optimisation and damage tolerance studies of complex joints involving large numbers of fasteners was developed and implemented in a multi-processing environment. All the developed tools were validated with an extensive experimental test programme involving a large number of joint parameters and joints of varying complexity. Significant fundamental information was generated from this test programme, leading to several publications in journals and conferences.

The recently submitted Railway Safety Directive has raised implementation issues which have been addressed by a thematic network aiming to build consensus on issues where opinions differ by organising debates and formal discussions on these issues, and by proposing common positions and identifying needs for further action. The network investigated the relationship and dependencies between the Interoperability Directive and the Safety Directives, and set up four working groups comprised of all relevant stakeholders from industry, assessors and notified bodies, infrastructure operators, and railway associations.

In the maritime domain, research has identified hazards and collected related data for three key issues: ballast water management, anti-fouling paints, and quality of fuel and emissions. The regulatory influences affecting the level of risk have been assessed for two case studies, i.e. the German Bight and the Gulf of Naples. Further, a numerical model comprising risk control measures, based on scientific methodologies for the evaluation of environmental risks, and interfaced with a Geographical Information System (GIS) was developed. Also recommendations for decision-making were made, comparing alternative options based on their potential for risk reduction and their cost effectiveness.

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## 4.3 Transport operation

### 4.3.1 Research objectives

In the area of transport operation (active safety), the research aims to specify, develop and demonstrate a range of components and measures.

In the rail sector, the work is mainly concerned with the introduction of the European Rail Traffic Management System (ERTMS).

### 4.3.2 Main findings

An in-depth maritime demonstration project has evaluated new long range surveillance services that could benefit from the implementation of the Galileo satellite services. It involved six different types of vessel in order to effectively evaluate anticipated new services under various in-service scenarios, namely the high-speed ferry Condor Express, the chemical/oil tanker Chassiron, the fishing vessel Villon, and the container carrier Elisa-B, the standard ferry Pride of Bilbao, and the patrol vessel Iris all operating in European water in the Atlantic, the British channel and the Mediterranean Sea, respectively.

The campaign helped specify advanced traffic surveillance services including active surveillance, the extension of the existing Automatic Identification Systems (AIS), additional data on ship, dangerous goods and voyage, and information sharing with harbours and commercial companies. It set up a control centre featuring GNSS-based surveillance and search and rescue (SAR) capabilities linked to maritime surveillance centres, and demonstrated that using a satellite communication system coupled with existing standardised systems for identification like AIS, can provide efficient service for both maritime safety and security applications.

Another study aimed at developing a comprehensive framework of safety assessment and safety management for waterborne transport in order to facilitate adoption of good safety practice in the industry. The framework comprises the following five building blocks:

- The European Union's maritime safety policies;
- the shipping industry stakeholders;
- a common information system (EMIS);
- a so-called 'dedicated network' representing the industry stakeholders; and
- a body representing the European end-users of shipping services.

Implementation of the Rail Safety Directive is an ongoing activity which emphasises surveying and assessing the viability of all its aspects. Current practice confirms that the Safety Directive is suitably formulated, addressing all the important safety issues that an open, vertically separated and horizontally integrated railway of the EU could face, and that common safety criteria are well placed to support the implementation of the concept. A commonly agreed structure for the Safety Management System (SMS) has been proposed comprising of a number of different elements, specifying requirements and guidance for each element. Moreover, the need to test and trial the proposed guidelines, approaches and processes has become clear which would pave the way for a SMS certification standard to be released by the EC and the European Railway Agency. A dedicated risk management approach along the definition of the railway system and related accident scenarios, the introduction of global and component-level safety targets, and the need to establish a safety certification and approval processes were further findings. The outcome would be the proposed Safety Approval Process comprising dedicated assessment methods.

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A rail study has looked into enhancing and sharing knowledge about electrical systems compatibility among all players in the railway community with the aim to improve safety and operational reliability, and with a view to reducing time and costs for the acceptance of new vehicles on existing railway systems.

A research study on various intelligent transport systems has clearly confirmed positive impacts on traffic safety both in urban environments and on highway networks. In particular, positive impacts of collective traffic regulation and information systems are remarkable as these can increase traffic safety of a given section by around 30% because of variable message signs which alert vehicle drivers of required changes to their driving behaviour on the spot.

The effect of vehicles' mean speed on the accident frequency on rural roads in the UK has been investigated which confirmed that e.g. a 10% increase in mean speed results in a 26% increase in the frequency of all injury accidents. Also the impact of road quality on accident frequency became evident with the lowest quality rural roads accounting for higher accident rates than the three better road quality categories.

Road design was in addition found to aggravate accident risk with sharp bends and the density of minor crossroad junctions which can bring accident rates up by one third. Eventually the effect of speed on fatal and serious accidents was greater than its effect on all accidents taken together, though the difference was not statistically significant. A 10% increase in mean speed would be expected to result in a 30% increase in the frequency of fatal/serious accidents.

Passive and active driver support tools have been investigated which proved that a recording Intelligent Speed Adaptation (Recording ISA) system, targeted at companies and communities as a quality control system, can be a good and cost-effective safety measure which may be taken into operation fairly quickly, whereas a Warning ISA is well suited for private cars. Still, mobile speed enforcement is understood to be needed as a complementary measure in a transition phase focusing on those who are not willing to adopt voluntary systems.

A web portal has been set up to help access services specialising in hazardous cargo combined with information about the exact location and status of cargo which enabled authorised emergency services to make more informed choices as to how to deal with accidents such as a chemical spillage, thereby offering significantly improved protection to local communities and the environment.

## 4.4 Transport infrastructure and vehicles

### 4.4.1 Research objectives

In the cluster transport infrastructure (active safety), the research aims to develop, test and demonstrate components, measures and methods to increase active safety, affiliated to the infrastructure elements of a transport system.

Likewise advanced vehicle concepts in the road, air and maritime sector are seen as having a considerable potential to help improve operational reliability, safety and efficiency in transport. Hence there are a considerable number of research aims to strengthen the tech-

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nological basis of industries involved and to broaden the knowledge of concepts, approaches and solutions suitable across several transport modes.

#### 4.4.2 Main findings

A thematic network on fire safety related to the future use of composite materials in the transport sector has found possible areas of collaboration for the aerospace, automotive and rail industries. While their cost structures, production volumes, vehicle design lives, and approaches to safety do clearly differ, the driving factor for wider application of composites in vehicle design would be cost reduction (component costs and operating costs). Here design, simulation and modelling, and manufacturing technologies are considered to be most critical if new materials with improved fire performance and low costs are to succeed in the design and manufacturing process.

Recognising the differences in transport policy objectives and priorities among Member States due to different environmental, population, and socio-economic contexts, a typology of goals and objectives has been refined, establishing relationships between the goals, objectives, and measurements of transport system performance, namely:

- Mobility;
- accessibility;
- optimal use of capacities;
- safety;
- intermodality and interoperability;
- economic viability;
- environment; and
- modal balance.

Consolidating specialist knowledge on energy and fuels, powertrain technologies and complete vehicle aspects an Automotive R&D Technology Roadmap has been elaborated that reflects the views of EUCAR, CONCAWE and other R&D organisations. The three topics discussed in the roadmap have more specifically included conventional, advanced and alternative fuels, state-of-art as well as advanced and alternative systems and after-treatment technologies, and vehicle structural design, safety and noise.

A broad infrastructure scheme in the UK trialled a total of 24 different measures for improving road junctions. Measures were implemented at 240 junctions in 156 locations, some of which consisted of a single junction while others consisted of a corridor of junctions. The measures trialled included raised or coloured junctions, raised crossing areas, danger area illumination, entry and exit zebra crossings, junction countdown markings, coloured pedestrian crossings, reduced exit widths at traffic signals, main road cycle routes, hatched centre lines, wide centre lines, solid centre line and lane lines, junction speed limits, sight screens, and annular cycle lanes.

The findings of the project reinforced the point that when undertaking any changes to the road system, changes measured within a few months of implementation of the scheme may not reflect the long-term situation. Similar caution is required about the measured changes in conflicts which did not always match changes in speed. While it might have been expected that a reduction in speed would lead to a reduction in conflicts this was not always the case. Indeed several low-cost measures, which still could be advanced further, were found to be very effective while other measures trialled would require more substantial development.

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Various factors such as landscape design, vegetation, the built environment, traffic signs, lighting and various other installations and devices were found to be helpful for improving the conditions for walking and cycling on village roads. Along with speed limits, measures to slow traffic include road layout and horizontal deflections, a village garden and the use of speed humps and rumble strips in the roadway. Walking and cycling can be promoted by providing a separate pedestrian and bicycle path or separate pedestrian and cycling areas, by building sidewalks, and by modifying road shoulders.

Finland's National Road Administration has gained positive results from following the safety vision, i.e. to reduce the overall number of persons injured, in producing a development plan for the main road network which focused on the worst road sections where cost-effectiveness can be best achieved. Building on data from a case study it became clear that, by altering the measures within a project to better address road safety, it would be possible to drive down costs and improve the cost-benefit ratio of measures implemented.

In order to speed market uptake of ADAS technology, a human factors centred Code of Practice (CoP) has been proposed that would provide guidance during the design and validation process, promote the safety benefits of new systems and eventually would contribute to reducing accident rates across Europe. A sequence of two follow-on research projects will deal with realisation of this CoP, while the European Union, its Member States together with the automotive industry and the equipment providers demonstrate their responsibility by addressing and finding solutions to the current problems of ADAS market introduction.

The recent introduction of podded propulsors on large ships prompted a full scale monitoring campaign, using extensive measuring equipment on-board four vessels, namely the supply vessel Botnica, the 300m long cruise ship GTV Radiance of the Seas, the 300m long cruise ship GTS Summit, and the new-built Ropax ferry Nils Holgersson employing three different makes of podded propulsion units.

The Joint Industry Project performed with the huge support from ship operators determined loads of podded drives from strain gauge measurements during dedicated sea trials, and by computational methods, developed a pod load calculation model that allows for assessing force components and overall loads. This model found loads during crash stops and during extreme manoeuvres in transit (under full engine power) to be the most extreme, and observed a higher than anticipated impact of slamming and whipping of the ship hull in severe weather conditions on pod body dynamics.

## 4.5 Driver, passenger and non-user safety

### 4.5.1 Research objectives

In the area driver, passenger and non-user safety, research aims to minimise the consequences of accidents for drivers and passengers in their transport means.

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#### 4.5.2 Main findings

Expanding on the work programme of an EU project on the cabin air quality of modern aircraft, a UK study has monitored a BAe146 regional jet and a Boeing 737 narrowbody jet during real flight trials. Air quality parameters monitored involved cabin pressure, air and globe temperature, relative humidity, air speed and various gaseous components such as carbon monoxide, carbon dioxide and nitrogen dioxide which were all found to be within legal limits. In addition, semi volatile organic compounds contained in engine and hydraulic oil were tested for and were found to be only marginally present in the cabin environment.

A research study on air travel and venous thrombolism confirmed the information in previous medical literature on travellers' thrombosis and the causal mechanisms. Seated immobility is a key risk factor independent of the form of travel, with long range flights posing a particular problem. Epidemiological studies further confirmed that travellers' risk of suffering thrombosis sharply increases if other issues with the health condition of a person are present. This finding was also supported by the patho-physiological studies.

A R&D project aimed at optimising the design of a new aircraft seat featuring 3-point shoulder harness, backrest, an energy absorbing device, spreaders, seat pan, front beam, rear and front legs and fittings from the original DYNASAFE prototype. The primary focus was to reduce structural weight, production costs, assembly time and maintenance costs while also integrating styling and comfort aspects, and making the seat suitable for up to 95% of all passengers.

Development of a second generation Forward Looking Radar (FLR) sensor which is essential for implementing Adaptive Speed Control (ASC) systems has been supported by a recent research project which has specified key technical features of FLR sensors, such as:

- A mass production radome withstanding very cold weather by melting the ice and snow that otherwise could accumulate on the aperture thus improving the radar's performance;
- an adapted antenna design appropriate for molding materials;
- reduced unit costs of the multi-beam transceiver system;
- integrated analog and digital signal processing and the communications electronics to reduce the number of cards;
- an improved power supply package;
- a redesigned housing of radar and antenna modules; and
- the development of real-time software featuring highly advanced radar algorithms.

A EU study performed a statistical accident analysis exploiting governmental databases, studying the main injury mechanisms according to crash type derived from detailed accident reconstructions, themselves drawing on component tests and gave recommendations to amend existing regulations and directives, and suggest new regulations, respectively.

A European study on the use of drugs in car driving has confirmed that the proportion of drugged drivers has increased and that mixed consumption of alcohol and drugs has become more frequent. Hence, the strict prosecution of drug use especially in case of alcohol for drivers with high blood alcohol concentration, drivers with combinations of drugs and alcohol, and more than one drug has been proposed. Evidence has been given that the degree of impairment not only differs depending on the medical condition but also varies individually, hinting at individual compensation abilities being crucial factors in the context

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of assessing the fitness to drive. Frequent random breath testing and alcolocks have been identified as promising intervention methods to that respect.

Additionally, this work underlined the need for consistent, reliable, and valid standards for licensing procedures, and found that for high risk categories, such as the use of illegal drugs – with the exception of heroin – zero-tolerance legislation would result in very high costs but hardly any road safety benefits. Eventually the study suggested that therapeutic levels for most medicinal drugs – such as antidepressants, benzodiazepines, codeine, barbiturates and even morphine – may be legally acceptable for the time being.

In a British study, the analysis of road safety interventions for children living in rural areas compared to measures in built-up areas has shown that there were considerably fewer accidents to children in non-built up areas and that the majority of child casualties in non built-up areas were car passengers. For the latter group there was little difference in the accident rate amongst children in the front and rear seats of vehicles, whereas pedestrian and cyclist casualties were much fewer by comparison and there was less exposure to busy roads amongst children in rural areas compared to their urban peers. Moreover, danger spots for child pedestrians and cyclists in non-built up areas are complex junctions, and there is an apparent tendency for children to walk along the carriageway with their backs to the traffic, which is hazardous in high-speed traffic. Also child cyclists appear to be at some risk near driveways. In conclusion, accidents in rural areas tend to be fewer and more scattered making remedial interventions difficult.

A Scottish study reviewed other UK and international research on travel to school published since 1995, demonstrating the following findings:

- The proportion of children in Scotland being driven to school by car is increasing rapidly and reached 20% of journeys to school in 2000 which is having a negative effect on many transport, health, safety, and environmental factors, and is impacting on the wider economy through growing road congestion particularly in the morning peak period;
- although levels of car based travel to school are lower in Scotland than in England, they are growing strongly obviously affected by organisational changes within education, planning policy factors, and social, economic, demographic trends;
- children in the UK are open minded about transport, and are generally aware of the impacts of travel decisions on themselves and their environment, though the speed and convenience of car travel is favoured over walking and cycling;
- perceptions of safety and risk often do not match actual risk, so influencing attitudes to risk is an important element in changing travel behaviour;
- for many school trips in Scotland bus travel is the only practical alternative to car travel and the poor image and travel experiences of children on buses is a major concern which needs to be addressed by improving bus services; and
- social factors have a strong influence on travel to school decisions, and where trade-offs need to be made between transport, health, environmental, and social factors the social issues tend to dominate.

To promote the case of child safety equipment in cars, a Czech study has tested child restraint systems against UN ECE Regulations No. 44 and 16. In order to be able to conduct those tests a set of testing devices was designed and design drafts for two more advanced devices – a catapult for inverse dynamic testing by using the kinetic energy of a flywheel, and a system for monitoring the kinematics – were completed.

During the test campaign of 20 child restraint systems, mainly purchased in supermarkets, a variety of imperfections and even failures to comply with the mentioned ECE regulations was recorded, but also discrepancies in the regulations on passive safety were noted.

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## 4.6 Qualifications/behaviour

### 4.6.1 Research objectives

In the area of qualification/behaviour, research aims to investigate the human role in future transport systems. This includes assessing the necessary skills of staff affected by the introduction of new technologies or procedures, and the provision of tools for qualifying the people involved. An additional item in this context is the development of standards and simulators for training operators/drivers to minimise human errors in operation. A main issue for the road sector is the improvement of driver behaviour, promoting driver awareness and/or improving safety by strict enforcement.

### 4.6.2 Main findings

A UK study on the behaviour of 10 and 11 year old youngsters has revealed changes in travel patterns, most notably a decline in the number of trips around made unaccompanied by adults. In general, girls were found to be more likely than boys to be accompanied and are more likely to walk or use public transport. Children's play experiences were still found to revolve around topics such as the importance of boundaries, the significance of traffic, the need for children to tell parents where they are going, the nature of rules, and the impact of territorial rivalry between different groups of children. However, the areas children are using for play are shrinking with the side effect of most modern youngsters never having to deal with risk and therefore having not had the opportunity to learn to negotiate and to deal with challenges. Apparently because of today's greater media coverage 10 year olds seem to fear abduction or the danger of being run over.

A further finding of the study was that people in their sixties are much more mobile than at any time in the past, but older people also adjust their travel because of perceptions of risk.

Training 'safe place finding', 'roadside search', 'gap timing' and 'perception of intentions' skills in a British study has proven to be very beneficial for three groups of children between 6 and 10 years of age. In particular 8 and 10 year olds improved their capacity to make safe judgements based on better understanding of roadside issues. While 6 year olds showed only small improvements in understanding due to training of 'safe place finding' skills, they – like the two groups of older children – benefited from cumulative training sessions indicating a knock-on effect from previous input. Compared to children from a control group, all trained children made more cautious and more skilful judgements.

Another UK study targeted the safety training for pedestrian skills of 7 to 9 year olds, devising a 'visual timing and gap selection' test and a 'safe place crossing location' test. The 'visual timing and gap selection' test was perceived as being most appropriate since children travelling in calmed areas where speeds are well regulated may be less skilled in coping with fast moving traffic on un-calmed roads. A computer version of this test was developed which was found to be very useful for conducting standardised tests which were benchmarked against road side performance of a smaller group of children. Overall, the PC 'visual timing and gap selection' test detected no difference in skills between those pupils from the calmed area and those from the control area.

The 'safe crossing location' test was scored against the safety of crossing locations selected (safety score) and the reasons given for the choice of crossing location (conceptual score). On the whole, this test did not reveal statistically significant differences between pupils from the calmed area compared to those from the control area, between pupils from

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different school years or of different rated abilities. These findings were confirmed by interviews with parents/guardians who suggested that children from the calmed and control areas were reasonably well matched on factors other than the traffic calming in their street.

An interactive, multimedia training tool, available on CD-ROM, and two modules of a driving simulator (static and semi-dynamic one), paying attention to their cost-effectiveness, have been developed. It provided practical guidelines for the deployment of the proposed curriculum and training tools. The systematic mapping and prioritisation of recognised gaps and inefficiencies in current training schemes, according to a 4-level driving task model, led to the development of approximately 100 detailed scenarios to be taught with the help of the multimedia training tool and/or driving simulators.

The review and analysis of driver training tools from 6 EU countries – 17 multimedia software and 23 driving simulators – allowed specifying and developing low- and medium-cost driving simulators. Subsequently, four low-cost driving simulator prototypes and four medium-cost driving simulator prototypes have been built, and a normative driver behaviour database has been set up to support the new training scheme.

The inclusion of virtual reality (VR) techniques in car driving simulators has been demonstrated in a three-step approach:

- The first system consisting of a projection system with actuated primary controls;
- the second system consisting of a more immersive simulation with a head mounted display presenting the person with a visual representation of his/her movements in the virtual environment by means of motion tracking, capturing and graphical reproduction; and
- the most advanced system aiming to substitute the physical models of the primary controls by generic force effectors able to give the person the sense of reaching and operating real controls.

A Finnish study has investigated the implications of the use of hands-free mobile phones during car journeys following the recent tightening of related national legislation. It confirmed that the overall use of mobile phones while driving has decreased, however, the use of mobiles without a hands-free device has doubled. More importantly, the legislative changes have not helped reduce dangerous traffic situations attributed to the use of mobile phones. Neither have there been any changes in the nature of dangerous situations with the most common mistake remaining the failure to monitor traffic.

While the majority of car users think phone use should only be allowed in the presence of hands-free devices which are viewed as promoting safety, the percentage of drivers who believe mobile phone use should generally, i.e. without hands-free equipment, be allowed has gone up as well.

Situational awareness (SA) and threat management (TM) in aviation have been investigated in depth starting with a literature review adopting the view that SA is an activity or skill rather than the 'mental state' of humans involved. It also showed the close relation of SA to decision-making and group processes, leading to the definition of threat management (TM) avoiding the negatively perceived term crisis management. Major factors related to SA and TM were identified as Controlled Flight Into Terrain (CFIT), approach and landing, and loss of control.

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## 4.7 Working conditions

### 4.7.1 Research objectives

In the area of working conditions, the safety impacts of methods of working are being analysed, and measures to improve the working environment are being developed.

In FP4, increasing the safety of transport systems was a cross-cutting issue and had been structured according to the following inter-related targets:

- To improve the Europe-wide knowledge about safety features and to develop new guidelines, methodologies, requirements and certification procedures;
- to increase active safety;
- to increase passive safety;
- to improve human elements in transport systems and processes.

There have been various programmes within FP4 dealing with these targets. The greatest emphasis was given to this theme in the Transport Programme and in the Telematics Application Programme. In the Telematics Programme, emphasis was given to the development and improvement of telematics applications in transport systems, whilst in the Transport Programme overall safety and security aspects are in the foreground. Of course, there is a strong interaction of technologies and contents between these Programmes.

The general objective of the Transport Programme was to achieve a pre-normative or pre-legislative conclusion for incorporation into the transport sphere, where safety is identified as having a decisive role.

Specific RTD objectives vary within the different areas of transport research:

#### Strategic

In the strategic area, which has an "umbrella-function" within the Transport Programme, safety is integrated in the overall context of sustainable transport systems, as defined in the Transport White Paper [5]: *"Safety in transport is seen both from the point of view of the system users and others who are placed at risk. Social protection and cohesion is to be promoted by the conditions under which the transport systems are provided, in order to pursue social efficiency and equity."*

Therefore, problems that have to be solved and are concerned with safety have been identified as:

- increasing congestion problems
- the high number of traffic accidents.

#### Rail

A major focus was the development and implementation of components providing compatibility of train control systems (ERTMS), including:

- on-board safety systems (referring to fail-safe function);
- safe spot and semi-continuous transmission systems;
- safe continuous transmission over non safe links.

There are also investigations about safety in operation, concerning:

- reliability and maintainability;
- safety aspects of human management.

Safety aspects are also included in the development of interoperability.

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### **Air**

To ensure and improve safety while coping with increasing air transport demand was a main topic in the air transport research area, which is divided into:

- Air Traffic Management (ATM), to improve efficiency in air transport;
- air transport safety and environment, to introduce new technologies and operational procedures for enhancing safety with respect to:
  - passenger survivability,
  - flight operations,
  - external hazards,
  - environment;
- airports.

### **Urban**

In the urban area, the objective was to shift modal split towards safer transport modes, e.g. from individual to collective transport and to improve safety by transport demand management and strategy development. A second point is to improve traffic safety in general in the urban area, e.g. through the use of parking management, pedestrian crossings, pavements, and means of reducing temporary dangers caused by construction sites.

### **Waterborne**

Safety-related objectives in the waterborne transport research area have been:

- To raise the competitiveness of EU shipping while maintaining a high safety level;
- to improve information systems, human machine interfaces and efficiency of inland navigation;
- to increase safety, efficiency and environmental protection in maritime operation, including
  - vessel operation and the transport of dangerous goods,
  - methodology of safety in maritime operations,
  - integrated ship control systems,
  - traffic management,
  - ports;
- to investigate the safety-related behaviour of human resources.

### **Road**

Improving road safety was one of the key issues in the CTP. Within this research area, four main factors have been identified to achieve progress in improving safety:

- Road and intersection design;
- vehicle design (to reduce injuries of vehicle passengers as well as vulnerable road users);
- traffic signing and control;
- individual and collective driver behaviour (e.g. appropriate speed, no alcohol and drugs, and the wearing of seat belts).

## **4.7.2 Main findings**

In the rail sector an important development has been a new multi-technology satellite based train location system combining fail-safe on-board track mapping and interlocking. Also a new control and command system including a token-based simplified interlocking system and positive train detection has been devised, and the interoperability with ERTMS has been secured with the integration of satellite based odometry in the ERTMS/ETCS onboard architecture. Finally, an end user interface and a fail safe operator terminal have been specified.

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Advancing the whole array of information services available in the aircraft cockpit, a project has conceived a concept of global, interoperable and dynamic availability of services such as traffic information service in contract mode, innovative weather service, and applications for increased pilot situational awareness. Technical features include the creation of a federated architecture for dynamic and component based service infrastructures, and the integration of a flight deck browser. The entire concept has been demonstrated and verified using a cockpit simulator with the enhanced capabilities, linked to two application servers.

To understand the implications of shared Situational Awareness (sSA) in aircraft operation a study has investigated critical Crew Resource Management (CRM) skills. It was found that one of the promising new features, Eye Point of Gaze (EPOG) data collection, will require further improvements as part of equipment specifications and ergonomic guidelines. Scenarios of a typical airline service from Amsterdam to London (on a Fokker 100 jet aircraft) have been developed for use in flight simulators which led to running a full-scale simulator experiment providing insight into shared Situational Awareness and serving as a 'proof of concept' demonstration of sSA measurement in realistic operational settings.

#### 4.8 Research gaps

Security has not been a high profile objective of the Fourth and Fifth Framework Programme, though the September 2001 terrorist attacks in the USA changed the research agenda overnight. Given this timeline the lack of research findings related to the sub-theme of **Security** as reported in this paper is logical. However, it must be noted that Security has indeed become a major topic of FP6 and FP7 addressing a couple of specific objectives mainly in the air and maritime sector, such as:

- Tightening air security, aiming at the prevention of illegal acts in the field of aviation;
- introducing tougher controls at airports, and improving training and co-ordination of the staff responsible for security;
- elaborating international standards on the reinforcement of cockpit doors for commercial aircraft;
- enhancing ship and port facility security, i.e. controls on ships prior to and on entry to a port; and
- allocating new responsibilities for maritime security to the European Maritime Safety Agency and the Committee on Safe Seas and the Prevention of Pollution from Ships.

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# Annex I: Contributing projects

Preface This Annex lists all the projects (European and national) which belong to the **Safety and Security** theme, in alphabetical order of project acronym (for projects with acronyms), followed by projects without acronyms in alphabetical order of the project's name in English. Where results have been made available to the EXTR@Web project, a summary of key findings and policy implications relevant to this theme are given.

In 'Origin' column, use country designators as follows:

Austria – AT; Belgium – BE; Bulgaria – BG; Cyprus – CY; Czech Republic – CZ; Denmark – DK; Estonia – EE; European – EU; Finland – FI; France – FR; Germany – DE; Greece – GR; Hungary – HU; Iceland – IS; International – INT; Ireland – IE; Italy – IT; Latvia – LV; Lithuania – LT; Luxembourg – LU; Malta – MT; Netherlands – NL; Norway – NO; Poland – PL; Portugal – PT; Romania – RO; Slovakia – SK; Slovenia – SI; Spain – ES; Sweden – SE; Switzerland – CH; United Kingdom – UK; Other countries – Oth

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
<u>Key findings / Policy implications / Project website or contact</u>			
<b>212034: Extending CabinAir</b>	Extending CabinAir measurements to include older aircraft types utilised in high volume short haul operation	UK	Driver, passenger and non-user safety
<u>Key findings</u> The results of monitoring the following air quality parameters within the cabin were as follows: <ul style="list-style-type: none"> <li>• Cabin pressure – the average cabin altitude in cruise never exceeded the regulatory ceiling of 8000 ft. For periods during climb and descent, the rates of altitude increase and decrease did exceed the recommended values;</li> <li>• air and globe temperature – mean values usually below 26°C;</li> <li>• relative humidity – during cruise, mean RH within the BAe146 was 12.7%, and 20.0% for the B737;</li> <li>• air speed – at head height were typically below 0.2 m.s-1;</li> <li>• carbon monoxide – all values were of a similar level or less than those found in studies of air quality in homes in England. Mean levels somewhat higher on the ground than during cruise;</li> <li>• carbon dioxide – mean levels were typically between 700 and 2000 ppm during cruise, and did not exceed regulatory requirements;</li> <li>• nitrogen dioxide – all levels were below the WHO recommendations, as well as below those values found within a sample of kitchens in gas cooking homes in England. Levels of nitrogen dioxide were higher whilst on the ground than during cruise;</li> <li>• volatile organic compounds – all measured values are well within the available guidance on air quality for internal environments. Typically, the highest concentrations were found for aircraft on the ground;</li> <li>• carbonyls (e.g. formaldehyde, acetaldehyde, acetone, and acrolein) – low levels of all compounds, and well below World Health Organisation (WHO) limits, and HSE guidelines;</li> <li>• semi volatile organic compounds – For the BAe 146, analysis focused on testing for Exxon 2380 (used for engine and APU oil) and Skydrol (used for hydraulic oil). For the Boeing 737 flights, analysis focused on Aeroshell Turbine oil 560 (used for engine oil) and Skydrol. Very low (if any) indication of these oils present in the cabin environment of those monitored flights;</li> <li>• bacteria and fungi – higher levels whilst the aircraft is on the ground than during cruise;</li> <li>• surface dust, dust mite allergens and cat allergens – very low levels found on board; and</li> <li>• ultrafine particles – elevated levels were always found during the ground phases – levels in cruise are several orders of magnitude lower.</li> </ul>			

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
<b>Key findings / Policy implications / Project website or contact</b>			
<u>Policy implications</u> No policy implications directly relevant to this theme.			
<u>Project website</u> <a href="http://www.rmd.dft.gov.uk/project.asp?intProjectID=11455">www.rmd.dft.gov.uk/project.asp?intProjectID=11455</a>			
<b>30-ZONE</b>	30 km/h zones in city centres	NO	
<u>Project contact</u> <a href="mailto:guro.berge@vegvesen.no">guro.berge@vegvesen.no</a>			
<b>Accident Costs</b>	Costs of road and rail traffic accidents in Switzerland during 1998	CH	
<u>Project website</u> <a href="http://www.aramis-research.ch/d/2974.html">www.aramis-research.ch/d/2974.html</a>			
<b>ACIDS</b>	Air conformal fibre optic ice detection system	EU	
<u>Project contact</u> <a href="mailto:aikiades@iesl.forth.gr">aikiades@iesl.forth.gr</a>			
<b>ADS-MEDUP</b>	ADS Mediterranean upgrade programme	EU	
<u>Project website</u> <a href="http://www.adsmedup.it">www.adsmedup.it</a>			
<b>ADTURBII</b>	Aeroelastic design of turbine blades II	EU	
<u>Project contact</u> <a href="mailto:robert.elliott@rolls-royce.com">robert.elliott@rolls-royce.com</a>			
<b>ADVANCE</b>	Advance virtual analysis of crash environments for passenger safety simulations	EU	
<u>Project contact</u> <a href="mailto:francis@mecalog.fr">francis@mecalog.fr</a>			
<b>ADVISORS</b>	Action for advanced drivers assistance and vehicle control system implementation, standardisation, optimum use of the road network and safety	EU	Assessments
<u>Key findings</u> The project's main achievements have been: <ul style="list-style-type: none"> <li>• The development of an integrated and common Advanced Driver Assistance System (ADAS) assessment methodology including the description of a comprehensive ADAS assessment approach, drawing on relevant criteria, involving various types of measurements, and setting up an evaluation checklist to</li> </ul>			

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
<p>allow design and evaluation teams to rapidly check their systems;</p> <ul style="list-style-type: none"> <li>assessments of road safety, driver comfort, network efficiency and environmental impacts;</li> <li>a multicriteria analysis on a set of 4 ADAS types revealing a ranking of ADAS for which relevant criteria were considered most favourable;</li> <li>development of a risk analysis method based on failure mode analyses and applied to behavioural, legal and organisational risks of a set of ADAS subsystems;</li> <li>identification of a set of multidimensional future priority scenarios for ADAS developments, such as Adaptive Cruise Control (ACC) on the motorway, intervening Intelligent Speed Adaptation (ISA) in urban areas, a warning type Driver Monitoring System (DMS) for professional drivers, and an integrated ADAS (IAS);</li> <li>the identification of major legal, institutional, socio-economic, financial, organizational and user acceptance ADAS implementation problems; and</li> <li>the formulation of implementation strategies to overcome implementation barriers for priority future scenarios for ACC, ISA, DMS and IAS.</li> </ul> <p><u>Policy implications</u></p> <p>The common assessment methodology targeted at ADAS technology development is, due to its comprehensiveness, considered transferable to other fields of innovative technologies. One of its key elements is the review and listing of pilot testing methods and the overview of measurement method which proved particularly useful for researchers who need to assess operator behaviour.</p> <p>Overall, an integrated ADAS is still a thing of the future and highlights the need for further research and development with a particular focus on safety implications of the more complex systems.</p> <p><u>Project website</u></p> <p><a href="http://www.tbm.tudelft.nl/webstaf/marionw/#ADVISORS">www.tbm.tudelft.nl/webstaf/marionw/#ADVISORS</a> Project</p>			
<b>AEROSAFE</b>	Increase of flight safety by development of a new security system for fuel tanks	EU	
<u>Project website (or contact)</u>			
none			
<b>AFAS</b>	Aircraft in the future air traffic management system	EU	
<u>Project website (or contact)</u>			
none			
<b>AIDER</b>	Accident information and driver emergency rescue	EU	
<u>Project website</u>			
<a href="http://www.crfproject-eu.org/frame.asp?site=aider">www.crfproject-eu.org/frame.asp?site=aider</a>			
<b>AJOKYKY</b>	Current state and problems of older driver's driving fitness evaluations	FI	
<u>Project contact</u>			
<a href="mailto:esko.keskinen@utu.fi">esko.keskinen@utu.fi</a>			

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<b>ALJOIN</b>	Crashworthiness of joints in aluminium rail vehicles	EU	
<u>Project contact</u> <a href="mailto:andrea.barbagelata@dappolonia.it">andrea.barbagelata@dappolonia.it</a>			
<b>ARCOS</b>	Research actions for safe driving (PROJECT CLUSTER)	FR	
<u>Project website</u> <a href="http://www.arcos2004.com">www.arcos2004.com</a>			
<b>ARMADA</b>	Using multi-sensor radar to improve the detection of incidents and better analyse traffic	FR	
<u>Project website (or contact)</u> none			
<b>ARTEMIS</b>	Rail control-command system	INT	
<u>Project contact</u> <a href="mailto:marion.berbineau@inrets.fr">marion.berbineau@inrets.fr</a>			
<b>ARTS</b>	Advanced road telematics in the South West	EU	
<u>Project website</u> <a href="http://www.arts-mip.com">www.arts-mip.com</a>			
<b>ASCS</b>	Airport surface control system	EU	
<u>Project website (or contact)</u> none			
<b>ASTER</b>	Aviation safety targets for effective regulation	EU	
<u>Project website</u> <a href="http://www.eurocontrol.int/eatmp/ardep-arda/servlets/SVLT014?Proj=CEC096">www.eurocontrol.int/eatmp/ardep-arda/servlets/SVLT014?Proj=CEC096</a>			
<b>ASVV</b>	Traffic provisions in built up areas	NL	
<u>Project website</u> <a href="http://www.crow.nl/asvv">www.crow.nl/asvv</a>			
<b>ATOMOS IV</b>	Advanced technology to optimize maritime operational safety – intelligent vessel	EU	
<u>Project website</u> <a href="http://www.control.auc.dk/atomos/">www.control.auc.dk/atomos/</a>			

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<b>AWAKE</b>	System for effective assessment of driver vigilance and warning according to traffic risk estimation	EU	
<u>Project website</u> <a href="http://www.awake-eu.org">www.awake-eu.org</a>			
<b>BARINTEL</b>	Intelligent roads	ES	
<u>Project website (or contact)</u> none			
<b>BOJCAS</b>	Bolted joints in composite aircraft structures	EU	Assessments
<u>Key findings</u> The main results from BOJCAS were: <ul style="list-style-type: none"> <li>• Detailed design methods for final design of critical joints; and</li> <li>• design guidelines for primary composite bolted joints based on analyses and tests.</li> </ul> For instance: Two different global design methods representing the fastener/hole interaction in a simple yet physically realistic way were developed. Global-local coupling methods were implemented into three different FE codes used in the industry. Two software tools for automated creation of three-dimensional finite element models of bolted joints were developed, which enable this complex task to be performed quickly and reliably. Progressive damage analysis methods were developed and applied to predict failure of composite bolted joints loaded quasi-statically and in fatigue. Finally a tool for optimisation and damage tolerance studies of complex joints involving large numbers of fasteners was developed and implemented in a multi-processing environment. All the developed tools were validated with an extensive experimental test programme involving a large number of joint parameters and joints of varying complexity.			
<u>Policy implications</u> BOJCAS generated a significant amount of new tools for design and analysis of composite bolted joints, which are expected to be assimilated into the design process in the European aerospace industry. It is recommended that the tools be developed further in future research actions. BOJCAS also generated much fundamental information on composite bolted joint behaviour and raised issues concerning testing standards and design processes that need further investigation.			
<u>Project contact</u> <a href="mailto:michael.mccarthy@ul.ie">michael.mccarthy@ul.ie</a>			
<b>CARMINAT</b>	Carminat system	EU	
<u>Project website (or contact)</u> none			
<b>CARTALK 2000</b>	Safe and comfortable driving based upon inter-vehicle communication	EU	
<u>Project website</u> <a href="http://www.cartalk2000.net">www.cartalk2000.net</a>			



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<b>CAST</b>	Crashworthiness of helicopter on water: design of structures using advanced simulation tools	EU	
<u>Project contact</u> <a href="mailto:v.rade@cranfield.ac.uk">v.rade@cranfield.ac.uk</a>			
<b>CENTRICO</b>	Central European region transport telematics implementation project	EU	
<u>Project website</u> <a href="http://www.centrico.org">www.centrico.org</a>			
<b>CHAMELEON</b>	Pre-crash application all around the vehicle	EU	Assessments
<u>Key findings</u>			
<p>The CHAMELEON project, starting from basic ideas, has:</p> <ul style="list-style-type: none"> <li>• Defined a concept for the pre-crash application and implemented the system in a demonstrator car;</li> <li>• identified a functional road map to guide future developments;</li> <li>• developed and tested prototypes of advanced sensor solutions for the pre-crash:                             <ul style="list-style-type: none"> <li>• a compact multi-beam laser with high update rate (100 Hz),</li> <li>• a short range radar at 24 GHz, covering a range down to 0.5m,</li> <li>• a 77 GHz radar complementary to the ACC sensor,</li> <li>• a laser scanner with wide field of view and precise distance measurement,</li> <li>• an active stereo video sensor for the detection and classification of objects;</li> </ul> </li> <li>• developed and tested crash prediction algorithms, delivering good predictions of the time to impact and of the impact speed and position;</li> <li>• shown the feasibility of the pre-crash concept; the application is still in a preliminary phase of development, considering the present performance of sensor technologies; gaps to the realisation have been defined by suitable testing and analysis;</li> <li>• defined tools and methods for an effective evaluation with innovative approaches to test 'crash' or 'quasi-crash' conditions; and</li> <li>• confirmed the potential impact of pre-crash by bio-mechanical simulations and expert evaluations: the availability of pre-crash information makes possible the development of restraint systems more effective than the state of the art.</li> </ul>			
<u>Policy implications</u>			
<p>Besides the pre-crash function, several Chameleon subsystems and tools will be available, as enablers for a series of products, especially the sensor technologies, the SW modules, the testing methods. Even if the final control function will concern the passive safety equipment, the focal point remains the sensorial technology. In this frame, considering the expected trends for Driver Assistance applications, exploitation will be based on the following approaches:</p> <ul style="list-style-type: none"> <li>• Products will be presented with a strong 'safety related' content, changing somehow the from previous ADAS commercial applications more focused on comfort;</li> <li>• specific features of the different sensor technologies, conceived for accurate and fast detection at short range, will be exploited; and</li> <li>• the multifunctional applications already investigated in the project will be further explored and proposed, due to the remaining high costs of the sensor devices.</li> </ul> <p>Car manufacturers are continuing their efforts to design and produce safer cars, and will make use of pro-</p>			



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<p>ject results concerning especially the system definition, the sensor characteristics, the testing procedures. The research institutes are using the methods and technologies developed in Chameleon for the realisation of new vehicle demonstrators and for projects in the area of preventive safety.</p> <p><u>Project website</u> <a href="http://www.crfproject-eu.org">www.crfproject-eu.org</a></p>			
<b>CHILD</b>	Advanced methods for improved child safety	EU	
<p><u>Project contact</u> <a href="mailto:francoise.cassan@lab-france.com">francoise.cassan@lab-france.com</a></p>			
<b>CLARESCO</b>	Car & truck lighting analysis: ratings and evaluations for safety & comfort objectives	EU	
<p><u>Project website</u> <a href="http://www.eu-claresco.net">www.eu-claresco.net</a></p>			
<b>COMPATIBILITY</b>	Improvement of crash compatibility between cars	EU	
<p><u>Project contact</u> Tel: +49 2204 43620</p>			
<b>COMPOSIT</b>	The Future Use of Composites in Transport	EU	Transport infrastructure and vehicles
<p><u>Key findings</u></p> <p>Although there are clear differences between the aerospace, automotive and rail industries, particularly in terms of their cost structures, production volumes, vehicle design lives, approaches to safety, and other specific factors, the COMPOSIT thematic network found that the three industries could sensibly and usefully collaborate in the following area:</p> <ul style="list-style-type: none"> <li>• Fire safety – specifically new materials with improved fire performance, and low cost, meaningful fire test protocols. Of the areas identified above, design, simulation and modelling and manufacturing technologies are considered to be the most critical. In terms of the drivers for the increased future use of composite materials in the transport sectors, the most important is cost reduction. This includes both component costs (including material costs, manufacturing costs and development costs) and operating costs (including energy consumption). This further emphasises the necessity for more affordable composite design and manufacturing technologies.</li> </ul> <p><u>Policy implications</u></p> <p>For the longer term, the expected achievements of COMPOSIT can be summarised as follows:</p> <ul style="list-style-type: none"> <li>• New and improved concepts for composite material transport applications; and</li> <li>• increased added value for composite material research activities through the cross-fertilisation of knowledge between the transport sectors and the subsequent reduction in the duplication of effort.</li> </ul> <p><u>Project website</u> <a href="http://www.compositn.net">www.compositn.net</a></p>			

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<b>CORVETTE MIP</b>	Co-ordination and validation of the deployment of advanced transport telematics in the Alpine area	EU	
<u>Project website</u> <a href="http://www.eu-corvette.com">www.eu-corvette.com</a>			
<b>COST 352</b>	Influence of modern in-vehicle information systems on road safety requirements	EU	
<u>Project website (or contact)</u> none			
<b>CP/34</b>	Innovative spatial techniques for the analysis of traffic safety	BE	
<u>Project website</u> <a href="http://www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=CP/34">www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=CP/34</a>			
<b>CP/38</b>	An economic analysis of transport safety: theory and applications	BE	
<u>Project website</u> <a href="http://www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=CP/38">www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=CP/38</a>			
<b>CP/39 – OPTIMA</b>	Optimisation of road accidents statistics and use in urban safety management	BE	
<u>Project website</u> <a href="http://www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=CP/39">www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=CP/39</a>			
<b>CRAHVI</b>	Crashworthiness of aircraft for high velocity impact	EU	
<u>Project website</u> <a href="http://www.crahvi.net">www.crahvi.net</a>			
<b>CRASH COASTER</b>	Crashworthy side structures for improved collision damage survivability of coasters and medium sized RoRo cargo ships	EU	
<u>Project contact</u> <a href="mailto:a.vredevelde@bouw.tno.nl">a.vredevelde@bouw.tno.nl</a>			
<b>C-WAKE</b>	Wake vortex characterization and control	EU	
<u>Project contact</u> <a href="mailto:geza.schrauf@airbus.com">geza.schrauf@airbus.com</a>			

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<b>DENSE TRAFFIC</b>	A Forward Looking Radar Sensor for Adaptive Cruise Control with Stop & Go and Cut In Situations Capabilities implemented using MMIC technologies	EU	Driver, passenger and non-user safety
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Key findings

The partners have been able to develop technologies that not only can improve their business but also that have, synergistically contributed to the well being of the population at large and specifically the reduction of traffic accidents and the human lives and property losses due to them. But still this very lofty statement can be brought down to earth and we shall try to sum up those technical points that are the building blocks of this construction:

- A mass production radome has been developed of molded Ultem with 10% glass fibers. Metallic stripes are printed in the interior surface of the radome which functions as polarization filter. The conductive stripes have been replaced by resistive material and a radome heater has successfully implemented which improves the FLR performance in very cold weather by melting the ice and snow that otherwise could accumulate on the aperture.
- The original ERA design of the antenna was transformed to one appropriate for molding materials.
- The initial transceiver design allowed the demonstration of a multi-beam system. It has an impressive performance and 20 modules have been fabricated which have been used to fabricate 20 FLR's. The greatest drawback of this transceiver is its cost. It is therefore necessary to find a solution to this problem which otherwise is a non-starter.
- The analog and digital signal processing and the communications electronics have been integrated three times to reduce the number of cards.
- The power supply plays an important role in a radar. The signals are so faint and the amplification so large, that any noise contributed by the power supply leaks into the radar signal and produces all kind of spurious.
- The housing has been designed so that the front of the radar containing the RF module and the antennas does not change with the successive steps of size reduction. Only the back of the housing has been reduced each time the number of cards was reduced.
- The Real Time software has been developed more or less along the standards of Software Development.
- The radar algorithms developed for this FLR are of the most advanced that can be found even in military applications.
- DENSE TRAFFIC has reached its conclusion, but the development of RoadEye's FLR continues. It is believed that the technologies developed during DENSE TRAFFIC are going to give fruits in due time. It is clear that the market growth is much slower than predicted and therefore the numbers of FLR's sold per year do not warrant further investments.

Policy implications

The DENSE TRAFFIC proposal addresses the policy of the EU to develop Information Society technologies in a way that they will impact on the everyday lives of all citizens to raise their expectations for a better quality of life. In this case it is for safer driving conditions and a reduction of collisions by incorporating innovative technology into vehicles that will enable them to recognize the problem, warn the driver and automatically affect the vehicle's control system to avoid the collision completely or, at least, minimize the damage resulting from it. The system involves the integration of sensors and software with the vehicle's control system as well as testing the system to prove reliability. The technologies involved require the expertise of companies specializing in a variety of different areas situated in various European countries. An important consideration for including companies from different countries is the growing awareness of the

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<p>need for vehicle standardization across Europe – vehicles are often assembled from parts manufactured in other countries and manufacturers of vehicles have assembly plants in countries often dictated by economic considerations. For this reason new systems need to meet standards of all European countries and standards are becoming unified. In April 1997, a new EU Communication establishing a programme for the period 1997-2001 was adopted. The Communication takes stock of road safety matters in the European Union for the years 1993-1996. Among other trends it noted that figures vary widely from one country to another and there was an explosion in the number of cars in certain Member States that has gone hand in hand with a worsening of the situation in those countries. The Commission noted that there is an economic justification for taking measures costing up to one million Euro in order to save a single life ("the million Euro rule"). Using this approach, the Commission identifies several courses of action including the use of collision warning and cruise control systems. A reliable cruise control system, such as DENSE TRAFFIC, will allow more vehicles to occupy the same area of roadway with greater safety and will reduce the strain of driving in dense traffic conditions.</p> <p><u>Project website</u> <a href="http://www.densetraffic.org">www.densetraffic.org</a></p>			
<b>DESCARTES</b>	Decision support for integrated aircraft and crew recovery on the day of operations	EU	
<p><u>Project website</u> <a href="http://www.carmen.se/research_development/descartes.htm">www.carmen.se/research_development/descartes.htm</a></p>			
<b>DISBOND</b>	Preventing over 700 deaths annually from acute silicosis by eliminating silica sand blasting as a paint stripping method	EU	
<p><u>Project website (or contact)</u> none</p>			
<b>DUMAS</b>	Developing urban management and safety	EU	Reporting and common guidance
<p><u>Key findings</u></p> <p>DUMAS has:</p> <ul style="list-style-type: none"> <li>• Brought up a Urban Safety Management (USM) framework for the design and assessment of urban safety initiatives, bringing together the existing knowledge on the affects of safety measures with the overall planning and management of urban safety programmes;</li> <li>• considered both interactions between engineers, politicians and the public, and the interactions with other urban initiatives;</li> <li>• produced individual country 'state of the art' reports, along with an overall summary;</li> <li>• launched town studies based on the new framework; and</li> <li>• paved the way for the linkage of the design framework to a design manual that provides information and guidance on individual measures and their effectiveness.</li> </ul> <p><u>Policy implications</u></p> <p>Urban Safety Management (USM) is a complex, highly political and costly endeavour. For the past decade or so, the non-technical factors have usually emerged as the main barriers to implementation of USM</p>			

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<p>schemes. USM is an area-wide approach that integrates all the disciplines found in town planning and management. These include traffic management, enforcement, education, public transport, town planning, etc, as well as road safety. Hence, the framework developed in DUMAS is hoped to be the impetus for more USM initiatives, underlining the importance of road safety in Europe and individual countries.</p> <p><u>Project website</u> <a href="http://www.trl.co.uk/dumas/">www.trl.co.uk/dumas/</a></p>			
<b>ECBOS</b>	Enhanced coach and bus occupant safety	EU	Driver, passenger and non-user safety
<u>Key findings</u>			
<p>ECBOS has:</p> <ul style="list-style-type: none"> <li>• Performed a statistical accident analysis exploiting governmental databases;</li> <li>• studied the main injury mechanisms according to crash type derived from detailed accident reconstructions, themselves drawing on component tests; and</li> <li>• gave recommendations to amend existing regulations and directives, and suggest new regulations, respectively.</li> </ul>			
<u>Policy implications</u>			
<p>One of the key outputs of ECBOS have been detailed proposals for amending ECE regulations and related EC Directives on buses and coaches, in particular for vehicles with more than 5,000 kg of gross weight (categories M2 and M3). In a subsequent step specific suggestions for new bus and coach safety regulations have been made, featuring:</p> <ul style="list-style-type: none"> <li>• Recommendations on rollover accidents, such as                             <ul style="list-style-type: none"> <li>• mandatory use of seat belts,</li> <li>• consideration of the mass of occupants for calculation and testing,</li> <li>• inclusion of M2 buses in rollover tests,</li> <li>• child restraint systems,</li> <li>• abandoning of pendulum tests;</li> </ul> </li> <li>• recommendations on frontal/rear impacts, such as                             <ul style="list-style-type: none"> <li>• use of a 3-point belt system,</li> <li>• combination tests for seats,</li> <li>• rigid platforms for seat testing,</li> <li>• crash pulse for M2 vehicles,</li> <li>• child restraint systems; and</li> </ul> </li> <li>• recommendations on new draft regulations, such as                             <ul style="list-style-type: none"> <li>• research for driver/co-driver frontal impact safety,</li> <li>• compatibility between bus/coach and other vehicles,</li> <li>• double-deck coaches (superstructure resistance),</li> <li>• harmonised accident databases,</li> <li>• guidelines for using numerical techniques,</li> <li>• partial ejection out of the bus (side window/windscreen) should be avoided,</li> <li>• contact load with side (window or structure) should be as low as possible,</li> <li>• development of a rollover dummy is necessary to predict injury criteria,</li> <li>• further research on driver's impact on accident avoidance,</li> <li>• further research on possibilities for general rating of the passive safety.</li> </ul> </li> </ul>			
<u>Project website</u> <a href="http://www.dsd.at/ecbos.htm">www.dsd.at/ecbos.htm</a>			

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<b>EC-DOCK</b>	Easy, controlled docking	EU	
<u>Project contact</u> <a href="mailto:roryd@bmtech.co.uk">roryd@bmtech.co.uk</a>			
<b>ELÄMÄNTAPA</b>	The relationship between life-style types, life values, traffic safety attitudes, behaviours and accidents among young drivers	FI	
<u>Project contact</u> <a href="mailto:heikki.summala@helsinki.fi">heikki.summala@helsinki.fi</a>			
<b>EM-HAZ</b>	Methods and technologies for aircraft safety and protection against electromagnetic hazards	EU	
<u>Project website (or contact)</u> none			
<b>ENSILUMI</b>	First snow - What do the drivers learn while adapting themselves to difficult conditions?	FI	
<u>Project contact</u> <a href="mailto:valmixa@kolumbus.fi">valmixa@kolumbus.fi</a>			
<b>ERRORPRED (DEF)</b>	Development of error prediction techniques for the design and certification of aircraft flight decks	EU	
<u>Project website (or contact)</u> none			
<b>ESACS</b>	Enhanced safety assessment for complex systems	EU	
<u>Project contact</u> <a href="mailto:acavallo@aeronautica.alenia.it">acavallo@aeronautica.alenia.it</a>			
<b>ESCAPE</b>	Enhanced safety coming from appropriate police enforcement	EU	
<u>Project contact</u> <a href="mailto:veli-pekka.kallberg@vtt.fi">veli-pekka.kallberg@vtt.fi</a>			

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<b>ESCUGIBRI</b>	ESC UserGroup and InfoBank to support Rail Interoperability	EU	Transport operation
<p><u>Key findings</u></p> <p>To enhance and share the knowledge about electrical systems compatibility among all players in the railway community, with the aim to improve safety and operational reliability, and to reduce time and cost for the acceptance of new vehicles on existing railway systems.</p> <p><u>Policy implications</u></p> <p>none</p> <p><u>Project contact</u></p> <p><a href="mailto:stuart.shirran@se.transport.bombardier.com">stuart.shirran@se.transport.bombardier.com</a></p>			
<b>ESDDTELSYS</b>	Expert systems of diagnostics for damage in transport and telecommunication systems	BG	
<p><u>Project contact</u></p> <p><a href="mailto:chvertner@vtu.acad.bg">chvertner@vtu.acad.bg</a></p>			
<b>ESSAI</b>	Enhanced safety through situation awareness integration in training	EU	Qualifications/behaviour
<p><u>Key findings</u></p> <p>ESSAI has investigated the topics of situation awareness (SA) and threat management (TM) in great depth which led to a set of particular findings:</p> <ul style="list-style-type: none"> <li>• A literature review provided detailed orientation on situation awareness and threat management                             <ul style="list-style-type: none"> <li>• adopting the view that SA is an activity or skill rather than the 'mental state' of humans involved,</li> <li>• showing the close relation of SA to decision-making and group processes,</li> <li>• leading to the definition of threat management (TA) avoiding the negatively perceived term crisis management,</li> <li>• evaluating TA in other domains, namely medicine, fire-fighting, nuclear power industry, offshore oil industry, military aviation, and naval operations,</li> <li>• investigating the state-of-the-art in aviation training schemes as initiated by airlines and aviation authorities; and</li> </ul> </li> <li>• factors affecting SA and TM were identified, focusing on Controlled Flight Into Terrain (CFIT), approach and landing, and loss of control by:                             <ul style="list-style-type: none"> <li>• screening accident and incident data interpreted by aviation experts, through interviews with flight crew and the evaluation of flight data recordings,</li> <li>• SA and TM strategies for the flight deck, based on a novel Factors Affecting Situation Awareness (FASA) scale which comprises attention and information management, cognitive efficiency, automated procedures, and inter-human dynamics.</li> </ul> </li> </ul> <p><u>Policy implications</u></p> <p>The ESSAI experiment was designed to find out whether the exposure to the advanced training tools can significantly minimise pilots' loss of situation awareness and improve their effectiveness of threat management strategies. The project's results provided sufficient empirical evidence as to the effectiveness of the ESSAI training method for enhancing the quantity and quality of pilots' knowledge, skills and attitudes related to situation awareness.</p>			



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<u>Project website</u> <a href="http://www.essai.net">www.essai.net</a>			
<b>ETIS-LINK</b>	Thematic Network for European transport policy information system development	EU	
<u>Project website</u> <a href="http://www.etis-link.info">www.etis-link.info</a>			
<b>EUROSURF SAFEBRAKE</b>	Systematic investigation and improvement of safety brakes in elevators	EU	
<u>Project website (or contact)</u> none			
<b>EVP</b>	European ATM reference validation platform	EU	
<u>Project contact</u> <a href="mailto:peter.martin@eurocontrol.int">peter.martin@eurocontrol.int</a>			
<b>F2</b>	Risk analysis of tunnel accidents	CH	
<u>Project contact</u> Tel: +41 21 693 26 84			
<b>F3</b>	Technology assessment for high-speed systems	CH	
<u>Project contact</u> <a href="mailto:pierre.rossel@epfl.ch">pierre.rossel@epfl.ch</a>			
<b>FID</b>	Improved frontal impact protection through a world frontal impact dummy	EU	
<u>Project contact</u> <a href="mailto:wismans@wt.tno.nl">wismans@wt.tno.nl</a>			
<b>FINE</b>	Fine particles and traffic	FI	
<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			
<b>FIT</b>	European Thematic Network on Fire in Tunnels	EU	
<u>Project website</u> <a href="http://www.etnfit.net">www.etnfit.net</a>			



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<b>FIREDETEX</b>	New fire/smoke detection and fire extinguishing systems for aircraft applications	EU	
<u>Project contact</u> <a href="mailto:konstantin.kallergis@airbus.dasa.de">konstantin.kallergis@airbus.dasa.de</a>			
<b>FIRETUN</b>	Fire protection in traffic tunnels	EU	
<u>Project website (or contact)</u> none			
<b>FRAP</b>	Free routes airspace in Northern Europe – Phases 2 and 3	EU	
<u>Project website</u> <a href="http://www.eurocontrol.int/frap/">www.eurocontrol.int/frap/</a>			
<b>FRICION TESTER</b>	To increase airport safety and accessibility by developing a new continuous friction measuring system	EU	
<u>Project website (or contact)</u> none			
<b>FULMEN</b>	Analysis of experimental data and models for upgraded lightning protection requirements	EU	
<u>Project contact</u> <a href="mailto:franck.uhlig@aeromatra.com">franck.uhlig@aeromatra.com</a>			
<b>FURORE</b>	Future Road Vehicle Research – A roadmap for the future	EU	Transport infrastructure and vehicles
<u>Key findings</u> The main physical output of FURORE is the Automotive R&D Technology Roadmap. This roadmap was created by the FURORE work package and task leaders with contributions from the FURORE consortium, the Working Group Powertrain of EUCAR, CONCAWE and other additional R&D organisations. It consolidates the specialist knowledge and the opinions of the participating organisations via several dedicated workshops, individual discussions with specialists in the fields of automotive research, voting surveys among FURORE-experts and a comprehensive literature analysis. The topics discussed were:			
<ul style="list-style-type: none"> <li>• Energy &amp; fuels (including conventional, advanced and alternative fuels);</li> <li>• powertrain technologies (including today's state-of-art technologies as well as advanced and alternative systems and after-treatment technologies);</li> <li>• complete vehicle aspects (including vehicle structure, safety and noise).</li> </ul>			
<u>Policy implications</u> Major statements from FURORE:			
<ul style="list-style-type: none"> <li>• Research in completely new technologies is an additional must to promote sustainable advances in</li> </ul>			

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<p>environment and energy security;</p> <ul style="list-style-type: none"> <li>• vehicle weight is crucial for both fuel consumption and safety issues. Intensive research for new materials and production processes including recycling technologies is needed;</li> <li>• active and passive safety show great research potential and require an integrated approach to deliver the best results; and</li> <li>• advanced simulation techniques are necessary to establish basic detailed knowledge in order to simulate physical processes more precisely and to increase the accuracy of predicted results.</li> </ul> <p><u>Project contact</u>  <a href="mailto:josef.affenzeller@avl.com">josef.affenzeller@avl.com</a></p>			
<b>GADGET</b>	Guarding automobile drivers through guidance, education and technology	EU	
<p><u>Project website</u>  <a href="http://www.kfv.or.at/gadget/">www.kfv.or.at/gadget/</a></p>			
<b>GOING-SAFE</b>	Addressing technical & human factors involved in the implementation of 3-point shoulder harnesses, on all seats, in passenger's aircraft	EU	Driver, passenger and non-user safety
<p><u>Key findings</u></p> <p>GOING-SAFE has:</p> <ul style="list-style-type: none"> <li>• Specified design requirements for installation of the DYNASAFE seat prototype in the Airbus A320 cabin;</li> <li>• optimised the design of the new GOING-SAFE seat in terms of structural improvements to reduce weight, production costs, assembly time and maintenance costs, as well as integrated all the styling and comfort aspects, while making the seat suitable for up to 95% of all passengers;</li> <li>• optimised design of 3-point shoulder harness, backrest, Discolock energy absorbing device, spreaders, seat pan, front beam, rear and front legs and fittings from the DYNASAFE prototype;</li> <li>• assessed seat assemblies with regard to limits in Head Injury Criteria (HIC); and</li> <li>• carried out extensive simulations and analyses to compare standard lap belts with 3-point shoulder harnesses, fully confirming the superior performance of the latter.</li> </ul> <p><u>Policy implications</u></p> <p>The GOING-SAFE seat concept has initially been foreseen for complete cabin layouts. However, currently such advanced seats are strictly required for front row economy seats only and on those aircraft which indeed require full dynamic certification compliance for passenger seats. These at the moment is relevant just for Airbus A340-500/-600 and Boeing B777 aircraft. Hence the market for a GOING-SAFE seat is limited to a mere 10% of all seats in economy.</p> <p>In general, as long as airworthiness regulations do not prescribe the use of seats featuring 3-point shoulder harness devices, their application will be limited to front rows of newly built aircraft.</p> <p><u>Project contact</u>  <a href="mailto:r.dewilde@sda.be">r.dewilde@sda.be</a></p>			

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<b>HALTI</b>	Comparison between different legislative systems of automatic speed enforcement	FI	Reporting and common guidance
<u>Key findings</u> The study showed that both legislative alternatives (administrative payment and conditional fine) would decrease the time spent in handling the fines in the office after monitoring the speeding. Administrative payment will decrease the amount of police work more than the conditional fine since preliminary investigation is not performed. Since the police resources are likely to remain at the current level there have been opinions about municipal speed control. A city, municipality or road authority could handle some, or all, tasks in the automatic speed enforcement process. Administrative payment allows more municipal participation than the conditional fine.			
<u>Policy implications</u> none			
<u>Project contact</u> <a href="mailto:jarkko.niittymaki@ramboll.fi">jarkko.niittymaki@ramboll.fi</a>			
<b>HARDER</b>	Harmonisation of rules and design rationale	EU	
<u>Project contact</u> <a href="mailto:rus@dnv.com">rus@dnv.com</a>			
<b>HELISAFE</b>	Helicopter occupant safety	EU	
<u>Project contact</u> <a href="mailto:e.uhl@autoflug.de">e.uhl@autoflug.de</a>			
<b>HEROE</b>	Harmonization of European rail rules for operating ERTMS	EU	
<u>Project contact</u> Tel: +32 2 673 9 933			
<b>HULLMON+</b>	Intelligent hull monitoring systems for reduced risk of structural failures, spill to the sea, damage to cargo, and for improved passenger safety and comfort	EU	
<u>Project website</u> <a href="http://www.ec-nantes.fr/sirehna/gallery/Hullmon/Hullmon.htm">www.ec-nantes.fr/sirehna/gallery/Hullmon/Hullmon.htm</a>			
<b>HUMOS2</b>	Human model for safety, Two	EU	
<u>Project website (or contact)</u> none			

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<b>Key findings / Policy implications / Project website or contact</b>			
<b>HYBRISSIM</b>	Dynamic simulators of road driving	FR	
<u>Project contact (or contact)</u>			
none			
<b>IÄKÄSTAITO</b>	Maintaining driving ability at older age: effects of an educational intervention on later driving and life	FI	
<u>Project contact</u>			
<a href="mailto:heikki.summala@helsinki.fi">heikki.summala@helsinki.fi</a>			
<b>IBEROEKA IBK 02-235</b>	Secure traffic project: research and development of a new system of management and communications for traffic control and citizen safety applications (development phase)	ES	
<u>Project website (or contact)</u>			
none			
<b>IMMORTAL</b>	Impaired motorists: methods of roadside testing and assessment for licensing	EU	Driver, passenger and non-user safety
<u>Key findings</u>			
IMMORTAL has:			
<ul style="list-style-type: none"> <li>• Found indications – supported by case control studies allowing for more accurate risk assessment – that the proportion of drugged drivers has increased and that mixed consumption has become more frequent;</li> <li>• found that prosecution of drug use is urgently needed, especially in case of alcohol for drivers with high blood alcohol concentration, and drivers with combinations of drugs and alcohol, and more than one drug;</li> <li>• shown that the legal framework for both prosecution and further research is important and still has to be established in some cases;</li> <li>• shown that the degree of impairment not only differs depending on the medical condition, but may also clearly vary individually, hinting at individual compensation abilities being crucial factors in the context of assessing the fitness to drive;</li> <li>• proven that both medical and psychological variables are relevant for assessment;</li> <li>• identified frequent random breath testing and alcolocks as promising intervention methods;</li> <li>• underlined the need for consistent, reliable, and valid standards for licensing procedures;</li> <li>• found that for high risk categories, such as the use of illegal drugs – with the exception of heroin – zero-tolerance legislation would result in very high costs but hardly any road safety benefits; and</li> <li>• confirmed that for most medicinal drugs, such as antidepressants, benzodiazepines, codeine, barbiturates and even morphine, therapeutic levels may be provisionally adequate as legal limits.</li> </ul>			
<u>Policy implications</u>			
IMMORTAL provided an extensive set of policy recommendations on licensing, legislation and counter-measures:			
<ul style="list-style-type: none"> <li>• Proper information and awareness regarding the increased risk of drivers with medical conditions listed</li> </ul>			

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**Key findings / Policy implications / Project website or contact**

- in Annex III of CD 91/439 CEE should be made widely available;
- the increased risk shown by drivers with certain medical conditions should serve for a further and more strict licensing policy within the EU, aiming at a balance between road safety and mobility;
- some groups of diseases require specific attention, namely neurological disorders, psychiatric disorders, drug and alcohol related disorders, and diabetes mellitus;
- among specific disorders sleep apnoea stands out as a candidate for specific attention;
- efforts should be made to harmonise the process of licensing in Europe by proposing a 'best practice model' for licensing;
- both cognitive and physical tests are necessary for an adequate assessment of fitness to drive;
- reaching of a consensus on mental and physical prerequisites for safe driving;
- preventing innocent road users from impaired drivers and lowering the accident rate should be an important motive to examine drivers before they get the licence to drive;
- not all impairments should lead automatically to licence withdrawal;
- periodic standardised checks of the fitness of drivers are very useful, as can be seen in Spain;
- in case of suspicion of impairment, the administration should have the possibility to order medical and psychological assessment before licensing;
- safe mobility is a key factor for cost benefit calculation, so in the case of licence withdrawal, driver rehabilitation or driver improvement measures should aim to re-establish driver fitness and safety awareness;
- the reliability of existing saliva tests is poor, so the final decision about fitness to drive has to be decided by specially trained experts;
- the effect of alcohol/drug and drug/drug combinations on road safety proved to be so detrimental, that effective legislation and enforcement seem to be urgently needed;
- both the prevalence and the relative risk are important parameters for assessing the traffic safety implications of preventing drivers with various medical conditions from driving;
- although road safety policy in general should focus on making any driving under the influence as being unacceptable, a special target should address high alcohol concentrations (above 1.3 g/l), alcohol/drug combinations and drug/drug combinations;
- for most medicinal drugs therapeutical levels may be adequate as legal limits;
- random road side tests and installation of alcohol ignition locks seem promising to prevent drunk driving;
- it is strongly recommended to allow random drug tests of drivers in order to be able to collect data for scientific purposes;
- procedures used by national forensic laboratories for assaying and reporting illegal drugs as well as prescribed medicines should be standardised across EU countries;
- patients suffering from diabetes mellitus need psychological assistance and training to cope in a positive way with the changes entailed by a life with diabetes mellitus;
- the enforcement of drunk driving should be maintained or increased;
- strict rules and more enforcement of driver fatigue is necessary, new in-car devices and telematic-tools could provide support;
- it is recommended not to drive under the influence of ecstasy (MDMA);
- the combined use of ecstasy (MDMA) and alcohol should always be avoided when driving a motor vehicle;
- appropriate training of the police and the physicians should take place securing the exact description of the subject's behaviour, and thorough medical examinations;
- exchange of methods and experiences in police detection of impaired drivers should be encouraged between countries;
- combine drug detection of drivers by the police with confirmation analysis of body fluids from the suspected drivers; and

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<ul style="list-style-type: none"> <li>new Advanced Driver Assistance Systems (ADAS) and intelligent road infrastructure may, in the near future, facilitate safe driving for impaired drivers.</li> </ul> <p>Furthermore, IMMORTAL recommended to devote additional research efforts to gaining knowledge of the fitness to drive and of the size of the problem, and to investigate methods to identify impairment.</p> <p><u>Project website</u> <a href="http://www.immortal.or.at">www.immortal.or.at</a></p>			
<b>IMPACT</b>	Improved failure prediction for advanced crashworthiness of transportation vehicles	EU	
<p><u>Project contact</u> <a href="mailto:akp@esigmbh.de">akp@esigmbh.de</a></p>			
<b>INDICATORS</b>	TEN-T Performance Indicators	EU	Transport infrastructure and vehicles
<u>Key findings</u>			
<p>Based upon the material collected from the European Commission and Member State authorities, the INDICATORS team undertook a pragmatic approach to develop and continuously refine a typology of goals and objectives, establishing relationships between the goals, objectives, and measurements of transport system performance.</p> <p>Recognising the differences in transport policy objectives and priorities between Member States due to different environmental, population, and socio-economic contexts, no particular priority is given to certain goals or corresponding objectives. Objectives proposed were classified into eight categories according to the following trans-European policy themes:</p> <ul style="list-style-type: none"> <li>Mobility;</li> <li>accessibility;</li> <li>optimal use of capacities;</li> <li>safety;</li> <li>intermodality and interoperability;</li> <li>economic viability;</li> <li>environment; and</li> <li>modal balance.</li> </ul>			
<u>Policy implications</u>			
No policy implications directly relevant to this theme.			
<p><u>Project contact</u> <a href="mailto:a.winder@isis.tm.fr">a.winder@isis.tm.fr</a></p>			
<b>INIMER</b>	Integration of interactive maritime black box, a.i.s. and electronic information for reporting and monitoring of ships	EU	
<p><u>Project website (or contact)</u> none</p>			

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<b>INTELLIGENT VIBRATION</b>	Optimising vehicle safety, comfort and handling by intelligent vibration reduction	EU	
<u>Project contact</u> <a href="mailto:r.vrenken@koni.nl">r.vrenken@koni.nl</a>			
<b>INTERVUSE</b>	Integrated radar, flight plan and digital video data fusion for SMGCS	EU	
<u>Project website</u> <a href="http://www.iti.gr/intervuse/">www.iti.gr/intervuse/</a>			
<b>INTRA-SEAS</b>	Safety & economic assessment integrated management of multimodal traffic in ports	EU	
<u>Project contact</u> <a href="mailto:nec@cit.ie">nec@cit.ie</a>			
<b>IRSTAR</b>	Investigations of road safety on road sections of higher traffic accident ratio	BG	
<u>Project contact</u> <a href="mailto:crbl@ttm.bg">crbl@ttm.bg</a>			
<b>ISAWARE II</b>	Increasing safety by enhancing crew situation awareness	EU	
<u>Project contact</u> <a href="mailto:xavier.louis@thales-avionics.com">xavier.louis@thales-avionics.com</a>			
<b>IS PeNeL</b>	Information system for the transport of dangerous goods	SK	
<u>Project website (or contact)</u> <a href="#">none</a>			
<b>ITEA-DS</b>	Intelligent tools for emergency applications & decision support	EU	
<u>Project website</u> <a href="http://www.portauthority.li.it/itea-ds.htm">www.portauthority.li.it/itea-ds.htm</a>			
<b>ITEC-FDP</b>	Interoperability through European collaboration-flight data processing	EU	
<u>Project website</u> <a href="http://www.itec-fdp.com">www.itec-fdp.com</a>			



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<b>IVHW</b>	Inter-vehicle hazard warning	INT	
<u>Project contact</u> <a href="mailto:m.chevreuil@isis.tm.fr">m.chevreuil@isis.tm.fr</a>			
<b>I-WAKE</b>	Instrumentation systems for on-board wake-vortex and other hazards detection warning and avoidance	EU	
<u>Project website (or contact)</u> none			
<b>JAR TEL</b>	Joint Aviation Requirements: Translation and elaboration of legislation	EU	
<u>Project website</u> <a href="http://www.sofreavia.com/jartel/">www.sofreavia.com/jartel/</a>			
<b>KESUME</b>	Design Method for Lighter Weight Vehicles: industrial Applications	FI	
<u>Project contact</u> <a href="mailto:juhani.hienonen@mintc.fi">juhani.hienonen@mintc.fi</a>			
<b>KISS</b>	Klippan Isofix safety system	EU	
<u>Project website (or contact)</u> none			
<b>KOTISIIVU</b>	Personal safety programs for drivers	FI	
<u>Project contact</u> <a href="mailto:valmixa@kolumbus.fi">valmixa@kolumbus.fi</a>			
<b>KULTI</b>	Traffic safety indexes of municipalities	FI	
<u>Project contact</u> <a href="mailto:nina.karasmaa@hut.fi">nina.karasmaa@hut.fi</a>			
<b>KVAL-ISA</b>	Intelligent speed restrictions with guarantee of quality	SE	
<u>Project contact</u> <a href="mailto:hakan.bergea@borlange.se">hakan.bergea@borlange.se</a>			
<b>LACED</b>	Rescue system for light and ultralight aircraft	EU	
<u>Project website (or contact)</u> none			

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<b>LARGAS</b>	Slow driving is quicker	NL	
<u>Project contact</u> <a href="mailto:g.huismans@novem.nl">g.huismans@novem.nl</a>			
<b>LDWA</b>	Lane departure warning assistant	NL	
<u>Project website</u> <a href="http://www.ldwa.nl">www.ldwa.nl</a>			
<b>LIIKUTUS</b>	Cost-effectiveness of road investment projects from the road safety perspective	FI	Transport infrastructure and vehicles
<u>Key findings</u> Even though the Ministry of Transport and Communications sets the safety goals on the basis of persons injured rather than persons killed, the National Road Administration (Finnra) has gained positive results from following the safety vision in producing a development plan for main road network. In the development plan the projects and also the prevention of fatal accidents focused on the worst sections, where cost-effectiveness can be best achieved. With data from a case study it is shown that by altering the measures within a project to better take into consideration the road safety, it would be possible to further improve cost effectiveness and it is also possible that the benefit-cost ratio could improve.			
<u>Policy implications</u> none			
<u>Project contact</u> <a href="mailto:marko.nokkala@vtt.fi">marko.nokkala@vtt.fi</a>			
<b>LIITUKAAVA</b>	Promoting Road Safety in Land Use Planning	FI	
<u>Project contact</u> <a href="mailto:mikko.uljas@talentek.fi">mikko.uljas@talentek.fi</a>			
<b>LOCOPROL</b>	Low cost satellite based train location system for signalling and train protection for low density railway lines	EU	Working conditions
<u>Key findings</u> The main results of the project are as follows: <ul style="list-style-type: none"> <li>• A new multi-technology satellite based train location system based on satellite positioning combined with fail-safe, on-board track mapping &amp; interlocking;</li> <li>• a new control &amp; command system including a token-based simplified interlocking system and positive train detection;</li> <li>• interoperability with ERTMS – Integration of satellite based odometry in ERTMS/ETCS onboard architecture;</li> <li>• end user interface;</li> <li>• a fail safe worker terminal (specification); and</li> <li>• a tool for geographical database creation for railway lines.</li> </ul>			

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<p><u>Policy implications</u></p> <p>The project has developed an innovative cost-effective satellite based fail-safe train location system as the core of a train protection, control and command system, thereby achieving a significant cost reduction by concentrating more intelligence on-board. The proposed innovations have achieved a significant reduction of the cost aiming to short term applications for low density traffic railway lines. The developed system enhances and extends the ERTMS/ETCS system, currently covering high density lines, to low density lines. Further work is required to upgrade the whole system to make it industrially available, either for the EU market, where it must be compatible with ERTMS/ETCS equipped lines, and the non-EU market, where there are no constraints concerning other equipment.</p> <p><u>Project website</u></p> <p><a href="http://www.locoprol.org">www.locoprol.org</a></p>			
<b>LOGCHAIN TRANSLOG- SAFETY</b>	Safety and monitoring of East-West transportation systems	EU	
<p><u>Project website (or contact)</u></p> <p>none</p>			
<b>MACADAM- STAR</b>	Pre-development of driver-assistance equipment	EU	
<p><u>Project website (or contact)</u></p> <p>none</p>			
<b>MANHIRP</b>	Integrating process controls with manufacturing to produce high integrity rotating parts for modern gas turbines	EU	
<p><u>Project contact</u></p> <p><a href="mailto:kate.fox@rolls-royce.com">kate.fox@rolls-royce.com</a></p>			
<b>MASIS II</b>	Human element in man/machine interface and interaction to improve safety and effectiveness transport for the European fleet	EU	
<p><u>Project contact</u></p> <p><a href="mailto:cetena@mbox.ulisse.it">cetena@mbox.ulisse.it</a></p>			
<b>MD/DD/09</b>	Impact of traffic safety and traffic endurance problems: objective and subjective factors	BE	
<p><u>Project website</u></p> <p><a href="http://www.belspo.be/belspo/fedra/proj.asp?!=en&amp;COD=MD/DD/09">www.belspo.be/belspo/fedra/proj.asp?!=en&amp;COD=MD/DD/09</a></p>			

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<b>MD/DD/20</b>	Impact of spatial planning on sustainable traffic safety; Belgian situation analysis	BE	
<u>Project website</u> <a href="http://www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=MD/DD/20">www.belspo.be/belspo/fedra/proj.asp?l=en&amp;COD=MD/DD/20</a>			
<b>MFF</b>	CNS/ATM integrated programme 'Mediterranean free flight'	EU	
<u>Project website</u> <a href="http://www.ifatsea.org/html/mff1.html">www.ifatsea.org/html/mff1.html</a>			
<b>MOCA</b>	Modification of knowledge, attitudes and behaviour of users towards road safety: models and tools for action	FR	
<u>Project website</u> <a href="mailto:patricia.delhomme@inrets.fr">patricia.delhomme@inrets.fr</a>			
<b>MOBIVIP</b>	Public vehicles for individual use for mobility in town/city centres	FR	
<u>Project contact</u> <a href="mailto:ludovic.valadier@technologie.gouv.fr">ludovic.valadier@technologie.gouv.fr</a>			
<b>MOHUC</b>	Advanced modelling of human body behaviour in vehicle crash impact collisions	EU	
<u>Project website (or contact)</u> none			
<b>MONHUM</b>	Biomechanical and numeric models of humans for vehicle safety and ergonomomy	FR	
<u>Project contact</u> <a href="mailto:jean-pierre.verriest@inrets.fr">jean-pierre.verriest@inrets.fr</a>			
<b>NASPA</b>	New approaches to passive safety for passenger transport vehicles	FR	
<u>Project or contact</u> <a href="mailto:yves.ravalard@univ-valenciennes.fr">yves.ravalard@univ-valenciennes.fr</a>			

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<b>Key findings / Policy implications / Project website or contact</b>			
<b>NAUPLIOS</b>	Navigation and perilous goods input and output system	EU	Transport operation
<p><u>Key findings</u></p> <p>NAUPLIOS has evaluated new long range maritime surveillance services that could benefit from the implementation of the Galileo satellite services. It's extensive, six-month demonstration campaign involved six different types of vessel in order to effectively evaluate anticipated new services under various in-service scenarios.</p> <p>The demonstration fleet comprised:</p> <ul style="list-style-type: none"> <li>• The high-speed ferry Condor Express, operating passenger and freight services between the UK, the Channel Islands and the French port of St. Malo;</li> <li>• the chemical/oil tanker Chassiron, operating mainly off the French Atlantic coast with occasional voyages in the Channel;</li> <li>• the fishing vessel Villon, operating mainly off the French and Irish Atlantic coasts;</li> <li>• the container carrier Elisa-B, operating from Barcelona and Valencia through the Mediterranean Sea to Canaries Islands in the Atlantic;</li> <li>• the standard ferry Pride of Bilbao, operating the Channel service Portsmouth-Le Havre several times a day and a Portsmouth-Bilbao link at least once a week; and</li> <li>• the patrol vessel Iris, operating on all French coasts.</li> </ul> <p>NAUPLIOS has:</p> <ul style="list-style-type: none"> <li>• Specified advanced traffic surveillance services including:                             <ul style="list-style-type: none"> <li>• active surveillance (officers assisted by new surveillance means, reporting rate modification, on-demand reports, TSS automatic warning messages, and message exchange with vessels),</li> <li>• extension of the existing Automatic Identification System (AIS; automatic identification as soon as vessels are in the global surveillance zone),</li> <li>• additional data on ship, dangerous goods and voyage (hazardous cargo description, more precise voyage and cargo data),</li> <li>• information sharing with harbours and commercial companies (entry and exit of harbours, ship positions, cargo and technical data gathered on-board vessels);</li> </ul> </li> <li>• set up a control centre featuring GNSS-based surveillance and search and rescue (SAR) capabilities, linked to maritime surveillance centres; and</li> <li>• demonstrated that using a satellite communication system coupled with existing standardised systems for identification like AIS, can provide efficient service for both maritime safety and security applications.</li> </ul> <p><u>Policy implications</u></p> <p>An essential conclusion is that a concept like NAUPLIOS, based on satellite communications, should be considered an improved long range Automatic Identification System (AIS), complementing VHF AIS coverage. Thus, under VHF AIS coverage, satellite use is limited but may however be used for redundancy and to provide specific services not available in standard AIS though important in crisis management.</p> <p><u>Project contact</u></p> <p><a href="mailto:gerard.blondeau@cnes.fr">gerard.blondeau@cnes.fr</a></p>			
<b>NEREUS</b>	First principles design for damage resistance against capsizing	EU	
<p><u>Project website</u></p> <p><a href="http://www.ec-nantes.fr/sirehna/gallery/Nereus/Nereus.htm">www.ec-nantes.fr/sirehna/gallery/Nereus/Nereus.htm</a></p>			

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<b>NOPSEURA</b>	Telematic speed control systems in motor vehicles	FI	Transport operation
<p><u>Key findings</u></p> <p>Recording ISA proved to be a good and cost-effective safety measure that can be taken into operation fairly quickly. The Recording ISA could be focused on companies and communities as a quality control system, while the Warning ISA is well suited to private cars. Mobile speed enforcement complements this intermediate phase, focusing on those who are not willing to adopt voluntary systems.</p> <p><u>Policy implications</u></p> <p>none</p> <p><u>Project contact</u></p> <p><a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a></p>			
<b>NUP2</b>	North European ADS-B network update programme Phase 2	EU	
<p><u>Project website</u></p> <p><a href="http://www.nup.nu">www.nup.nu</a></p>			
<b>PEDHEX</b>	The reduction in fatalities and injuries to pedestrians through the development of a novel and more recyclable conformable plastic heat exchanger	EU	
<p><u>Project contact</u></p> <p><a href="mailto:john.joyce@iol.ie">john.joyce@iol.ie</a></p>			
<b>PODS IN SERVICE</b>	Safety and reliability of podded propulsors under service conditions	EU	Transport infrastructure and vehicles
<p><u>Key findings</u></p> <p>PODS IN SERVICE ran a full scale monitoring campaign, using extensive measuring equipment on-board the following four vessels:</p> <ul style="list-style-type: none"> <li>• The supply vessel Botnica, equipped with ABB Azipods, and operating in the North Sea;</li> <li>• the new, 300m long cruise ship GTV Radiance of the Seas, equipped with ABB Azipods, and operating on the American west coast including Alaska;</li> <li>• the new, 300m long cruise ship GTS Summit, equipped with Rolls-Royce Mermaid pods, and operating in the Mediterranean, Caribbean and Baltic Seas; and</li> <li>• the new-built Ropax ferry Nils Holgersson, equipped with Siemens Schottel SSP pods, and operating the TT-line Travemünde-Trelleborg service.</li> </ul> <p>The Joint Industry Project (JIP) has:</p> <ul style="list-style-type: none"> <li>• Determined loads of podded drives from strain gauge measurements during dedicated sea trials, and by computational methods;</li> <li>• developed a pod load calculation model that allows for assessing force components and overall loads;</li> <li>• found loads during crash stops and during extreme manoeuvres in transit (under full engine power) to be the most extreme; and</li> <li>• observed a higher than anticipated impact of slamming and whipping of the ship hull in severe weather conditions on pod body dynamics.</li> </ul>			

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<p><u>Policy implications</u></p> <p>Podded drives are a new type of propulsor but drawing on proven components, hence will be suitable for adaptation to other vessels, e.g. in offshore operations and inland navigation. However, no specific recommendations to this respect have been made as part of PODS IN SERVICE.</p> <p>Sea trials with pod driven ships are currently conducted according to the IMO requirements for conventional propellers and rudders and in particular the steering trials such as hardover/hardover tests induce severe loads on pods whereas they are not considered as realistic or necessary for this type of ship. Therefore tailored requirements for sea trials of ships using podded propulsors are proposed to IMO for implementation in future regulations.</p> <p><u>Project website</u></p> <p><a href="http://www.marin.nl/original/projects/podsinservice/">www.marin.nl/original/projects/podsinservice/</a></p>			
<b>PREFTRAN</b>	Preference system for tramways	ES	
<p><u>Project website (or contact)</u></p> <p>none</p>			
<b>PRISM</b>	Proposed reduction of car crash injuries through improved smart restraint development technologies	EU	
<p><u>Project contact</u></p> <p><a href="mailto:gabrielle.cross@mira.co.uk">gabrielle.cross@mira.co.uk</a></p>			
<b>PRISMATICA</b>	Pro-active integrated systems for security management by technological, institutional and communication assistance	EU	
<p><u>Project website</u></p> <p><a href="http://www.prismatica.com">www.prismatica.com</a></p>			
<b>R000238497</b>	Changing patterns of everyday mobility	UK	Qualifications/behaviour
<p><u>Key findings</u></p> <p>The results from this research are as follows:</p> <ul style="list-style-type: none"> <li>• There has been a decline in the proportion of 10/11 year olds allowed to travel around the study towns unaccompanied, but even today over 50 per cent of trips are taken without an adult.</li> <li>• Girls are more likely than boys to be accompanied and are more likely to walk or use public transport</li> <li>• Accounts of children's play experiences have also changed little since the 1940s. Key themes in discussing play include the importance of boundaries, the significance of traffic, the need for children to tell parents where they are going, the nature of rules, and the impact of territorial rivalry between different groups of children.</li> <li>• The area in which children play today seems to have shrunk over time. In the 1940s some children were allowed to roam freely over a wide area. There are signs of a far greater parental control for today's 10 year olds, and most modern youngsters had never had to deal with risk and had therefore not had the opportunity to learn to negotiate and to deal with challenges.</li> <li>• While the children who were aged 10/11 when interviewed said they were nervous of being abducted</li> </ul>			



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<p>or run over, respondents who were the same age in the 1940s said they swam in dirty canals and played in air raid shelters and did not tell their parents about encounters with 'flashers'. This is thought to reflect the much greater publicity given by both national and local media to a small number of specific events such as child abductions and related dangers.</p> <ul style="list-style-type: none"> <li>• People in their sixties are much more mobile than at any time in the past, but older people also adjust their travel because of perceptions of risk.</li> </ul> <p><u>Policy implications</u></p> <p>This research will be of interest to academics in a wide range of social science disciplines working on mobility, transport and social change. In addition the research will be of interest to audiences interested in local history. Through conferences and journal articles the research results have been brought to the attention of some groups of transport planners. The following ideas for further research arising from the project have been identified:</p> <ul style="list-style-type: none"> <li>• Further research on the interaction between residential migration and everyday mobility;</li> <li>• development of a research proposal on mobility and identity, focusing on the ways in which long-distance commuting impacts upon local and regional identities; and</li> <li>• development of a book proposal provisionally entitled 'Global Mobilities: A history of everyday travel'.</li> </ul> <p><u>Project website</u></p> <p><a href="http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/">www.esrcsocietytoday.ac.uk/ESRCInfoCentre/</a></p>			
<b>RESPONSE2</b>	Advanced Driver Assistance Systems: EU Transport infrastructure and vehicles From Introduction Scenarios towards a Code of Practice for Development and Testing		
<p><u>Key findings</u></p> <p>Financial risk, liability risks and risks related with brand image are preventing a successful market introduction of preventive and active safety systems. RESPONSE 2 elaborated steps towards a European Code of Practice (CoP) for development and validation for an accelerated market introduction of ADAS. This implies to establish 'principles' for the development and evaluation of ADAS on a voluntary basis as a result of a common agreement between all partners and stakeholders involved. With the implementation of RESPONSE, RESPONSE 2 and the follow-on project RESPONSE 3, the European Union, its Member States together with the automotive industry and the equipment providers demonstrate their responsibility by addressing and finding solutions to the current problems of ADAS market introduction. All in all, the voluntary agreement towards a human factors based Code of Practice (CoP) shall:</p> <ul style="list-style-type: none"> <li>• Give guidance in the user centred ADAS design process, helping to accelerate safe ADAS development on a 'state of the art' level;</li> <li>• promote positive public opinion concerning ADAS technology and its corresponding safety benefits; and</li> <li>• provide the basis for market introduction of ADAS and therewith a significant reduction of accident rates in Europe.</li> </ul> <p><u>Policy implications</u></p> <p>RESPONSE 2 results represent the necessary basis for the future realisation of a European Code of Practice (CoP). In a consensus formation process between project partners, the following was defined:</p> <ul style="list-style-type: none"> <li>• What is content and scope of the future CoP;</li> <li>• what are the formal requirements of the future CoP; and</li> <li>• which are the steps towards a Code of Practice.</li> </ul>			

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<p>Due to its horizontal project status, RESPONSE 2 contributed to other European vertical projects too, which were developing ADAS applications (e.g. CarTALK 2000).</p> <p><u>Project website</u> <a href="http://response.adase2.net">response.adase2.net</a></p>			
<b>RIKS ISA</b>	National ISA, research with nation-wide coverage Intelligent speed adaptation based on NVDB (National Road Database)	SE	
<p><u>Project contact</u> <a href="mailto:hakan.bergea@borlange.se">hakan.bergea@borlange.se</a></p>			
<b>ROLLOVER</b>	Improvement of rollover safety for passenger vehicles	EU	
<p><u>Project contact</u> <a href="mailto:rollover@mechanik.tu-graz.ac.at">rollover@mechanik.tu-graz.ac.at</a></p>			
<b>ROSEBUD</b>	Road safety and environmental benefit-boost and cost-effectiveness analysis for use in decision-making	EU	
<p><u>Project website</u> <a href="http://partnet.vtt.fi/rosebud/">partnet.vtt.fi/rosebud/</a></p>			
<b>ROSITA</b>	Roadside testing assessment	EU	
<p><u>Project website</u> <a href="http://www.rosita.org">www.rosita.org</a></p>			
<b>S101D</b>	Child Road Safety in Rural Areas	UK	Driver, passenger and non-user safety
<p><u>Key findings</u></p> <p>This project presents the findings of a literature review, consultations with a number of local authorities and secondary analysis of data. It found that:</p> <ul style="list-style-type: none"> <li>• There is limited literature focusing on road safety interventions for children living in rural areas and assessment of the issues is confounded by differing definitions of 'rural' and 'children' in statistics;</li> <li>• analysis of police accident statistics indicates that there were considerably fewer accidents to children in non-built up areas compared with built up areas and that the majority of child casualties in non built-up areas were car passengers;</li> <li>• there was little difference in the accident rate amongst children in the front and rear seats of vehicles;</li> <li>• pedestrian and cyclist casualties were much fewer by comparison and there was less exposure to busy roads amongst children in rural areas compared to their urban peers;</li> <li>• danger spots for child pedestrians and cyclists in non-built up areas are T, Y or staggered junctions, and there is an apparent tendency for children to walk along the carriageway with their backs to the traffic, which is hazardous in high-speed traffic;</li> <li>• child pedal cyclists appear to be at some risk near driveways; and</li> <li>• accidents in rural areas tend to be fewer and more scattered making remedial interventions difficult.</li> </ul>			

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<p><u>Policy implications</u></p> <p>Although the literature on child safety on rural roads is sparse and indirect it does flag up a number of issues that point to potential interventions and further research requirements:</p> <ul style="list-style-type: none"> <li>• It is likely that the lack of evidence on the safety of children in rural areas will only be resolved by in-depth research which profiles the relative risk of children as car occupants, cyclists and pedestrians in terms of their exposure to risk in the environment and the socio-economic factors which influence this risk. Further research is needed to examine driver behaviour with child passengers and child restraint use. Interventions that focus on the behaviour of the driver, especially with regard to speed and alcohol use may be particularly important.</li> <li>• It is not known how important socio-economic factors are in the road accident risk of children in rural areas. Whilst there is widespread poverty in rural areas there is also high car ownership and lower traffic density which may mean that even children from poor families may be more protected from risk than their urban counterparts i.e. they travel less frequently as vulnerable road users. Further research is required to examine the interrelationships between these factors.</li> <li>• There is considerable scope for the evaluation of policy and engineering, education and enforcement interventions that are in place, some at a local level including Safe Routes to School, comparing where appropriate the impact on children in urban and rural situations. This would provide clear evidence of appropriate strategies to assist future policy formulation.</li> </ul> <p><u>Project website</u></p> <p><a href="http://www.rmd.dft.gov.uk/project.asp?intProjectID=10071">www.rmd.dft.gov.uk/project.asp?intProjectID=10071</a></p>			
<b>S205Q</b>	Junction Improvements For Vulnerable Road Users	UK	Transport infrastructure and vehicles
<p><u>Key findings</u></p> <p>In total, 31 different measures were developed with 24 measures progressing to trials. Measures were implemented at 156 locations, some of which consisted of a single junction while others consisted of a 'corridor' of junctions. In total, 240 junctions received some form of treatment. The schemes trialled were as follows: Raised junctions; Coloured junctions; Raised crossing area; Danger area illumination; Entry and exit zebra crossings; Junction countdown markings; Coloured pedestrian crossings; Reduced exit widths at traffic signals; Main road cycle routes; Hatched centre lines; Wide centre lines; Solid centre line and lane lines; Junction speed limits; Sight screens; and Annular cycle lanes.</p> <p>The findings of the project reinforced the point that when undertaking any changes to the road system, changes measured within a few months of implementation of the scheme may not reflect the long-term situation. Similar caution is required about the measured changes in conflicts which did not always match changes in speed. While it might have been expected that a reduction in speed would lead to a reduction in conflicts this was not always the case. The overall conclusion is that the research has served its purpose in identifying several effective low-cost measures that could be developed further and several that having been tried need not be pursued further. In several of the schemes tried the recommendations on whether or not they should be made available for wider use by highway authorities is conditional rather than clear cut.</p> <p><u>Policy implications</u></p> <p>The main findings relate to each scheme and consider whether these are suitable or not for wider implementation, and if so whether further development or legislation is required. It was found that in some applications the scheme worked and in others it did not. In many instances where the scheme results are considered to be neutral or have low impact, the decision on their use would need also to reflect how well they might complement other activities being undertaken by the highway authority. Because of the nature</p>			

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<p>of the findings it was found out that it could be misleading to present them as they stand. Therefore it was recommended to carry out a further distillation of the results and to publish this as the basis for information to local authorities about what worked and what did not, and which schemes might work in particular situations.</p> <p><u>Project website</u>  <a href="http://www.rmd.dft.gov.uk/project.asp?intProjectID=10138">www.rmd.dft.gov.uk/project.asp?intProjectID=10138</a></p>			
<b>S214G</b>	Computer-based child pedestrian training	UK	Qualifications/behaviour
<p><u>Key findings</u></p> <p>The results of the evaluation were almost uniformly positive. With regard to the 'safe place finding' skill, training doubled the number of safe judgements made by 8- and 10-year-olds and substantially improved their ability to offer insightful justifications for these judgements. There were signs of the cumulative benefits arising from subsequent training in roadside search. Untrained children showed no gain whatsoever. It was noted that training had only a limited impact on 6-year-olds who showed no improvements in judgements and only small improvements in understanding. There was, however, good evidence that safe places training benefited the roadside search performance of the 6-year-olds. They, in common with the two older age groups, did better at pre-test than the controls on both the pick-up of information concerning vehicle movements, and an explanation of its significance. Training in 'roadside search' skill led to further improvements on both aspects of performance in all three groups, while control children showed little or no progress. The outcomes for training in 'gap timing' skill presented a similar picture. At pre-test, trained children made more cautious and more skilful judgements than control children, indicating a knock-on effect from previous input. Training led to further improvements which were largely absent from the control group, although in this case there was no continued increase between the first post-test and the delayed post-test. Previous training had no apparent impact on 'perceptions of intentions', the final skill trained, and both trained and control children started at the same level. Again, training produced clear benefits.</p> <p><u>Policy implications</u></p> <p>The computer-based training led to substantial improvements in both roadside behaviour and children's understanding in all four skills dealt with, and in all three age groups, with the sole exception of the 6-year-olds on safe places. Even here the safe places training had a positive impact on roadside search performance. The broad pattern of improvements indicates that none of the skills was too difficult for younger children or too easy for older children. There are also cumulative benefits for children working through the whole package in the order employed here. There were other non road safety benefits emerging from this work. Of particular note is the finding that training improved the verbal skills of older children from the higher accident, lower SES, area. There are two important caveats. First the results do not amount to evidence that computer-based training could act as a complete substitute for roadside training. There are signs that for younger children in particular, a combination of the two would be preferable. Secondly, the success of the computer-based training is not separable from the adult-group interaction that took place, that is how effective it would be if used by individuals has not been tested.</p> <p><u>Project website</u>  <a href="http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_504578.hcsp">www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_504578.hcsp</a></p>			

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<b>S224J</b>			
	Effects of road engineering modifications on child pedestrian skills development	UK	Qualifications/behaviour
<u>Key findings</u>			
<p>The literature review found no direct research on the development of child pedestrian skills in traffic calmed areas. Some indirect evidence suggested that the type of road traffic environment may influence factors affecting the development of pedestrian skills, in particular the interaction between the perceived safety of an environment, the type of safety advice given to children by adults (which itself may be dependent on the environment), and the level of independent exposure afforded to children. The literature also suggests that modified sites may not necessarily be perceived as safer than untreated sites. Following the review two tests were selected: a 'visual timing and gap selection' test and a 'safe place crossing location' test. The 'visual timing and gap selection' test was most appropriate since children travelling in calmed areas where speeds are well regulated may be less skilled in coping with fast moving traffic on uncalmed roads. A computer (PC) version of the visual timing and gap selection test was developed for children aged 7-9 years old and validated against road side performance as part of this project. PC based tests of such skills are preferred because of the ability to standardise the tasks for the children and to make testing of children easier. For the main study all children undertook the PC test and a further sub sample undertook additional road side tests. Children aged 7-9 were selected since learning starts to increase rapidly at this age and most traffic experience has been gained close to home/school. The PC visual timing and gap selection test detected no difference in skills between those pupils from the calmed area and those from the control area. There were some small improvements in skills from Year 3 to Year 4 pupils, and those of higher rated ability scored better compared with those rated as lower ability, suggesting that the test was able to identify skills differences where they existed. The small roadside visual and gap acceptance tests did detect some statistically significant differences in the skills of children from the calmed and control area – the children from calmed areas appeared to be more skilful. However, these differences could equally be attributable to differences (such as mean age, academic ability) in the two samples of children rather than the type of area they were largely exposed to. The safe crossing location test was scored against two factors – the safety of crossing locations selected (safety score) and the reasons given for the choice of crossing location (conceptual score). Pupils from the calmed area generally scored very slightly higher on the safety score than those from the control area, although the difference rarely reached statistical significance. However they tended to score lower on the conceptual score than those from the control group. There were no differences between scores of pupils from different school years or of different rated abilities. The interviews with parent/guardians suggested that the children from the calmed and control areas were reasonably well matched on factors other than the traffic calming in their street. Overall the results of the interview survey suggest little difference in the exposure of children on local roads in calmed and control areas.</p>			
<u>Policy implications</u>			
<p>The study has shown little difference in the road safety skills of those living in a traffic calmed area compared to those living in an un-treated area. It is likely that individual differences in pupils' road safety skills due to, for example, the attitudes of parents towards safety, and differences between schools are greater than those resulting from living in a calmed or un-calmed environment.</p>			
<u>Project website</u>			
<p><a href="http://www.rmd.dft.gov.uk/project.asp?intProjectID=10115">www.rmd.dft.gov.uk/project.asp?intProjectID=10115</a></p>			

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<b>S240B</b>	Rural speed management	UK	Transport operation
<u>Key findings</u>			
The main results of this project are as follows:			
<ul style="list-style-type: none"> <li>• Accident frequency in all categories increased rapidly with mean speed - the All accident frequency increased with speed to the power of approximately 2.5 times - thus indicating that a 10% increase in mean speed results in a 26% increase in the frequency of all injury accidents.</li> <li>• The relationship between accident frequency and traffic flow and the link section length mirrored that typically found in other similar studies.</li> <li>• Accident frequency varied between the four 'Road Quality' Groups defined in the report. Group1 being lowest quality and group 4 the highest quality rural road. It was highest on the Group 1 roads, and about half, a third and a quarter of this level on roads in Groups 2, 3 and 4 respectively.</li> <li>• Two additional measures were found to influence the frequency of All injury accidents. These were the density of sharp bends (those with a chevron and/or bend warning sign) and the density of minor cross-road junctions. These increased accidents by 13% and 33% respectively for each additional bend/crossroad per kilometre.</li> <li>• The effect of mean speed was found to be particularly large (power of about 5) for the junction accidents.</li> <li>• No other measures of speed were found to influence accident frequency as strongly as, or in addition to, mean speed.</li> <li>• The percentage reduction in accident frequency for a 1 mile/h reduction in mean speed implied by the 'All accidents' relationship depended on the mean speed. It ranged from 9% at a mean speed of 27 miles/h to 4% at a mean speed of 60 miles/h.</li> <li>• The effect of speed on fatal and serious accidents was greater than its effect on All accidents taken together, though the difference was not statistically significant. A 10% increase in mean speed would be expected to result in a 30% increase in the frequency of fatal/serious accidents.</li> </ul>			
<u>Policy implications</u>			
This work will support the road safety strategy and complement the speed policy review.			
<u>Project website</u>			
<a href="http://www.rmd.dft.gov.uk/project.asp?intProjectID=10064">www.rmd.dft.gov.uk/project.asp?intProjectID=10064</a>			
<b>S@S</b>	Safety at speed	EU	
<u>Project contact</u>			
<a href="mailto:dmi@danmar.dk">dmi@danmar.dk</a>			
<b>SAFEAIR</b>	Advanced design tools for aircraft systems and airborne software	EU	
<u>Project website</u>			
<a href="http://www.safeair.org/project/">www.safeair.org/project/</a>			
<b>SAFECOMP</b>	Low energy cure laminates for high-energy absorption in sports goods and other safety critical areas	EU	
<u>Project website (or contact)</u>			
none			



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<b>SAFE-FLOW</b>	Safe floating offshore structures under impact loading of shipped green water and waves	EU	
<u>Project contact</u> <a href="mailto:g.f.m.remery@marin.nl">g.f.m.remery@marin.nl</a>			
<b>SAFENVSHIP</b>	Safe and environmentally friendly passenger ships	EU	
<u>Project website (or contact)</u> none			
<b>SAFE PROPULSOR</b>	Optimising vessel safety and propulsive performance by optimising computational design	EU	
<u>Project website (or contact)</u> none			
<b>SAFE SOUND</b>	Safety improvement by means of sound	EU	
<u>Project contact</u> <a href="mailto:jean-luc.vassort@thales-avionics.com">jean-luc.vassort@thales-avionics.com</a>			
<b>SAFESTAR</b>	Safety standards for road design and redesign	EU	
<u>Project contact</u> <a href="mailto:slop@swov.nl">slop@swov.nl</a>			
<b>SAFET</b>	Safety in tunnels Thematic Network	EU	Assessments
<u>Key findings</u> The SAFET thematic network has: <ul style="list-style-type: none"> <li>• Been building on the European Directive 2004/54/EC on road tunnel safety;</li> <li>• summarised and exploited the outcomes of six individual FP5 research projects;</li> <li>• developed a global, though flexible and non-restrictive approach to tunnel safety incorporating both performance based and prescriptive approaches; and</li> <li>• produced Best Practice European Guidelines covering:               <ul style="list-style-type: none"> <li>• the current state of practice,</li> <li>• accident and incident detection and traffic management,</li> <li>• evacuation intervention management,</li> <li>• post accident investigation and evaluation,</li> <li>• harmonised risk assessment, and</li> <li>• integrated tunnel safety management systems.</li> </ul> </li> </ul>			
<u>Policy implications</u> Over a five year period, a total of seven research projects including SAFET have investigated the possibilities to prevent accidents and incidents by holistic approaches to tunnel safety, and secondly to mitigate			



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<p>the impacts of accidents and incidents involving fire by improving tunnel infrastructures and safety systems. The best practice guidelines released by SAFET are in line with the revision of design guidelines for tunnels in several countries, namely Austria, France, Germany and Switzerland prompted by some 10 severe fire accidents in road and rail tunnels.</p> <p><u>Project website</u> <a href="http://www.safetunnel.net">www.safetunnel.net</a></p>			
<b>SAFETRAM</b>	Passive safety of tramways for Europe	EU	
<p><u>Project website</u> <a href="http://www.safetram-project.com">www.safetram-project.com</a></p>			
<b>SAFE TUNNEL</b>	Innovative systems and frameworks for enhancing of traffic safety in road tunnels	EU	
<p><u>Project website</u> <a href="http://www.crfproject-eu.org">www.crfproject-eu.org</a></p>			
<b>SAFETY FIRST</b>	Design for safety: ship fire engineering analysis toolkit	EU	
<p><u>Project contact</u> <a href="mailto:alessandro.maccari@fincantieri.it">alessandro.maccari@fincantieri.it</a></p>			
<b>SAMNET</b>	Safety management and interoperability Thematic Network	EU	Assessments
<p><u>Key findings</u></p> <p>The SAMNET thematic network has:</p> <ul style="list-style-type: none"> <li>• Identified the implementation issues from the Railway Safety Directive and proposed solutions through organising working groups, workshops on individual topics and for individual railways seeking opinions from experts, and case studies to check if the suggested approaches (common safety targets, safety management system, cross acceptance, etc.) are workable;</li> <li>• built consensus on issues where opinions differ by organising debates and formal discussions on these issues, and by proposing common position and identify needs for further actions;</li> <li>• investigated the relationship and dependencies between Interoperability and Safety Directives; and set up four working groups comprised of all relevant stakeholders from industry, assessors and notified bodies, infrastructure operators, and railway associations.</li> </ul> <p><u>Policy implications</u></p> <p>SAMNET has identified the main areas of further research as part of a strategy plan to implement the Railway Safety Directive:</p> <ul style="list-style-type: none"> <li>• Railway risk control (cost-benefit analysis);</li> <li>• cross acceptance;</li> <li>• human factors in risk assessment and safety cases;</li> <li>• common contents and formats of accident and incident statistics and investigations;</li> <li>• audit and review: performance indicators for the Safety Management System (SMS);</li> <li>• elaboration of a comprehensive and consistent safety database;</li> </ul>			

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<ul style="list-style-type: none"> <li>• risk tolerability criteria;</li> <li>• risk measurement unit; and</li> <li>• operational aspects of interoperability.</li> </ul> <p><u>Project website</u> <a href="http://samnet.inrets.fr">samnet.inrets.fr</a></p>			
<b>SAMRAIL</b>	Safety management in railways	EU	Transport operation
<u>Key findings</u>			
<p>SAMRAIL has:</p> <ul style="list-style-type: none"> <li>• Carried out a survey of current practices which found                             <ul style="list-style-type: none"> <li>• the Safety Directive to be suitably formulated, addressing all the important safety issues that an open, vertically separated and horizontally integrated railway of the EU could face, and</li> <li>• there is a sufficient baseline to elaborate on Common Safety Methods (CSM), Common Safety Targets (CST), and Common Safety Indicators (CSI), and for safety certification and approval issues;</li> </ul> </li> <li>• proposed a commonly agreed structure for the Safety Management System (SMS) comprising of a number of different elements, specifies requirements and guidance for each element;</li> <li>• recommended that the proposed guidelines, approaches and processes be further developed through tests and trials;</li> <li>• identified the steps which could be taken by the EC and the European Railway Agency to develop a SMS certification standard from the guidelines;</li> <li>• proposed a risk management approach along with a definition of the railway system and accident scenarios;</li> <li>• proposed two types of safety targets, i.e. global targets for measuring member states' performance, and safety levels for measuring performance of individual railway functions;</li> <li>• identified four categories of safety certification and approval processes, i.e. at                             <ul style="list-style-type: none"> <li>• component level,</li> <li>• subsystem level,</li> <li>• integrated module level,</li> <li>• service level; and</li> </ul> </li> <li>• proposed a Safety Approval Process with dedicated assessment methods.</li> </ul>			
<u>Policy implications</u>			
<p>The national safety rules are based on national standards and practice, and provide the basis for achieving the national safety targets. They are also rooted in the respective safety culture, however, can pose technical barriers to open market at the same time. The Safety Directive recognises that the Technical Specifications for Interoperability (TSI) are insufficient to provide definitions of all aspects of systems and operation, therefore recommending that - where necessary - complementary national safety standards could be applied. Under the Interoperability Directives the notification of all such standards are required. The Safety Directive also requires notification of national safety rules. So far, notification of national rules has yet to commence, and identification of national standards associated with the TSI implementation has been carried out by only a few member state railways. It is very difficult to evaluate which national standards have been notified.</p>			
<u>Project website</u> <a href="http://samnet.inrets.fr">samnet.inrets.fr</a>			

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<b>SANU</b>	Health of users and road poor road safety	FR	
<u>Project contact</u> <a href="mailto:bernard.laumont@inrets.fr">bernard.laumont@inrets.fr</a>			
<b>SALVAGE</b>	Small airport laser visual aid guidance equipment	EU	
<u>Project website (or contact)</u> none			
<b>S-CBB</b>	Secured cargo black box	EU	Reporting and common guidance
<u>Key findings</u>			
S-CBB has:			
<ul style="list-style-type: none"> <li>• Analysed the existing chain of information in maritime transport which led to the definition of blocking nodes in the chain and to the identification of all administrative processes that could be avoided, reduced or improved;</li> <li>• specified the functions required to acquire, enter, store and secure data with a focus to the requirements of a multipurpose business platform as well as to the different interfaces that need to be developed; and</li> <li>• developed the functional architecture of a secured cargo black box application which allows tracking and tracing of vessels at all times, however, not only providing the exact route followed by ships but allowing also to compare their speed with the normal average, thus being able to detect any situation that would not be normal, such as the unloading of cargo at sea; the S-CBB architecture hence comprises:                             <ul style="list-style-type: none"> <li>• a reliable transmitter to localize ships and supply information on transport of the goods,</li> <li>• identification and certification software to confirm goods delivery,</li> <li>• a processing centre (or remote data operations centre) for processing data to be send,</li> <li>• a platform (S-CBB server) to distribute and exchange data to end-users,</li> <li>• a security management entity to cover all security aspects of the system, based on modern satellite, Internet and biometric technologies integrated into a data acquisition chain operating automatically and reliably in near real-time.</li> </ul> </li> </ul>			
<u>Policy implications</u>			
<p>The S-CBB system should be made compulsory for all movements of goods within the EU and for exports of goods to third countries when the payment of EU refunds is involved. This would result in an increased safety of the vessels. It would also be of great interest to the insurance companies as they would be in a position to monitor cargo and to receive alerts whenever something abnormal occurs at sea. Eventually, the system would be more acceptable to ship captains and crew due to the fact that it would be complying with legislation and not just targeting particular vessels.</p> <p>Legally such a system is drawing on international initiatives and recommendations from organisations such as IMO, EC, ITU, WTO, etc. In fact, these organisations are in a position to accept suggestions from research projects that would benefit the EU, e.g. in the areas of security, economics and the environment. Thus, the benefits of the S-CBB concept should clearly be communicated among all stakeholders.</p>			
<u>Project website</u> <a href="http://www.cargoblackbox.com">www.cargoblackbox.com</a>			

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<b>SEAM</b>	Assessing concepts, systems and tools for a safer, efficient and environmentally aware and friendly maritime transport	EU	Assessments
<p><u>Key findings</u></p> <p>SEAM has:</p> <ul style="list-style-type: none"> <li>Identified maritime hazards and collected related data for three key issues:               <ul style="list-style-type: none"> <li>ballast water management,</li> <li>anti-fouling paints, and</li> <li>quality of fuel and emissions;</li> </ul> </li> <li>done a risk assessment for two geographical examples, i.e. the German Bight and the Gulf of Naples, looking at the regulatory influences affecting the level of risk;</li> <li>developed a numerical model comprising risk control measures, based on scientific methodologies for the evaluation of environmental risks, and interfaced with a Geographical Information System (GIS), in order to:               <ul style="list-style-type: none"> <li>reduce the frequency of failures,</li> <li>mitigate the effect of failures,</li> <li>alleviate circumstances where failures may occur, and</li> <li>mitigate the consequences of the release of pollutants; and</li> </ul> </li> <li>made recommendations for decision-making, comparing alternative options based on their potential for risk reduction and their cost effectiveness.</li> </ul> <p><u>Policy implications</u></p> <p>The findings of the risk analysis and calculations undertaken point to a persistent lack of consistent information on costs and especially benefits of the different techniques for the reduction of environmental impacts caused by international shipping. However, on the other hand SEAM managed to collect information on several alternative techniques for the substitution of tri-butyl-tin (TBT) based antifouling paints, for ballast water treatment and for reduction of NO<sub>x</sub> emissions.</p> <p>Based on these outcomes and the usual methods of economic cost/benefit analysis, it can be stated that most of the measures are economically viable from the overall perspective, including all external benefits. However, as the benefits are external they are not considered in the decision process of vessel operators and hence will not be realised and addressed without the presence of legal pressure or the grant of financial compensation.</p> <p><u>Project website</u></p> <p><a href="http://seam.mettle.org">seam.mettle.org</a></p>			
<b>SEGUR</b>	Integration of safety into urban management	FR	
<p><u>Project contact</u></p> <p><a href="mailto:yves.gueniot@equipement.gouv.fr">yves.gueniot@equipement.gouv.fr</a></p>			
<b>SEROVIE</b>	Road safety and ageing	FR	
<p><u>Project website (or contact)</u></p> <p>none</p>			

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<b>SERTI</b>	Southern European road telematics implementation	EU	
<u>Project website</u> <a href="http://www.serti-mip.com">www.serti-mip.com</a>			
<b>SIBER</b>	Side impact dummy biomechanics and experimental research	EU	
<u>Project website (or contact)</u> none			
<b>SIGET</b>	Wireless tunnel management system	ES	
<u>Project website (or contact)</u> none			
<b>SIGNAFOG</b>	Fog detection and drivers' warning system	EU	
<u>Project website (or contact)</u> none			
<b>SIMTAG</b>	Safe InterModal Transport Across the Globe	EU	Transport operation
<u>Key findings</u> The accessibility of services specialising in hazardous cargoes (as to their characteristics, proper handling requirements, clean-up guidance and risk alerts), together with information about the exact location and status of the cargo through the SIMTAG Portal, will enable authorised emergency services to make more informed choices as to how to deal with, for example, a chemical spillage, thereby providing greatly improved protection to local communities and the environment.			
<u>Policy implications</u> none			
<u>Project website</u> <a href="http://www.simtag.org">www.simtag.org</a>			
<b>SIRTAKI</b>	Safety improvement in road & rail tunnels using advanced ICT and knowledge intensive DSS	EU	
<u>Project website</u> <a href="http://www.sirtakiproject.com">www.sirtakiproject.com</a>			
<b>STREETWISE</b>	Seamless travel environment for efficient transport in the Western isles of Europe	EU	
<u>Project website</u> <a href="http://www.streetwise-info.org">www.streetwise-info.org</a>			

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<b>SUNFLOWER</b>	Comparative assessment of safety strategies in Sweden, Britain and the Netherlands	EU	Assessments
<p><u>Key findings</u></p> <p>The general conclusions of the project are:</p> <ul style="list-style-type: none"> <li>All three countries (Sweden, the United Kingdom and the Netherlands) have achieved similar levels of safety through continuing planned improvements in these levels over recent decades.</li> <li>Policy areas targeted have been similar, but policies implemented have differed at a detailed level.</li> <li>Differences in focus for safety programmes result from both different relative sizes of accident groups and differences in the structure of road safety capability which influences its ability to deliver different types of policy.</li> <li>Progress has been achieved through directing improved policies to all three areas – vehicle, road and road users.</li> <li>There is room for further improvement in well-established safety fields in all three countries, and scope to learn from each other to ensure collective experience is used effectively.</li> <li>Risk factors are provided throughout the report, for the SUN countries, which can be used by other countries as indicators of the levels of safety that are achievable in relation to different aspects of the road safety problem. Differences in these factors between the three SUN countries indicate how these indicators need to be tailored to national situations.</li> <li>The casualty reduction target set by the EU is ambitious and will require substantial additional actions if it is to be achieved. The current plans of the SUN countries fall below this target.</li> </ul> <p><u>Policy implications</u></p> <p>Main recommendations for future road safety improvements in the SUN countries include:</p> <ul style="list-style-type: none"> <li>Car drivers have a higher risk in Sweden than in the other two countries; traffic safety effort in Sweden should concentrate on car drivers and their speed behaviour.</li> <li>Britain would benefit from a lower blood alcohol limit for drinking and driving, more intensively enforced, but with some relaxation of penalties for the new lower limit offences.</li> <li>Britain needs to find an infrastructure solution that will enable pedestrian and vehicular traffic to co-exist at lower fatality levels, for example by extending the length of urban roads with 20mph (30kph) speed limits.</li> <li>Britain should also give greater emphasis to developing a more extensive high quality road network of similar density to that in the other countries; this could encourage greater acceptance of lower speeds on other roads.</li> <li>The Netherlands needs to understand why its moped rider risk is so high, in order to identify an appropriate solution.</li> <li>The Netherlands also needs to review its drink-driving problem to identify how best to make further reductions in alcohol related fatalities.</li> <li>The Netherlands needs to identify an effective strategy to increase seat belt wearing rates to a similar level as the other two countries.</li> </ul> <p>The main conclusion for the European Commission (and member states) is that the total fatality saving of the SUN country targets for 2010 is expected to be about one third compared to 2000, while the total fatality reduction of other EU member states derived from trend extrapolations of risk reduction and traffic growth is less than 40% in that period. Therefore, the EU target of 50% fatality reduction between 2000 and 2010 seems very ambitious and its achievement requires additional actions.</p> <p><u>Project contact</u></p> <p><a href="http://sunflower.swov.nl">sunflower.swov.nl</a></p>			

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<b>SUORUO</b>	Wintertime Traffic and Traffic Safety in Finland and in Sweden	FI	
<u>Project contact</u> <a href="mailto:mikko.malmivuo@vtt.fi">mikko.malmivuo@vtt.fi</a>			
<b>SVI 2000/391</b>	The Reliability as a Choice Variable: Experiments with different Measurement Approaches	CH	
<u>Project website</u> <a href="http://www.aramis-research.ch/d/1669.html">www.aramis-research.ch/d/1669.html</a>			
<b>SVI 2000/443</b>	Methods of Technology Assessment in Transport	CH	
<u>Project website</u> <a href="http://www.aramis-research.ch/d/1954.html">www.aramis-research.ch/d/1954.html</a>			
<b>SVI 1998/092</b>	Potential accident spots	CH	
<u>Project website</u> <a href="http://www.aramis-research.ch/d/2194.html">www.aramis-research.ch/d/2194.html</a>			
<b>S-WAKE</b>	Assessment of wake vortex safety	EU	
<u>Project contact</u> <a href="mailto:bruina@nlr.nl">bruina@nlr.nl</a>			
<b>TALIS</b>	Total information sharing for pilot situational awareness enhanced by intelligent systems	EU	Working conditions
<u>Key findings</u> TALIS has been an innovating project, on several levels. Key findings can be summarised as: <ul style="list-style-type: none"> <li>• Conceiving the services concept for global, interoperable and dynamic availability of services;</li> <li>• integrating the principles of a flight deck browser for information;</li> <li>• conceiving applications for increased pilot situational awareness;</li> <li>• innovating the traffic information service in contract mode;</li> <li>• innovating weather service;</li> <li>• studying contextual information for intelligent systems; and</li> <li>• basing on commercial-off-the-shelf (COTS) software for cheaper and more reliable systems.</li> </ul>			
<u>Policy implications</u> The high costs of air-ground integration is understood to be a major problem. All technologies supporting the integration of air and ground systems take a long time from research until implementation, due to massive safety concerns, the costs of avionics integration, and the necessity for global deployment of infrastructures. Hence typical implementation cycles for new aviation technologies are measured in decades rather than in years as is the case e.g. for car or in the maritime sector.			
<u>Project website</u> <a href="http://talis.eurocontrol.fr">talis.eurocontrol.fr</a>			



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<b>THEMES</b> Thematic Network on safety assessment of waterborne transport EU Transport operation			
<u>Key findings</u>			
<p>One of the tasks of THEMES has been to develop a 'comprehensive framework of safety assessment and safety management for waterborne transport'. Key questions during the development stages were why and what is a framework? The team arrived at the following key points:</p> <ul style="list-style-type: none"> <li>• Purpose is to improve safety performance;</li> <li>• a better culture by practising safety assessment;</li> <li>• needs of an information system for the stakeholders;</li> <li>• needs of a non-regulatory encouragement of good safety practice; and</li> <li>• needs of an industry-wide adoption of best safety culture practices.</li> </ul> <p>In summary the framework comprises 5 components, these are:</p> <ul style="list-style-type: none"> <li>• The European Union's maritime safety policies;</li> <li>• the shipping industry stakeholders;</li> <li>• a common information system (EMIS);</li> <li>• a so-called 'dedicated network' representing the industry stakeholders; and</li> <li>• a body representing the European end-users of shipping services.</li> </ul>			
<u>Policy implications</u>			
<p>Recommendations can be summarised as follows:</p> <ul style="list-style-type: none"> <li>• Create a European maritime safety information system;</li> <li>• create a European Accident database, incorporating information on human factors; and</li> <li>• enhanced accident investigation, especially when several countries are involved in the accident.</li> </ul>			
<u>Project website</u>			
<a href="http://projects.dnv.com/themes/">projects.dnv.com/themes/</a>			
<b>TRACS (IMP)</b>	Truck and coach simulator	EU	
<u>Project website (or contact)</u>			
none			
<b>TRAINER</b>	System for driver training and assessment using interactive evaluation tools and reliable methodologies	EU	Qualifications/behaviour
<u>Key findings</u>			
<p>TRAINER has developed an interactive, multimedia training tool and two modules of a driving simulator (static and semi-dynamic one), paying attention to their cost-effectiveness. It provided practical guidelines for the deployment of the proposed curriculum and training tools. The following specific results have been achieved:</p> <ul style="list-style-type: none"> <li>• Development of a concise compendium, available on CD-ROM, of drivers' training and assessment curricula and methodologies from 24 countries;</li> <li>• identification of major gaps and priorities for further improvement of the novice drivers' training through extensive literature survey, accident analysis of generic data and 3 detailed databases, interviews with 26 driving assessment experts from 24 countries, interviews with 122 driving instructors from 8 European countries;</li> <li>• systematic mapping and prioritisation of recognised gaps and inefficiencies, according to a 4-level driving task model (developed in EU project GADGET), structuring them into 'vehicle manoeuvring', 'mas-</li> </ul>			

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<p>tering traffic situations', 'goals and context of driving', and 'goals for life and skills for living' subcategories;</p> <ul style="list-style-type: none"> <li>• development of approximately 100 detailed scenarios, covering the recognised gaps and inefficiencies, to be taught with the help of the multimedia training tool and/or driving simulators; and</li> <li>• review and analysis of driver training tools from 6 EU countries (17 multimedia software and 23 driving simulators), identifying their technical characteristics, costs, market penetration and limitations.</li> </ul> <p><u>Policy implications</u></p> <p>The project significantly contributed to the promotion of traffic safety in the EU. Apart from the reduction of accidents by novice drivers, they will be able to gain driving experience while using the multimedia tool and the driving simulators developed by TRAINER.</p> <p>The work towards identifying the needs of pre-and post-training of professional drivers (bus, truck, taxi, etc.), and the development of related training scenarios has also addressed EU initiatives on traffic safety.</p> <p><u>Project website</u></p> <p><a href="http://www.trainer.iao.fhg.de">www.trainer.iao.fhg.de</a></p>			
<b>UPTUN</b>	Cost-effective, sustainable and innovative upgrading methods for fire safety in existing tunnels	EU	
<p><u>Project website</u></p> <p><a href="http://www.uptun.net">www.uptun.net</a></p>			
<b>USICO</b>	UAV safety issues for civil operations	EU	
<p><u>Project contact</u></p> <p><a href="mailto:reimund.kueke@airobotics.de">reimund.kueke@airobotics.de</a></p>			
<b>UTMET</b>	'Before' and 'after' analyses of the road safety effects and the complex economic efficiency analysis of the meteorological signalling system	HU	
<p><u>Project contact</u></p> <p><a href="mailto:hollo@kti.hu">hollo@kti.hu</a></p>			
<b>VERA2</b>	Video Enforcement for Road Authorities 2	EU	Reporting and common guidance
<p><u>Key findings</u></p> <p>Relevant key results from the project:</p> <ul style="list-style-type: none"> <li>• Draft text for a possible future Directive on cross-border enforcement; and</li> <li>• "eNFORCE" concept for an organisational network to facilitate cross-border enforcement.</li> </ul> <p>At the request of the Commission, VERA2 prepared draft text for a possible future Directive on cross-border enforcement. This defined the basis on which cross-border enforcement could take place across the EU. It defined which parts of the enforcement chain should be conducted by the Member State in which a violation takes place and which parts need to be transferred to the Member State where the vehicle is registered (if different). It also defined how different agencies responsible for enforcement within each Member State should interact with others at a European level.</p> <p>The eNFORCE concept defined how a cross-border enforcement network could be established in the EU.</p>			

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<p>This network could be responsible for coordinating and managing the 'operation' of cross-border enforcement as well as for monitoring its progress and maintaining the enabling tools as necessary.</p> <p><u>Policy implications</u></p> <p>The following key recommendations are of interest:</p> <ul style="list-style-type: none"> <li>• There are widespread differences between the types of penalties imposed by Member States for the same (or similar) offence. Financial penalties and the endorsement of a violator's driving licence with 'penalty points' are used widely, either on their own or in different combinations. VERA2 has proposed a mechanism for the cross-border enforcement of financial penalties. At the current time, there is no equivalent legal mechanism for the cross-border enforcement of driving license endorsements. As a consequence, in Member States where the endorsement of a violator's driving licence is the primary penalty (and therefore, the primary deterrent), violators who do not reside, are not a citizen or do not have income or property in the State where the violation took place cannot be treated in the same way as those that do. VERA2 recommends that this issue needs addressing at a European Commission-level to ensure that all penalties can be enforced across Member States' borders.</li> <li>• The VERA2 Consortium has expanded the concept of the formal network for managing and structuring cross-border enforcement. It has developed outline plans for eNFORCE - an organisational network meeting the requirements of VERA2 Recommendation 3 supported by an enforcement data exchange service.</li> <li>• The Enforcement Data Dictionary developed by VERA2 in support of the eNFORCE Demonstrator should be expanded to address other road traffic offences. European standardisation should be pursued at an appropriate point.</li> <li>• Accessing another Member States' information on a vehicle and its driver or owner is a potential barrier to implementing cross-border enforcement across the European Union. Member States should give their full assistance to other States making a request for:             <ul style="list-style-type: none"> <li>• confirmation as to whether or not a vehicle (as identified by its registration supplemented by other identification information such as make, model and colour where possible) is registered within their territory,</li> <li>• name and address of the registered owner or keeper of a vehicle registered within their territory,</li> <li>• details of a violator who resides, is a citizen or has income or property in that State (as specified in the Framework Decision on the Mutual Recognition of Financial Penalties),</li> <li>• driver licence details.</li> </ul> </li> <li>• Consideration should be given to granting Member States remote access to each other's data for the purposes of cross-border enforcement.</li> <li>• Further work is required in the area of establishing vehicle identity. The readability of registration plates needs to be improved to support the automatic vehicle identification. The ability to automatically determine the country of vehicle registration should also be improved.</li> </ul> <p><u>Project website</u></p> <p><a href="http://www.veraprojects.org">www.veraprojects.org</a></p>			
<b>VERRES</b>	VLTA emergency requirements re- search evacuation study	EU	
<p><u>Project contact</u></p> <p><a href="mailto:andlauere@sofreavia.fr">andlauere@sofreavia.fr</a></p>			

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Acronym	Project title (in English)	Origin	Research sub-theme
<b>Key findings / Policy implications / Project website or contact</b>			
<b>VERT 98</b>	Infrastructure safety	FR	
<u>Project website (or contact)</u> none			
<b>VERTEC</b>	Vehicle, road, tyre and electronic control systems interaction: increasing vehicle active safety by means of a fully integrated model for behaviour prediction in potentially dangerous situations	EU	
<u>Project contact</u> <a href="mailto:massimo.brusarosco@pirelli.com">massimo.brusarosco@pirelli.com</a>			
<b>VIKING</b>	Road traffic management implementation in Northern Europe	EU	
<u>Project website</u> <a href="http://www.viking.ten-t.com">www.viking.ten-t.com</a>			
<b>VINTHEC II</b>	Visual interaction and human effectiveness in the cockpit, Part II	EU	Working conditions
<u>Key findings</u> VINTHEC II has: <ul style="list-style-type: none"> <li>Performed empirical investigations of shared Situational Awareness (sSA), including the difficulties in measurements that could validate the impact CRM courses actually have on pilot behaviour;</li> <li>developed scenarios of a typical service from Amsterdam to London using a Fokker 100 jet aircraft, and for use in the NLR Research Flight Simulator;</li> <li>tested scenarios, equipment, measurement systems and general procedures in pilot runs using BAE Systems' fixed base simulator; and</li> <li>run a full-scale simulator experiment that provided insight into shared Situational Awareness, and served as a 'proof of concept' demonstration of shared SA measurement in an operationally realistic setting.</li> </ul> <u>Policy implications</u> No policy implications directly relevant to this theme. <u>Project website</u> <a href="http://www.vinthe.net">www.vinthe.net</a>			
<b>VIRTUAL</b>	Virtual reality systems for perceived ergonomic quality testing of driving task and design	EU	Qualifications/behaviour
<u>Key findings</u> <ul style="list-style-type: none"> <li>The methods developed during the project based on VR can improve significantly the quality and the validity of the ergonomic evaluation of the vehicle and can reduce the risks and the costs of problem solving after prototyping.</li> <li>The first system consists of a projection system with actuated primary controls.</li> </ul>			

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<ul style="list-style-type: none"> <li>The second system consists of a more immersive simulation, with a head mounted display. The person is given a visual representation of his/her movements (avatar) in the virtual environment by means of appropriate techniques of motion tracking, capturing and graphical reproduction. A second variant of this system was realised: the steering wheel and the gear shift were moved away so that the interaction with these controls occurred just thanks to the visual cue, through the graphical interaction between the hands of the avatar and the graphical models of the controls.</li> <li>The third system aims at substituting the physical models of the primary controls by a generic force effectors able to give the person the sense of reaching and operating a real control (existing and defined only in the virtual environment). This system is an immersive system with virtual controls (steering wheel and gear shift) and haptic feedback with exoskeleton for the right upper limb.</li> </ul> <p><u>Policy implications</u> No policy implications directly relevant to this theme.</p> <p><u>Project contact</u> <a href="mailto:silvia.quattrocolo@crf.it">silvia.quattrocolo@crf.it</a></p>			
<b>VITES</b>	Virtual testing for extended vehicle passive safety	EU	
<u>Project website (or contact)</u> none			
<b>VPL</b>	Location based mobility performance	NL	
<u>Project contact</u> <a href="mailto:j.dirks@novem.nl">j.dirks@novem.nl</a>			
<b>WAVE</b>	Weigh in motion of axles and vehicles for Europe	EU	
<u>Project website</u> <a href="http://wim.zag.si/wave/">wim.zag.si/wave/</a>			
<b>WHIPLASH II</b>	Development of new design and test methods for whiplash protection in vehicle collisions	EU	
<u>Project website (or contact)</u> none			
<b>YHTALA</b>	Handbook for project evaluation	FI	
<u>Project contact</u> <a href="mailto:juha.parantainen@mintc.fi">juha.parantainen@mintc.fi</a>			
–	Accessibility evaluation of land-use and transport strategies	SE	
<u>Project contact</u> <a href="mailto:jan-anne.annema@rivm.nl">jan-anne.annema@rivm.nl</a>			

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Key findings / Policy implications / Project website or contact			
–	Acceptability of economic calculations in taking account of transport risk	FR	
<u>Project website (or contact)</u>			
none			
–	Acceptance of different speed adaptation systems	NL	
<u>Project contact</u>			
<a href="mailto:info@transek.se">info@transek.se</a>			
–	Accident research of vehicle models 2004	FI	
<u>Project contact</u>			
<a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>			
–	Accidents: studies, data and scenarios (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u>			
none			
–	Adaptive front structures for safer cars	SE	
<u>Project contact</u>			
<a href="mailto:thomas.abrahamsson@solid.chalmers.se">thomas.abrahamsson@solid.chalmers.se</a>			
–	Advanced infotainment and multimedia vehicle system	ES	
<u>Project website (or contact)</u>			
none			
–	After-survey of the traffic and accidents at the two-lane roundabout of the CORA shopping centre on main road No. 11	HU	
<u>Project contact</u>			
<a href="mailto:hoz@kti.hu">hoz@kti.hu</a>			
–	Airbag simulators and gas generator	ES	
<u>Project website (or contact)</u>			
none			

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Key findings / Policy implications / Project website or contact			
–	Air travel & venous thrombolism	UK	Driver, passenger and non-user safety
<p><u>Key findings</u></p> <p>This study was designed as a series of inter-related studies with aims to determine: if the risk of venous thrombosis is increased by air travel; the magnitude of this risk; the effect of other factors on the association; the causal mechanisms. The project makes a contribution to the safety theme, especially under the topics of 'safety of users' such as passengers and the topic of 'safety of non-users', again including passengers and especially high risk groups; given the elevated risk through long distance travel of developing VTE in pre-disposed individuals. The project also relates to the safety sub themes of driver, passenger and non-user safety. The results of the research indicated:</p> <ul style="list-style-type: none"> <li>• A consistent picture in line with previous medical literature on travellers' thrombosis and strengthening previous research due to larger number of subjects;</li> <li>• seated immobility is a risk factor for VTE and is present whatever form of travel;</li> <li>• that the longer the period of travel, the greater the risk; multiple flights in a short period probably reflect the same phenomenon;</li> <li>• the epidemiological studies risk of travellers' thrombosis increases sharply if other risks for VTE are present and these results supported by the patho-physiological studies;</li> <li>• taken overall, no changes in any coagulation parameters during an 8-hour flight or during a similar period of hypobaric hypoxia in a hypobaric chamber (compared to control situations); and</li> <li>• careful analysis of the data from the Volunteer Study (which included subjects at increased risk for VTE) demonstrated a small population of 'hyper-responders'.</li> </ul> <p><u>Policy implications</u></p> <p>This project contributes to the safety action programme of the European Aviation Safety Agency, (EASA), air operators and health and safety executives need to be aware of the main risk factors for VTE: seated immobility. A small risk present in all forms of travel and for all people population with increased risk with longer periods of travel. Risk increases if other risks for VTE are present.</p> <p><u>Project contact</u></p> <p><a href="mailto:mendiss@who.ch">mendiss@who.ch</a></p>			
–	Aluminium profiles to improve safety on the road	ES	
<p><u>Project website (or contact)</u></p> <p>none</p>			
–	Analysis of road infrastructure to model road accidents as function of traffic	IT	
<p><u>Project contact</u></p> <p><a href="mailto:benc@uniroma3.it">benc@uniroma3.it</a></p>			
–	Analysis of the demerit point system taking into consideration transport inspection and police experiences	HU	
<p><u>Project contact</u></p> <p><a href="mailto:hollo@kti.hu">hollo@kti.hu</a></p>			



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Key findings / Policy implications / Project website or contact			
–	Analysis of the relation between speed, speed distribution, and safety	NL	
<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>			
–	An analysis tool for infrastructure decisions	SE	
<u>Project contact</u> <a href="mailto:gunnar.isacsson@vti.se">gunnar.isacsson@vti.se</a>			
–	A priori evaluation based on accident reports	FR	
<u>Project website (or contact)</u> none			
–	ARMADA radar / Phase 1	FR	
<u>Project website (or contact)</u> none			
–	Assessing the operation of the central organisation for traffic safety in Finland	FI	
<u>Project contact</u> <a href="mailto:pekka.tiainen@mintc.fi">pekka.tiainen@mintc.fi</a>			
–	Assessment of the monitoring of drivers under the influence of alcohol in France's Val-d'Oise département	FR	
<u>Project website (or contact)</u> none			
–	Automatic alert system to warn drivers of incidents in motorway tunnels	FR	
<u>Project website (or contact)</u> none			
–	Automatic system to reduce roll-over in heavy goods vehicles	EU	
<u>Project website (or contact)</u> none			

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Key findings / Policy implications / Project website or contact			
–	Braking systems for trains (PROJECT CLUSTER)	FR	
	<u>Project website (or contact)</u> none		
–	Bus drivers' views on how to improve safety in public transportation	FI	
	<u>Project contact</u> <a href="mailto:minna.soininen@poyry.fi">minna.soininen@poyry.fi</a>		
–	Car drivers choice of speed in relation to the street's and the surrounding environment's geometrical characteristics	SE	
	<u>Project contact</u> <a href="mailto:jocke@arch.chalmers.se">jocke@arch.chalmers.se</a>		
–	Car drivers speed choice	SE	
	<u>Project contact</u> <a href="mailto:vti@vti.se">vti@vti.se</a>		
–	Car driving and driver behaviour (PROJECT CLUSTER)	FR	
	<u>Project website (or contact)</u> none		
–	Car driving and medicine (prescription drugs)	FR	
	<u>Project website (or contact)</u> none		
–	Car tyre (winter) issues	EE	
	<u>Project website (or contact)</u> none		
–	Cognitive efficiency of victims with moderate or serious cranial trauma and ability to drive a car: Longitudinal monitoring in the Rhone-Alps region	FR	
	<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Collection of medical data from road accident victims	FR	
	<u>Project website (or contact)</u>		
	none		
–	Collective transport: safety guidelines in non-guided and guided systems	IT	
	<u>Project website (or contact)</u>		
	none		
–	Comparison between different legislative systems of automatic speed enforcement	FI	
	<u>Project contact</u>		
	<a href="mailto:jarkko.niittymaki@ltcon.fi">jarkko.niittymaki@ltcon.fi</a>		
–	Compiling a database of digital crash-test dummies to aid in design	FR	
	<u>Project website (or contact)</u>		
	none		
–	Comprehensive system of rail traffic control in critical situations	CZ	
	<u>Project website (or contact)</u>		
	none		
–	Connaissance des scénarios d'erreur en accidentologie routière	FR	
	<u>Project website (or contact)</u>		
	none		
–	Consequences of vulnerability in the Swedish road system – a modelling study	SE	
	<u>Project contact</u>		
	<a href="mailto:lgm@infra.kth.se">lgm@infra.kth.se</a>		
–	Consistent risk management	SE	
	<u>Project contact</u>		
	<a href="mailto:soh@infra.kth.se">soh@infra.kth.se</a>		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Cost/benefit and cost effectiveness analyses of the road safety and environmental measures made for the decision-makers	HU	
<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>			
–	Curves: simulation of the loss of control and running off the road in curves	FR	
<u>Project website (or contact)</u> none			
–	Cycle lanes: Methods of inspection	NO	
<u>Project contact</u> <a href="mailto:guro.berge@vegvesen.no">guro.berge@vegvesen.no</a>			
–	Daytime Running Lights	NO	
<u>Project contact</u> <a href="mailto:re@toi.no">re@toi.no</a>			
–	Death causes among people instantly killed in road accidents in the Rhône département	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Decreasing maintenance costs in switches	FI	
<u>Project contact</u> <a href="mailto:markku.nummelin@rhk.fi">markku.nummelin@rhk.fi</a>			
–	Definition and implementation of an information system for emergency response centres	FI	
<u>Project contact</u> <a href="mailto:kari.pastuhov@112.fi">kari.pastuhov@112.fi</a>			
–	Deregulation and transport safety within road, rail, air and sea	NO	
<u>Project contact</u> <a href="mailto:ragnar.rosness@sintef.no">ragnar.rosness@sintef.no</a>			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Description and valuation of risks, actions and effects of actions in the road traffic system	SE	
<u>Project contact</u> <a href="mailto:hans.lefvert@sweco.se">hans.lefvert@sweco.se</a>			
–	Design and development of an integration platform for incident prevention and rescue co-ordination systems, applied to the maritime sector	ES	
<u>Project website (or contact)</u> none			
–	Detailed study of road accidents	FR	
<u>Project website (or contact)</u> none			
–	Determination of current national economy losses of the road accidents using the Euro-conform methods	HU	
<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>			
–	Developing diagnostics in order to better foresee the failures in switches, etc.	FI	
<u>Project contact</u> <a href="mailto:markku.nummelin@rhk.fi">markku.nummelin@rhk.fi</a>			
–	Developing Procedures for Checking the Operation of Safety Equipment in Motor Vehicles	FI	
<u>Project contact</u> <a href="mailto:juhani.hienonen@mintc.fi">juhani.hienonen@mintc.fi</a>			
–	Developing Traffic Safety Work and Strategies	FI	
<u>Project contact</u> <a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>			
–	Developing weather models to improve winter pedestrian safety	FI	
<u>Project contact</u> <a href="mailto:reija.ruuhela@fmi.fi">reija.ruuhela@fmi.fi</a>			

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Key findings / Policy implications / Project website or contact			
–	Development and test of method/system for dynamic speed adaptation	SE	
<u>Project contact</u> <a href="mailto:tft@tft.lth.se">tft@tft.lth.se</a>			
–	Development of adult and children restraint systems in cars in case of asymmetric impacts. Simulation of these impacts at sledge tests.	CZ	
<u>Project website (or contact)</u> none			
–	Development of a low-noise piston engine	AT	
<u>Project website</u> <a href="http://www.asaspace.at/takeoff/docs/TAKE-OFF%20Status%2023-09-2003.pdf">www.asaspace.at/takeoff/docs/TAKE-OFF%20Status%2023-09-2003.pdf</a>			
–	Development of a new fuel tank system with increased safety, beginning with light airplanes but also compatible with any other fuel tank	EU	
<u>Project website (or contact)</u> none			
–	Development of a pyrotechnic composition for generators of car airbags	ES	
<u>Project website (or contact)</u> none			
–	Development of an automated system of evaluation of vertical traffic signposting for the use in road safety	ES	
<u>Project website (or contact)</u> none			
–	Development of an innovative aircraft de-icing system	EU	
<u>Project website (or contact)</u> none			

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Key findings / Policy implications / Project website or contact			
–	Development of an integrated avionic system	AT	
	<u>Project website</u> <a href="http://www.asaspace.at/takeoff/docs/TAKE-OFF%20Status%2023-09-2003.pdf">www.asaspace.at/takeoff/docs/TAKE-OFF%20Status%2023-09-2003.pdf</a>		
–	Development of counter-measures aimed at driver fatigue and drowsiness	FR	
	<u>Project website (or contact)</u> none		
–	Development of improvements in a shock simulator through a deceleration servo-controlled system	ES	
	<u>Project website (or contact)</u> none		
–	Development of Pavement Management System	EE	
	<u>Project website (or contact)</u> none		
–	Development of standards	EE	
	<u>Project website (or contact)</u> none		
–	Development of testing methods for braking of vehicles equipped with electronically controlled braking systems	CZ	
	<u>Project website (or contact)</u> none		
–	Development of traffic safety police unit	EE	
	<u>Project website (or contact)</u> none		
–	Development projects for environmental management system	FI	
	<u>Project website (or contact)</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>		



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Key findings / Policy implications / Project website or contact			
–	Digital mapping of Gulf of Tallinn for vessel traffic	EE	
<u>Project website (or contact)</u>			
none			
–	Diminishing Drunken Driving	FI	
<u>Project contact</u>			
<a href="mailto:ejja.maunu@mintc.fi">ejja.maunu@mintc.fi</a>			
–	Disasters in transport: frequency of occurrence and prospects for learning and prevention	NO	
<u>Project contact</u>			
<a href="mailto:rune.elvik@toi.no">rune.elvik@toi.no</a>			
–	Dissemination studies into accidents and new technology within the ITV as part of the 8th national days of technical inspections on vehicles	ES	
<u>Project website (or contact)</u>			
none			
–	Drivers' hypo vigilance diagnostic	FR	
<u>Project website (or contact)</u>			
none			
–	Driver training (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u>			
none			
–	Driving and alcohol consumption: social representatives of young persons with little inclination towards safety	FR	
<u>Project website (or contact)</u>			
none			
–	Economic, ecological and safe solutions of electronic tolls	CZ	
<u>Project contact</u>			
none			
–	Education and science	LV	
<u>Project contact</u>			
none			

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Key findings / Policy implications / Project website or contact			
–	Effective and safe life-saving system for passenger ships. Methodology for development and systematic analysis.	SE	
<u>Project contact</u> <a href="mailto:oller@chl.chalmers.se">oller@chl.chalmers.se</a>			
–	Effect of a partial sleep deprivation on the perceptive/visual capacity of drivers	FR	
<u>Project website (or contact)</u> none			
–	Effect of crash repair and ageing on traffic safety	FI	
<u>Project contact</u> <a href="mailto:pauli.riikonen@stadia.fi">pauli.riikonen@stadia.fi</a>			
–	Effects of education and public information	NL	
<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>			
–	Effects of hands-free legislation	FI	
<u>Project contact</u> <a href="mailto:pekka.tiainen@mintc.fi">pekka.tiainen@mintc.fi</a>			
–	Effects on the industry by congestion	SE	
<u>Project contact</u> <a href="mailto:karl.bang@infra.kth.se">karl.bang@infra.kth.se</a>			
–	Elaborating a methodology for the comparative analysis of the professional dynamics of actors in road safety enforcement. Comparison between France, Belgium, Spain and Switzerland	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Elaboration of a three-year action programme for traffic safety improvement on the national network of public roads (Basic principles)	HU	
<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>			

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–	Elaboration of proposals for the planned continuation of the road safety activity in Hungary on the basis of the evaluation of the National Traffic Safety Programme (NTSP)	HU	
<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>			
–	Electronic failures and disturbances in vessels	FI	
<u>Project contact</u> <a href="mailto:olli.holm@fma.fi">olli.holm@fma.fi</a>			
–	Endogenous and exogenous determinants of road policing policy: Comparative analysis of police forces in Europe	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Enhanced vehicle passive safety network 2	EU	
<u>Project website (or contact)</u> none			
–	Enlarged community for research in road safety	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Environmental Activities - International Follow-Up	FI	
<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			
–	Environmental Cluster Projects	FI	
<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			
–	Environmental Programme for the Transport Sector and Monitoring System - Guidelines 1999-2003	FI	
<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			

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Key findings / Policy implications / Project website or contact			
–	Environmental system of Finnish Maritime Administration	FI	
<u>Project contact</u> <a href="mailto:olli.holm@fma.fi">olli.holm@fma.fi</a>			
–	Erosive effect of studded tires	FI	
<u>Project contact</u> <a href="mailto:juhani.hienonen@mintc.fi">juhani.hienonen@mintc.fi</a>			
–	Errors, violations and risky driver behaviour.	FR	
<u>Project website (or contact)</u> none			
–	Euro-conform methods used in the determination of road accident loss caused to the national economy	HU	
<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>			
–	Eurocontrol ADS Programme – Stages 1 and 2	EU	
<u>Project website (or contact)</u> none			
–	Evaluating and Demonstrating the safety impact of telematics applications EVITA	SE	
<u>Project contact</u> <a href="mailto:gunnarl@infra.kth.se">gunnarl@infra.kth.se</a>			
–	Evaluation and perspective of a device to search for drugs (narcotics) in drivers involved in fatal road accidents	FR	
<u>Project website (or contact)</u> none			
–	Evaluation of instruments of control for private car traffic.	SE	
<u>Project contact</u> <a href="mailto:tommy.garling@psy.gu.se">tommy.garling@psy.gu.se</a>			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Evaluation of road signs for better visibility of black spots in GRSP	HU	
<u>Project contact</u> <a href="mailto:mocsari@kti.hu">mocsari@kti.hu</a>			
–	Evaluation of the utilisation of the profile of the wheels and rails as a safety element of railway transport	PL	
<u>Project website (or contact)</u> none			
–	Evaluation of traffic calming schemes constructed on National Roads 1993-1996	IE	
<u>Project contact</u> <a href="mailto:amacdermott@nra.ie">amacdermott@nra.ie</a>			
–	Evaluation of the implementation of the National Traffic Safety Programme; a proposal for a planned continuation of the traffic safety activity	HU	
<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>			
–	Evaluation scale for risk-taking while driving a car	FR	
<u>Project website (or contact)</u> none			
–	Experiments regarding safety measures: variable message signs for pedestrians, cyclists and car drivers at their interaction points on main roads in built-up areas and on 50 or 70 km/h roads	SE	
<u>Project contact</u> <a href="mailto:mohsen.towliat@vv.se">mohsen.towliat@vv.se</a>			
–	Factoring in traffic safety in urban transport: the case of Aix and Marseille	FR	
<u>Project website (or contact)</u> none			

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Factors that have an affect on accidents and incidents	SE	
<u>Project contact</u> <a href="mailto:info@autoliv.com">info@autoliv.com</a>			
–	Fatal accidents: significance of driver, vehicle and environment related and social factors	FI	
<u>Project contact</u> <a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>			
–	Feasibility study for modelling driver behaviour and its determinants using a network of neurones	FR	
<u>Project website (or contact)</u> none			
–	Fight against the dumping of hydrocarbon in the sea. Design and operation of a specific ship for the collection of their collection	ES	
<u>Project website (or contact)</u> none			
–	Fire prevention in tunnels.	SE	
<u>Project contact</u> <a href="mailto:maria.kumm@mdh.se">maria.kumm@mdh.se</a>			
–	Flame retardant rare fibres fabrics for the aircraft industry	EU	
<u>Project website (or contact)</u> none			
–	Foundations of normative approaches to transport safety policy: a comparative analysis	NO	
<u>Project contact</u> <a href="mailto:rune.elvik@toi.no">rune.elvik@toi.no</a>			
–	Foreign Species in the Baltic Sea	FI	
<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	From vigilance to attention, variation of the problems related to the state of the driver and analysis of their influence on the mechanisms of accidents	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Guide for cost-benefit analysis of road safety investments	HU	
<u>Project contact</u> <a href="mailto:office@maut.hu">office@maut.hu</a>			
–	Guidelines for evacuation plans by simulation of transport systems in emergency conditions	IT	
<u>Project website (or contact)</u> none			
–	Heavy traffic taking into account the winter time driving speeds	FI	
<u>Project contact</u> <a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>			
–	HGV (lorry) safety (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u> none			
–	High-speed railcar: Study of passive safety systems	FR	
<u>Project website (or contact)</u> none			
–	Human error, information processing, barriers and accident risk in transport	NO	
<u>Project contact</u> <a href="mailto:fs@toi.no">fs@toi.no</a>			
–	Human-machine problems and operator interface by train planning and dispatching.	SE	
<u>Project contact</u> <a href="mailto:bengt.sandblad@it.uu.se">bengt.sandblad@it.uu.se</a>			



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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Hyper vigilance of drivers	FR	
	<u>Project website (or contact)</u> none		
–	Ice class investigations	FI	
	<u>Project contact</u> <a href="mailto:olli.holm@fma.fi">olli.holm@fma.fi</a>		
–	Impact analysis of the reconstruction of the Dugonics Square in Szeged from the point of view of traffic engineering	HU	
	<u>Project contact</u> <a href="mailto:hoz@kti.hu">hoz@kti.hu</a>		
–	Impacts of Automatic Speed Control on Main Road 51	FI	
	<u>Project contact</u> <a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>		
–	Implementation of model for analysis and risk evaluation connected to transport of toxic materials in Slovenia	SI	
	<u>Project contact</u> <a href="mailto:marko.setinc@omegaconsult.si">marko.setinc@omegaconsult.si</a>		
–	Implementation study for the development of road safety improvement programme by use of a driving simulator	GR	
	<u>Project contact</u> <a href="mailto:igolias@central.ntua.gr">igolias@central.ntua.gr</a>		
–	Importance of feeling safety for attractiveness of different public transport modes	SE	
	<u>Project contact</u> <a href="mailto:ragnar.hedstrom@vti.se">ragnar.hedstrom@vti.se</a>		
–	Improvements for pedestrians and cyclists	EE	
	<u>Project website (or contact)</u> none		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Improvement of transport services	LV	
	<u>Project website (or contact)</u> none		
–	Improving emergency calls and distress signals	FR	
	<u>Project website (or contact)</u> none		
–	Improving the cycling routes in Eastern Helsinki	FI	
	<u>Project contact</u> <a href="mailto:ville.voltti@lineakonsultit.fi">ville.voltti@lineakonsultit.fi</a>		
–	Increasing safety of non-controlled rail crossings	FI	
	<u>Project contact</u> <a href="mailto:kari.alppivuori@rhk.fi">kari.alppivuori@rhk.fi</a>		
–	Industrial project development to provide the La Coruña port with a central emergency co-ordination centre, for integrated port operations	ES	
	<u>Project website (or contact)</u> none		
–	Influence of pavement maintenance on road safety	IT	
	<u>Project contact</u> <a href="mailto:pietro.giannattasio@unina.it">pietro.giannattasio@unina.it</a>		
–	Information systems for the support of decisions on the field of safety of road traffic	CZ	
	<u>Project website (or contact)</u> none		
–	Information use in road safety decision making	NL	
	<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Infrastructure and road safety	NL	
	<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>		
–	Innovations and risk-taking at the steering-wheel: sociological approach of users and representatives	FR	
	<u>Project website (or contact)</u> none		
–	Integral ball bearing with an active ABS system for the improvement of vehicle safety	ES	
	<u>Project website (or contact)</u> none		
–	Integrated Environmental Monitoring	FI	
	<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>		
–	Intelligent advanced system for heavy vehicles	ES	
	<u>Project website (or contact)</u> none		
–	Intelligent Compulsion Priority of Emergence Vehicles	FI	
	<u>Project contact</u> <a href="mailto:heikki.ikonen@tiehallinto.fi">heikki.ikonen@tiehallinto.fi</a>		
–	Intelligent speed Umeå 2002	SE	
	<u>Project contact</u> <a href="mailto:gis@sweco.se">gis@sweco.se</a>		
–	International transport operations	LV	
	<u>Project website (or contact)</u> none		
–	Inventory of railway crossing	FI	
	<u>Project contact</u> <a href="mailto:kari.alppivuori@rhk.fi">kari.alppivuori@rhk.fi</a>		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Investigation project for the development of a wireless communications system to efficiently manage traffic	ES	
	<u>Project website (or contact)</u> none		
–	Joint Environment Data System and Energy Saving Project	FI	
	<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>		
–	Knowledge of actors in road safety	FR	
	<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		
–	Layout recognition and behaviour prediction	NL	
	<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>		
–	Learning to drive	FR	
	<u>Project website (or contact)</u> none		
–	Legislation improvement	EE	
	<u>Project contact</u> <a href="mailto:hellat.rumvolt@mkm.ee">hellat.rumvolt@mkm.ee</a>		
–	Les régimes français et britannique de régulation du risque routier: la vitesse d'abord	FR	
	<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		
–	Lessons learned from knowledge-sharing for improving accidental situations	FR	
	<u>Project website (or contact)</u> none		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Local terminal user for the Galileo search and rescue server with application to the maritime sector	ES	
<u>Project website (or contact)</u> none			
–	Macroeconomic Community Structure and Transport System	FI	
<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			
–	Maintenance and development of transport infrastructure	LV	
<u>Project contact</u> <a href="mailto:romans@sam.gov.lv">romans@sam.gov.lv</a>			
–	Maritime safety: Implementation of an integral system for the reduction of risks in navigation, optimisation of rescue services and the fight against pollution	ES	
<u>Project website (or contact)</u> none			
–	Means of passenger transport dedicated to the service of individuals or small groups helping the safe transport of persons with restricted mobility	HU	
<u>Project contact</u> <a href="mailto:hoz@kti.hu">hoz@kti.hu</a>			
–	Measures for speed control	NL	
<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>			
–	Methods and research models of air rescue systems as element of a multi-modal transport system	PL	
<u>Project website (or contact)</u> none			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Methods for the analysis of the bearing capacity of the components of safety guard rails for the use in road transport	PL	
<u>Project website (or contact)</u>			
none			
–	Methodology and database for road accidents analysis	IT	
<u>Project contact</u>			
<a href="mailto:davide.tartaro@elasis.fiat.it">davide.tartaro@elasis.fiat.it</a>			
–	Mobility of goods, services and persons, and safety: professional risks and road traffic	FR	
<u>Project website (or contact)</u>			
none			
–	Modelling in sea transport for improving safety and efficiency	SI	
<u>Project website (or contact)</u>			
none			
–	Modelling of climate system in Finland	FI	
<u>Project contact</u>			
<a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			
–	Modelling of driving pattern dimensions. How is driving pattern affected by traffic environment	SE	
<u>Project contact</u>			
<a href="mailto:eva.ericsson@tft.lth.se">eva.ericsson@tft.lth.se</a>			
–	Modelling of the counter-productive effects of road safety paradigms by extension	FR	
<u>Project website (or contact)</u>			
none			
–	Modelling of the interaction between the environment and the vehicle/driver unit	FR	
<u>Project website (or contact)</u>			
none			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Monitoring, control and information system for the active management of safety on a motorway infrastructure	IT	
<u>Project website (or contact)</u>			
none			
–	Monitoring and database (including GPS)	EE	
<u>Project website (or contact)</u>			
none			
–	Monitoring of elderly drivers	FR	
<u>Project website (or contact)</u>			
none			
–	Motorists' speed choice in relation to the geometric properties of the street and the environment	SE	
<u>Project contact</u>			
<a href="mailto:jocke@arch.chalmers.se">jocke@arch.chalmers.se</a>			
–	Multi-criteria planning of safety systems for air traffic and passengers in the airport area	PL	
<u>Project website (or contact)</u>			
none			
–	Municipalities' decision makers' opinions about traffic safety	FI	
<u>Project contact</u>			
<a href="mailto:timo.perala@plaana.fi">timo.perala@plaana.fi</a>			
–	Municipality Stimulus	FI	
<u>Project contact</u>			
<a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>			
–	Natural diversity projects	FI	
<u>Project contact</u>			
<a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>			
–	Novice drivers and the driving course	NL	
<u>Project contact</u>			
<a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>			



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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Operations model for creating unrestricted and safe city centres	FI	
<u>Project contact</u> <a href="mailto:maarit.wiik@sito.fi">maarit.wiik@sito.fi</a>			
–	Opinions of the Finnish Traffic Safety Vision and Catering for Traffic Safety Issues in Two Organisations	FI	
<u>Project contact</u> <a href="mailto:rita.rathmayer@vtt.fi">rita.rathmayer@vtt.fi</a>			
–	Optimal investments	NL	
<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>			
–	Optimisation in the management of the treatment of vehicles at the end of their operational life and dissemination of EU Directive 2000/53/CE in Spain	ES	
<u>Project website (or contact)</u> none			
–	Optimisation of public transport systems country-wide	EE	
<u>Project website (or contact)</u> none			
–	Pile-up hazard: detecting groups of vehicles in hazardous situations along high-traffic routes	FR	
<u>Project website (or contact)</u> none			
–	Pedestrian safety (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u> none			
–	Poor visibility and road safety (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u> none			

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Practical methods of evaluating the effects of severance in French towns	FR	
	<u>Project website (or contact)</u>		
	none		
–	Principles of traffic signs and features placed on roads	CZ	
	<u>Project website (or contact)</u>		
	none		
–	Production proposal of a national plan against hydrocarbon dumping in the sea	ES	
	<u>Project website (or contact)</u>		
	none		
–	Project area 1: Monitoring and development of road and traffic conditions	FI	
	<u>Project contact</u>		
	<a href="mailto:mervi.karhula@tiehallinto.fi">mervi.karhula@tiehallinto.fi</a>		
–	Project area 2: Effectiveness of actions	FI	
	<u>Project contact</u>		
	<a href="mailto:mervi.karhula@tiehallinto.fi">mervi.karhula@tiehallinto.fi</a>		
–	Project area 3: Development of assessment methods and procedures	FI	
	<u>Project contact</u>		
	<a href="mailto:mervi.karhula@tiehallinto.fi">mervi.karhula@tiehallinto.fi</a>		
–	Projects related to energy conservation programme	FI	
	<u>Project contact</u>		
	<a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>		
–	Promotion of the use of Advanced Telecommunications Services in the Transport Sector	ES	
	<u>Project website (or contact)</u>		
	none		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Protection against illicit acts in air transport	FR	
	<u>Project website (or contact)</u>		
	none		
–	Questioning the responsibility of indirect authors: a lever for public decision-makers to take into account transport safety?	FR	
	<u>Project contact</u>		
	<a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		
–	Rail crossing structures	FI	
	<u>Project contact</u>		
	<a href="mailto:markku.nummelin@rhk.fi">markku.nummelin@rhk.fi</a>		
–	Rail structures	FI	
	<u>Project contact</u>		
	<a href="mailto:markku.nummelin@rhk.fi">markku.nummelin@rhk.fi</a>		
–	Reactive headrest: protection of the head and spine of occupants of a vehicle involved in a rear or side collision	FR	
	<u>Project website (or contact)</u>		
	none		
–	Rear-end collision reduction scenarios	FR	
	<u>Project website (or contact)</u>		
	none		
–	Reducing traffic violations	FR	
	<u>Project website (or contact)</u>		
	none		
–	Research and definition of a semi-rigid road barrier	IT	
	<u>Project website (or contact)</u>		
	none		

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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Research and development in designs of special vehicles for rescue and refuelling in aeronautics	ES	
<u>Project website (or contact)</u>			
none			
–	Research and development of a chute extractor device for light aircraft	EU	
<u>Project website (or contact)</u>			
none			
–	Research and development of a methodology of characterisation and simulation of the airbag during the first milliseconds of deployment	ES	
<u>Project website (or contact)</u>			
none			
–	Research and development of a rescue vehicle for accidents and fires in tunnels	ES	
<u>Project website (or contact)</u>			
none			
–	Research and development of a surveillance, detection and early alert system of collisions in a stretch of steep gradients and black spots	ES	
<u>Project website (or contact)</u>			
none			
–	Research and development of an electronic security block between railway stations	ES	
<u>Project website (or contact)</u>			
none			
–	Research and development of intelligent operation of roll damping tanks on fishing vessels and offshore support vessels	EU	
<u>Project website (or contact)</u>			
none			

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Acronym	Project title (in English)	Origin	Research sub-theme
<b>Key findings / Policy implications / Project website or contact</b>			
–	Research and development project for the increase in security and interoperability for rail transport	ES	
<u>Project website (or contact)</u> none			
–	Research and modelling of braking systems in rail vehicles	PL	
<u>Project website (or contact)</u> none			
–	Research in bridge technology	FI	
<u>Project contact</u> <a href="mailto:markku.nummelin@rhk.fi">markku.nummelin@rhk.fi</a>			
–	Research of road traffic safety improvement by means of traffic engineering and traffic organization measures	CZ	
<u>Project website (or contact)</u> none			
–	Research programme for studies of the consequences of the Öresund bridge for regional development	SE	
<u>Project contact</u> <a href="mailto:folke@infra.kth.se">folke@infra.kth.se</a>			
–	Responsibility and safety consequences of accidents	NO	
<u>Project contact</u> <a href="mailto:lillian.fjerdings@ Sintef.no">lillian.fjerdings@ Sintef.no</a>			
–	Review of research on school travel	UK	Driver, passenger and non-user safety
<u>Key findings</u> The aims of this project are to review UK and international research on travel to school published since 1995. This safety themed research review considers in a Scottish context the lessons from UK and international research on: the factors affecting school travel; the influence of school travels on children's development; and the effects of initiatives to improve school travel safety and efficiency. To this end, this project contributes to the safety topics which are concerned with safety of users and non users. The project contributes to the sub themes of: transport infrastructure; driver, passenger and non user safety and security aspects. The results of the work demonstrated: <ul style="list-style-type: none"> <li>• The proportion of children in Scotland being driven to school by car is increasing rapidly and reached 20% of journeys to school in 2000. This trend is having a negative effect on many transport, health, safety, and environmental factors, and is impacting on the wider economy through growing road congestion particularly in the morning peak period. Transport, health and education policies therefore all</li> </ul>			

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<p>seek improvements in school travel, identifying community-planning approaches to deliver integrated action and best value.</p> <ul style="list-style-type: none"> <li>• Although levels of car based travel to school are lower in Scotland than in England, they are growing strongly. Trends in school travel are affected by: organisational changes within education, planning policy factors, and social, economic, demographic trends. The growth in car travel to school mirrors substantial growth in car ownership, particularly the number of two car households.</li> <li>• Children in the UK are open minded about transport, and are generally aware of the impacts of travel decisions on themselves and their environment. Whilst they would like to walk and cycle more, the balance between car travel and other modes still appears to favour the speed and convenience of car travel for an increasing number of trips.</li> <li>• Perceptions of safety and risk often do not match actual risk, so influencing attitudes to risk is an important element in changing travel behaviour.</li> <li>• For many school trips in Scotland bus travel is the only practical alternative to car travel and the poor image and travel experiences of children on buses is a major concern. Greater respect for buses as a mode needs to build on the greater social and independence opportunities provided by bus travel when compared with car travel. However delivering the required change in image will require significant changes in the ways that services are provided and operated.</li> <li>• Social factors have a strong influence on travel to school decisions, and where trade-offs need to be made between transport, health, environmental, and social factors the social issues tend to dominate. However travel choice is very complex involving such a large ranges of factors that reliable analysis would require very large studies of behaviour. Non-car travel can have some positive influences on children's development. The school journey offers the opportunity for developing social relationships with adults, and with other children from within and out with normal peer groups. Greater independence helps with the development of spatial skills and may improve organisational skills including time and money management. Regular exercise walking or cycling to and from school also has a positive influence on health.</li> </ul> <p><u>Policy implications</u></p> <p>When generic solutions are imposed on communities there is a risk of reducing safety or efficiency. If the majority of schools in Scotland adopted community based safer routes to school approaches then there would be many positive economic, social and environmental benefits. Further research is recommended to identify how to galvanise wider support for effective safer routes to school planning, and on how to target action locally through school centred plans.</p> <p><u>Project contact</u> <a href="mailto:info@dhc1.co.uk">info@dhc1.co.uk</a></p>			
–	Risk analysis and steering. A knowledge- and decision oriented perspective on risk and uncertainty.		NO
	<u>Project contact</u> <a href="mailto:ove.njaa@tn.his.no">ove.njaa@tn.his.no</a>		
–	Risks by transport of dangerous goods		SE
	<u>Project contact</u> Fax: +46 31 772 9124		

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Key findings / Policy implications / Project website or contact			
–	Risk judgement, risk tolerance and demand for risk mitigation in transport	NO	
<u>Project contact</u> <a href="mailto:torbjorn.rundmo@svt.ntnu.no">torbjorn.rundmo@svt.ntnu.no</a>			
–	Risk exposure of motorcycle/moped riders (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u> none			
–	Risks faced by light-duty vehicles	FR	
<u>Project website (or contact)</u> none			
–	Risk-taking at the steering wheel against enforcement/sanctions: an incitation approach	FR	
<u>Project website (or contact)</u> none			
–	Risk-taking at the wheel faced with enforcement and penalties: an incentive-based approach	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Road hazard modelling	FR	
<u>Project website (or contact)</u> none			
–	Road hazard modelling seminar	FR	
<u>Project website (or contact)</u> none			
–	Road safety as knowledge and as practice: a socio-technical approach based on the conurbation of Paris	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Road safety education and awareness campaigns (PROJECT CLUSTER)	FR	
<u>Project website (or contact)</u> none			



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Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Road safety explorer	NL	
	<u>Project contact</u> <a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>		
–	Road safety problems related to transit traffic in Austria's neighbouring countries: Hungary, Slovakia, Slovenia and the Czech Republic	HU	
	<u>Project contact</u> <a href="mailto:cseffalv@kti.hu">cseffalv@kti.hu</a>		
–	Road Safety Project in Murmansk City 2003	FI	
	<u>Project contact</u> <a href="mailto:marjukka.vihavainen-pitkanen@mintc.fi">marjukka.vihavainen-pitkanen@mintc.fi</a>		
–	Road Safety Project in St. Petersburg 2004	FI	
	<u>Project contact</u> <a href="mailto:marjukka.vihavainen-pitkanen@mintc.fi">marjukka.vihavainen-pitkanen@mintc.fi</a>		
–	Road traffic information: a development programme	FI	
	<u>Project contact</u> <a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>		
–	Road traffic safety on newly-built bypasses, and the changes in the safety situation on the relieved and on the connecting road sections on the basis of Hungarian case studies	HU	
	<u>Project contact</u> <a href="mailto:voros@kti.hu">voros@kti.hu</a>		
–	Robot system for fire extinguishing and the permanent environmental monitoring for road and rail galleries	IT	
	<u>Project website (or contact)</u> none		
–	Robust security systems for trains	SE	
	<u>Project contact</u> <a href="mailto:everta@kth.se">everta@kth.se</a>		

Theme: Safety and Security			Last update: 12 July 2006
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Role of traffic safety in urban transport plans	FR	
	<u>Project website (or contact)</u>		
	none		
–	Rotorcraft monitoring and diagnosis systems	EU	
	<u>Project website (or contact)</u>		
	none		
–	Route choice in a road network	NL	
	<u>Project contact</u>		
	<a href="mailto:jolanda.maas@swov.nl">jolanda.maas@swov.nl</a>		
–	Russia's European choice: into EU or with the EU	FI	
	<u>Project contact</u>		
	<a href="mailto:marjukka.vihavainen-pitkanen@mintc.fi">marjukka.vihavainen-pitkanen@mintc.fi</a>		
–	Safe mobility research	BE	
	<u>Project website</u>		
	<a href="http://www.steunpuntverkeersveiligheid.be">www.steunpuntverkeersveiligheid.be</a>		
–	Safety and quality in urban areas: strategies, tools and techniques to encourage pedestrian mobility	IT	
	<u>Project contact</u>		
	<a href="mailto:alessandro.ranzo@uniroma1.it">alessandro.ranzo@uniroma1.it</a>		
–	Safety culture in the transport field: descriptions, comparisons, changes	NO	
	<u>Project contact</u>		
	<a href="mailto:per.morten.schiefloe@sv.ntnu.no">per.morten.schiefloe@sv.ntnu.no</a>		
–	Safety education and training	EE	
	<u>Project website (or contact)</u>		
	none		
–	Safety Management Systems and Safety Culture in the Transport Industry – a cross modal comparison	IE	
	<u>Project contact</u>		
	<a href="mailto:margaret.omahony@tcd.ie">margaret.omahony@tcd.ie</a>		

Theme: Safety and Security		Last update: 12 July 2006	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Safety of children in road traffic in connection with child safety equipment in motor vehicles	CZ	Driver, passenger and non-user safety
<p><u>Key findings</u></p> <p>Devices to test child restraint systems in accordance to UN ECE Regulations No. 44 and 16 were produced and checked. Discrepancies in the UN ECE Regulations No. 44 and 16 were noted for the Working Party on Passive Safety (GRSP – WP 29 ECE UN). 20 child restraint systems, purchased mainly in supermarkets, were tested. Tests included 5000 cycles of the central adjuster, 5000 buckle opening and closing cycles, dynamic tests on buckle opening force and check of installation and use instructions against the requirements of ECE regulation No. 44. An array of imperfections and even defects was found (indicating insufficient influence of Conformity of Production testing). Several testing devices were designed. Beyond the terms of devices necessary for the above-mentioned tests, preliminary drafts for the following devices were prepared: Catapult for inverse dynamic testing by using the kinetic energy of a fly-wheel; and System for monitoring the kinematics (and derivatively also the dynamics) of a car impact on a pedestrian (in particular a child) under reduced speed and deceleration.</p> <p><u>Policy implications</u></p> <p>The design, manufacture and checking of devices to test child restraint systems now allows the Czech Republic to test such child seats. Several child seats were shown to have imperfections with regard to the UN ECE regulation no. 44 (which specifies the requirements for such equipment). The facility to test the performance of child restraint systems according to UN ECE standards will help to ensure that in-car child safety systems sold in the Czech Republic meet legal requirements and thus improve the safety of children in vehicles.</p> <p><u>Project contact</u></p> <p><a href="mailto:jason.hampl@seznam.cz">jason.hampl@seznam.cz</a></p>			
–	Safety processor CS 2 G	FR	
<p><u>Project website (or contact)</u></p> <p>none</p>			
–	Safety system integrated checkpoint systems	AT	
<p><u>Project website</u></p> <p><a href="http://www.bmvit.gv.at/sixcms_upload/media/180/isb_handouts.pdf">www.bmvit.gv.at/sixcms_upload/media/180/isb_handouts.pdf</a></p>			
–	Saving lives in severe weather	SE	
<p><u>Project contact</u></p> <p><a href="mailto:office@landsort-maritime.com">office@landsort-maritime.com</a></p>			
–	Seat crash systems for small aircraft	EU	
<p><u>Project website (or contact)</u></p> <p>none</p>			

Theme: <b>Safety and Security</b>			Last update: <b>12 July 2006</b>
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Securing of cargo with vacuum	SE	
	<u>Project website contact</u> <a href="mailto:rolf.nordstrom@tfk.se">rolf.nordstrom@tfk.se</a>		
–	Security effects and systems for driver support	NO	
	<u>Project contact</u> <a href="mailto:stein.johannessen@bygg.ntnu.no">stein.johannessen@bygg.ntnu.no</a>		
–	Simulation and experimental research for the determination of the analytical precision of selected pre-accident situations in road traffic	PL	
	<u>Project website (or contact)</u> none		
–	Social development and road safety	FR	
	<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		
–	Special characteristics of traffic accidents in the city of Pori	FI	
	<u>Project contact</u> <a href="mailto:riikka.aaltonen@pori.fi">riikka.aaltonen@pori.fi</a>		
–	Specifications for improved processing	FR	
	<u>Project website (or contact)</u> none		
–	Speed and distance between vehicles: Synthesis and application to the ONISR national survey	FR	
	<u>Project website (or contact)</u> none		
–	Speed and seatbelt wearing surveys (PROJECT CLUSTER)	IE	
	<u>Project contact</u> <a href="mailto:amacdermott@nra.ie">amacdermott@nra.ie</a>		

Theme: <b>Safety and Security</b>			Last update: <b>12 July 2006</b>
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Speed restriction in a population centre – calculation of road safety results	SE	
<u>Project contact</u> Fax: +46 46 12 32 72			
–	State-of-the-art of certain knowledge useful for accident prevention	FR	
<u>Project website (or contact)</u> none			
–	Statistics and expertise on road safety. A comparison between France and the USA	FR	
<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>			
–	Studies and definition of an integral system of maintenance management based on prediction, applied to a fleet of buses	ES	
<u>Project website (or contact)</u> none			
–	Studies of 2 road safety success stories: Japan and Australia	FR	
<u>Project website (or contact)</u> none			
–	Studies of practice and adaptation of seatbelt airbag for passenger protection in the front of a vehicle	ES	
<u>Project website (or contact)</u> none			
–	Study about defining the tasks to provide against terrorists at international airports and the air traffic control	HU	
<u>Project website (or contact)</u> none			

Theme: <b>Safety and Security</b>			Last update: <b>12 July 2006</b>
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Study, design and prototype of a specialised vehicle for the transport of explosives	ES	
	<u>Project website (or contact)</u> none		
–	Study of relations between telematics and road safety	HU	
	<u>Project contact</u> <a href="mailto:hollo@kti.hu">hollo@kti.hu</a>		
–	Study of safety problems of multilane roundabouts on the basis of on-site observations	HU	
	<u>Project contact</u> <a href="mailto:hoz@kti.hu">hoz@kti.hu</a>		
–	Study of the behaviour of TGV trains in side winds	FR	
	<u>Project website (or contact)</u> none		
–	Study of the safety aspects of the driver-vehicle interaction with specific reference to two-wheels vehicles	IT	
	<u>Project contact</u> <a href="mailto:vito@mecc.unipd.it">vito@mecc.unipd.it</a>		
–	Study on accident and dangerous situation reporting	FI	
	<u>Project contact</u> <a href="mailto:kari.alppivuori@rhk.fi">kari.alppivuori@rhk.fi</a>		
–	Study on methods of managing safety in the rail and air industries: Improving the management of disruptive factors that influence rail traffic	FR	
	<u>Project website (or contact)</u> none		
–	Study prior to organising the first conference on traffic safety research	FR	
	<u>Project website (or contact)</u> none		

Theme: Safety and Security			Last update: 12 July 2006
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Surveys related to climate issues	FI	
	<u>Project contact</u> <a href="mailto:raisa.valli@mintc.fi">raisa.valli@mintc.fi</a>		
–	Synthesis of intelligent adapting suspension of railway vehicles taking into consideration high speeds (200-400 km) and safety and comfort of passengers	PL	
	<u>Project website (or contact)</u> none		
–	System based on satellite for avoidance of collisions between vehicles	ES	
	<u>Project website (or contact)</u> none		
–	System Faults in Accidents of Heavy Transport	FI	
	<u>Project contact</u> <a href="mailto:pekka.tiainen@mintc.fi">pekka.tiainen@mintc.fi</a>		
–	Systematic analysis in the field of the intelligent road	FR	
	<u>Project website (or contact)</u> none		
–	Tail light antifouling systems	FR	
	<u>Project website (or contact)</u> none		
–	Taking on responsibility for road safety at local level: survey of actors and tools	FR	
	<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		
–	Technical Requirements on Vehicle and Equipment Data Administration	FI	
	<u>Project contact</u> <a href="mailto:seija.miettinen@mintc.fi">seija.miettinen@mintc.fi</a>		



Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
<b>Key findings / Policy implications / Project website or contact</b>			
–	Technical safety of sea vessels under vibro-acoustic and fire risks	PL	
	<u>Project website (or contact)</u> none		
–	Technological innovations and risk-taking at the wheel	FR	
	<u>Project contact</u> <a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a>		
–	Technological platform for the improvement of the security in the private transport sector	ES	
	<u>Project website (or contact)</u> none		
–	Test in accordance with the application proposal of the road marking cues enabling better visibility of road alignment	HU	
	<u>Project contact</u> <a href="mailto:gabor@kti.hu">gabor@kti.hu</a>		
–	The 2001 risk ranking of railway crossings	HU	
	<u>Project contact</u> <a href="mailto:mocsari@kti.hu">mocsari@kti.hu</a>		
–	The development of a non-destructive and predictive test method for the fatigue behaviour of bicycle safety parts	EU	
	<u>Project website (or contact)</u> none		
–	The effect on driver speed of traffic engineering devices used on the boundary of built-up areas	HU	
	<u>Project contact</u> <a href="mailto:mocsari@kti.hu">mocsari@kti.hu</a>		

Theme: Safety and Security		Last update: 12 July 2006	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	The low cost remedial measures programme – Evaluation of schemes constructed 1994-1995	IE	
<p><u>Project contact</u> <a href="mailto:amacdermott@nra.ie">amacdermott@nra.ie</a></p>			
–	The long-term effects of hands free legislation on mobile phone use	FI	Qualifications/behaviour
<p><u>Key findings</u></p> <p>About half of drivers in Finland (48%) owned a hands free device in the spring of 2004. The share had not increased since the post-legislation situation. Still, the dominant share (80%) of drivers wear an earbud model.</p> <p>The legislation has significantly decreased the use of phone in the car. Immediately after the act entered into force, the share of those drivers who do not, according to their own testimony, use the phone at all while driving, increased to 43%. In the year 2004, these drivers accounted for 41%. Especially the random users of the mobile phone have stopped talking on the phone while driving. Those drivers using their mobile phone regularly while driving report rather enduring phone usage, despite the new legislation.</p> <p>Drivers' use of mobile phones without hands free had increased in 2004. Immediately after the act entered into force, the share of those drivers who reported that they are holding the phone in their hands while driving decreased from 56% to 15%. By the spring of 2004, the share had risen to 20%, which is statistically significant. Also, the data which was collected from traffic by means of monitoring showed that the use of phone without a hands free device had doubled. The legislative shift has not decreased dangerous traffic situations – reported by drivers – which are related to mobile phone use. Neither have there been any changes in the profile of the dangerous situations. The most common dangerous situation is the failure to observe other traffic.</p> <p>The use of hands free devices has affected talking in such a manner that drivers now talk with their friends on the phone while driving more than previously. Those using a hands free device have estimated that they are promoting the cause of safety with the phone use more frequently than drivers who talk without a hands-free.</p> <p>The attitude towards the use of mobile phones in the car has changed. The majority of the drivers still feel that the drivers should only be allowed the use of a hands-free equipped phone while driving. The share of drivers subscribing to this view has, however, dropped. At the same time the share of those drivers who feel that one should be allowed to hold the phone in one's hand while driving has increased. Based on the studies conducted so far, it is too early to draw any final conclusions regarding the safety effects of hands-free devices.</p> <p><u>Policy implications</u></p> <p>none</p> <p><u>Project contact</u> <a href="mailto:sirpa.rajalain@liikenneturva.fi">sirpa.rajalain@liikenneturva.fi</a></p>			
–	The make-up of road safety statistics and the development of specialised policies	FR	
<p><u>Project website (or contact)</u></p> <p>none</p>			

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
<b>Key findings / Policy implications / Project website or contact</b>			
–	The promotion of walking and cycling on village roads	FI	Transport infrastructure and vehicles
<p><u>Key findings</u></p> <p>The publication presents methods to mark the arrival at a village and measures for traffic calming and improving the conditions for walking and cycling. Arrival in a village can be indicated through landscape design, vegetation, the built environment, traffic signs, lighting and various other installations and devices. Along with speed limits, measures to slow traffic include road layout and horizontal deflections, a village garden and the use of speed humps and rumble strips in the roadway. Walking and cycling can be promoted by providing a separate pedestrian and bicycle path or separate pedestrian and cycling areas, by building sidewalks, and by modifying road shoulders. Alignment of the road and linking it to the surrounding buildings is especially significant in locations of high landscape value and in cultural environments. In addition to the traditional road design process, some other models for the design and implementation of road projects are presented, as well as routine and periodical maintenance phases. Maintenance often has a significant effect on the implementation costs and schedule of the project.</p> <p><u>Policy implications</u></p> <p>none</p> <p><u>Project contact</u></p> <p><a href="mailto:laura.soosalu@tielikelaitos.fi">laura.soosalu@tielikelaitos.fi</a></p>			
–	The public system grappling with ordinary and extraordinary drivers	FR	
<p><u>Project contact</u></p> <p><a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a></p>			
–	The roadside area design vs. traffic safety	SE	
<p><u>Project contact</u></p> <p><a href="mailto:per.stromgren@vv.se">per.stromgren@vv.se</a></p>			
–	The room of fear II – Women's experiences and the solutions of the physical planning	SE	
<p><u>Project contact</u></p> <p><a href="mailto:torfr@tema.liu.se">torfr@tema.liu.se</a></p>			
–	The sense of the road	FR	
<p><u>Project contact</u></p> <p><a href="mailto:therese.spector@equipement.gouv.fr">therese.spector@equipement.gouv.fr</a></p>			

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
<b>Key findings / Policy implications / Project website or contact</b>			
–	The study of relations between telematics and road safety	HU	Transport operation
<p><u>Key findings</u></p> <p>Based on the presented evaluations it is evident that the different intelligent transport systems have clearly positive impacts on the traffic safety both in urban environment and on the highway network. The positive impacts of the collective traffic regulation and information systems are remarkable, they can increase the traffic safety of a given section around 30% because of the variable message signs, which can call the vehicle drivers' attention at the proper place in time to change his driving attitude.</p> <p><u>Policy implications</u></p> <p>none</p> <p><u>Project contact</u></p> <p><a href="mailto:hollo@kti.hu">hollo@kti.hu</a></p>			
–	The transport infrastructure as a critical element of the national infrastructure under the aspect of the basic safety functions of the state	CZ	
<p><u>Project website (or contact)</u></p> <p>none</p>			
–	The use of camera technology in a mixed strategy traffic enforcement	IE	
<p><u>Project contact</u></p> <p><a href="mailto:info@nsc.ie">info@nsc.ie</a></p>			
–	The use of vehicle drivers for reporting the traffic situation on the roads	SE	
<p><u>Project contact</u></p> <p><a href="mailto:info@movea.se">info@movea.se</a></p>			
–	Theoretical models and experimental analyses for improved active and passive safety of two wheels vehicles	IT	
<p><u>Project contact</u></p> <p><a href="mailto:vito@mecc.unipd.it">vito@mecc.unipd.it</a></p>			
–	Tilting trains (PROJECT CLUSTER)	FR	
<p><u>Project website (or contact)</u></p> <p>none</p>			

Theme: <b>Safety and Security</b>			Last update: <b>12 July 2006</b>
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Town planning – focusing on environmental and safety issues	SE	
<u>Project contact</u> <a href="mailto:magnusr@arch.kth.se">magnusr@arch.kth.se</a>			
–	Traffic information on variable message signs and driver behaviour	FR	
<u>Project website (or contact)</u> none			
–	Traffic Management in Urban Districts	FI	
<u>Project website (or contact)</u> <a href="mailto:juha.valtonen@mintc.fi">juha.valtonen@mintc.fi</a>			
–	Traffic safety	LV	
<u>Project website (or contact)</u> none			
–	Training simulator for tunnel operators	FR	
<u>Project website (or contact)</u> none			
–	Transport and logistics	SI	
<u>Project contact</u> <a href="mailto:martin.lipicnik@uni.mb.si">martin.lipicnik@uni.mb.si</a>			
–	Transport Intelligent System Development in Latvia	LV	
<u>Project contact</u> <a href="mailto:lataia@mial.vernet.lv">lataia@mial.vernet.lv</a>			
–	Transport legislation and institutional regulations	LV	
<u>Project website (or contact)</u> none			
–	Traffic provisions for extraordinary situations and the introduction of a system of crisis management in the Ministry of Transport, Post and Telecommunication of the Slovak Republic	SK	
<u>Project website (or contact)</u> none			

Theme: <b>Safety and Security</b>			Last update: <b>12 July 2006</b>
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Transport futures studies	SE	
	<u>Project contact</u> <a href="mailto:jonas.akerman@nateko.lu.se">jonas.akerman@nateko.lu.se</a>		
–	Transport Quality Management Systems	LV	
	<u>Project website (or contact)</u> none		
–	Transport Research and Education Harmonisation	LV	
	<u>Project website (or contact)</u> none		
–	Travel behaviour follow-up system	FI	
	<u>Project contact</u> <a href="mailto:pekka.tiainen@mintc.fi">pekka.tiainen@mintc.fi</a>		
–	Ultrasonic system for assisting drivers of vehicles in fog	ES	
	<u>Project website (or contact)</u> none		
–	Unified evaluation method of the yearly safety situation of the county-wide road network	HU	
	<u>Project contact</u> Tel: +361 350 9795		
–	Upgrading of fixed-base simulators	FR	
	<u>Project website (or contact)</u> none		
–	User health and road safety risks	FR	
	<u>Project website (or contact)</u> none		
–	Using GSM to improve user information and safety	FR	
	<u>Project website (or contact)</u> none		

Theme: <b>Safety and Security</b>		Last update: <b>12 July 2006</b>	
Acronym	Project title (in English)	Origin	Research sub-theme
Key findings / Policy implications / Project website or contact			
–	Information Systems (PROJECT CLUSTER)	FI	
<u>Project contact</u> <a href="mailto:seija.miettinen@mintc.fi">seija.miettinen@mintc.fi</a>			
–	Safety and Environment (PROJECT CLUSTER)	FI	
<u>Project contact</u> <a href="mailto:seija.miettinen@mintc.fi">seija.miettinen@mintc.fi</a>			
–	Young driver accidents 2001	IE	
<u>Project contact</u> <a href="mailto:amacdermott@nra.ie">amacdermott@nra.ie</a>			



# Annex II: General information on the Transport Research Knowledge Centre and analysis process used

## The Knowledge Centre's background

The EXTR@Web project – Exploitation of Transport Research Results via the Web – attempts to collect, structure, analyse and disseminate transport research results, covering not only EU supported but also nationally financed research in the European Research Area (ERA), as well as selected global transport RTD programmes and projects.

The EXTR@Web consortium has brought together eight main contractors to combine strong and in-depth technical knowledge of transport technology and of EU and national transport RTD programmes with solid communication and dissemination experience.

The current project's direct predecessor, EXTRA (a Fourth Framework Programme Transport RTD project), co-ordinated dissemination activities on the European level for the first time. While FP4 addressed transport research on a mode-by-mode basis, the current Fifth Framework Programme (FP5) focuses on generic themes that consequently reflect transport policy objectives.

The EXTR@Web project will provide support to research at European and national levels by building up and promoting an electronic hub. The key objectives are:

- To establish a comprehensive web-based Knowledge Centre, providing structured and timely access to both detailed and user-oriented summary information on transport research programmes and their results across Europe;
- to provide an electronic hub for inter-connecting European and national programmes and individual networks concerned with transport research into an easily navigable European network;
- to establish a common best practice scheme for the structure and content of the reporting of transport research results;
- to provide high-quality analytical outputs that are structured and tailored according to the type of stakeholder and medium; and
- to raise awareness of the new service, the implications of emerging results, and the wider opportunities under national research programmes across Europe as a whole.

EXTR@Web will provide a comprehensive pool of programme, project and results related information to users, principally in electronic format via the Internet. The approach is based on three main strokes of work covering:

- Monitoring, analysis and information preparation;
- website and electronic news service, the principal dissemination channels; and
- management of knowledge transfer, including dissemination by non-electronic means, and also the maintenance of a contact database and e-mail enquiry service and evaluation of the performance of EXTR@Web.

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## Definition of transport research

For inclusion into the Transport Research Knowledge Centre, Transport research programmes and projects have to be within the definition of research and transport simultaneously. This will define the eligibility of projects.

### Definition of research

General OECD definition:

"Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society, and the use of this stock of knowledge to devise new applications."

Additional transport research criteria:

- Targeted – in line with transport policy aims, strategies and processes to solve the inherent problems for society.
- Accessible – a public activity, open to scrutiny by peers.
- Transferable – useful beyond the specific research project, applicable in principle to other researchers and research contexts as well as decision-makers in policy, industry and science.

### Definition of transport

In order to clarify expectations from the Transport Research Knowledge Centre, and to ensure a common understanding of important terms, the Programme Analysis Group of EXTR@Web has come up with the following definition of transport.

- Transport is the means by which a person or material of any kind is passed from its origin to its destination.
- Transport comprises:
  - the transport users: passenger, business, freight;
  - the transport vehicles (full life cycle issues);
  - the transport infrastructure (full life cycle issues);
  - the transport system: the interaction of users, vehicles and infrastructure;
  - the impacts of transport: contribution to objectives, and hence to overall sustainability; and
  - the transport tools: methods and instruments to help ensure an effective contribution to the objectives.

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## Three levels of analysis

### Project level analysis

For European, national and international projects the following harmonized process was agreed:

- For each eligible project, the project co-ordinator will be requested to draft a Project Profile;
- the EXTR@Web consortium identifies, for each project all relevant themes (typically up to five), and provides the project linkage;
- for each eligible project, the project co-ordinator will be requested to draft the other elements of the reporting scheme – Progress Summary and Result Summary – due to the project progress and provides the final report;
- projects with highest relevance and best available final results will be selected for analysis;
- for every such relevant theme within each project a short and concise paragraph – structured with bullet points as appropriate – will be written to present the key findings of the project in relation to the objectives of the theme; and
- this information will be searchable on the Knowledge Centre website.

### Thematic analysis

The thematic analysis has been exploiting existing project level analysis. The consolidated project wise findings have been structured and analysed along 30 themes, which are fixed for the project life time and fed into annual Thematic Research Summaries and Annual Compendia. However, for reporting purposes Thematic Research Summaries have been limited to 28 volumes (cf. Chapter 1).

The sequence of outputs has been comprising an explanation of the overall structure, and regular reports treating national, European and international research in a comprehensive way.

Deliverable number	Title	Release date (final version)
D2.A	"Thematic structure and definitions – all themes"	August 2006
D2.B	"European, national and international project database"	July 2006
D2.C	"First annual thematic research summary"; 30 vol.	December 2004
D2.D	"Second annual thematic research summary"; 10 vol.	March 2006
<b>D2.E</b>	<b>"Third annual thematic research summary"; 28 vol.</b>	<b>August 2006</b>

**Table: The sequence of deliverables**

### Policy level analysis

Whilst the 30 themes are fixed, this type of analysis should give the flexibility to provide information on ad hoc policy priorities. Hence, policy level analysis will synthesize key findings of projects across combinations of themes. As an output, policy brochures shall be prepared depending on ad hoc requirements by DG TREN or by the high-level Advisory Group (AG).

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## Annex III: Editorial team for Thematic Research Summaries

Please note that – in principle – all EXTR@Web partners and sub-contractors will be contributing to a particular Thematic Research Summary because all project level findings that are of some relevance to one of the 28 (30) individual themes are presented in the comprehensive format of these papers.

The following summary of authors and peer reviewers is presented in alphabetical order while the main author of this paper is given on page i of the document.

### **Fabien Dreveton**, ISIS; France

Mr Dreveton has an electrical engineering post-MSc degree, an MBA and over 8 years experience in Intelligent Transport Systems for road transport. He has been a senior engineer with ISIS since 2001, specialising in traffic control, motorway management, ITS standards development process and system architecture.

*Co-author: Road Transport*

### **Prof J Augusto Felício**, Neptune – CEGE/ISEG; Portugal

Professor Felício, holding a PhD in management, is teaching graduate and post-graduate courses such as 'Maritime transport and port management' and 'Land transport and logistic management' at ISEG, School of Economics and Management (Technical University of Lisbon). His activities include participation in transport research where he has published several related articles and books.

*Main author: Waterborne Transport, Intelligent Transport Systems*

*Peer review: Efficiency, Vehicle Technology*

### **Dr Paul E Firmin**, Institute for Transport Studies, University of Leeds (ITS); UK

Dr Firmin has 30 years of experience in transport planning and engineering, including local authority, consultancy and academia. His research specialities are: traffic management, transport survey design & analysis, traveller information systems; driver route choice behaviour and transport telematics. He is currently the MSc(Eng) degree programme leader and international student adviser at ITS, University of Leeds. He teaches computing skills and traffic management, and supervises student dissertation projects.

*Main author: Information and Awareness*

*Peer review: Safety and Security*

### **Dr Nils Gendner**, Neptune – University of Bremen, ISL; Germany

Dr Gendner has been working for more than four years at the University of Bremen, Institute of Shipping Economics and Logistics. His main topics include the analysis of processes, functions and data flows in shipping and within the rail sector. He contributes to ongoing efforts in intermodality by participating in several projects dealing with intermodal concepts and developments.

*Main author: Intermodal Transport, Integration*

*Peer review: Financing Tools, Pricing and Taxation*

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**Wolfgang Helmreich**, Industriebetriebe-Betriebsgesellschaft mbH (IABG); Germany  
 Mr Helmreich is a civil engineer from the Technical University of Munich. He has more than 15 years experience with transport planning and infrastructure design in the rail, road and air sector, and sound knowledge of vehicle technologies. His expertise also includes project management, web publishing and dissemination skills. He joined IABG in 1999 as a senior transport consultant after working as project manager at several German engineering companies. He is principal editor of all Thematic Research Summaries.

*Main author: Air Transport, User Aspects, Safety and Security*

*Peer review: Regional Transport, Rail Transport, Waterborne Transport, Environmental Aspects, Land Use Planning*

**Cristina Ivan**, Group of Independent Experts Ltd (GIE); Romania

Ms Ivan has a law degree and has graduated a Master course in project management. Ever since 1998 she has participated in various projects financed by international donors in Romania. The main areas of her expertise cover: project management, legal approximation of the EU acquis & drafting of environmental legislation, as well as the carrying out of awareness raising and dissemination activities, including those for the transport sector.

*Main author: EU Accession Issues*

*Peer review: Economic Aspects, User Aspects, Transport Management*

**Dr Ann Jopson**, Institute for Transport Studies, University of Leeds (ITS); UK

Dr Jopson is a Research Fellow whose main interests and expertise lie in the areas of travel behaviour psychology, transport marketing and urban transport planning and policy, with particular emphasis on travel demand management through attitudinal and behavioural measures. Her PhD thesis was based on the role of psychology in reducing car use.

*Main author: Environmental Aspects*

*Peer review: Rural Transport*

**Dimitris Koryzis**, Systema; Greece

Mr Koryzis is a production & management engineer from the Technical University of Crete and holds an MSc in Decision Sciences from Athens University of Economics & Business. He has more than 8 years experience as technical and managerial consultant for 30 European programmes in the transport sector (road, maritime and intermodal) as well as in research and innovation technology EC projects.

*Co-author: Pricing, Taxation and Financing Tools*

*Peer review: Integration*

**Ulrich Leiss**, Industriebetriebe-Betriebsgesellschaft mbH (IABG); Germany

Mr Leiss is an aerospace engineer from the Technical University of Munich. His professional career includes 24 years experience with research, technical analyses, monitoring and managing national and European projects and programmes. These activities cover the areas aerospace, transport, energy and new technologies.

*Main author: Other Modes, Vehicle Technology*

**Bryan Matthews**, Institute for Transport Studies, University of Leeds (ITS); UK

Mr Matthews has 9 years experience of transport research and project management in both consultancy and university settings. His research expertise is in transport policy analysis and transport economics. He has worked on a number of EU, UK DfT and Research Council projects. He also contributes to teaching activities, lecturing on Air Transport Systems and supervising student projects.

*Main author: Rail Transport*

*Peer review: Air Transport*

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**Prof Anthony D May**, Institute for Transport Studies, University of Leeds (ITS); UK  
 Professor May has over 35 years' experience in transport planning and traffic engineering. He has been a professor at Leeds since 1977, and has served as Head of the Department of Civil Engineering, Dean of the Faculty of Engineering, Pro-Vice Chancellor for Research and Director of the Institute for Transport Studies. He also has practical experience with the MVA consultancy and the GLC in London. His research specialities include: land use planning, traffic management, road pricing, sustainable urban transport, integrated transport and environmental impacts of transport.

*Supervision of entire process of thematic reviews*

**Batool Menaz**, Institute for Transport Studies, University of Leeds (ITS); UK  
 Ms Menaz is a transport economist from the University of Leeds. She has been involved in a number of various projects including research into transport pricing reform issues in air, road and rail for the IMPRINT-Europe thematic network project, and research for the UK Rail Research Centre looking at the alternative visions for the future of the British rail system.

*Main author: Regulation/Deregulation*

*Co-author: Passenger Transport, Equity and Accessibility, Land Use Planning*

*Peer review: Road Transport*

**Christina Paschalidou**, Systema; Greece

Ms Paschalidou is a transportation engineer from Aristotle University (Thessaloniki), with a MSc in Urban and Regional Transport from Laboratory of Transport Economics in Lyon. Her field of interest is transport planning and engineering, EU and national transport policies, sustainability issues and research. She joined Systema in 2005, while her previous experience includes an internship in ISIS, traffic studies elaborated individually and research activities in the Aristotle University.

*Main author: Transport Management*

*Peer review: Information and Awareness*

**Ignacio Rada Cotera**, Neptune – IkerConsulting; Spain

Mr Rada Cotera is a lawyer from Deusto University in Bilbao, holding a diploma and certificate of European studies from Deusto and Saarland Universities, respectively. He has been working on EU projects since 2000. His main expertise is European commercial and regional policy, maritime transport and port affairs, legal aspects of international economic relations, urban planning, regional benchmarking and development.

*Main author: Regional Transport*

**Marco Valerio Salucci**, Università di Roma "La Sapienza", DITS; Italy

Mr Salucci holds a degree in mechanical engineering from the University of Rome "La Sapienza". His past research experience has focused on computer modelling of the operations of freight terminals and automatic passenger transport systems, the latter being carried out within EC funded research projects. His current research for a doctorate is in the area of transshipment and information and communication technologies for intermodal freight transport.

*Co-author: Freight Transport, Urban Transport, Rural Transport, Efficiency, Decision-support Tools*

*Peer review: Intermodal Transport*

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**Dr Karsten Seidel**, Neptune – European Networks and Cooperation; Belgium/Germany  
 Dr Seidel has graduated as economist and holds a PhD from the University of Bremen. He has been working on EU projects since 1988. His main expertise is in European industrial and regional policy, telecommunication research projects, maritime transport and port affairs, evaluation of technical aid, urban planning, regional benchmarking development.

*Co-author: Regional Transport*

**Dr Paolo Delle Site**, Università di Roma "La Sapienza", DITS; Italy

Dr Delle Site holds an PhD, and is a senior research fellow at DITS, Transport Area, University of Rome "La Sapienza". He combines professional experience with research activities, the latter mainly being carried out within EC funded research projects. Related activities comprise urban transport planning, urban public transport design, transport project assessment, and policy analysis. His teaching activities include courses in transport planning. Furthermore, he is author of papers in Transportation Research Part A – Policy and Practice and in the European Journal of Transport and Infrastructure Research.

*Co-author: Freight Transport, Urban Transport, Rural Transport, Economic Aspects, Infrastructure Provision, Pricing, Taxation and Financing Tools*

*Peer review: EU Accession Issues, Intelligent Transport Systems, Regulation/Deregulation*

**Damian Stantchev**, Institute for Transport Studies, University of Leeds (ITS); UK

Mr Stantchev holds a degree in Economics and Trade from Varna University of Economics in Bulgaria and an MA in Political Science from the Central European University in Hungary. His early research experience was in the area of small business development in transitional economies of Central and Eastern Europe. Damian has also contributed to an extensive report on the role of the logistics and transportation sector in society for the Logistics & Transportation Corporate Citizenship Initiative of the World Economic Forum. His research for a doctorate examines the role of logistics in enhancing the competitiveness of the regional economy and encompasses all aspects of original research and data collection including the design, conduct and analyses of large scale surveys as well as the collection of commercial data and development of case studies.

*Main author: Passenger Transport, Land Use Planning, Equity and Accessibility*

*Peer review: Freight Transport*

**Andrew Winder**, ISIS; France

Mr Winder is a transport planner with a BSc in transport management (Aston University, England) and over 15 years experience in consultancies and public transport authorities covering transport planning and policy, particularly at UK, French and Europe-wide levels. Since 1998 he has been a senior engineer at ISIS, responsible for a wide range of European projects focusing primarily on Trans-European Networks, ITS for road traffic management, urban and regional public transport and EU enlargement aspects.

*Main author: Road Transport*

*Peer review: Passenger Transport, Urban Transport, Other Modes, Equity and Accessibility, Infrastructure Provision*

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**Ard Wolthuis**, Università di Roma "La Sapienza", DITS; Italy

Ard Wolthuis graduated in Science & Innovation Management, in the field of Transport and Mobility, from the University of Utrecht. He has been involved in transport projects and analysed socio-economic, environmental, political and legal aspects, such as the Phileas project, the Fokker bankruptcy, and innovation policy of companies in the Netherlands. Has participated in a European project on innovation in urban public transport systems. Since spring 2005 has joined DITS as a research fellow. His main areas of activities are policy analysis and dissemination of research results.

*Co-author: Efficiency, Decision-support Tools*

**Dr Zhaomin Zhang**, ANAST – University of Liege, Neptune; Belgium

Dr Zhang has got the university degrees of Civil Engineering, Mechanical and Marine Engineering; Master of Transportation Sciences and Doctor of Philosophy. He is a senior engineer and led the important projects related to the "Establishment of a mathematical traffic model on the Belgian waterway network" (Belgian national research program "Transport and mobility"), the project called "On computerisation and management in real-time of operations relating to the exploitation of fluvial traffic to organise the waterway transport", Belgian Regional Ministry of Public Works) and the Project related to the development of a transport cost model in the inland navigation sector. He has also been involved in numerous simulation and operation research activities.

*Peer review: Decision-support Tools*

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