ECTRI

European Conference of
Transport Research Institutes

White spots in European transport research traced by ECTRI's Thematic Working Groups



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Introduction

One of the instruments of the European Conference of Transport Research Institutes[1] (ECTRI) to pursue the vision and the goals of ECTRI are the Thematic Working Groups (TWGs). They were given a clear mission:

- to contribute to the building of European research agenda's,
- the establishment of a "knowledge map" for their respective fields of expertise,
- formulating targets for common activities.

Within this framework the researchers are given the freedom to develop their own initiatives and establish their own working procedures.

The TWGs gathered in Lyon from 9 to 11 December 2008 during the ***EU French Presidency Event***. Their main target was to prepare an input for the updating of the Work Programme of the 7th Framework Programme and for the subsequent midterm review. Therefore the format is similar to the one chosen for the task-descriptions in FP7. This document has nevertheless a wider target audience.

The TWG on *Urban Mobility* has defined 6 research subjects (pages 2 to 8) that complement an earlier initiative of this group (URBAMOVE), which contributed to the definition of a Strategic Research Agenda on urban transport by EURFORUM.

The *Safety and Security* TWG has contributed to and endorsed a contribution to the update of the Work Programme of FP7 submitted by the Forum of European Road Research Institutes (FERSI). The 3 research subjects in this document (pages 9 to 13), address horizontal issues concerning all modes (**B1** on behavioural aspects of safety, **B2** on safety and security management or the development of a long-term prediction tool **B3**).

The TWG on *Energy and Climate Change* clearly deals, with its 4 proposals (pages 14 to 20), with important issues of the political and research agenda. The proposal **C2** on battery–ultracapacitor association could help to improve the performance and life span of batteries and contribute thereby to the "electrification" efforts in the road sector. The other proposals aim at developing instruments to measure and monitor specific environmental issues.

One proposal (**D2**, page 24) developed by the TWG *Freight transport*, deals with another priority issue in the research agenda of the European Commission: the strengthening of rail freight transport. It addresses the development of 2 corridors linking the Western part of Europe with the Eastern part and with Asia. The other (**D1**, pages 21 to 23) deals with the CO2 footprints in freight transport.

The TWG on *ITS and intelligent infrastructures* defined a large number of issues (page 27) asking for R&D- efforts. These research themes will be further developed in the coming months.

The *Mobility* TWG prepared 6 proposals (pages 28 to 37) and deal mainly with the influence and interaction between information and mobility behaviour, one (**F6**) addresses the impact of the ageing of the population on transport demand.

Finally, the TWG on *Transport Economics and Policy* developed 2 proposals (pages 38 to 41) dealing with impact assessment of transport policy (**G1**) and performance based indicators for public private partnerships (**G2**).

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[1] The European Conference of Transport Research Institutes (ECTRI) is a network of major national research institutes and universities engaged in transport research in Europe. ECTRI counts 20 members dealing with cross-cutting, mode-neutral perspectives on transport research, management, and policy, from 17 countries; this represents a potential of 2,800 researchers and engineers specialized in the field of transport. The ECTRI members are focused, research-oriented organisations, some of them dealing with cutting-edge research issues. They are involved in regional, national, European and international research programmes.

Thematic Working Group:

Urban Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**A1 Implementation of sustainable transport measures and integrated sustainable transport plans**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Policy context / background

- Implementation of policies and measures are essential, but often overlooked. Many plans are adopted but not realized or only partly or with poor results. Implementation research is a field with much to offer in terms of understanding implementation processes and barriers and how they are sometimes overcome. But implementation theory also have to recognize new situation associated with multi-level governance, public-private partnerships, and long term concerns such as sustainability. Sustainable urban transport is a typical example of 'intractable' policy area reflecting such trends, in addition to traditional implementation issues.

- The policy objectives and the knowledge regarding relevant instruments are abundant when it comes to sustainable urban mobility. What lacks is implementation – European cities experience an implementation deficit. For that reason it is important to analyse political and institutional conditions for implementing policies, instruments and measures in favour of sustainable urban mobility, and to derive possible implementation paths.

Objective(s) of the research topic:

- To improve dissemination
- To speed up potential impact
- To have a more systematic approach
- To improve the cost effectiveness European research
- Better understanding of implementation processes and barriers
- Overcome fragmentation/overspecialisation in science and politics
- To define the impact of cultural differences in the implementation

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

Implementation issues and barriers has been studied in a few European transport research projects such as the FP5 projects TIPP (Transport Institutions in the Policy Process) and PLUME (Planning and Urban Mobility in Europe), and more detailed in various national programs, such as DESTILLATE in the UK. A major program called IMPACT was recently completed in Sweden, dealing with implementation problems related to sustainable mobility. Specific aspects of implementation problems studied in IMPACT, included the implications of multi-level governance, of horizontal deregulation of transport

policy, and the use (or non-use) of decision support information such are indicators and monitoring programs. It was found that implementing sustainable mobility is a challenging task, partly because of limitation in those areas, and also because of inconsistent time horizons among stakeholder. In the UK several studies have addressed implementation problems related to complex transport decisions. A number of 'implementation barriers' types have been identified, e.g. economic, institutional and political ones. The ECMT has for example listed 9 specific barriers. However there is a limited understanding of how implementation processes actually work, including how barriers emerge, if and how they can be foreseen and if and how they can be overcome through policy redesign inside or outside the transport policy context. Few projects have studied urban transport implementation processes specifically, although cities are clearly a critical venue for inducing change to current transport patterns. Comparative approaches, trying to systematize and compare implementation problems and pathways across the national or regional contexts for cities in Europe are few. Examples of successful implementation processes (moving from words to action to results to success) are also in need of detailed research investigations: Are 'success factors' always unique or can any generalizable patterns be identified? Research could include examples of cities across Europe that have been addressing similar policy targets (e.g. regarding air quality, safety, public transport reform etc), but have followed different implementation trajectories.

A particular topic that remains to be understood better is the extent to which implementation trajectories (and associated successes or failures) are largely determined by early/underlying aspects of policy or institutional designs, versus the availability of options to design successful 'implementation processes' more independently. Another important topic is the extent to which implementation of sustainable urban transport measures and plans are best promoted by via 'control' e.g. through top-down monitoring, performance measurement, and incentive frameworks versus more experimental or bottom-up driven 'learning' approaches. How can tools to support different types of implementation problems in different institutional settings and policy settings be devised?

Expected results:
(impact and benefits of the research topic, including dissemination activities)

Improving the understanding of implementation processes, helping to achieve faster or smoother implementation of overall objectives and more specific measures; constructing tolls especially to help in implementation processes.

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)

Links to national projects DESTILLATE and IMPACT, and former work in the European Conference of Ministres of Transport, now International Transport Forum

Dimension of project: (level 1: generic; defining broad fields of activity;
level 2: specific; referring to well identified industrial policy and socio-economic matters)

Contact for further information:
(if available: name of institutes supporting this idea for a potential consortium)

DTU Transport, Senior researcher Henrik Gudmundson, hgu@transport.dtu.dk

Thematic Working Group:

Urban Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**A2 Non-residential transport users**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Policy context / background	
How far are non residential transport users taken into account by planners? (Business travellers, leisure travellers…)	
Objective(s) of the research topic:	
- Take better account of non residential transport users to improve all aspects of transport in the urban area (management, organisation, needs…) - Adapt the transport services for every type of user present in the urban area (including sustainable development of transport)	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)	

Thematic Working Group:

Urban Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**A3 Evaluation of the impacts of dissemination of European urban transport research**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Policy context / background	
• No sufficient evaluation on the impact of dissemination of European urban transport research • Need for management of the knowledge produced in projects • Improved and faster transfer of research outcomes to policy making and implementation, especially concerning climate change and energy consumption	
Objective(s) of the research topic:	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)	

Thematic Working Group:

Urban Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**A4 New approaches of land use**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Sub-topic: Interaction between land use and the reduction of car speed Sub-topic: Time shared land use Sub-topic: Interrelation with alternative modes	
Policy context / background	
Urban structure is the arrangement of land uses in urban areas. Its interactions with the transport system go both ways. On the one hand, the functional differences in land use and the spatial separation of functions create the need for travel and freight transport. On the other hand, the transport system determines the accessibility of places and – at the same time – has significant impact on land use. This research area is concerned with: • the relationship between land use and transport demand; • the potential of making the development of our cities and transport systems more sustainable by coordinated planning and management of the urban structure based on sustainability objectives and policies.	
Objective(s) of the research topic:	
- Make a synthesis (a typology?) of the methods and results of existing empirical research concerning the relationship between land use (and especially the different spatial scales that are concerned) and travel behaviour - Enhance the comprehension of the links between land use, the transport system and GES emission by both case studies and modelization - Better understand the interactions between land use and the promotion of alternative transport modes	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Both theoretical (modelization) and empirical results are expected and policy recommendations	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Policy recommendations	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Level 1	
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)	

Thematic Working Group:

Urban Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**A5 Urban transport experimentation**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Policy context / background	
Objective(s) of the research topic:	
It is not always possible to model or predict how road users, the general urban public, of policy makers will respond to new measures. Models may not exist or may not be able to forecast changes in behavior. Second order behavior (policy making) may be even more difficult. Experimentation is another approach that allows transport users and policy makers to experience chances in practice before a final decision for implementation is made. Sometimes assumptions are confirmed, while in others experiments may surprise or even contribute to change agenda. The research should investigate experiments with new urban transport technologies, measures, designs, solutions, etc and examine how experiments inform and influence subsequent planning and implementation. Significant emphasis should be put on ex post evaluation of experiments, since there is limited documentation available.	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)	
DTU Transport, Senior researcher Henrik Gudmundson, hgu@transport.dtu.dk	

Thematic Working Group:

Urban Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**A6 User needs and user behaviour**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Policy context / background	
Objective(s) of the research topic:	
Study the evolution of user needs, sub-topics: • Urbans (demographic aspects, immigrating population, ageing population in urban population) • Leisure • Work patterns and especially workplace location (and impact on (business travel) and telework • Use of ICT (mobile phone, e-commerce) and travel demand • Shifting from cars to alternative modes (prices, …) Provide a sustainable transport system matching to these new user needs	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Better understand the relationship between ICT use and travel Better understand the influence of the relations between the changes concerning work patterns (workplace location, diffusion of ICT and telework, etc.), travel behaviour for work purpose (especially the need for business travel) and for non-work purpose.	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Policy recommendations concerning each topic (demographic aspects, leiseure, work, etc.)	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)	

Thematic Working Group:

Safety and Security

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**B1 Cross modal integration of approaches regarding behavioural aspects of safety and security**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Activity: Improving Safety and Security Area: Integrated Safety and Security for surface transport systems Topic: 7.2.4.1	
Policy context / background	
The goal of this proposal is to increase the effectiveness of the individual methods on influencing the human behaviour. Early work on workload, distraction, fatigue and fitness to operate has had some influence on research and legislation in other transport domains. Yet there remain very great differences in approaches to certification of systems, standards for interfaced design, or agreement in approaches to training and licensing. There should be more cross fertilisation of approaches across the transport modes.	
Objective(s) of the research topic:	
To review safety and security provisions in the EU for freight and passenger travel. To recognise best-practice approaches and potential for IT solutions for common cross border and multi modal journeys.	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Strong link to Theme 10 Security.	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Clear recommendations for adoption of technical systems and regulatory instruments to improve transport safety and security within EU borders.	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
Common call with Theme 10 Security.	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Level 1	
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)	
Name / contact person: Andrew Parkes Institute: TRL E-mail address: aparkes@trl.co.uk Phone: +44 (01344) 770421 Research topic supported by (other institutes interested): ECTRI partners	

Thematic Working Group:

Safety and Security

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**B2 Safety and security management**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: Improving Safety and Security
Area: Integrated Safety and Security for surface transport systems
Topic: 7.2.4.1

Policy context / background

One of the main topics of the European Commission is to create a greener, safer and smarter transport system. Infrastructure authorities have to manage all kinds of safety aspects (road safety, nautical or maritime safety, external safety, occupant safety, construction safety, security etc). Safety management is a systematic process, normally used by large industries that can help countries reduce the number of severe accidents. The process provides ways for planning, implementing, and evaluating safety programs and projects. Through safety and risk management, all opportunities to improve safety are identified, considered, implemented as appropriate, and evaluated in all phases of planning, design, construction, maintenance, and operations.
Some countries in the EU use a ROAD safety management program. This proposal contains the employment of a integrated safety approach

Objective(s) of the research topic:

Make an inventory of safety and risk management programs used by authorities and large industries
Analyse the use of these programs and show the added values of these methods for infrastructure authorities
Develop a guideline for infrastructure authorities to implement safety and risk management.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

The study must lead to a integrated approach to identify and to manage risk and counter measures to improve safety in all phases, including security (natural disasters, man made disasters and security threats)

Expected results:
(impact and benefits of the research topic, including dissemination activities)

Overview of potentials of safety and risk management techniques
The method helps authorities to define an cost effective strategy to increase safety

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)
Use of the knowledge which is developed in a PIARC project TC C3 Managing Operational risk in road operations
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)
Level 1
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)
Name / contact person: Pieter van Vliet Institute: Dutch Ministry of Transport; Centre for Transport and Navigation E-mail address: Pieter.van.Vliet@rws.nl Phone: +316 515181259 Research topic supported by (other institutes interested): ECTRI -partners

Thematic Working Group:

Safety and security

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**B3 The development of an evaluation and prediction model for middle and long term national road safety strategies**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: Improving Safety and security
Area: Policy support
Topic: 7.2.4.2.

Policy context / background

The midterm review shows that the EU is not on course to reach the target of halving the number of road deaths by 2010. The model must help countries to make a cost effective middle and long term strategy. New future safety (ITS) measures must be included.

Objective(s) of the research topic:

State of the art of comparable models of countries that have such a model
- Statistical base line model for the prediction of safety in future, based on developments in the past
- Overview of the effectiveness of safety measures (infrastructure , education, vehicle and ITS)
- Possible scenario's of the implementation ITS safety measures for the period 2010-2020 and 2020 - 2030
- A model that can help policymakers to develop multiple scenarios of cost-effective strategies for reducing of the number road deaths and hospitalised victims for the national situation

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

This model focuses on Road Safety
References to ongoing projects:

- E-impact
- Humanist
- Safety
- Etc.

It is expected that successful models would incorporate social science approaches to targeting behavioural change policies for relevant traveller groups (for example; age, nationality, trip purpose)

Expected results:
(impact and benefits of the research topic, including dissemination activities)

This model should make it easily possible to bring in the results of 6 and 7th framework projects into national policies

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)
Level 1
Contact for further information: (if available: name of institutes supporting this idea for a potential consortium)
Name / contact person: P. van Vliet Institute: Ministry of Transport, E-mail address: pieter. van.vliet@rws.nl Phone: +31 6 51581259 Research topic supported by (other institutes interested): ECTRI partners

Thematic Working Group:

Energy and Climate Change

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**C1 Characterization of airplane emissions**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Activity: 7.1 AERONAUTICS AND AIR TRANSPORT ACTIVITY 7.1.1 THE GREENING OF AIR TRANSPORT	
Motivation and suggestions of activities within the research area	

1. Emissions: Works are needed for the characterization of the real-world airplane emissions. Methodologies and metrology - in complement to the standard LTO procedure - have to be developed in that aim, to characterize in-flight emissions, according to altitude and operation. Non-CO2 greenhouse gas as well as other pollutants should be considered to enable characterization of impacts on climate change and ozone layer.
2. Inventory of GHG and prospective: As for the other transport modes, robust prospective of the air traffic and scenarios for the air transport development are needed, taking into account new / evolving technologies and airplanes, to enable a good forecasting of the GH effects, including the international flights in the inventories. Traffic related data based on robust and real-world statistics are also needed, as well as a detailed characterization of the airport logistic and its integration in GHG inventory.
3. Mitigation measures and their assessment:
   - Improved traffic management should be aimed for energy, GHG, air quality and noise optimization (multi criteria optimisation as envisaged in SESAR programmes).
   - As for the other transport modes, integrated assessment approaches should be developed to enable objective comparisons of the modes, to account for the transit to and from the airports or stations for instance (by car, bus, train) in the quantification of the overall emissions from the transport mode.
4. Technology: Consumption on the airport (electric trailer) to from runway. Research on reactor (fuel injection), technologies for high temperatures operation. Similarities / synergies should be developed with the development of road engines, electrical generator, in particular fo on-board electrical-power unit).
5. Intermodality: intermodality for intermediate distances is of strategic importance for Europe. It includes in particular the development of a complementarity and share between air transport and rail and have significant implication in term of choice for high-speed rail network extension and intermodal airport location. To help in these strategic issues, methods, criteria and decision making tools should be developed. These ones imply multiple criteria optimization, and assessment methods that include door to door (travel) and dust to dust (production, use of energy) approaches.

Thematic Working Group:

Energy and Climate Change

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**C2 Battery-ultracapacitor association**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: 7.2 SUSTAINABLE SURFACE TRANSPORT
ACTIVITY: 7. 2. 1. THE GREENING OF SURFACE TRANSPORT
AREA: 7.2.1.1 THE GREENING OF PRODUCTS AND OPERATIONS

Motivation and suggestions of activities within the research area

- Hybrid vehicles
- Battery / ultracapacitor association: Ultra capacitors associated to batteries could improve battery life duration by insuring high transient power, mainly in recharge phases, while reduced-sized battery provides energy with an appropriate management to preserve its durability. Researches are needed to validate the feasibility and demonstrate the benefits of the battery/ultracapacitors association. Energy management with 3 sources (i.e. ICE, battery and ultra-capacity) requires research on generic management methods and multi-source systems.
- Plug-in hybrid vehicles (PHEV) have a real potential to reduce CO2 emissions, battery sizing and cycling representing however the key point of such a solution. The researches must deal with optimisation of the energy and the battery management together with parametrical studies of the appropriate battery type and size according to the vehicle use.
- Integrated assessment and life cycle analysis: Assessment of new technologies through of a single vehicle is necessary but not sufficient to relate expected real-life impacts. A number of market and traffic related data should be taken into account. Furthermore, life cycle assessment (LCA) (and dust to dust analysis) including environmental impacts and economical costs should be applied for both transport operation and industrial process (of which raw Battery materials, energy, production, operation and recycling) to enable objective and exhaustive information on the environmental impacts of different technological options. Such an assessment requires enormous amounts of technical and socio-economic information. A collaborative project could manage to produce clear and incontestable results.
- Vehicle emissions (and fuel / energy consumption), measurement and modelling:
- Non-CO2 (N2O,VOC, particulates) greenhouse gas should be measured.
- Real-world emissions measurements are needed including the auxiliary operation and parameters not covered by the standard procedure (driving resistance, etc.)
- Large-scale real-world CO2 measurements should be conducted through simple on-board measurement systems and OBD system, for light and heavy duty vehicles, allowing a good taking into account of numerous parameters of the emissions, including driver behaviour, vehicle operation and traffic conditions.
- Portable on-board emissions measurements (PEMS) have been developed, that should enable characterizing real-world emissions from road and non-road engines. Developed for regulation purpose (emission control), these systems lack of appropriate methods (experimental design, etc.) to

derive real-world emission factors and models.

- Emission models on different scale levels constitute the base for most evaluations of scenarios in order to reduce emissions of climate gases. Emission models are currently based on average vehicles and average test conditions through test cycles. Specific models should be defined to consider misfunctioning vehicles (high emitters) as well as off-cycles conditions. These models should include all necessary input data. The use of alternative energy raises the need for energy system models to estimate energy efficiency for the transport sector. Specific developments are also needed to enable simulation of traffic management, ICT and eco-driving impacts on greenhouse gases and air pollution: indeed crucial issues related to the modelling scales, the coherency and the interfaces between demand, traffic, driver and emissions models are not sufficiently addressed by existing tools. This requires both modelling works as well as experimental studies to develop and validate the models,
- Inventorying tools for non-road transports lack of reliable emission data and traffic statistics. Significant efforts are required in particular for air traffic, which is increasing quickly. Car ownership models (addressing different vehicle categories and types) and vehicle use models (addressing mobility, mileage, etc.) should be developed as regards growth scenarios, demographic data, etc.
- Emissions standard and regulation should be adapted to consider components not covered by the standard procedures (tyres, air conditioning, auxiliaries, etc.). Energy / CO2 labelling should also apply to these components.
- Mobility and driving behaviours
- The driver behaviour (driving and vehicle usage) remains one of the key elements of the emission. Observation and monitoring is required to assess the characterize the real-world driving conditions as well as their evolution due to the implementation of various measures, ICT, eco-driving, training, raising awareness campaign, etc. The development of on-board systems, traffic management, and communication technologies should enable large scale data collection related to vehicle use and traffic conditions. Pilot projects should be proposed to demonstrate the feasibility of such experimentation. Such experimental tools should also enable quantifying potential impact or efficiency of eco-driving campaigns.
- Numerous traffic related information such as trip lengths, vehicle load, parking time, access to electric, car ownership by vehicle type and size, etc. should also be investigated for emissions inventory as well as for the feasibility assessment of future individual transport systems. A good description of the characteristics from the existing and future vehicles (driving resistance, weight, etc.) is also required for good forecasting of energy use and exhaust emissions by the vehicle fleets.
- Driver behaviour should also be assessed as regards the development of new technologies such as electric or hybrid vehicles (definition of vehicle mission profiles needed for their optimization). Driving behaviour models should be developed in combination with real-world measurements, to predict future driving patterns and their impacts. Systematic description of driving patterns for combinations of vehicle types and traffic situations requires the use of simulation models at different scales (from very detailed driving cycles to averaged driving conditions).
- Low consumption operation and maintenance (rail, etc.): tools are needed to help predictive driving with lowered energy consumption within certain contexts (guided systems, trains, etc.). Most data is available in that aim, but operational strategies should be developed.
- Energy, raw materials, energy recovery in vehicles (incl. manufacturing and recycling aspects):
- Energy (and raw materials) management is of high concern for transport, for which significant possibilities exist. Recycling can and should be increased. Energy consumed by the recycling processes (and environmental impacts) has to be considered.
- It is absolutely necessary to consider the quantities of raw materials that would be needed for a large scale implementation of new technologies (i.e. Lithium for batteries, Platinum for fuel cells, etc.), as that conditions their feasibility. Raw materials with low environmental impacts should be preferred for the conception of transport vehicles and systems.
- Electric vehicles: an integrated deployment in connection with the others consuming sectors (heating, industry) and producing sectors (especially the possibilities for storing electricity from the volatile wind power production in the batteries of cars) is needed. An overall optimisation should be searched for, implying good knowledge of traffic data, electricity needs, etc.
- Future vehicles, future urban contexts:
- it should be useful to develop a future vision of the city and of the transport systems, with a

significantly increased urbanization, a market of lightweight- (3-wheels, etc.) and electric- urban vehicles, new transports systems and services, adaptation to the future needs, and developments of new transport strategies (car hiring, shared cars, etc.) as well as freight transport urban logistic.

- Magnetic levitation transport system, at low speed in urban are currently studied in Corea, Japan, China. A research effort should be dedicated to such system for their overall advantages (electric-powered, low noise, no track wear, low visual nuisances).
- "Radical changes" (new technologies, strong evolution within short time period) require new tools and knowledge and models, as a number of issues have to be raised up and anticipated without experiences (economy, maintenance aspects, etc.).

Thematic Working Group:

Energy and Climate Change

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**C3 Monitoring tools for energy related consumer behaviour**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Activity: 7.2 SUSTAINABLE SURFACE TRANSPORT ACTIVITY: 7. 2. 1. THE GREENING OF SURFACE TRANSPORT AREA: 7.2.1.3. SOCIO-ECONOMIC ISSUES	
Motivation and suggestions of activities within the research area	

- Monitoring tools:
- A strategic issue concerns the deployment of monitoring tools (surveys, on-board sensors, ICT and GPS deployment). for decision makers and public authorities at different geographical scales, but also for companies and consumers (tools to help the decision and the choice). Monitoring – when aimed at the user - , can be seen as a powerful instrument to influence the behaviour (actual knowledge of the real-world consumption or emission). Agreed system of accounting the CHG should be implemented. Harmonised databases, indicators and models should be developed and shared in that aim. Harmonisation between freight and passenger transport is needed.
- Monitoring is also needed for transport logistics, to analyse efficiency and derive best practices. Knowledge on the load factors as well as on the impact of ICT should be gained from such monitoring.
- Transport intensity as regards economic structure and geographical organisation should be investigated to trend to optimal configurations.
- Galileo offers efficient way to trace the vehicles and develop an efficient monitoring of the transport modes and activities. This should result in a powerful help for the decision making as well as for inducing behaviour changes.
- Reduction measures and policies assessment: shared cost-efficiency assessment should be elaborated, with a good understanding of the behaviour evolution and of its elasticity, while taking into account of the crossed effects. This requires assessment methodology and agreed hypotheses on energy prices, rate of actualisation, etc. Agreed assumptions on costs related to vehicle, time spent, injuries, nuisances, infrastructure, are also needed.
- Social representations of climate change, social and political acceptability of mitigation measures:
- The social representations of the climate change issues need to be followed and understood as the context is rapidly changing. Moreover, they are strongly linked with the acceptability of the mitigation measures and with behavioural changes (energy uses, mobility, driving). Assessment of reduction policies should thus consider social and political acceptability (i.e. sensitivity to GHG issues, perceived efficiency, social equity, etc.).
- Barriers (economic, social, political) to and driving forces for the dissemination of technological innovations / GHG emissions reduction should be identified. Experiences from case studies (hybrid vehicle diffusion, etc.) should be helpful in that aim. Beyond the GHG reduction policies, appropriate instruments (regulations, economic instruments..) should be implemented.
- Information (CO2 emission performances, on-board real-time fuel consumption) as well as public

awareness campaigns are also strategic issues. The development of models analysing the mechanisms of vehicle and transport modes choices should enable predicting (and influencing) the purchase of new vehicles according to exogenous information such as exhaust emissions, greenhouse gases, costs, etc. Such tools should aim also at determining optimal vehicles for given missions, combination of transport modes, etc.

Thematic Working Group:

Energy and Climate Change

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**C4 Assessment of mitigation measures**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Transport (incl. Aeronautics) **-** Activity: 7.3 Horizontal activities for implementation of the Transport programme - Greening / Climate Change topics ***ICT*** **-** Challenge 6: ICT for Mobility, Environmental Sustainability and Energy Efficiency ***Environment (including climate change)*** **-** AREA 6.4.2.1 TOOLS FOR IMPACT ASSESSMENT	
Motivation and suggestions of activities within the research area	

6. Mitigation measures assessment
   - Rigorous and coherent methodologies should be elaborated to enable an objective assessment of the different mitigation measures. Currently, we observe a large range of assessment methods for different purposes (assessment of new vehicle technologies, of traffic measure, of behavioural measures, life cycle analysis, field operational tests, etc.), which are not consistent between them to enable objective comparisons. A rationalization of the assessment methods is required. Concepts (perimeter of the analyses, parameters, etc.) should be defined as well as required metrology and methodology, to ensure coherent assessment. A preliminary typology of the mitigation measures as regards the suitable assessment methods is needed as well as the analysis of the coherency between these methods. Set of coherent and validated models (demand, traffic, emissions) should also be elaborated on these bases.
   - Timescale (short term, long term) of the effects of mitigation measures should be considered with their efficiency level.
   - In several countries and cities, mitigation measures have been and will be implemented. A synthesis of these experiences is needed as well as their results. Best practices should be derived from these experiences as well as recommended packages of measures. One of the main issue concerns the collection of reliable and coherent data (between countries).
   - Transport planning, urban planning: a major issue as regards optimisation of the transports can be achieved through urban planning, transport planning and their coordination. Assessment methods have to be designed and implemented to the existing plans. Optimisation should be searched for, through analysis of best practices and understanding of the drivers and barriers. Modal choice for urban transports should be developed including trips by non-motorized modes (pedestrians, bicycles).
7. ICT assessment and emission models
   - Due to the large range of ITS measures and of their effects, their assessment as regards traffic conditions and emissions require simulation models and field experimental tests. The current emissions and traffic models, being developed on average actual traffic conditions and driver behaviour, are not suitable to simulate the ITS or eco-driving induced changes as they do not include realistic sensitivity to these aspects. Coherent sets of models have to be developed and implemented (demand, traffic, driver behaviour, vehicle operation, emission).

Field operational tests (FOT) are a favourable way to assess ITS measures and enable collection of a large range of data regarding the driving behaviour and engine operation through simple devices implemented on-board vehicles samples and satellite facilities (Galileo). Methodologies of assessment should be designed in that aim.

Thematic Working Group:

Freight Transport

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**D1 CO2 labelling of shipments**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: GREENING
Area: Environmental friendly and efficient Industrial Processes
Topic: complementary idea (no existing topic number in this area is addressed)

or
Activity: STRENGTHENING COMPETITIVENESS
Area: Competitive Surface Transport Products and Services (w/SMEs)
Topic: Competitive transport operations

Policy context / background

Retailers are planning and preparing to sign the CO2 Footprints on their products. That should inform the consumers how much CO2 has been generated in production and transport or distribution processes. Consumers can consider the CO2 labelling of the product and involve this in their purchase decision besides quality and price of the products.
On the other hand, some logistic service suppliers and forwarders will adjust their processes according to e.g. the CO2 emissions and will use these as an important indicator to optimise their processes and to increase energy efficiency.
Accounts of CO2 emissions from various activities are not measured on the same scale or using the same methodology across different companies, across different modes of transport etc. This creates uncertainty for the consumer as to what the CO2 label of the product actually encompasses and the labelling loses its value.
It is essential to have an unambiguous definition of what the labels should included and have a common background as to how the different CO2 contributions are measured.
ISO 14064 defines an international standard for greenhouse gases. This standard specifies the organization level for quantification and reporting of greenhouse gas emissions and removals. Based on this standard a common methodology and rules are necessary to unify the application in the transport sector. Special attention should be given to projects of former EC Framework Programmes in the area of logistics and methodologies for calculation or measurement of green house gases. So there should consider the results and methods e.g. of the following projects: QUANTIFY, SULOTRA, PROTRANS, REDEFINE, REORIENT, ASSESS, ETTAR and TRILOG.

Objective(s) of the research topic:

The high level objective is to establish a European standard of calculating CO2 contents of a product based on existing and extended rules and regulations.
Other objectives are

- A definition of the requirements of retailers and logistic service providers or forwarder by interviews or workshops should be realised.
- Based on these requirements, the development of a common methodology to calculate the CO2 emissions for shipments in the transport processes.

The definition of technical requirements for suitable technologies including ITC applications will give input for technical solutions that could be developed for the practical use in daily forwarding.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

One of the outcome of the European ETTAR project is that many forwarders have developed own methodologies to CO2 Footprint calculation with not unified approaches. It is obvious that only on a common approach the results will be valid and credible for all stakeholders.

An important task in this subject matter consists in developing a methodology for specifying energy consumption levels connected with manufacturing certain products and transport thereof. CO2 emission levels during production and transport of products depends on the use of energy carriers employed in such processes. In external transport, CO2 emission levels constitute a function of the amount of fuel used (in motor transport) or the amount of electric energy or fuel used (in rail transport) and it will be linked to the unit of the transport volume (tone-kilometer). The methodology of research into energy consumption in the area of transport as well as CO2 emissions per one unit of transport volume for certain products has to be developed in reference to individual branches of transport, including intermodal transport.

An overview about methodologies for the measurement of CO2 emissions of different transport modes is necessary. These methodologies have to be valid and should be applicable in daily life. The requirements of the shippers and forwarders have to be identified. Technical solutions should support the measurement and calculation of the CO2 footprint of shipments. Like a back office process the CO2 label should be transmitted to the shippers to inform and to enable them to calculate the complete CO2 footprint of a product.

In case of road haulage, differences in energy consumption will be taken into account (hence, different levels of CO2 emissions per one unit of transport volume) depending e.g. on the maximum total weight of a car and on the emissions norm category (EURO) which show the level of technological advancement of a vehicle. The developed methodology for evaluating energy consumption of transport and emissions per unit connected with the transport envisages conducting research in real-life operating conditions for road haulage. The developed methodology will undergo verification on the basis of selected substitute products, e.g. products of the motorization industry. Results of research conducted in different countries on the basis of a uniform methodology will enable making comparisons in this subject matter.

The shipment flow accounts have to be transformed to emissions. The commodities produced by the industrial sectors, classified in NST/R commodity classification, are linked to the weights tonnes lifted. A multimodal network could be used to calculate distances between origin and destination of freight flows. Further, the commodity flows are distributed on appropriate types of vehicle and the kilometric transport volume is calculated. Finally, the emissions have to be calculated using emission factors of different transport modes. All relevant green house gases are considered and aggregated to CO2-equivalents according to their extent of their influence. It should be proposed that coefficients are used to calculate transport and shipment flows from material flow accounts and finally CO2 content.

Expected results:
(impact and benefits of the research topic, including dissemination activities)

The results of the project will contain an overview of existing principles and approaches. It will be described a common approach for a valid methodology of measuring the CO2 footprint in the transport sector involving all modes of transport.
Further the requirements for technical devises for measuring will be defined. This will involve solutions based on new technologies like RFID and Galileo applications. These applications are unified along the supply chain and are valid for all commodities and shipments.

The developed methodology for the calculation of energy consumption as well as CO2 emissions is connected with manufacturing and transport of selected products. It will allow making consumers and forwarders aware of the impact of their decisions to the environment. One might expect that including

into research many other products in different European countries can contribute to increasing ecological awareness of the society and thereby to reducing destructive human impact on the environment.

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)

The reduction of CO2 emissions in the transport sector has come on the agenda during the last few years. Political commitments and reduction targets on the side of the industry and transport service providers require measuring standards to control the processes. On national level CO2 reduction targets was defined on the basis of the Kyoto processes. There are expected new objectives on international level due to the discussions of reduction of greenhouse gases.

Possible management of the project should be entrusted with a research centre which has already gathered some experience in supervising works under Framework Programmes.
- It is important to appoint a team of experts ready to start the implementation of individual tasks both of theoretical nature and those referring to the practical aspect of the developed methodologies.

Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)

Level 2

Contact for further information:
(if available: name of institutes supporting this idea for a potential consortium)

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Research topic supported by (other institutes interested): INRETS, VTI, DTU,ITS Poland

Thematic Working Group:

Freight Transport

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**D2 Development of rail transport in Eurasian transport corridors**
Programme: *(please choose the relevant programme)*	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS
Area: Quality of rail services or Policy Support or Logistics and intermodal transport
Topic: complementary idea (no existing topic number in this area is addressed)
For topic number, please see WorkProgrammes (weblink below)

Policy context / background

The new economies in the eastern part of Europe and Asia have grown fast during the last years. In the EU 15 the North-South corridors were essential to provide efficient transport solutions for the industry of these member states. Now new corridors from western Europe to south-east and to east Europe and Asia are becoming more and more important. There exist as well member countries of the EU as non member countries like Turkey, Ukraine, Kazakhstan, Russia and Far-East countries like China, Japan, Korea and Vietnam which have a high potential for economic growth over the next decades. Fast, secure, reliable and environmental friendly transport services are necessary to manage the growing volume and support the industry in these countries as well as in the EU countries.

There are good perspectives and increasing demand for cargo in the transport to and from East, South-East Europe and Asia. Some examples of the drivers are European congested ports, new terminals in the East, investor's interests eastwards and truck driver protection in EU.

Objective(s) of the research topic:

The objective is to develop new landbridges connecting Western part of Europe with the growing East European as well as Asian countries. There is demand and space for new concepts for development of east-west corridors with emphasis of corridors to Asia. There exist several rail corridors: Trans Siberian Railways (TSR), Trans China and TRACECA. Price level compared to sea route is important. Some clear advantages of rail connection are the bigger container weights compared to sea transport and faster transit time.

The main aspect is the activities to develop these new corridors over the next 15 years. In the centre of interest are key questions like :

- How governance can contribute to the process of infrastructure development on these long corridors?
- What should be done to support the use of more energy efficient and environmental friendly modes?
- Which priorities and best practice solutions should be supported on the European level?

The work is aimed at developing a tool which would improve governance for defining the goals of transport policy and attaining such goals in taking strategic decisions in the area of transport infrastructure investments.
In order to attain the above-mentioned goal it is indispensible to develop a methodology of forecasting and evaluating average social unitary costs of transport in transport corridors. The said methodology will be helpful in evaluating branch allocation of transport tasks in the area of transport corridors while maintaining the criterion of social costs of transport. Applying such a methodology combined with the calculation of the effectiveness of infrastructure investments will be helpful in planning future investment in the area of transport infrastructure in transport corridors.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

Many regulations determine the process to develop corridors. There exist not much experiences and theoretical knowledge how to control this in an efficient way. First attempts to structure political governance were made in the REORIENT project in FP6.

There exist several areas for development both on business as well as on administration levels. It is necessary to analyse bottlenecks of rail, road and intermodal transport and to develop a programme for further development. The development scope should be in building up reliable connections and defining the preconditions for successful services. Main tasks are service leadership and corridor management and related IT architectures and solutions.

Further an analysis should be realised considering the occurences of different level of interests along the corridor. The selection of interests, being most substantial for functionality of the corridor. Finally there should be adjusted different interests and enable optimal decissions for the entire corridor.

In order to meet the needs for a comprehensive approach, the following tasks shall be undertaken:

1. Taking stock of the existing so called "good practices" in the discussed subject matter.
2. Taking stock of transport infrastructure and its parameters in selected European transport corridors, especially in Central and Eastern Europe.
3. Application of an existing methodology (Transtools) for forecasting freight and passenger transport in transport corridors, taking into account economic factors, technological and organizational advancement which conditions material and transport intensity, economic, social factors etc.
4. Verifying the methodology for forecasting transport while adapting specific, variant assumptions appropriate for conditions in selected transport corridors.
5. Developing a methodology for calculating average unitary transport costs in transport corridors according to different transport branches and different types of shipments, including intermodal transport.
6. Developing a methodology for the assessment of average unitary external costs of transport in transport corridors in accordance with different transport branches (taking into account intermodal transport), including inter alia.
   - unitary costs of pollutants emissions from combustion engines in real-life traffic,
   - unitary costs of noise, etc.
7. Developing a methodology for monitoring average unitary shipment costs divided according to selected branches of transport and types of shipments.
8. Application of cost benefit analyses for comprehensive calculation of effectiveness of infrastructure investments in transport corridors (taking into account also external costs of transport).

The transit traffic in Russia has almost ended after the increase in prices. Reliability or uncertainty of the TSR service (schedules) is one of the key barriers at the moment. There must be confidence on the service.

Expected results:
(impact and benefits of the research topic, including dissemination activities)

Expected results of project implementation:
- Creating premises for comprehensive economic evaluation of the implementation of transport policy tasks in the area of development of transport infrastructure in reference to specific transport corridors.
- Dissemination of the developed methodology among interested experts in selected European countries in order to make popular new "good practices" in the discussed subject matter.

n.b.: Direct rail connections between Europe and Asia are not a competing mode for maritime transport but more a complementary choice. These connections are a competition factor for the European industries.

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)

Possible management of the project should be entrusted with a research centre which has already gathered some experience in supervising works under Framework Programmes.
It is important to appoint a team of experts ready to start the implementation of individual tasks both of theoretical nature and those referring to the practical aspect of the developed methodologies.
CCTT, Coordinating Council on Trans Siberian Transportation has proposed a joint task force approach for the TSR development. All parties along the supply chain should participate in building up the services and business.

Dimension of project: (level 1: generic; defining broad fields of activity;
level 2: specific; referring to well identified industrial policy and socio-economic matters)

Level 1

On the one hand the scope of the project is a theoretical one: it constitutes an attempt at developing a comprehensive, methodological approach towards a fairly innovative area of research into transport corridors. On the other hand the topic has a practical aspect: it concerns future problems pertaining to the development of transport by providing a tool which is helpful while making macroeconomic decisions – i.e. infrastructure investments in transport.

Contact for further information:
(if available: name of institutes supporting this idea for a potential consortium)

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Research topic supported by (other institutes interested): VTT, VGTI-TMI, DLR

ECTRI TWG on ITS and intelligent infrastructures

Proposals of research ideas for FP7 update:

E1: Climate change / ITS transportation greening

- **Sustainable traffic management & control**
  - Renewal within 'cooperative system'
  - Fluidity, risk and emission optimization
- **ITS applications Assessment for:**
  - CO_2 emission
  - vehicle performance optimization and for driver info/warning

E2: Vehicle-based information

- Dynamic traffic information from probe
- Logistics and fleet management
- Probe-based emission assessment

E3: Satellite-based ITS technology

- Radar navigation
- Weather

E4: Economical evaluation of ITS

- Technologies and services assessment under CO_2 cap and trade framework

E5: Demand and access management

- Model-based personalized warning system (ADAS)
- Real time and personalized multimodal information (multimodal travel time)
- Dynamic multimodal pricing

E6: Driver behaviour change

- Effect of ITS on behavior and impact assessment of ADAS system on traffic operations

E7: Network vulnerability & reliability

- **Real-time transport network optimization under**
  - Adverse weather conditions within the climate change
  - Wild fire and other treats
- **Intelligent Highways**
  - Ubiquitous sensing technologies for traffic conditions, road conditions, weather

Thematic Working Group:

Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**F1 Behavioural adaptations towards sustainable mobility**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Activity: **7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY** Area: 7.2.3.3 Demand Management	
Policy context / background	
The issues of global warming and petrol scarcity have remembered us that a sustainable, yet efficient transport system is as crucial for our economy and standard of living as it will be for future generations. The increase of the fuel prices may impacts household expenditure and/or behaviour. In term of fuel consumption one may reduce the heating and/or his mobility or in a long term changes in urban form. We should put an effort to study these reactions that may leads to an increase of social inequities (those who have low income do not have leeway to reduce their car dependency).	
Objective(s) of the research topic:	
The objective of the research is to define all the criteria which could lead to mobility behavioural adaptation in the context of petrol scarcity. Particular attention should be devoted to cross cultural differences between EU members, social issues (avoid exclusion), and functional limitations.	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
This research will provide elements for the elaboration of mobility planning models and mobility previsions which will be necessary when EU will have to face to the end of the fossil energy period. The research will assess existing measure towards a sustainable transport system in different context and countries, and propose recommendation for policies measures in Europe.	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
Level 2	

Thematic Working Group:

Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**F2 Data harmonization in the area of passenger transport**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: **7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY**
Area: 7.2.2.7 Policy Support

Policy context / background

The transport sector is one of the major sources of global warming, from individual travel behaviour (especially car dependency) and from freight delivery (mainly achieved by truck). Travel and freight surveys, as well as behavioural data collection, are essential to elaborate transportation policies that encourage more environment-friendly transport modes, and various data collection methodologies have been proposed in recent decades.

Several national surveys are already harmonised by EUROSTAT:
expenditure surveys and time use surveys (from which some information can be derived on daily mobility). But it is not the case for daily mobility, even if sustainable transport is a strategic issue for Europe (see the 2001 White Paper revised in 2006). While local mobility surveys are conducted in many urban areas all over the world, National Travel Surveys (NTSs) exist essentially in Europe; they have already been conducted in about 20 countries and are planned elsewhere but with different methodologies, which make comparisons difficult.

Mobile communication technologies including GPS, GSM and Radio Data System (RDS) have advanced rapidly and their prices are decreasing.
They demonstrate great potential as survey instruments for tracking individual travel behaviour as well as freight movement, by surveying during longer period, providing more accurate data on the spatial and temporal framework of travel, with a relative low burden for interviewees. It's therefore challenging to propose methods allowing comparisons for travel behaviour both between European countries and with data collected in the past in each country. Promoting new technologies (e.g. experiences with Global Positioning System GPS which should be generalised with GALILEO) could help for this harmonisation of concepts and methods.

Hence we are at the turning point where aiming at producing guidelines towards European harmonised travel surveys (either for passenger and
freight) should take the opportunity of the development of new technologies.

Objective(s) of the research topic:

The objective of this research will be to develop a European framework for daily mobility surveys at a pan European scale (either for passenger and freight). The proposed framework will include also the use of new technologies.

Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)
Coordination action ACCESS2ALL
Expected results: (impact and benefits of the research topic, including dissemination activities)
Harmonized data sources for the transport sector should allow the assessment of past policies, in term of efficiency and equity. It should also allow the elaboration of new policies measures at the European level (e.g. to reduce the emissions due to transport).
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)
Level 1
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Thematic Working Group:

Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**F3 ICT and travel behaviour**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: **7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY**
Area: 7.2.3.3 Demand Management

Policy context / background

The development and diffusion of information- and communication technology (ICT), like mobile phones, access and use of internet, laptops, mobile computers etc together with more flexibility e.g. in working life, have made the fragmentation of activities both in time and space possible. Activities like e.g. shopping, information searching, working, different forms of socializing are to a larger degree time and space independent. The interesting question is how will this phenomenon (the virtual mobility) interact with transport? Ever since the middle of the 1970s, there has been a discussion about teleworking or telecommuting – if this way of working would contribute to a reduction in road traffic and traffic-related problems, but it has proved unfounded, at least up till now. Research about e-shopping and transport effects are only in its beginning, which is also true for the impact of the use of mobile phone on physical mobility. The available research are very often concentrated on very specific part of the ICT field, while it is important to see the different aspects of the interplay between ICT and transport together to have the full understanding of the phenomenon as a basis for policy action.

Objective(s) of the research topic:

The main objective addresses how increased diffusion of information and communication technologies (ICT) impacts daily life and mobility patterns, including spatial development. The purpose is to analyse these changes across different European countries and cultures, and discuss future developments and their impact on transportation consumption patterns, both in a private and business setting. An important question is if and how ICT can contribute to more sustainable transportation.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

This topic should be based both on a synthesis of secondary data/literature and collection of primary data in special areas.

Expected results:
(impact and benefits of the research topic, including dissemination activities)

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)
2
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Thematic Working Group:

Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**F4 Personalised drivers info/warning**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☒ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Activity: **7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY** Area: 7.2.3.3 Demand Management Topic 10: Real-time and personalised information for the traveller	
Policy context / background	
There are various static driver behaviour models described in the literature (GADGET, Michon, etc.). A more recent dynamic driver behaviour model was developed, namely the DRIVABILITY model (Springer0Verlag London, 2003, see below). Using data from in-vehicle sensors (on the road situation and environmental conditions) and the calculation of the dynamic driving ability index of each driver, the ADAS/IVICS info/warning can be adapted accordingly.	
Objective(s) of the research topic:	
The objective of this research is to provide safer and more comfortable driving for all categories of drivers, what ether their functional abilities, through personalised information and warnings.	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
References & SoA: - COMUNICAR project - AIDE IP (6th FP) - M. Panou, PhD Dissertation 'Advanced personalized travelers' warning and information system', Aristotle University of Thessaloniki, 2008. - Bekiaris, E., Amditis, A., Panou, M., "DRIVABILITY: A new concept for modelling driving performance", International Journal of Cognition Technology&Work, Vol.5, N. 2 / June 2003, pp.152-161, Springer0Verlag London Ltd, ISSN: 1435-5558	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
STREP or part of IP Cooperation with TWG E (ITS) and B (Safety and Security).	

Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)
2
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Thematic Working Group:

Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**F5 Personalised travellers information**
Programme:)	Transport (incl. Aeronautics) ☒ ICT ☒ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013
Indication on research "activity" and "area" of research topic:	
Activity: **7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY** Area: 7.2.3.3 Demand Management Topic 10: Real-time and personalised information for the traveller	
Policy context / background	
This monitoring of user preferences must be extended and integrated to the context of use, to achieve a new integrated personalised context which combines personal needs (if any) with dynamic behavioural-based preferences and context of use (day/night, weekday or weekend, type of traveller, type of environment, i.e. urban, interurban, etc.).	
Objective(s) of the research topic:	
More comfortable and more accessible and efficient travel.	
Scope and scientific approach of the research topic: (including reference to ongoing research projects, state of the art)	
Within the IM@GINE IT project (6th FP), personalisation was applied only in terms of context of use. In the ASK-IT IP (6th FP) partially dynamic monitoring was performed on POIs selection and multimodal transport, taking into account the specific disability of the user. Other references: - M. Panou, PhD Dissertation 'Advanced personalized travelers' warning and information system', Aristotle University of Thessaloniki, 2008. OASIS IP (dealing with elderly people; 7th FP).	
Expected results: (impact and benefits of the research topic, including dissemination activities)	
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)	
STREP or part of IP	
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)	
2	
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Thematic Working Group:

Mobility

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**F6 Ageing population and transport demand**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: **7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY**
Area: 7.2.3.3 Demand Management

Policy context / background

Population in all the industrialized countries is ageing rapidly due to large post-war generations, increased longevity and decreased birth rates during the past decades. At present, population aged 65 years and over make 17,1% of the population in EU. It is forecasted that this share will increase to 30% by 2060 (EUROSTAT, 2007). This demographical change has been widely acknowledged in the EU, and the notion has influenced politics and policies on different areas of the society. In the area of transportation, the challenge is amplified by urban sprawl and its corollary of car dependency. The aim in the industrialized countries is to deal with the demographic change in a way that is economically, socially and ethically sound. However, as it comes to older persons' transportation issues, there is no clear consensus on the policies. . One of the reasons for this is that the demographic change will have implications on various aspects of transport: safety, special transportation needs, infrastructure, and traffic culture, causing sometimes goal conflicts. In addition, the group of older persons is a large one, and old age is characterized by large inter-individual variations. Hence, there isn't a typical "aged road user" but instead large variations within the group dependent on chronological age, functional status, income, gender, cultural background and lifestyle. There are also variations between regions (e.g. urban/rural areas). Older people's freedom to influence the physical and social environment is dependent on mobility within the community (e.g. see Phillipson, 2007).

Statistical prognoses show that in the future the majority of retired people will differ from older people of today, e.g. better education; higher income and better resources than older people a few years ago (e.g. see ECMT, 2002). Several older people will have a driving license and access to a car and they will probably use their car as long as possible. At the same time older people without accessible transport will have much less freedom and could be isolated (excluded) from social activities and services.

Objective(s) of the research topic:

The objective is to examine the impact population ageing has on travel demand and the transportation system.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

The research should address the changes in transport demand due to the increase of the aged, highly heterogeneous population. In addition, the research should examine how the mobility of older persons can evolve during their lifespan and particularly how they manage the shift between private and public transport modes.

Expected results: (impact and benefits of the research topic, including dissemination activities)
The results of such research will give outcomes for the definition of EU policies which permit to older persons to keep their mobility without decreasing their safety and loosing their autonomy.
Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)
Links to be established with ERANET programme.
Dimension of project: (level 1: generic; defining broad fields of activity; level 2: specific; referring to well identified industrial policy and socio-economic matters)
2
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Thematic Working Group:

Transport Economics and Policy

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**G1 Best Practices in Impact Assessment of transport policy and projects**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: CROSS-CUTTING ACTIVITIES IN SUPPORT IMPLEMENTATION
Area: socio-economic issues (related to the assessment of efficiency, equity, fairness and sustainability)

Policy context / background

Economics is a discipline that seeks to maximize the welfare of the individuals and organisations in a community and, at the same time, to ensure the optimal allocation of scarce resources (which have alternative usage). The ultimate aim is to meet and satisfy the assigned policy goals and objectives in a most cost effective manner. National governments and the European Commission recognise the importance of such a course of actions. However, rational decision taking, pragmatic enactment of the agreed actions and diligent enforcement of the required policy measures are themselves a continuous process. It often takes the form of "learning by doing". The decision-making cycle passes through different phases: critical assessment of prevailing problems, disciplined identification of opportunities, meticulous planning of called-for actions/programmes, robust analysis of the options available and vigorous evaluation of the impacts and likely consequences of the proposals. The EU Commission has designated Impact Assessments as the most appropriate approach to guide decision-making and methodological framework has been formulated for appraisal (ex ante) and for auditing (ex post) purposes. In many EU countries, similar methods and techniques have also been developed and applied to ensure allocation efficiency and to improve performance of project proposals. It is to the mutual benefits if the different parties can get together to exchange views and experiences so that a pool of knowledge gained from case studies will be made available and be disseminated to all interested parties at a pan-European level. ECTRI and the partner organisations in their extensive network will be an ideal forum for such an endeavour to research, to organise workshops, to disseminate information and to publish the results.

Objective(s) of the research topic:

The research aim is to advance Impact Assessment as an approach, as part of an evaluation process and as a supporting tool in the decision making cycle.
The objectives of the research topic are 5-fold:

1. To identify, describe, compare and contrast the different methods and techniques used in Impact Assessment at the EU Commission level and in different EU countries (if deemed appropriate, the terms of reference can be extended to include countries outside the EU).
2. To report the general findings and case-specific studies in a coherent manner in a number of deliverables such that insights can be gained, lessons learnt and suggestions made for technical refinements or for institutional changes.
3. To develop a consistent methodological framework with a set of Key Performance Indicators

(KPI) as a means to identify Best Practices and in the analytical process provide a method to identify the factors that contribute towards the success and the barriers and constraints that may have prohibited or restrained progress.

4. To create a 'win-win" situation for all informed stakeholders by disseminating the results and findings to all interested parties so that nations and actors can learn from real life examples and to reflect how best they can develop their own strategy.
5. To those who are unfamiliar with the tool (the 'Unwashed'), the out-reach programme that will form an integrated part of the dissemination programme provides a means for the uninitiated to acquire knowledge and a stimulant to empower innovative actions.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

Hitherto, Impact Assessment is applied to project appraisal and programme evaluation from a financial and budgetary perspective. In view of the increasing need to achieve multiple policy goals and diversified objectives at regional and local levels, the scope of evaluation should be extended beyond partial analysis based on comparative static situations. On the one hand, the scope of the Impact Assessment should cover all aspects of transport strategies and policies to include an examination of the inter-relationships between policy areas and the interface between different technical solutions. In practical terms, it means an integrated appraisal framework that will allow for cross programme actions and to take into account explicitly the simultaneous consideration of issues related to efficient use of scarce resources, transport safety and security, climate change, energy conservation, environmental concern, ICT application and sustainable transport. In terms of modelling the impacts of alternative course of actions or the performance of different package mix, the new perspective calls for dynamic interactive modelling and wider use of situation simulation in the form of scenarios' studies.

Expected results:
(impact and benefits of the research topic, including dissemination activities)

See the text above.

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)

Public Private Partnerships as proposed means to finance, manage and innovate cross-cutting activities in support of implementation.

Dimension of project: (level 1: generic; defining broad fields of activity;
level 2: specific; referring to well identified industrial policy and socio-economic matters)

Level 1: generic; defining requirements and conditions that are necessary for successful Impact Assessment exercises, identifying Best Practices on the basis of comparative performance analyses, determining cost effectiveness ways to share knowledge and proposing strategy to disseminate research findings to stakeholders in EU countries at different stages of development.

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Thematic Working Group:

Transport Economics and Policy

Proposal for programming a FP7 research topic	
Suggested title of the research topic:	**G2 Performance based indicators for PPP**
Programme:	Transport (incl. Aeronautics) ☒ ICT ☐ Others (Environment, SSH…) ☐
Timing/year Work Programme:	2010 – 2011 – 2012 – 2013

Indication on research "activity" and "area" of research topic:

Activity: STRENGTHENING COMPETITIVENESS
Area: Competitive surface transport products and services

Policy context / background

Public Private Partnerships are becoming very popular in Europe as a means of fostering the participation of the private sector in operating and financing transport infrastructure. One of the main goals of PPPs is to promote efficiency through achieving a maximum social welfare. The social welfare will depend on two issues; first the benefits produced on the users and the rest of the society, which in the end will depend on the quality level provided; and second, the cost for the users and the society of providing those services.

One of the crucial aspects of PPPs is to set up incentives to the contractor in such a way that the social benefit and the private profit converge. To that end, PPPs are implementing bonuses and penalties tied to certain indicators (such as safety, state of the infrastructure, congestion and so on) which are related to social welfare.

Even though performance-based indicators are already included in many PPP contracts, up to now there is little research on this topic. The importance of promoting research in this field is crucial for the EU. First, many countries are steadily moving towards a greater use of PPPs with performance based indicators. Second, there are neither guidelines nor best practices about this topic in the European Union. Third, the adequate implementation of performance-based incentives can increase substantially the welfare for the infrastructure users, the rest of the society and the environment.

Objective(s) of the research topic:

The objectives of this research are the following:

1. To gather European experience about the implementation of economic incentives in transport infrastructure PPPs tied to performance-based indicators in Europe and all around the world.
2. To develop an economic model that explains the welfare increase for the society stemming fro the implementation performance-based economic incentives in PPPs.
3. To make a list of the most important performance-based indicators to be applicable to each type of transport infrastructure and characterize these indicators.
4. To define the best means to reward or penalize the contractor to align private profit and social

welfare.

5. To analyse the means to monitor the fulfilment of the performance for governments and public agencies.
6. To estimate the transaction costs derived from the introduction of performance based indicators.
7. To make an estimation of the potential welfare gains that can be achieved with the implementation of performed-based incentives in PPP contracts.
8. To produce a set of guidelines intending to help governments and public agencies in Europe to implement performance-based indicators.

Scope and scientific approach of the research topic:
(including reference to ongoing research projects, state of the art)

Expected results:
(impact and benefits of the research topic, including dissemination activities)

The expected results of this projects will be:

1. Definition of the most adequate indicators to be introduced in PPP contracts for every type of transport infrastructure.
2. Recommendation about the best way to reward or penalize the contractor in order to align incentives and abilities in PPPs.
3. Design of a model to estimate the social welfare increase stemming from the implementation of performance-based economic incentives in PPPs. This model will be extremely useful for its implementation in the "value for money" analysis.
4. Elaboration of a set of guidelines and best practices that help public agencies to implement performance-based economic incentives in PPP contracts.

Further suggestions regarding this topic: (common call with other priority; expected instrument; relation with trans-national research programme)

Dimension of project: (level 1: generic; defining broad fields of activity;
level 2: specific; referring to well identified industrial policy and socio-economic matters)

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http://www.cedex.es

DLR - Germany
http://www.dlr.de

DVS - The Netherlands
http://www.verkeerenwaterstaat.nl

DTU-Transport - Denmark
http://www.dtf.dtu.dk

FHG-FVV - Germany
http://www-fvv.iml.fhg.de

HIT - Greece
http://www.hit.certh.gr

INRETS - France
http://www.inrets.fr

ITS and CNTK - Poland
http://www.its.home.pl
http://www.cntk.pl

KTI - Hungary
http://www.kti.hu

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