WORK PROGRAMME 2008

Cooperation

THEME 7

TRANSPORT (INCLUDING AERONAUTICS)

*(European Commission C(2007)**5765 of 29 November 2007**)*

The Work Programme presented here provides for four calls for proposals and other activities.

Table of contents

THEME 7: TRANSPORT (including AERONAUTICS)

Objective:

Based on technological and operational advances and on the European transport policy, develop integrated, safer, "greener" and "smarter" pan-European transport systems for the benefit of all citizens and society and climate policy, respecting the environment and natural resources; and securing and further developing the competitiveness attained by the European industries in the global marke**t.**

Context

Policy Context

European transport research has a role to maintain and increase the efficiency of the different transport modes as well as their interaction and to foster progress. Technological progress, the organisation of transport and understanding the supply and demand factors are key elements in European transport research.

The European transport system serves key roles in the transportation of people and goods in a local, regional, national, European and international context. At the same time, it is essential to Europe's prosperity and closely linked to economic growth and quality of life. However, ways must be found to mitigate the negative impacts and consequences of increased mobility in relation to the environment, energy usage, safety and security and public health. The White Paper on Transport "European Transport Policy for 2010: Time to decide"[1] and its Mid-term review[2] set out clearly those objectives to be addressed at a pan-European level.

In the 2007 Spring Council the EU[3] agreed on targets to cut greenhouse gas emissions by at least 20% until 2020, to reduce energy consumption and on binding targets for biofuels. Research priorities outlined in this annual revision of the Work Programme are based on these policy objectives as well as on support to industry competitiveness.

Over recent years, the transport industry has changed under the impact of the internal market and of globalisation. Transport is a high-technology industry, making research and innovation crucial to its further development and conducive to European competitiveness, environmental and social agendas. The Technology Platforms set up in the Transport sectors (ACARE for aeronautics and air transport, ERRAC for rail transport, ERTRAC for road transport, WATERBORNE for waterborne transport, Hydrogen and Fuel cells) have elaborated long-term visions and strategic research agendas which constitute useful inputs to the approach and

[1] COM (2001) 370 final
[2] Keep Europe Moving – sustainable mobility for our continent - COM (2006) 314 final
[3] Council of the European Union, Presidency Conclusions, 7224/07 of 9 March 2007 and Communication of the Commission COM(2007) 2 final of 10 January 2007 "Limiting Global Climate Change to 2 degrees Celsius. The way ahead for 2020 and beyond".

activities of the Transport theme and complement the needs of policy makers and expectations of society.

Approach

The Transport theme takes a holistic "transport systems" approach in addressing the challenges, by considering the interactions of vehicles or vessels, networks or infrastructures and the use of transport services. Such an approach will necessitate the integration of new concepts, knowledge and technologies within a socio-economic and policy context.

Given the different structure and focus of the sectors, the theme is divided into 3 sub-themes:

- AERONAUTICS and AIR TRANSPORT,
- SUSTAINABLE SURFACE TRANSPORT,
- GALILEO

The synergies between the sub-themes and their contribution to the common objectives of advancing competitiveness and responding to the societal challenges of the Transport system will be exploited, as appropriate.

A common structure making reference to Levels has been adopted for the sub-themes in the Work Programme so as to have a common categorisation of topics.

Due to the specificities of the sectors and the transport modes included, definitions of Levels are provided in detail in the 'Approach' sections of the sub-themes (pages 20 and 64).

A number of **horizontal activities** supporting integration within the transport theme are described in **chapter 7.3** of the Work Programme.

Implementation of calls for 2008

The Work Programme has four calls that will be open during 2008:

- FP7- AERONAUTICS and AIR TRANSPORT (AAT) - 2008- RTD-1
- FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- RTD-1
- FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- TREN-1
- FP7- TRANSPORT (TPT) – 2008- RTD-1

Main differences with Work Programme 2007

Aeronautics and Air Transport chapter.

- The distinction between small and medium scale focussed research collaborative projects (CP-FP) and large-scale integrating projects (CP-IP) has been further clarified;
- Level 1 topics are for the most part the same as in Work Programme 2007 due to their broad coverage;
- Level 2 topics are all new compared to Work Programme 2007 due to the specificity of the items covered with the exception of topic AAT.2008.4.4.2;
- CSA (supporting) respond to evolving needs so they are different compared to Work Programme 2007;

- A simplified approach towards international cooperation activities has been adopted and third countries where initial workshops for future cooperation have already been held have been highlighted throughout the text;
- Budgets have been indicatively allocated to funding instruments for clarity and transparency purposes. As indicated in the call fiches, evaluation will then result in several ranking lists according to budget allocation.

Sustainable Surface Transport chapter

- Topics included in the Work Programme are all new compared to Work Programme 2007 in order to progress towards the achievement of the overall objectives of the 7th RTD Framework Programme for Transport;
- International cooperation activities are included not only as embedded references in the text of the Work Programme but also through inclusion of two SICAs on urban transport and one SICA on Safety and Security in Work Programme 2008 (see pages 12-13 for more details).

Horizontal Activities chapter

- Topics have been grouped under the following headings for the purpose of clarity: environmental impacts of transport and climate change; enhanced integration of transport modes; transport system efficiency and competitiveness, and raising awareness of transport research results in Europe;
- No proposals were submitted in the first call under Topic TPT.2007.1 and it is therefore open in Work Programme 2008 as topic TPT.2008.6;
- Topic TPT.2008.15 is open as a Specific International Cooperation Action (SICA). No specifically allocated budget is foreseen for proposals submitted under this topic;
- Topics TPT.2008.11 and TPT.2008.12 are open to Civil Society Organisations with the aim to establish dialogue on transport research policy with a new set of stakeholders;
- Topic TPT.2008.16 is a call for tender.

Funding schemes

The same approach, structure and funding instruments are maintained in this revision of the Work Programme with the addition of Civil Society Organisations (CSOs) for topics in Chapter 7.3 and Specific International Cooperation Actions (SICA) in Chapters 7.2 and 7.3 (listed on page 14).

The thresholds of EC funding for small and medium scale focussed research collaborative projects (CP-FP) and large-scale integrating projects (CP-IP) have been modified for Aeronautics and Air Transport whereas they have been maintained for Sustainable Surface Transport in the calls funded by DG RTD.

The calls will be implemented by the following funding schemes: Collaborative Projects (CP), Coordination and Support Actions (CSA) and Research for the benefit of Civil Society Organisations (CSOs) aimed at developing scientific knowledge related to CSOs activities in order to contribute to public debate. The funding schemes applicable to each topic are indicated in the work programme as well as in the call fiches, along with guidance on the expected level of ambition and other relevant information.

Collaborative projects are subdivided as follows:

- Aeronautics and air transport small or medium-scale focused research projects (CP-FP) with a maximum requested Community contribution of up to EUR 6 million;
- Aeronautics and air transport large-scale integrating projects (CP-IP) with a minimum requested Community contribution of EUR 6 million up to a maximum of EUR 50 million;

- Sustainable surface transport small or medium-scale focused research projects with a maximum requested Community contribution of up to EUR 4 million in the FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- RTD-1;
- Sustainable surface transport large-scale integrating projects with a minimum requested Community contribution of EUR 4 million FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- RTD-1;

- Collaborative projects (CP-FP) in the call Horizontal activities for implementation of the transport programme (FP7- TRANSPORT (TPT) – 2008- RTD-1) are small or medium-scale focused research projects with a maximum requested Community contribution of up to EUR 1.5 million.

It is important to note that for the above-mentioned calls, the funding thresholds indicated will be applied as eligibility criteria and that the proposals not fulfilling these thresholds are considered as ineligible.

The forms of grant to be used in the funding schemes for this work programme are detailed in Annex 3.

All proposals will be evaluated under a one-step procedure in these calls.

The activities related to the Single European Sky Air Traffic Management Research (SESAR) and Galileo will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme, but will be available on the respective websites[4]. In accordance with the respective Council Regulations, SESAR activities will be implemented by the SESAR Joint Undertaking[5] and Galileo activities by the GNSS Supervisory Authority[6].

On the basis of Article 171 of the Treaty the Clean Sky Joint Technology Initiative[7] and the Hydrogen and Fuel Cell Technology Joint Technology Initiative[8] will both be relevant to and will impact on transport research and technological developments. These activities will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme.

International Co-operation

International Cooperation activities will be encouraged in the Transport theme based around the following lines of activities:

[4] SESAR: http://www.eurocontrol.int/sesar ; GALILEO: http://ec.europa.eu/dgs/energy_transport/galileo/
[5] Council Regulation 219/2007 of 27 February 2007.
[6] Council Regulation 1321/2004 as amended by Council Regulation 1942/2006.
[7] Commission Decision COM(2007)315 of 13 June 2007 and proposed for adoption to Council on 25 June 2007.
[8] Commission Decision currently under preparation.

- market attraction (for example global trade development and connecting networks and services at continental and intercontinental level);
- opportunities to access and acquire science and technology that is complementary to current European knowledge and of mutual benefit;
- where Europe responds to global needs (for example climate change), contributes to international standards and global systems (for example applied logistics and satellite navigation infrastructure) or addresses third countries' regional issues on the basis of mutual interest and benefit.

More specifically, international cooperation will be implemented via three mechanisms:

1. All activities will be open to researchers and research institutions from third countries[9]. In some areas of mutual interest, enhanced participation of certain third countries will be emphasised where relevant expertise, opportunities and common challenges are identified. In this respect, Eastern Europe and Central Asia (including Russia) and large emerging economies such as China, India, Brazil and South Africa are of special interest.

2. In addition, Specific International Cooperation Actions (SICA) will be implemented following identification through on-going dialogue with third countries/regions on the basis of mutual interest and mutual benefit.

3. International Cooperation activities will be embedded in the main calls. Coordination/Support Actions will be included to explore and stimulate further International Cooperation.

It is important to notice that Collaborative projects dedicated to SICA must involve at least two participants from two different Member States or Associated countries and at least two partners from two different ICPCs[10].

List of Specific International Cooperation Actions (SICA):

Topics	Targeted Country/Region
SST.2008.3.1.6 Transport planning and traffic information systems in cities	**Brazil / China**
SST.2008.3.1.7 Large event mobility management (especially in big cities)	**India/ South Africa**
SST.2008.4.1.4 Road safety of vulnerable road users in emerging economies	**India/Brazil/ South Africa**
TPT.2008.15 Cross-fertilisation of alternative fuels research across all transport modes	**Brazil/ India/ South Africa**

All topics in this work programme are open to international cooperation. In addition to the SICA topics identified above, several other topics have been specifically highlighted as being research areas which are particularly well suited for international cooperation.

[9] Both International Co-operation Partner Countries (ICPC) and industrialised countries can participate. ICPC will be funded in all cases, while industrialised countries only if indispensable (Cf. FP7 Rules for Participation). The list of eligible ICPC countries is provided in Annex 1.

[10] With the exception of Brazil, China, India and Russia, for which the required two or more ICPC participants can be located in the same countries. However, in this case, at least two different participants must come from two different provinces, oblasts, republics or states within Brazil, China, India or Russia.

Small and Medium Size (SMEs) relevant research

Participation of SMEs is encouraged throughout the Work Programme 2008 with the aim of enhancing participation level and regional clustering as well as SMEs role in the supply chain. Emphasis will also be placed on facilitating the start-up and emergence of new high-tech SMEs, particularly in the advanced transport technologies and 'services-related' activities specific to Transport. A topic in Chapter 7.3 of the Work Programme will be devoted to having a better understanding of barriers and drivers to market uptake of research results and specific support to innovative SMEs. Where appropriate, the topics open for proposals will indicate whether there is particular relevance or encouragement for the participation of SMEs.

Horizontal and cross-cutting activities

Effective transport solutions need inputs from many different technologies and scientific disciplines. Activities supporting cross-cutting thematic topics will focus on transport specificities, for example safety and security aspects as an inherent requirement to the transport system; the use of alternative energy sources in transport applications; and monitoring of environmental effects of transport, including climate change. The work programme is the result of careful collaboration with related themes of the Cooperation Programme such as Energy, Environment, ICT and Security.

Other activities

The theme will support ERA-NET[11] activities that develop trans-national coordination in specific strategic topics. ERA-NET projects can network four types of activities: (1) Information exchange – (2) Definition and preparation of joint activities – (3) Implementation of joint activities – (4) Funding of joint trans-national research actions.

ERA-NETs launched under FP6 that wish to submit a follow-up proposal under FP7 have to propose a strong coordination action focusing directly on steps three and four, in order to achieve mutual opening and trans-national research via joint/common calls, joint/common programmes or, if appropriate, other joint trans-national actions. The topic AAT.2008.7.10 Co-ordination of national research programmes for further developing the European Research Area in the field of Aeronautics and Air Transport, with Community contribution of up to EUR 2 million, and topic SST.2008.6.8 ERA-Net ROAD II, with Community contribution of up to EUR 1.5 million are subject to a joint call (FP7-ERANET-2008-RTD) that will be launched separately.

Coordination will also be stimulated through the Technology Platforms.

Science and Society

The pursuit of scientific knowledge and its technical application towards society requires the talent, perspectives and insight that can only be assured by increasing diversity in the research workforce. Many of the activities to be funded under this programme will also make positive contributions to education and training and to raising general levels of awareness of the nature of the research undertaken and the benefits likely to accrue.

[11] ERA-NET activities will be subject to a joint call across the Specific programme 'Cooperation' – See Annex 4

Dissemination actions

Building a European transport system that serves the citizen and society by means of safe, secure, greener, quality transport options for the demands of life in the 21st century requires significant RTD investment. There is a need for a better understanding of the positive impacts of transport on modern society as well as measures that need to be taken to mitigate the negative impacts of enhanced mobility. Better public engagement, raising awareness and education are important components of the communication and dissemination strategy for the Transport theme and specific actions will be taken to ensure greater visibility and understanding of EU investments.

Risk Sharing Finance Facility

In addition to direct financial support to participants in RTD actions, the Community will improve their access to private sector finance by contributing financially to the 'Risk-Sharing Finance Facility' (RSFF) established by the European Investment Bank (EIB).

The Community contribution to RSFF will be used, by the Bank, in accordance with the eligibility criteria set out in Annex 4 of this work programme, RSFF support is not conditional on promoters securing grants resulting from calls for proposals described herein, although the combination of grants and RSFF-supported financing from EIB is possible.

In accordance with the Specific Programme 'Cooperation', which stipulates that the Community contribution to RSFF will be funded by proportional contributions of all Themes, except Socio-economic Sciences and the Humanities, the commitment appropriations from this theme to RSFF in 2007 was EUR 15.91million from DG RTD and EUR 5.42 from DG TREN. This amount covers both 2007 and 2008.

The use of the Community Contribution from the Specific Programme 'Cooperation' will be on a 'first come, first served' basis and will not be constrained by the proportional contribution of Themes. Further information on the RSFF is provided in Annex 4 of this work programme.

Indicative budget for Transport (including Aeronautics) Theme for the 2008 Work Programme

A. DG RTD indicative budget for the 2008 Work Programme

European Commission's DG Research	**2008 (million EUR)***
FP7- AERONAUTICS and AIR TRANSPORT (AAT) – 2008- RTD-1	80.421**/***
FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- RTD-1	102.22**/***
FP7- TRANSPORT (TPT) – 2008- RTD-1	14.65
Total for RTD calls	197.291
General activities (cf. Annex 4)	5.42
Other activities:	
Evaluations (M €)	1
Grants to named recipients	
Calls for tender	0.35
Estimated total budget allocation	204.061

B. DG TREN indicative budget for the 2008 Work Programme

European Commission's DG Transport and Energy	**2008 (million EUR)***
FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- TREN-1	36
Total for TREN calls	36
General activities (cf. Annex 4)	1.87
Other activities:	
Galileo (40M€)	40
Sesar (50M€)	50
Evaluations and monitoring (M€)	1
Programme impact assessment	
Information/ communication	
Estimated total budget allocation	128.87

* Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority.

** An amount from 2009 budget is expected to be added to this call for which a new financing decision to cover the budget for that year will be requested at the appropriate time.

*** These lines include an indicative amount for ERA-NETs – See Annex 4 (Table 2 – Overview of Activities and Topics mentioned in Cooperation Themes which are part of the FP7-ERANET-2008 –RTD joint call). ERA-Nets in Work Programme 2008 for Transport (including Aeronautics) theme are:

- AAT.2008.7.10 Co-ordination of national research programmes for further developing the European Research Area in the field of Aeronautics and Air Transport (up to EUR 2 million), and;
- SST.2008.6.8 ERA-NET ROAD II (up to EUR 1.5 million)

Summary of RTD budget allocation to general activities for 2008 (cf. Annex 4)

European Commission's DG Research	2008 (EUR million)
Cordis	0.68
Eureka/Research organisations	0.03
COST	2.88
ERA-NET	1.83
RSFF	0
Total	5.42

Summary of TREN budget allocation to general activities for 2008 (cf. Annex 4)

European Commission's DG Transport and Energy	2008 (EUR million)
Cordis	0.23
Eureka/Research organisations	0.01
COST	1.00
ERA-NET	0.63
RSFF	0
Total	1.87

7.1 AERONAUTICS and AIR TRANSPORT

1. CONTEXT

The scope of research includes the technologies, services and operations of all the components of the of the air transport system (i.e. aircraft, airport and air traffic management) from airport kerbside to airport kerbside, excluding the non-travel aspects of the system, ticketing and ground vehicles.

Six Activities are addressed in agreement with the Strategic Research Agenda of ACARE[12]:

- The Greening of Air Transport
- Increasing Time Efficiency
- Ensuring Customer Satisfaction and Safety
- Improving Cost Efficiency
- Protection of Aircraft and passengers
- Pioneering the Air Transport of the Future

Approach

The work programme includes the full range of research and technology development from basic research to large-scale technologies integration and validation activities in support of research as well as policy related activities, in particular in the area of airport capacity. In order to reflect the level of readiness of the developed technologies with respect to the final application that is commonly used in aeronautics, three Levels, detailed below, are used in each of the six proposed Activities. Within this structure, the proposed individual Topics are grouped in Areas.

Level 1

It comprises the research and technology development activities that span from basic research to the validation of concepts at component or sub-system level in the appropriate environment through analytical and/or experimental means. The objective of these upstream research activities is to improve the technology base with proven concepts and technologies which could be eventually integrated and validated at a higher system level.

Broad topics of investigation for Level 1 are identified in the corresponding part of the work programme. For each one of the six Activities (see above list of Activities), the work programme is divided in a number of areas, which in turn include a number of topic domains.

They can be addressed in the proposals with a high degree of flexibility, selecting only some of the topics or combining them where needed. They will be the subject of 'Collaborative

[12] ACARE : Advisory Council for Aeronautics Research in Europe (www.acare4europe.org)

Projects' of small or medium-scale (CP-FP) with a maximum requested Community contribution of up to 6 million Euros.

Level 2

It comprises the research and technology development activities up to higher technology-readiness, centred on the multidisciplinary integration and validation of technologies and operations at a system level in the appropriate environment (large-scale flight and/or ground test beds and/or simulators). The objective of these focussed downstream research activities is to produce proven multidisciplinary solutions that work reliably in integration at the scale of a system.

Specific topics for Level 2 are identified in the corresponding part of the work programme. Proposals can address only one of the proposed topics and should address it in its entirety. They will be the subject of large-scale integrating 'Collaborative Projects' (CP-IP) with a minimum Community requested contribution of 6 million Euros up to a maximum of 50 million Euros.

Level 3

It comprises the research and technology development activities up to the highest technology readiness, focusing on the combination of systems and the final proof in the appropriate operational environment of the comprised technologies in fully integrated system of systems.

These activities of full-system technologies' demonstration will be undertaken in large-scale public-private partnerships especially established for this purpose in specific areas: the 'Clean Sky' Joint Technology Initiative relevant mainly to the Work Programme Activity 'The Greening of Air Transport' and SESAR, Single European Sky Air Traffic Management Research, which are in preparation. 'Clean Sky' and SESAR will also cover research activities of lower technology readiness levels (i.e. Level 1 and Level 2), where appropriate.

The Work Programme includes also the following categories of activities in support of the research activities:

Structuring European Aeronautics Research

This comprises activities aiming at strengthening excellence in particular research fields through networking. These activities will be the subject of 'Networks of Excellence' or 'Coordination and Support Actions - Coordinating' (CSA-Coordinating), depending on the level of integration amongst partners that the networking activities pursue.

Specific topics for 'Networks of Excellence' (NoE) are identified in the corresponding part of the work programme. Proposals can address only one of the proposed topics and should address it in its entirety. No topics for Networks of Excellence are open in Work Programme 2008.

Topics open to 'CSA-Coordinating' are identified in the part of the work programme corresponding to Level 1. Proposals can address one of the topics or a combination of them where needed.

Supporting Programme Implementation

This comprises activities aimed at setting mechanisms or developing strategies for the implementation of the Programme in aspects related to its technical content, the appropriate participation of entities and countries or the focus of its activities.

Specific topics for this type of activities are identified in the corresponding part of the work programme. Proposals can address one or a combination of the proposed topics. They will be normally the subject of 'Coordination and Support Actions - Supporting' (CSA-Supporting).

The indicative distribution of the Call budget is as follows:

- EUR 3 million for CSA-supporting;
- up to EUR 2 million for topic AAT.2008.7.10 open in FP7-ERA-NET – 2008-RTD, and;
- the remaining budget divided as follows: 50% for topics funded via CP-IP (Level 2) and 50% for topics funded via CP-FP (Level 1) and CSA-coordinating.
- All budgetary figures given in the call are indicative. The repartition of the sub-budgets awarded within this call, following the evaluation of projects, may vary by up to 10% of the total value of the call.

Note that no topics for NoEs are open in this Call.

The 'Clean Sky' Joint Technology Initiative

The 'Clean Sky' Joint Technology Initiative[13] aims at realising a quantum leap in the technological capability of Europe to produce aircraft that satisfy environmental needs and are economically viable. The activities contribute to a future air transport system with lower environmental impact while securing EU industrial leadership, thereby contributing to a more sustainable air transport system in Europe and world-wide.

'Clean Sky' activities focus on the integration of advanced technologies, validation in complex models and testing in full scale ground and flight demonstrators. 'Clean Sky' will be articulated around a number of vehicle platforms as well as transverse platforms concerning the major aircraft systems, namely the engine and the on-board systems and equipment. The integrity of work in the platforms in terms of the overall mission of the initiative is ensured through a continuous 'Clean Sky' technology assessment and driver activity. The Joint Undertaking ensures coordination of 'Clean Sky' activities with other relevant research in the Framework Programme, national or industrial programmes.

The activities related to "Clean Sky" will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme.

SESAR – Single European Sky Air Traffic Management (ATM) Research

The SESAR initiative aims to develop the new tools and technologies needed to sustain air traffic growth in Europe for the next 20 years in an economically and environmentally sound way. The target operational concepts, as well as the associated research programme, are being developed in the SESAR definition phase, which is a cooperative, industry-led effort. In order to rationalise and organise ATM research so that it leads to actual operational and industrial implementation, all ATM research in the 7th Framework programme will be undertaken

[13] The 'Clean Sky' Joint Technology Initiative has been proposed for adoption on the basis of Article 171 of the EC Treaty with Commission Decision COM (2007) 315 on 13 June 2007 and proposed Council Decision on 25 June 2007.

within the SESAR initiative. In order to manage consistently and in a rationalised manner the research activities avoiding duplication of efforts, a joint undertaking has been established by a Council Regulation[14], under Article 171 of the Treaty. This Joint Undertaking will coordinate the SESAR programme with other aeronautical research activities in order to maintain a consistent system wide approach for the entire air transport system.

SESAR activities will be organised around the following themes:

New air traffic management tools and systems
The challenge is to automate air traffic management systems in order to enable human operators (air traffic controllers, pilots) to concentrate on high added value tasks. This research area will deal with all phases of the flights in all operational environments (flight preparation and planning, ground movements, airborne phases, approach and landing and take-offs, in all weather conditions), and take into account all categories of actors, including air traffic controllers, flow managers, pilots, dispatchers, etc.

New technologies for air traffic management
The objective is to develop new technologies which can support air traffic management development, including more aircraft autonomy such as:
- advanced telecommunications, enabling system-wide, seamless and efficient communications, data sharing and collaborative decision making for all relevant ATM actors (ATC, aircraft, AOC, airports, military, etc.)
- improved aeronautical meteorological forecast
- full integration of satellite navigation technologies (EGNOS-GALILEO)
- advanced devices to increase airport/ATM capacity (for example wake vortex prediction/detection)
- advanced devices and planning criteria to optimise air space use in terms of minimising the environmental impact of operations (e.g. to lower contrail or cirrus cloud formation where appropriate).

Integration and validation projects
The objective is to assess the new technologies and concepts in a realistic environment, which, depending on the maturity of the technologies and systems, can be simulated or tested in a pre-operational context. These activities will enable the transitional arrangements which need to be foreseen in order to implement the new systems to be precisely defined.

The Commission will provide annual contributions from the 7th Framework Programme to the SESAR Joint Undertaking (JU) for a total estimated amount of 350 Million € over the entire programme, and the JU will carry out the activities in the relevant areas indicated in the work programme. For this purpose, an amount of 50 Million € will have to be transferred to the SESAR JU for the year 2008 in order to fund research topics in the following indicative areas:
- 4D 'business' trajectories;
- System Wide Information Management (SWIM);
- Improved planning in ATM processes;
- 'Green' trajectory management;
- New Airport Systems;
- Aeronautical Meteorological Data Modelling;

[14] Council Regulation (EC) N° 219/2007, of 27 February 2007, J.O. L64/2.3.2007

- Long term and innovative research.

International Co-operation

All areas in this work-programme are open to co-operation with third countries. It is especially encouraged to tackle key issues of global air transport such as:

- Safety, in line with the activity "Ensuring Customer Satisfaction and Safety".
- Environment, in line with the activity "The Greening of Air Transport".

The stimulation action (AAT.2008.7.6) to promote the participation of organisations from International Cooperation Partner Countries (ICPC) in the programme activities is open for CSA-Supporting proposals.

In order to enhance competitiveness of EU industry, fields of mutual interest for research actions with Russia – and other Eastern Europe and Central Asia States – China, India and South Africa are identified below. These fields have been identified building upon recent stimulation actions and upon existing collaboration. The feasibility for synchronised calls with third countries in areas of mutual interest will be explored.

Co-operation with Russia, Ukraine and other Eastern European and Central Asian countries (EECA)

Several workshops on Co-operation in Aeronautics Research with Russia took place in 2006 (Brussels) and 2007 (Moscow). Organisations from Russia - and from other Eastern European and Central Asian States such as Ukraine – were involved in the 6th Framework Programme.

Based on the workshops and the collaboration in FP6, enhanced participation of Russia, Ukraine and other EECA countries is encouraged within Collaborative Projects (Level 1) in the following topic areas in addition to environmental and safety-related topics:

- flight physics (e.g. transonic wind tunnels, unsteady aerodynamics, plasma aerodynamics, wake vortex, helicopters and tilt-rotors, new configurations),
- propulsion technologies (e.g. num. simulation, acoustics, combustion, virtual design),
- application of advanced materials (e.g. Ti, Mg, Al-Li alloys, composite materials, sealing materials),
- avionics technologies.

Co-operation with China

Building upon the workshop on Co-operation in Aeronautics Research with China in 2005 (Beijing) and the workshops from FP6 Support Action AeroChina, enhanced participation of Chinese partners is encouraged within Collaborative Projects (Level 1) in the following topic areas in addition to environmental and safety-related topics:

- multi-disciplinary design, simulation and validation,
- computational fluid dynamics (CFDs).

Co-operation with India

Aeronautics research collaboration was highlighted at the EU-India S&T Steering Committee Group in November 2006 (Brussels). Topic areas for increased co-operation identified so far include, in addition to environmental and safety-related topics:

- application of advanced materials (e.g. composites, smart materials, nano-materials and coatings),

- sensors (e.g. MEMS for control applications, health monitoring of airframe),
- software applications (e.g. conflict detection and alerting algorithms, expert systems).

Co-operation with South Africa

EU-South Africa Aeronautics research collaboration was highlighted at the International Aerospace Symposium in April 2007 (Pretoria) and at the EU-South Africa Joint S&T Cooperation Committee in April 2007 (Brussels). Topic areas for increased co-operation identified so far include, in addition to environmental and safety-related topics:

- application of advanced materials manufacturing (e.g. of metals, thermoplastics and composites),
- advanced electronics (e.g. MEMS, health/usage monitoring, guidance and control),
- software development (e.g. flight control, simulators, computational mechanics, CFDs).

Small and Medium Size Enterprises

The participation of SME in the programme is highly encouraged, continuing the successful actions undertaken in Framework Programme 6, so to support the development of a strong supply chain in a competitive aeronautical sector.

Stimulation actions are on-going, promoting an increased participation of SME in the programme.

SME participation is expected in Collaborative Projects both at Level 1 and Level 2, as well as in the research carried out in the 'Clean Sky' Joint Technology Initiative and the SESAR Joint Undertaking. Targeted projects which are typically short term, aiming either at strengthening SME position within the supply chain or at developing new ideas and concepts of specific interest for SME, with budgets adapted to their financial capabilities and with significant SME participation, are especially encouraged in Level 1. All research areas and topics of the work programme for Level 1 are open to this type of projects of interest to SME.

2. CONTENT OF CALL FOR 2008

ACTIVITY 7.1.1 THE GREENING OF AIR TRANSPORT

Developing technologies to reduce the environmental impact of aviation with the aim to halve the emitted carbon dioxide (CO2), cut specific emissions of nitrogen oxides (NOx) by 80% and halve the perceived noise. Research will focus on furthering green engine technologies including alternative fuels technology as well as improved vehicle efficiency of fixed-wing and rotary wing aircraft (including helicopters and tiltrotors), new intelligent low-weight structures, and improved aerodynamics. Issues such as improved aircraft operations at the airport (airside and landside) and air traffic management, manufacturing, maintenance and recycling processes will be included.

The following topics are for level 1

AREA 7.1.1.1 Green Aircraft

The aim is to ensure more environmentally friendly air transport focussing on the greening of aircraft performance. Research work will address a wide range of innovative solutions and technologies for the aircraft, its systems and components for optimum use of energy and reduction of pollution (noise and emissions).

Expected Impact
Proposals should demonstrate making significant contributions to achieving one or several of the following objectives for technology readiness by 2020 taking 2001 as the baseline:

- To reduce fuel consumption and hence CO2 emissions by 50% per passenger-kilometre,
- To reduce NOx emissions by 80% in landing and take-off according to ICAO standards and down to 5 g/kg of fuel burnt in cruise,
- To reduce unburned hydrocarbons and CO emissions by 50% according to ICAO standards,
- To reduce external noise by 10 EPNdB per operation of fixed-wing aircraft. For rotorcraft the objective is to reduce noise foot-print area by 50% and external noise by 10EPNdB.

AAT.2008.1.1.1. Flight Physics

Advanced concepts and technologies for flow control, airframe aerodynamics design and drag reduction (active or passive); advanced designs for high lift over drag ratios; innovative high lift devices to enable steeper take-off and landing flight profiles; advanced concepts and technologies for improved airframe/engine integration aiming at reduced drag and/or reduced noise; development of adaptive wing and wing morphing technologies; concepts and technologies to reduce airframe noise in subsonic or supersonic flight.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.1.1.2. Aerostructures

Advanced concepts and technologies for increased and optimised use of light-weight metallic, composite materials and metal laminates in primary structures; advanced concepts and techniques for application of 'smart' materials, multi-functional materials, micro and nano-technologies; aero-elasticity, 'smart' structures and morphing airframes.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.1.1.3. Propulsion

Advanced concepts and technologies for improving engine thermal efficiency and reducing secondary air losses; advanced concepts and technologies for improving engine propulsive efficiency; design tools and techniques for increased application of advanced light-weight high-temperature materials; innovative surface treatment technologies providing improved thermal protection and reducing degradation of aerodynamics performance due to erosion; advanced light-weight engine architectures and components; technologies for optimal use of 'intelligent' and fully digital engine control systems; design tools and techniques for modelling and control of the aerothermodynamics of combustion; technologies for advanced combustor and injector systems; tools and techniques for modelling and measuring engine exhaust gaseous emissions; investigation of the potential opportunities and obstacles and of the required technologies for greater utilisation of alternative fuels (e.g. second generation bio-fuels and other "green" synthetic fuels); concepts and technologies to reduce power-plant (turbofan, propeller, propfan, rotorcraft rotor) noise by active and/or passive methods.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.1.1.4. Systems and Equipment

Advanced concepts and technologies to enable the all-electric aircraft, reducing engine bleed and systems weight, including power generation and distribution; advanced technologies for the application of fuel cells to on-board energy supply in-flight and on-ground; advanced concepts to reduce weight of mechanical and hydraulic systems; advanced technologies for optimised flight procedures for environmentally friendly operation (noise and emissions), including take-off and climbing, cruise and approach, descent and landing taking into account concepts developed in SESAR; new concepts for aircraft de-icing.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.1.1.5. Avionics

Advanced concepts and technologies for increased modularity and integration of avionics components and systems.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.1.2 Ecological Production and Maintenance

The aim is to ensure environmentally friendly air transport activities focussing on the cleanliness of the industrial processes involved in the manufacturing and maintenance of aeronautical products. Research work will address innovative processes able to reduce toxic emissions as well as improving re-usability and disposal.

Expected Impact
Proposals should demonstrate making contributions to achieving the following objective:

- To substantially reduce the environmental impact of the manufacturing, maintenance and disposal of aircraft and related products.

AAT.2008.1.2.1. Production

Advanced concepts and techniques for the elimination of toxic chemicals and materials and reduction of waste in manufacturing processes; techniques and concepts for increased utilisation of environmentally sustainable materials in aeronautical products.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.1.2.2. Maintenance and Disposal.

Advanced concepts and techniques for the elimination of toxic chemicals and materials and reduction of waste in maintenance processes; advanced maintenance and repair techniques for increased re-use of components; concepts and techniques for increasing the life-time of aeronautical products and for full recyclability at life-end.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.1.3 Green Air Transport Operations

The aim is to ensure environmentally friendly air transport focussing on the greening of its operations. Research work will address a wide range of innovative solutions and technologies which will contribute to optimum air traffic management and airport operations for greater fuel efficiency in aircraft movements and hence reduced pollution (including noise).

Expected Impact
The same objectives as for Area 7.1.1.1 ‘Green Aircraft’ apply here.

AAT.2008.1.3.1. Flight and Air Traffic Management

Investigation of the effects and potential of adopting flight profiles and altitudes other than the conventional ones, as a means to reduce aviation emissions and improve their environmental impact. The research in this topic will need to be coordinated with relevant activities in the Clean Sky JTI and the SESAR JU.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.1.3.2. Airports

Concepts and technologies for replacing ground vehicle services with alternative techniques able to provide support to aircraft at the gate; advanced concepts and technologies for greener apron operations; new concepts for aircraft de-icing.

Investigation for improved understanding of the effects of aircraft noise in the airport surrounding community; techniques for modelling and for real time monitoring of local air quality and aircraft noise around airports.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 2

AAT.2008.1.4.1. Integrated approach to lowering aircraft external noise

Expected Impact: Work should aim at providing the European aeronautics manufacturing industry with improved ability to implement breakthrough noise reduction solutions with added flexibility to adjust to foreseeable evolution of future engines and aircraft architectures.

Scope: The project should identify, develop, integrate and validate "2nd generation" noise reduction technologies addressing the most significant noise sources of the aircraft, namely turbo-machinery, combustor, jet and airframe noise, across the board of all relevant system components such as inlet, fan, bypass duct, exhaust system, advanced propellers, landing gears and wing systems.

The research will take a multidisciplinary approach including local control of noise generation by means of active noise and flow control as well as adaptive and variable concepts, issues associated with the integration of the new concepts into the aircraft, the nacelle and the engine components so that their performance, weight and cost are not negatively affected, as well as evaluation of potential environmental trade-offs (noise-emissions).

The project should build upon results of research performed at European and national level, in particular the SILENCER project (1st generation of noise reduction solutions) and with a view to further demonstration at system level in the "Clean Sky" JTI.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 3

The 'Clean Sky' Joint Technology Initiative will cover Level 3 research activities.

Topics for structuring European aeronautics research

There are no topics for NoEs open in the 2nd Call for Structuring Aeronautics Research for 'Greening of Air Transport'

ACTIVITY: 7.1.2 INCREASING TIME EFFICIENCY

Realising a step-change in aviation in order to accommodate the projected growth of three times more aircraft movements by improving punctuality in all weather conditions and reducing significantly the time spent in travel-related procedures at airports while maintaining safety. Research will develop and implement an innovative Air Traffic Management (ATM) system within the context of the SESAR initiative, by integrating air, ground and space components, together with traffic flow management and more aircraft autonomy. Design aspects of aircraft to improve handling of passengers and cargo, novel solutions for efficient airport use and connecting air transport to the overall transport system will also be addressed.
The most efficient coordination of the development of ATM systems in Europe will be ensured through the SESAR initiative.

The following topics are for level 1

AREA: 7.1.2.1 Aircraft Systems and Equipment for Improved Aircraft Throughput

The aim is to ensure reduced waste time in flight operations, focussing on the improvement of the responsiveness and reliability of the aircraft and its systems. Research work will address a wide range of innovative techniques and technologies able to result in improved time performance as well as time spent in maintenance and overhaul.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To enable 99% of flights to arrive and depart within 15 minutes of their scheduled departure time, in all weather conditions,
- To reduce the time spent by passengers in airports for purely transportation related procedures to under 15 minutes for short-haul flights and to under 30 minutes for long-haul.

AAT.2008.2.1.1. Systems and Equipment

Advanced technologies for improved modelling, prediction and detection of wind shear and wake vortex; innovative wake vortex disruption concepts; advanced technologies to enable full automatic approach and landing in all weather, taking into account concepts developed in SESAR; advanced cockpit display technologies for all-weather, 24-hour (day/night) operation; advanced concepts for fault tolerant systems, including auto reconfiguration

capabilities; advanced concepts for multi-access cabin architectures; advanced concepts and technologies for increased independence of the aircraft from the infrastructure at apron area.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.2.1.2. Avionics

There are no topics open in the work programme for Level 1 relevant to this domain. The SESAR Joint Undertaking will cover research for navigation and flight management systems.

AAT.2008.2.1.3. Maintenance and Repair

Advanced concepts and techniques for continuous health and usage monitoring of structures and systems; innovative repair techniques enhancing the life of components while preserving or enhancing the initial mechanical, aerodynamic or thermal performances; advanced concepts and technologies for 'smart' maintenance systems, including self-inspection and self-repair capabilities; methods and techniques for on-time maintenance and elimination of unscheduled maintenance.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.2.2 Time Efficient Air Transport Operations

The aim is to ensure reduced waste time in air transport operations focussing on the improved time-efficiency of basic operational infrastructures, namely the airport and air traffic management. Research work will address a wide range of innovative concepts and methodologies which will result in optimised passenger-related and flight-related airport activities, as well as solutions for effective air traffic management.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To enable the air transport system to accommodate 3 times more air movements,
- To enable 99% of flights to arrive and depart within 15 minutes of their scheduled departure time, in all weather conditions,
- To reduce the time spent by passengers in airports for purely transportation related procedures to under 15 minutes for short-haul flights and to under 30 minutes for long-haul.

AAT.2008.2.2.1 Air Traffic Management

There are no topics open in the work programme for Level 1 relevant to this domain. The SESAR Joint Undertaking will cover research in air traffic management.

AAT.2008.2.2.2 Airports

Advanced concepts and techniques for time efficient passenger and luggage flow in the terminal area and for passenger boarding patterns, including multi-door embarking and disembarking; advanced concepts and techniques for time efficient freight operations, including comprehensive planning of airport operations; advanced fleet management concepts and techniques for fast turnaround at the apron area; concepts and technologies for airport integrated information distribution and management systems, taking into account concepts related to air traffic management developed in SESAR; innovative modelling tools and techniques in support of strategic decision making for improved flexibility and optimum use of airports in the context of the full air transport system.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 2

AAT.2008.2.3.1. Integrated approach to seamless aircraft health management and permanent serviceable fleet

Expected Impact: Work should aim at providing the European aeronautical industry with substantially improved ability to ensure continuous aircraft availability during its operation, minimising operational disruptions and the associated costs, while increasing the level of safety.

Scope: The scope of the project should further develop and validate aircraft and engine health monitoring and management technologies, services and processes to enable a global maintenance system integrating interoperable aircraft and ground segments, including the operator, MRO (Maintenance, Repair and Overhaul) and manufacturer operations, information systems and processes. Activities will include the identification and demonstration of the most appropriate technologies and processes according to value/cost benefit, as well as the demonstration of their capability to contribute to aircraft and engine diagnosis and prognosis, decision making and global maintenance.

The project should deliver a standardised maintenance system architecture validated through an integrated aircraft health management test platform with appropriate connections to MROs and operators. Key health monitoring technologies will be also validated through test rigs and large scale aircraft and engine testing.

The project should build upon results of research performed at European and national level, in particular the TATEM project.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.2.3.2. Integrated approach to advanced avionics systems for new cockpit architectures and aircraft all-conditions operation

Expected Impact: Work should aim at providing the European equipment manufacturing industry with improved capability to develop new flight-deck architectures integrating

innovative avionics technologies to respond to the new challenges of aircraft operation regarding external perturbations, increased automation and improved crew interface design, including the feasibility of future single pilot operations.

Scope: The project should develop and integrate a core flight deck architecture based on a holistic and crew-centred approach for the integration of candidate technologies, which amongst others, could include: improved sensors and data-fusion, task tailored, intuitive graphical interfaces, 3D audio environment, head mounted technologies, voice inputs, integrated flight bags. Regarding all-conditions operations the project should focus on developing the capability of the flight deck to enable more autonomous aircraft operation, and for anticipation and avoidance of possible perturbations in-flight or on-ground, including weather disturbances (enhanced vision systems and 3D situational awareness, weather surveillance sensors and new navigation capabilities). Application to all types of aircraft should be envisaged. Changing pilot role and the possible evolution towards single pilot cockpit should be contemplated within the scope of activities.

Validation will be performed in synthetic environments stimulating realistic operational conditions, as well as on ground test benches or flight tests, where appropriate.

The project should build upon results of research performed at European and national level, in particular the HILAS project and coordinate with the SESAR JU the activities related to navigation an air traffic management.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 3

The SESAR Joint Undertaking will cover Level 3 research activities.

Topics for structuring European aeronautics research

There are no topics for NoEs open in the 2nd Call for Structuring Aeronautics Research for 'Increasing Time Efficiency'

ACTIVITY: 7.1.3 ENSURING CUSTOMER SATISFACTION AND SAFETY

Introducing a quantum leap in passenger choice and schedule flexibility, whilst achieving a five-fold reduction in accident rate. New technologies will enable a wider choice of aircraft/engine configurations ranging from wide body to smaller size vehicles including rotorcraft, increased levels of automation in all the elements of the system. Focus will also be on improvements for passengers comfort, well being and new services, cabin logistics systems and active and passive safety measures with special emphasis on the human element. Research will include the adaptation of airport and air traffic operations to different types of vehicles and 24-hour utilisation at acceptable community noise levels.

The following topics are for level 1

AREA: 7.1.3.1 Passenger Friendly Cabin

The aim is to ensure improved passenger service orientation in aircraft cabin designs. Research work will address a wide range of innovative solutions and technologies, including the exploitation of information and communication technologies, which will contribute to an enhanced flight environment and health conditions in the cabin.

Expected Impact
Proposals should demonstrate making contributions to achieving the following objective:

- To increase passenger choice with regard to on-board services and comfort

AAT.2008.3.1.1. Design Systems and Tools

Advanced design tools, concepts and technologies in support of mission-adaptive cabin/cargo configurations for flexible passenger and cargo utilisation.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.1.2. Noise and Vibration

Advanced modelling tools, concepts and technologies (active and passive) to reduce overall cabin noise as well as noise at passenger level; advanced techniques to reduce vibration and overall effects of noise and vibration on passengers (harshness) as well as other unwanted dynamics effects of flight (ride comfort).

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.1.3. Systems and Equipment

Advanced technologies and systems architectures to allow for cabin environments adapted with regard to passenger preferences, including on-board communication, entertainment and information services; advanced catering systems; advanced concepts and technologies for enhanced cabin environment and passenger comfort with regard to temperature, pressure, humidity, ventilation and health, including personalised climate control; advanced technologies for high performance air/ground data links and communication including automated on-board flight information systems taking into account concepts developed in SESAR.
Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.3.2 Passenger Friendly Air Transport Operations

The aim is to ensure that the passenger is less exposed to delays and travel inconveniences due to air transport operations. Research work will address a wide range of innovative solutions and technologies which will contribute to improve passenger related activities at the airport and timely aircraft maintenance operations.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To increase passenger services and choice
- To enable 99% of flights to arrive and depart within 15 minutes of their scheduled departure time, in all weather conditions
- To reduce the time spent by passengers in airports for purely transportation related procedures to under 15 minutes for short-haul flights and to under 30 minutes for long-haul.

AAT.2008.3.2.1. Maintenance and Repair

Advanced methods and techniques for on-time maintenance and elimination of unscheduled maintenance; advance diagnosis and prognosis systems and methods for maintenance data analysis.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.2.2. Airports

Advanced concepts and techniques for efficient passenger and luggage flow in the terminal area, including modelling of human behaviour, intelligent tracking of luggage, as well as for passenger boarding and debarking; advanced fleet management concepts and techniques for fast turnaround at the apron area; innovative modelling tools and techniques in support of integrated decision making for enhanced passenger-oriented air transport operations.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.3.3 Aircraft Safety

The aim is to ensure that aviation safety remains at current high standards or even improves regardless of air transport growth, through the increased enhancement of the safety of the aircraft itself and its systems. Research work will address a wide range of innovative solutions and technologies for active and passive safety measures related to essential features of aircraft designs and human factors.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To reduce accident rate by 80%

- To achieve a substantial improvement in the elimination of and recovery from human error
- To mitigate the consequences of survivable accidents.

AAT.2008.3.3.1. Aerostructures

Advanced modelling tools, design techniques and structural concepts including its experimental validation for improved protection against crash, impacts and blast loads, including passive and active 'smart' concepts; advanced methods and techniques to ensure safety of aging airframe and engine structures.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.3.2. Systems and Equipment

Advanced technologies, modelling and design tools for aircraft protection against hazards such as wind shear, wake vortex, clear air turbulence, icing and electro-magnetic interference; advanced technologies and concepts for prevention of controlled flight into terrain; advanced systems and technologies to enable full automatic approach and landing in all weather taking into account concepts developed in SESAR; advanced systems and techniques for in-flight and on-ground collision avoidance; advanced techniques and technologies to enable aircraft self separation assurance taking into account concepts developed in SESAR; advanced concepts for fault tolerant systems; design techniques and concepts for improved fire, heat and smoke protection including novel aircraft evacuation procedures.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.3.3. Avionics

There are no topics open in the work programme for Level 1 relevant to this domain. The SESAR Joint Undertaking will cover research for safe navigation and flight management systems.

AAT.2008.3.3.4. Human Factors

Methods and techniques for improved understanding of the human factor in support of human-machine interaction and crew performance in the cockpit; advanced concepts to enable improved human centred design of cockpit displays, training of crews and flight control systems.
Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.3.4 Operational Safety

The aim is to ensure that aviation safety remains at current high standards or even improves regardless of air transport growth, through the increased enhancement of the safety in air transport operations. Research work will address a wide range of concepts, innovative solutions and technologies which will result in safer operation of basic infrastructures of the system, such as airports and air traffic managements as well as in improved integrated safety solutions.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To reduce accident rate by 80%
- To achieve a substantial improvement in the elimination of and recovery from human error

AAT.2008.3.4.1. Design Systems and Tools

Advanced concepts and techniques in support of a holistic approach to aviation safety, including the development of safety metrics; development of techniques to identify, assess and manage the risks in systems and procedures taking into account aspects like safety, reliability, maintainability and availability; development of diagnostic and prognostic systems for incident/accident, flight and maintenance data; advanced concepts and procedures in support of novel approaches to certification of aeronautical products and operations.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.4.2. Maintenance

Advanced concepts and techniques for continuous health and usage monitoring and for avoidance/mitigation of structural corrosion; advanced concepts and technologies to enable 'smart' maintenance, including self-inspection and self-repair capabilities.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.4.3. Air Traffic management

There are no topics open in the work programme for Level 1 relevant to this domain. The SESAR Joint Undertaking will cover research in air traffic management.

AAT.2008.3.4.4. Airports

Advanced techniques for all weather ground based high precision landing and take off systems taking into account concepts under development in SESAR.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities

Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.3.4.5. Human Factors

Advanced concepts and techniques in support of increased consideration of human behaviour in the conceptual design of the air transport system, in particular with regard to the mission of the crew and maintenance personnel, with special consideration of abnormal situations and crisis management.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 2

There are no topics open in the 2nd Call for Level 2 research activities for 'Ensuring Customer Satisfaction and Safety'.

The following topics are for level 3

There are no topics open in the 2nd Call for Level 3 research activities for 'Ensuring Customer Satisfaction and Safety'.

Topics for structuring European aeronautics research

There are no topics open in the 2nd Call for Structuring Aeronautics Research for 'Ensuring Customer Satisfaction and Safety'

ACTIVITY: 7.1.4 IMPROVING COST EFFICIENCY

Fostering a competitive supply chain able to halve the time-to-market, and reduce product development and operational costs, resulting in more affordable transport for the citizen. Research will focus on improvements to the whole business process, from conceptual design to product development, manufacturing and in-service operations, including the integration of the supply chain. It will include improved simulation capabilities and automation, technologies and methods for the realisation of innovative and zero-maintenance, including repair and overhaul, aircraft, as well as lean aircraft, airport and air traffic management operations.

The following topics are for level 1

AREA: 7.1.4.1 Aircraft Development Cost

The aim is to ensure cost efficiency in air transport focussing on the reduction of aircraft acquisition costs. Research work will address a wide range of concepts, innovative solutions and technologies which will result in lower lead time and costs of the aircraft and its systems from design to production, including certification, with more competitive supply chain.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To reduce aircraft development costs by 50%,
- To create a competitive supply chain able to halve time to market,
- To reduce travel charges.

AAT.2008.4.1.1. Design Systems and Tools

Advanced modelling and simulation tools to include 'virtual reality' in support of design and 'virtual prototyping'; development of advanced methods and computational tools in the fields of structural analysis, computational fluid dynamics, aeroelasticity, aerothermodynamics, icing thermodynamics and multidisciplinary optimisation to exploit state-of-the-art computer technologies; knowledge-based design tools and methods to include integrated life-cycle (design, manufacturing, maintenance, re-use or disposal) product definition; concepts and methodologies for efficient multi-site product development in support of the extended enterprise; methods and tools to support reconfigurable customisation of aircraft cabin architectures and interior designs; methods and tools enabling the modular aircraft concept; advanced testing tools and methods to improve cost-efficiency and reduce testing time of laboratory, on-ground and in-flight tests; advanced concepts and procedures in support of novel approaches to certification of aeronautical products and operations.
Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.1.2. Aerostructures

Development of highly integrated structures with optimum combination of advanced metallic and composite materials eliminating or minimising the number of join/assembly elements.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.1.3. Systems and Equipment

Advanced concepts and techniques for higher systems integrations and for simulation of installation environments to enable rapid customisation and industrialisation with low manufacturing and maintenance costs.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.1.4. Avionics

Advanced concepts and techniques to develop scalable and reconfigurable modular avionics architectures; development of enhanced synthetic vision cockpit displays.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.1.5. Production

Development of advanced 'intelligent' knowledge-based manufacturing and assembly processes and technologies with increased degree of automation; advanced manufacturing methods to reduce both recurring and non-recurring costs across the whole production cycle from single component manufacturing process to final assembly including techniques to repair and re-use key components and for reduction of waste and consumables; development of techniques for increased flexible tooling; advanced in-process inspection and quality control, including knowledge-based diagnosis and prognosis and damage tolerance.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.4.2 Aircraft Operational Cost

The aim is to ensure cost efficiency in air transport focussing on the reduction of aircraft direct operating costs. Research work will address a wide range of concepts, innovative solutions and technologies which will reduce weight, fuel consumption, maintenance and crew operational costs as main contributors.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To reduce aircraft operating costs by 50% through reduction in fuel consumption, maintenance and other direct operating costs,
- To reduce travel charges.

AAT.2008.4.2.1. Flight Physics

Advanced or novel aircraft configuration concepts that could deliver improved aerodynamic efficiency compared to traditional configurations in subsonic, transonic or supersonic flight; advanced concepts and technologies for flow control, airframe aerodynamics design and drag reduction (active or passive); advanced concepts and technologies for improved airframe/engine integration aiming at reduced drag; development of wing morphing technologies; concepts and technologies to reduce drag in subsonic or supersonic flight.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.2.2. Aerostructures

Advanced concepts and technologies for increased and optimised use of advanced light-weight metallic, composite materials and metal laminates in primary structures; advanced concepts for increased integration of additional functions (sensing, actuating, electromagnetic, electrical conductivity, etc.) in structural components for wider applications at low cost and weight.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.2.3. Propulsion

Advanced concepts and technologies for improving engine thermal efficiency and reducing secondary air losses; advanced concepts and technologies for improving engine propulsive efficiency; design tools and techniques for increased application of advanced light-weight high-temperature materials; advanced light-weight engine architectures and components.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.2.4. Systems

Advanced concepts and technologies to enable the all-electric aircraft, reducing engine bleed and systems weight, including power generation and distribution; advanced concepts and technologies for higher integration of on-board mechanical, hydraulic, electrical and pneumatic systems and increased application of light-weight materials in its components, such as landing gears; advanced concepts and technologies for increased independence of the aircraft from the infrastructure at apron area.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.2.5. Avionics

Advanced concepts and technologies to reduce crew workload and the number of crew through increased automation of cockpit functions adapting the role of the crew to new patterns.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.2.6. Maintenance

Advanced concepts and techniques for continuous health and usage monitoring of structures and systems; advanced concepts and technologies for ‘smart’ maintenance systems, including self-inspection and self-repair capabilities; methods and techniques for on-time maintenance and elimination of unscheduled maintenance; advanced concepts and technologies to enable the introduction of the ‘maintenance-free’ aircraft.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.4.3 Air Transport System Operational Cost

The aim is to ensure cost efficiency in air transport focussing on the reduction of the operational costs relevant to the system. Research work will address a wide range of innovative concepts and technologies which will increase cost efficiency in basic operational infrastructures such as airports and air traffic management, including also the human element.

Expected Impact
Proposals should demonstrate making contributions to achieving one or several of the following objectives for technology readiness by 2020:

- To reduce operating costs by 20%,
- To reduce travel charges.

AAT.2008.4.3.1. Design Systems and Tools

Innovative modelling tools and techniques in support of collaborative decision making for improved flexibility and optimum use of aircraft (fleet management), airport and air traffic management in the air transport system in terms of low cost operation.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.3.2. Air Traffic Management

There are no topics open in the work programme for Level 1 relevant to this domain. The SESAR Joint Undertaking will cover research in air traffic management.

AAT.2008.4.3.3. Airports

Advanced fleet management concepts and techniques for fast turnaround at the apron area and its relation with terminal operations; advanced concepts and techniques for cost efficient passenger and luggage flow in the terminal area; development of advanced concepts and techniques for improved airport operations specific to freighters.

Funding scheme: Collaborative Projects, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.3.4. Human Factors

Advanced concepts and techniques, including training, to support the acquisition and retention of skills and knowledge of personnel in the whole air transport system (design, production, maintenance and airport operation).

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 2

AAT.2008.4.4.1. Integrated approach to full virtuality in design and product development within the extended enterprise

Expected Impact: Work should aim at providing the European aeronautics manufacturing industry with improved ability to dramatically reduce time to market and development cost through a new engineering paradigm based on concurrent engineering supported by virtual reality across the whole design and development cycle, involving multidisciplinary teams collaborating in an extended enterprise concept.

Scope: The project should develop and validate a framework of aircraft development processes to embrace from conceptual design to testing and certification, supported with integrated engineering capabilities and associated enabling techniques and technologies, such as information technologies. The functionalities to integrate in the framework will include amongst others: multi-physics analysis at aircraft, systems, subsystems and component levels, provision of "in-context" interactive knowledge based design and decision support, features to support management of uncertainty in the development cycle, methods to control design evolution across the pre-design and development phases using concurrent engineering approaches, extended use of virtual testing to reduce or eliminate the need of physical testing in support of aircraft development and certification.

The project should demonstrate the validity of the framework using test cases extracted from normal business simulating realistic design, development and certification programmes.

The project should build upon results of research performed at European and national level, in particular the VIVACE project.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.4.4.2. Integrated approach to network centric aircraft communications for global aircraft operations

Expected Impact: The work should aim at enabling the European aeronautical industry to develop a coherent aircraft communication system to integrate in a new global air transport communication system, so improving aircraft efficiency and cost-effectiveness.

Scope: The project should define, develop and demonstrate an aircraft communication concept which will integrate a full range of applications and services, including airlines operations, cabin crew operations, in-flight and on-ground passenger services, airport operations, security services and air traffic management related operations, including the unification of all the related networking protocols. The recent developments on communications concepts made at European level for air traffic management should be integrated (in particular those made under SESAR development phase). Care will be taken to fully integrate the future SESAR concepts and system decisions on unified telecommunications.

Activities will include definition of common data interfaces with future and current networks through the use of common standards and develop proved concepts for the transition from the current procedures to the new system.

The research should further develop and exploit on-going standardisation efforts in the field and capitalise results of current projects at European or national level.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 3

There are no topics open in the 2nd Call for research activities for 'Improving Cost Efficiency'

Topics for structuring European aeronautics research

There are no topics for NoEs open in the 2nd Call for Structuring Aeronautics Research for 'Improving Cost Efficiency'

ACTIVITY: 7.1.5 PROTECTION OF AIRCRAFT AND PASSENGERS

Preventing hostile action of any kind to incur injury, loss, damage or disruption to travellers or citizens due to the effects of aircraft misuse. Research will focus on the relevant elements of the air transport system including security measures in cabin and cockpit designs, automatic control and landing in the case of unauthorised use of aircraft, protection against external attacks, as well as security aspects of airspace management and airport operations.

The following topics are for level 1

AREA: 7.1.5.1 Aircraft Security

The aim is to ensure enhanced security in air transport focussing on the improvement of security features in the aircraft. Research work will address the application of a wide range of concepts, innovative solutions and technologies relevant its main systems to reduce the possibility of an aircraft to suffer from an action of any kind which could compromise its security and improve survivability if the action takes place.

Expected Impact
Proposals should demonstrate making contributions to achieving the following objectives for technology readiness by 2020:

- To eliminate hazards of hostile on-board or external actions against aircraft.

AAT.2008.5.1.1. Aerostructures

Advanced concepts and technologies for developing blast-resistant cabin structures and bomb-proof cargo containers.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities

Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.5.1.2. Systems and Equipment

Advanced concepts for secured systems designs and architectures against external and internal threats to ensure safe functionality following a major component or system failure; advanced on-board (cabin and cargo) explosives detection systems; advanced concepts and techniques for secured wide-band communication systems; advanced cost-effective techniques to detect and counteract missiles attack to aircraft.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.5.1.3. Avionics

Advanced concepts and technologies to prevent unauthorised access to the cockpit and flight deck including reactive measures; advanced concepts and technologies for protection of flight trajectories against hostile interventions, including enabling the safe automatic return (ground-controlled or not) of the aircraft to ground (taking into account the developments within SESAR); advanced data fusion and signal processing for pattern recognition (taking into account the developments within SESAR).

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.5.2 Operational Security

The aim is to ensure enhanced security in air transport focussing on the improvement of the intrinsic security in its infrastructures. Research work will address the application of a wide range of concepts, innovative solutions and technologies able to improve security aspects in airports and air traffic management, including the security related human element.

Expected Impact
Proposals should demonstrate making contributions to achieving the following objectives for technology readiness by 2020:

- To eliminate hazards of hostile actions in the air transport system.

AAT.2008.5.2.1. Air Traffic Management

There are no topics open in the work programme for Level 1 relevant to this domain. The SESAR Joint Undertaking will cover research in air traffic management.

AAT.2008.5.2.2. Airports

Advanced security control methods based on biometric data or other novel non-interfering detection techniques; advanced techniques for detection of hazardous materials; development

of tracing mechanisms for communicable diseases, development of advanced secured communication systems.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.5.2.3.Human Factors

Modelling of human behaviour and advanced techniques for crisis management and training of personnel (crew, airport operators and traffic controllers) to deal with security threats.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 2

AAT.2008.5.3.1. Integrated approach to air transport system security

Expected Impact: Work should aim at providing the air transport system with an enhanced capability to detect and respond to any kind of threat to its security or to the security of the citizens in general, as well as an improved ability to survive the effects of hostile actions.

Scope: The scope of the project should embrace the on-ground airport threats, the in-flight threats and the threats to air/ground data links and communications. The in-flight threats should include those internal in the aircraft – attacks to the crew and/or passengers as well as dangerous materials or explosives – and those from an external source, such as missile or electronic attacks. The project should define a framework of integration of the relevant airborne systems with the ground systems so to obtain the capability of merging relevant information to enable the detection and response (including survivability) of an aircraft under attack. Attention should be provided also to future international regulations in the field as well as to standardisation and certification issues.

Validation of the integrated concept will be performed through simulation platforms to serve also as a platform for training of users, as well as in full scale live trials of realistic security crisis cases involving all relevant players.
The project should build upon results of research performed at European and national level, in particular the SAFEE project and the Security and Space Programmes of the Framework Programme, and coordinate with the SESAR JU the activities related to security in air traffic management.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 3

There are no topics open in the 1st Call for Level 3 research activities for 'Protection of Aircraft and Passengers'

Topics for structuring European aeronautics research

There are no topics for NoEs open in the 2nd Call for Structuring Aeronautics Research for 'Protection of Air craft and Passengers'

ACTIVITY: 7.1.6 PIONEERING THE AIR TRANSPORT OF THE FUTURE

Exploring more radical, environmentally efficient, accessible and innovative technologies that might facilitate the step change required for air transport in the second half of this century and beyond. Research will address aspects such as new propulsion and lifting concepts, new ideas for the interior space of airborne vehicles including design, new airport concepts, new methods of aircraft guidance and control, alternative methods of air transport system operation and their integration with other transport modes.

The following topics are for level 1

AREA: 7.1.6.1 Breakthrough and Emerging Technologies

Only through technology breakthroughs air transport will be able to respond to society demands in the second half of this century. Research work will need to adopt a less evolutionary approach and take the risk of exploring more radical departures from conventional thinking which will be able to introduce revolutionary concepts in fundamental disciplines of aircraft design.

Expected Impact
Proposals should demonstrate making contributions to setting the foundations of a technology base that might have the power to cause a step change in air transport in the long term.

AAT.2008.6.1.1. Lift

Investigation of new approaches to produce or to control the forces that govern flight, in particular those that lift the vehicle. It could consider topics such as other principles of physics as alternative to conventional fluid dynamics, computer controlled aircraft morphing into different aerodynamic forms for different flight phases, thrust vectoring to provide lift and control.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.1.2. Propulsion

Investigation of new approaches to create propulsion power and the energy required for powering vehicle systems. It could consider topics such as the application of renewable energy sources, including solar power, new-generation biofuels or "green" synthetic fuels, hybrid propulsion as well as other types of energy such as nuclear, plasma jets, beamed energy or ground-based energy forms, propulsion systems for supersonic, hypersonic and suborbital flight.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.1.3. Interior Space

Investigation of new forms of setting the environment for the passenger inside the vehicle. It could consider topics such as the application of future techniques of virtual reality with virtually sensed environments capable of producing higher standards of comfort as well as new functionalities appropriate for all range of flight durations at all altitudes (atmospheric and beyond) and for all types of air vehicles.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.1.4. Life-cycle

Investigation of new approaches to the conception, production and maintenance of air vehicles with higher levels of automation, including the application of advanced technologies in existing aircraft. It could consider topics such as the application of new generation of robotics at all levels of the life-cycle, featuring increased use of modular approaches, self-monitoring and self-healing built in all systems, increased use of nano-technologies and novel materials.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.6.2 Step Changes in Air Transport Operation

In addition to technology breakthroughs in fundamental disciplines of aircraft design, new concepts of the air transport system itself will be needed in the long term. Research work will also need to depart from conventional thinking in order to be able to introduce revolutionary concepts in the operation of the air transport of the future.

Expected Impact
Proposals should demonstrate making contributions to setting the foundations of new paradigms that have the power to cause a step change in air transport in the long term.

AAT.2008.6.2.1. Novel Air Transport Vehicles

Investigation of novel aircraft configurations which could be better adapted to provide the services that future air transportation concepts demand, including combined transport modes vehicles (hybrid vehicles). Consideration should be given to overcoming the weaknesses of current configurations, taking a mission oriented perspective where the vehicle is to be fully integrated in the total transport system. Vehicle size and mission could range from very small door to door personal transport to very large platforms of transportation, including those suitable for new forms of networking traffic flows, air-to-air and air-to-ground, at subsonic,

supersonic or hypersonic (suborbital flight) speeds addressing the environmental concerns regarding energy consumption and noise and setting clearer differentiations between vehicles to transport passengers or goods.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.2.2. Guidance and Control

Investigation of new approaches to guide and control the vehicle flight with very high or total automation. It could include topics such as the application of new generation computers, on-board or on-ground, to entirely manage the flight and provide for pilot-free operation with the possibility to reverse the operation to human control, robotic technologies embodied in autonomous robots to perform specific guidance and control tasks.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.2.3. Airports

Investigation of new philosophies to establishing the interface between the flight vehicle and the ground and for related passenger operations. It could include topics such as the concept of on-ground, on the sea or in-air docking in place of parking the vehicle for conducting the transfer of passengers or goods, air stations located off-shore in the proximity of land littorals, new concepts of aggregating passengers and baggage into the traffic flows and into the intermodal connexions.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AREA: 7.1.6.3 Promising Pioneering Ideas in Air Transport

Under the auspices of ACARE, the European Commission funded in 2006-07 the "Out of the Box" study[15] to identify potential new concepts and technologies for air transport in the future, implying radical changes in the system.

The study resulted in a few ideas that are seen as most promising because they offer the prospect of substantial impact and benefit to the air transport system, they are radical rather than evolutionary, they are forward looking rather than immediate in application and had specific technology challenges. These ideas are at the level of 'systems of systems' and therefore each of them will embrace a number of technical fronts and technologies without which they will be unviable.

[15] "Out of the Box. Ideas about the future of Air Transport". Report on Phase 1 – December 2006. Report on Phase 2 – June 2007

The following four promising ideas have been incorporated in this Work Programme. Proposals addressing them are encouraged, however it is to be noted that it is not suggested that a project proposals attempt to cover the entirety of issues and technologies embraced in a proposed idea, but to address some of them so that progress can be made in assessing their viability or paving the way towards their realisation.

AAT.2008.6.3.1. The cruiser/feeder concept

Investigation of the concept involving very large aircraft which remain airborne for very long periods on stable routes around the world, interconnecting major populated centres (cruiser). The feeders would transfer passengers and freight to/from the cruiser at interception points in flight. The environmental impact of the feeder/cruiser system could be considerably better than the present system, as fuel consumption could be substantially less.

A number of variants in the mode of operation and in the cruiser and feeder air vehicles are possible. There is the need to study the system in a structured approach. The best type of propulsion for the cruiser, the cruiser-feeder docking operation, the optimal feeder and cruiser architectures and the operation of transferring passengers and goods from the feeder to the cruiser and vice-versa are essential aspects of research.

Relevant underpinning research topics could be found also in other parts of this Work Programme, in particular in AAT.2008.6.2.1 and AAT.2008.6.2.3.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.3.2. Take-off and landing with ground-based power

The objective is to replace the on-board power and systems specifically dedicated to performing the take-off and landing of the air vehicle with power and systems provided from ground. The potential benefits are a significant reduction in fuel consumption and aircraft weight, reduction of the environmental impact and improvement of noise nuisances in the vicinity of airports.

Different type of ground assistance concepts could be envisaged based for example on different type of energy sources and mechanisms for impulsing the vehicle to off the ground. Regarding the landing operation a major advantage is the possible elimination of heavy landing gears and related systems.

Relevant underpinning research topics could be found also in other parts of this work programme, in particular in AAT.2008.6.2.1 and AAT.2008.6.2.3.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.3.3. Personal air transport systems

The aim is the investigation of concepts and related technologies and operations which will enable future individual air transportation. The idea of personal air transport is not new as it has been regarded as a possible solution to the ever increasing congestion in road traffic, providing at the same time greater speed and flexibility.

The viability of the concept will depend not only on the design of a vehicle capable to operate under the imposed constraints, but mainly on the operational environment both in the air and on the surface. Challenges for research are the environmental impact, automation of the vehicle and of its operation, certification, maintenance, training of the "pilot"', infrastructures, etc.

Relevant underpinning research topics could be found also in other parts of this work programme, in particular in AAT.2008.6.2.1.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.6.3.4. New sources of aircraft main propulsive power

Investigation and system analysis of concepts and technologies for the utilisation of new sustainable primary sources of energy in the propulsion of the aircraft. All energy sources, including renewables, could be considered.

A new view of the aircraft propulsive system is to be taken, beyond that of the gas-turbine concept. In addition to the economics of the operation, due regard is to be given to the environmental aspects related to its supply, use and eventual disposal of possible residues. An important subject will be the integration of the propulsive system in the vehicle.
Relevant underpinning research topics could be found also in other parts of this work programme, in particular in AAT.2008.6.1.2.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

The following topics are for level 2

There are no topics open in the 2nd Call for Level 2 research activities for ‘Pioneering the Air Transport of the Future’.

The following topics are for level 3

There are no topics open in the 2nd Call for Level 3 research activities for ‘Pioneering the Air Transport of the Future’.

Topics for structuring European aeronautics research

There are no topics for NoEs open in the 2nd Call for Structuring Aeronautics Research for ‘Pioneering the Air Transport of the Future’

7.1.7. CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme

AAT.2008.7.1 Understanding interactions between air transport, environment and society

Expected Impact: Proposals should demonstrate making contributions to a better understanding of the role of air transportation in a future socio-economic context and to provide operational tools to support European policy-making, in particular in the field on environmental impact of aviation, further developing and consolidating European modelling capabilities.

Scope: Study to analyse, compare, assess and link possible scenarios for air transport and environment in a systemic approach. The analysis must include modelling and forecasting of scenarios and should consider elements such as technological, financial, energy, regulatory, socio-economic, policy and organisational factors.

New innovative concepts and organisational set-ups for developing, sharing and maintaining European modelling capabilities for policy support in areas such as interdependencies, aviation environmental impact and policy assessment will be given priority.

Projects should have a duration of no longer than 24 months.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.2. Understanding the behaviour of the different actors and drivers of the Air Transport System

Expected Impact: Proposals should demonstrate making contributions to a better understanding of the role of the different actors of the air transportation system and of the key drivers of the system considered as a whole.

Scope: Study to model, analyse, compare, assess and link the different actors of air transport and the key drivers, in a holistic approach. The analysis may study behaviours and strategies of actors individually or as a group and should consider elements such as technological, market, financial, low-cost travel, regulatory, socio-economic, policy and organisational factors. The analysis may also study the sensitivity of the key drivers.

Projects should have a duration of no longer than 24 months.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles

Expected Impact: Proposals should demonstrate making contributions to achieving one or several of the following objectives for readiness by 2020:

- To increase passenger choice with regard to best air transportation means connecting point A with point B,
- To reduce travel charges and time to destination.

Scope: Study to investigate the technical, operational, economic and regulatory issues relevant to the development of an air transport system which exploits existing vehicles and potential new vehicles (manned and unmanned) in optimum way from the standpoint of seamless capacity of the system as well as providing best choice to passengers, while respecting environmental constrains and safety.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.4. Retrofitting for improved sustainability and economic viability of aeronautical products

Expected Impact: Improved understanding of the benefits of retrofitting existing aeronautical products with advanced technologies or concepts and of the best practices in retrofitting and related RTD needs for wide European use.

Scope: Upgrading existing aircraft with advanced technologies offer the potential of making the existing fleets more environmentally friendly, passenger friendly and cost effective. The proposed actions should address key issues in retrofitting such as: evaluation of current practices and their drivers, including re-engineering or engine upgrades, aerodynamics and structures improvements and systems upgrades. It should also include analysis of the opportunities that new technologies or processes offer and of the strategy and actions needed in order to optimize technology take-up in retrofitting from existing technologies or from research and technology programmes, including the identification of specific RTD needs; cost-benefit analysis of retrofitting including implications in manufacturing, certification and maintenance; related socio-economic factors.
Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.5.Stimulating improved participation of Member States and FP7 Associated States with aeronautical R&D potential

Expected Impact: Proposals should demonstrate making contributions to improve the participation of organisations from Member States and FP7 Associated States with aeronautical R&D potential to enhance intra-European cooperation and to strengthen the competitiveness of the European aeronautical industry.

Scope: Actions to stimulate and encourage the participation of organisations from Member States and FP7 Associated States with aeronautical R&D potential in the activities of the programme. Actions of stimulation will include information events, networking, studies and workshops. Proposals could combine the scope of this topic with that of AAT.2008.7.6.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.6.Stimulating Research with International Cooperation Partner Countries

Expected Impact: Proposals should demonstrate making contributions to enhance the participation of third countries at large and in particular International Cooperation Partner Countries from Asia and Latin America (e.g. Brazil, Argentina), in European aeronautics research so to promote an active, purposeful cooperation with other regions, both to strengthen the competitive position of European industry and to contribute to the solution of global problems of air transport.
Scope: Actions to stimulate, encourage and facilitate the participation of organisations from International Cooperation Partner Countries in the activities of the programme. Actions of stimulation will include information events, networking, studies and workshops. They could include also the analysis of preferred subject areas and win-win situations with respect to specific regions or countries.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.7. Supporting the harmonised dissemination of European scientific knowledge from ad-hoc organisations in the field of aeronautics and air transport

Expected Impact: Proposals should demonstrate contributing to improved coherence and harmonisation of activities carried out by scientific associations and publishers dealing with dissemination of knowledge in the scientific disciplines relevant to aeronautics and air transport so to gain a European identity in knowledge in this field.

Scope: Actions/study should review the existing European channels of dissemination of scientific/technical knowledge, including publications, specialised reviews, events regularly organised by scientific associations, etc and stimulate the set up of a European structure of dissemination covering the different technical domains with improved coherence.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.8. Raising public awareness of aeronautics and air transport research in Europe

Expected Impact: Proposals should demonstrate contributing to improving the perception amongst European citizens of the benefits of air transport at large and of the challenges involved in developing more environmentally friendly, more reliable, safer and more secure air transport and the importance that RTD has in this sector.

Scope: Actions/study should contemplate a number of measures to raise the awareness of public at large, including policy makers and in particular young people, of the challenges which aviation is currently facing and the solutions that science, engineering and innovation could provide. Activities could be built at regional, national and European level and include,

amongst others, studies, surveys, events, preparation of informative material as well as organisation of activities specifically targeted to stimulate young people interest.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.9. Supporting the organisation of conferences, workshops and other research related events

Expected Impact: Proposals should demonstrate contributing to the dissemination of knowledge and/or of the results of European research in the field of aeronautics and air transport, thus to improved co-ordination of research and technology development in the sector.

Scope: Activities will include in particular the organisation of conferences, seminars and workshops at regional, national or European level. The events could be focused on specific technical subjects or on broader policy issues relevant to the sector and with a European dimension.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2008-RTD-1

AAT.2008.7.10. Co-ordination of national research programmes for further developing the European Research Area in the field of Aeronautics and Air Transport

Expected Impact: The aim of this ERA-NET initiative is to continue strengthening the foundation of the European Research Area in aeronautics and air transport through further co-operation and co-ordination of national and regional research programmes, as well as the development of policies in support of strategic approaches in this field.

Scope: Activities should build upon those carried out in the on-going AirTN ERA-NET set in EU RTD 6th Framework Programme, in particular:

- Broadening its geographical scope by the inclusion of new members
- Enhancing exchange of relevant information to support co-operative planning
- Structuring of public funding through increased complementary effect and concentration of efforts towards common aims
- Definition and preparation of joint activities, including joint calls for proposals in areas of common interest
- Considering opportunities for cooperation with Third Countries
- Preparation of the grounds for a next ERA-NET Plus in FP7 to include joint transnational calls.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-ERA-NET – 2008-RTD (closing date 12 August 2008)

3. IMPLEMENTATION OF CALLS AERONAUTICS AND AIR TRANSPORT

- **Call title: FP7- AERONAUTICS and AIR TRANSPORT (AAT) - 2008- RTD-1**
- **Call identifier: FP7- AAT- 2008- RTD-1**
- **Date of publication[16]:** 30 November 2007
- **Deadline[17]:** 7 May 2008 at 17.00.00 (Brussels local time)
- **Total Indicative budget[18]**: EUR 80.42 million
  The indicative distribution of the Call budget is as follows:
  - EUR 3 million for CSA–Supporting;
  - up to EUR 2 million for topic AAT.2008.7.10 open in FP7-ERA-NET – 2008-RTD, and;
  - the remaining budget divided at 50% for topics funded via CP-IP (Level 2) and 50% for topics funded via CP-FP (Level 1) and CSA-Coordinating.

  All budgetary figures given in this call are indicative. The repartition of the sub-budgets awarded within this call, following the evaluation of projects, may vary by up to 10% of the total value of the call."

- **Note:** no topics for NoE are open in this Call.

- **Topics called:**

Activity/ Area	Topics called	Funding Schemes Collaborative Projects (CP), Coordination and Support actions (CSA)
7.1.1 THE GREENING OF AIR TRANSPORT – LEVEL ONE		
7.1.1.1 Green Aircraft	AAT.2008.1.1.1. Flight Physics	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.1.1.2. Aerostructures	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.1.1.3 Propulsion	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.1.1.4. Systems and Equipment	CP-FP (small or medium-scale focused research), CSA (coordinating)

[16] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[17] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.
[18] Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority. An amount from the 2009 budget is expected to be added to this call for which a new financing decision to cover the budget for that year will be requested at the appropriate time.

	AAT.2008.1.1.5. Avionics	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.1.2 Ecological Production and Maintenance	AAT.2008.1.2.1. Production	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.1.2.2. Maintenance and Disposal	CP-FP (small or medium-scale focused research), CSA (coordinating)

7.1.1.3 Green Air Transport Operations	AAT.2008.1.3.1. Flight and Air Traffic Management	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.1.3.2. Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.1 THE GREENING OF AIR TRANSPORT – LEVEL TWO		
	AAT.2008.1.4.1 Integrated approach to lowering aircraft external noise	CP-IP (large-scale integrating projects)
7.1.2 INCREASING TIME EFFICIENCY – LEVEL ONE		
7.1.2.1 Aircraft Systems and Equipment for Improved Aircraft Throughput	AAT.2008.2.1.1 Systems and Equipment	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.2.1.3. Maintenance and Repair	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.2.2 Time Efficient Air Transport Operations	AAT.2008.2.2.2. Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.2 INCREASING TIME EFFICIENCY – LEVEL TWO		
	AAT.2008.2.3.1 Integrated approach to seamless aircraft health management and permanent serviceable fleet	CP-IP (large-scale integrating projects)
	AAT.2008.2.3.2 Integrated approach to advanced avionics systems for new cockpit architectures and aircraft all-conditions operation	CP-IP (large-scale integrating projects)
7.1.3 ENSURING CUSTOMER SATISFACTION AND SAFETY – LEVEL ONE		
7.1.3.1 Passenger Friendly Cabin	AAT.2008.3.1.1.Design Systems and Tools	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.1.2. Noise and Vibration	CP-FP (small or medium-scale focused research),

		CSA (coordinating)
	AAT.2008.3.1.3. Systems and Equipment	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.3.2 Passenger Friendly Air Transport Operation	AAT.2008.3.2.1. Maintenance and Repair	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.2.2. Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.3.3 Aircraft Safety	AAT.2008.3.3.1. Aerostructures	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.3.2. Systems and Equipment	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.3.4. Human Factors	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.3.4 Operational Safety	AAT.2008.3.4.1. Design Systems and Tools	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.4.2.Maintenance	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.4.4. Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.3.4.5.Human Factors	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.4 IMPROVING COST EFFICIENCY – LEVEL ONE		
7.1.4.1 Aircraft Development Cost	AAT.2008.4.1.1. Design Systems and Tools	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.1.2. Aerostructures	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.1.3. Systems and Equipment	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.1.4. Avionics	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.1.5. Production	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.4.2 Aircraft	AAT.2008.4.2.1. Flight Physics	CP-FP (small or medium-

Operational Cost		scale focused research), CSA (coordinating)
	AAT.2008.4.2.2. Aerostructures	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.2.3. Propulsion	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.2.4. Systems	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.2.5. Avionics	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.2.6. Maintenance	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.4.3 Air Transport System Operational Cost	AAT.2008.4.3.1. Design Systems and Tools	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.3.3 Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.4.3.4. Human Factors	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.4 IMPROVING COST EFFICIENCY – LEVEL TWO		
	AAT.2008.4.4.1 Integrated approach to full virtuality in design and product development within the extended enterprise concept	CP-IP (large-scale integrating projects)
	AAT.2008.4.4.2 Integrated approach to network centric aircraft communications for global aircraft operations	CP-IP (large-scale integrating projects)
7.1.5 PROTECTION OF AIRCRAFT AND PASSENGERS – LEVEL ONE		
7.1.5.1 Aircraft Security	AAT.2008.5.1.1.Aerostructures	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.5.1.2. Systems and Equipment	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.5.1.3. Avionics	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.5.2 Operational Security	AAT.2008.5.2.2. Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)

	AAT.2008.5.2.3. Human Factors	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.5 PROTECTION OF AIRCRAFT AND PASSENGERS – LEVEL TWO		
	AAT.2008.5.3.1 Integrated approach to air transport system security	CP-IP (large-scale integrating projects)
7.1.6 PIONEERING THE AIR TRANSPORT OF THE FUTURE – LEVEL ONE		
7.1.6.1 Breakthrough Technologies	AAT.2008.6.1.1. Lift	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.1.2. Propulsion	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.1.3. Interior Space	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.1.4. Life-Cycle	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.6.2 Step Changes in Air Transportation	AAT.2008.6.2.1. Novel Air Transport Vehicles	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.2.2. Guidance and Control	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.2.3. Airports	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.6.3 Promising Pioneering Ideas in Air Transport	AAT.2008.6.3.1 The Cruiser/Feeder Concept	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.3.2 Take-off and Landing with Ground-based Power	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.3.3 Personal Air Transport System	CP-FP (small or medium-scale focused research), CSA (coordinating)
	AAT.2008.6.3.4 New Sources of Aircraft Main Propulsive Power	CP-FP (small or medium-scale focused research), CSA (coordinating)
7.1.7 CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme		
	AAT.2008.7.1. Understanding interactions between transport, energy, environment and society	CP-FP (small or medium-scale focused research), CSA (supporting)
	AAT.2008.7.2. Understanding the behaviour of the different actors and drivers of the Air Transport system	CSA (supporting)

	AAT.2008.7.3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles	CSA (supporting)
	AAT.2008.7.4. Retrofitting for improved sustainability and economic viability of aeronautical products	CSA (supporting)
	AAT.2008.7.5.Stimulating improved participation of Member States with aeronautical R&D potential	CSA (supporting)
	AAT.2008.7.6.Stimulating research with International Cooperation Partner Countries	CSA (supporting)
	AAT.2008.7.7. Supporting the harmonised dissemination of European scientific knowledge from ad-hoc organisations in the field of aeronautics and air transport	CSA (supporting)
	AAT.2008.7.8. Raising public awareness of aeronautics and air transport research in Europe	CSA (supporting)
	AAT.2008.7.9. Supporting the organisation of conferences, workshops and other research related events	CSA (supporting)

- **Evaluation procedure:**

- The evaluation shall follow a single stage procedure
- Proposals may be evaluated remotely
- The evaluation criteria and sub-criteria (including weights and thresholds) for the different funding schemes are set out in Annex 2 to this work programme
- For Topics AAT.2008.7.1 and AAT.2008.7.2 maximum project duration not exceeding 24 months – as indicated in the topic description – constitutes an eligibility criterion.
- Hearings are foreseen for Level 2 projects.
- The evaluation will produce 3 ranked lists of proposals retained for funding with the corresponding reserve lists:
  - CP-FP (Level 1) and CSA-Coordinating
  - CP-IP (Level 2)
  - CSA-Supporting

- **Indicative evaluation and contractual timetable:**
- **Intended period for on-site (BXL) evaluation / panel meetings:** starting on 26 May 2008 (four weeks)

The forms of grants which will be offered are specified in Annex 3 to the Cooperation work programme

The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation and outlined below.

Funding scheme	Minimum conditions
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Network of excellence	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (co-ordinating)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (supporting)	At least 1 independent legal entity
Research for the benefit of specific groups, such as SMEs	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.

4. FUTURE DIRECTIONS OF THE AERONAUTICS AND AIR TRANSPORT-RTD CALLS

Topics for CP-FP (*Level 1)* and CSA-Coordinating are likely to be valid throughout the duration of the Framework Programme. However, some new topics could be added for further Calls for Proposals or some of the present ones could be modified or discarded.

Topics for CP-IP (*Level 2)* are likely to be different in the next Call for Proposals.

Topics for CSA-Supporting are also likely to change depending on the evolving support needs.

These evolutions will be developed following consultations with the Technology Platform (ACARE) and stakeholders.

7.2 SUSTAINABLE SURFACE TRANSPORT

1. CONTEXT

The scope of the research covers the entire Surface Transport System and embraces all its elements: products (vehicles, vessels and infrastructures), services, operations and users integrating organisational, legal and policy frameworks.

Five *Activities* are addressed, reflecting the strategic and policy challenges facing Europe:

- The greening of surface transport
- Encouraging modal shift and decongesting transport corridors (co-modality)
- Ensuring sustainable urban mobility
- Improving safety and security
- Strengthening competitiveness

The **policy dimension** of the Work Programme is derived from the objectives and priorities described in the White Paper on Transport *"European Transport Policy for 2010"* and its mid-term review "Keep Europe moving" and takes into account major policy initiates they may impact on transport , in particular energy and environment. The **industrial dimension** of the Work Programme has benefited from inputs provided by the relevant stakeholders, in particular through the contribution of the various Surface Transport Technology Platforms: ERTRAC (road transport), ERRAC (rail transport) and WATERBORNE^{TP} (waterborne transport). Inputs from other discussion forums[19] have equally been taken into account.

Each annual Work Programme is shaped in order to promptly respond to **urgent** transport related European and **global challenges**. The emphasis for 2008 will be on **Climate Change and CO2 emissions reduction** targets.

Approach

Integrated Surface Transport System Approach

The Surface Transport Work Programme 2008 targets an Integrated Surface Transport System Approach, pursued by strategic lines of Activities on Greening, Co-modality, Urban Mobility, Safety & Security and Competitiveness, common to all surface transport modes, supported by a Cross-Cutting Activity addressing transversal issues as international cooperation, SMEs, other EU policies and support to the Work Programme.

To reinforce the adopted integrated approach, a comprehensive and co-related spectrum of activities is envisaged:

- **Socio-economic research** in support of the definition and implementation of transport policy taking into account its interactions with other Community policies related to transport (e.g. society, environment, energy, economy and industrial activity).
- **Basic and applied research** contributing to technological and scientific progress, including skills development.

[19] such as EIRAC (transport intermodality and logistics) and EURFORUM (urban mobility)

- Development of **innovative solutions** for surface transport products (vehicles, vessels, infrastructure and their components), processes, operations and services.
- **Breakthrough research** in support of step changes including the incorporation of breakthrough technologies and results from interdisciplinary research (such as nanotechnologies, biotechnologies, new materials and advanced production) into surface transport applications.
- **Large scale and multi-disciplinary technology** and socio-economic integration, validation and demonstration.
- **Structuring European surface transport research** and strengthening excellence through co-ordination and networking activities.
- **Supporting programme implementation** in aspects related to the dissemination and exploitation of existing research results, stimulation of SME participation and International Cooperation, communication, citizen awareness and support to new policies related to transport.

Structure

Activities

The Sustainable Surface Transport Work Programme is structured in Activities on Greening (7.2.1), Co-modality (7.2.2), Urban Mobility (7.2.3), Safety & Security (7.2.4) and Competitiveness (7.2.4) with additional Cross-Cutting (7.2.6) activities in support to the implementation of the Sustainable Surface Transport Work Programme across all the others.

Topics

These Activities are addressed by Topics. Topics are classified in two levels of categories according to the degree of specification envisaged in the proposals: “level 1" (generic) and "level 2” (specific). There is no direct relation between budget allocation and either topic levels or the funding instruments. Funding instruments for each topic are indicated following the description of each topic as well as in the call fiche.

Topic Levels

Topics in Level 1, being generic, define broad fields of activity and normally concern the three surface transport modes, unless differently specified in the text. They are technology driven and enable technology synergies and transfer between transport modes. Proposals may be approached with some degree of flexibility, by addressing only part of topic content or only one surface transport mode. Research and development activities within level 1 will contribute to the technological foundation of the sub-theme.

Topics in Level 2, being specific, refer to well identified industrial, policy and socio-economic matters. They are mission driven, explicit in their formulation. They may for example give indications concerning the type of activity, the research approach, characteristics of the partnership and expected outcomes. Proposals addressing a level 2 topic will cover it entirely (unless otherwise specified, namely for topic SST.2008.6.7).

Funding Schemes

Each Topic has attributed one or several funding schemes: Collaborative Projects, Coordination and Support Actions and Networks of Excellence.

Collaborative projects are subdivided as follows in the call FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- RTD-1:

- Sustainable surface transport small or medium-scale focused research projects with a maximum Community contribution of up to EUR 4 million.
- Sustainable surface transport large-scale integrating projects with a minimum Community contribution of EUR 4 million.

  The funding scheme(s) and – subsequently – the expected size of the proposal(s) is indicated in the topic description.

- Coordination and Support Actions for levels 1 and 2 contribute to the structuring of European surface transport research and support for programme implementation.

  Activities may also propose strategic studies and actions for transport and related policies (e.g. future maritime policy). Under level 1, Coordination and Support Actions may address individual topics. However preference will be given to proposals addressing issues at area, activity or sub-theme level via the combination of several topics.

- Collaborative Projects dedicated to Specific International Cooperation Actions are included in Work Programme 2008.

  It is important to notice that Collaborative projects dedicated to SICA must involve at least two participants from two different Member States or Associated countries and at least two partners from two different ICPCs[20].

List of Specific International Cooperation Actions (SICA):

Topics	Targeted Country/Region
SST.2008.3.1.6 Transport planning and traffic information systems in cities	**Brazil / China**
SST.2008.3.1.7 Large event mobility management (especially in big cities)	**India/ South Africa**
SST.2008.4.1.4 Road safety of vulnerable road users in emerging economies	**India/Brazil/ South Africa**

- Networks of Excellence: no topic for this instrument is proposed in the 2008 Work Programme.

Policy-driven research

Climate Change and CO2 emissions reduction targets

Climate Change and CO2 emissions reduction targets is the orientation pillar for the 2008 Call of Surface Transport Research. Achieving ambitious targets for reduction of CO2 emissions due to transport activity is an essential objective of Surface Transport research to mitigate climate change. A holistic approach addressing all possible means to reduce

[20] With the exception of Brazil, China, India and Russia, for which the required two or more ICPC participants can be located in the same countries. However, in this case, at least two different participants must come from two different provinces, oblasts, republics or states within Brazil, China, India or Russia.

emissions is taken. The contribution of research is distributed across the different activities of the sub-theme, in particular:

- The **Greening of Surface Transport**: developing cleaner vehicles, vessels and their infrastructures and ensuring environmental friendly industrial processes (production, maintenance, repair and recycling)
- **Encouraging Modal Shift and Decongesting Transport Corridors**: promoting the use of cleaner transportation modes and eliminating extra pollution caused by traffic congestion.
- **Ensuring Sustainable Urban Mobility**: developing new mobility schemes in cities which rationalise the use of the private car, promote public transport and conceive innovative non-polluting urban vehicles.
- **Safety and security**: innovative structural design concepts deriving from the development of alternative-fuel powered vehicles and vessels.
- **Strengthening Competitiveness**: developing technologies for a new generation of products and systems which take full advantage of eco-innovations and opportunities to create lead markets.
- **Cross-cutting activities**: breakthrough technologies, new approaches, models and paradigms leading to radical new solutions for sustainable transport, raising awareness, support to dissemination and stimulating cross-cutting approaches aimed at climate change mitigation.

Research will support both short to medium term CO2 reduction targets and will contribute to the development of a new vision of transport systems and solutions beyond 2050. The set of Level 1 and Level 2 topics proposed in Work Programme 2008 consider both technological progress and radically new solutions to drastically reduce emissions and fossil fuel dependency.

In addition, special emphasis is given to encouraging step changes regarding impact on climate change.

All proposals submitted to every topic would have to ensure at least a neutral impact on climate change. Global life cycle approaches in processes, operation and services of the transport system are considered across the whole programme.

International Cooperation

The strategy for International Cooperation for Surface Transport System is reinforced in 2008 by a third pillar addressing "global challenges". International Cooperation activities may be:

1. Specific to a sector or technological area aiming at enhancing European industrial competitiveness;
2. Specific to a region aiming at supporting Developing Countries through research;
3. Addressing global challenges through research by mutual cooperation with ICPC patterns.

International Cooperation is embedded in the Work Programme. All Topics are open to researchers and research institutions from third countries[21], in order to enhance worldwide

[21] Both International Cooperation Partner Countries (ICPC) and industrialised countries can participate. ICPC will be funded in all cases, while industrialised countries only if indispensable (Cf. FP7 Rules for Participation).A list of ICPC countries is provided in Annex 2.

competitiveness of EU industry, to tackle research needs at a global level and support to the internationalisation of the European Research Area. Some of the Topics even suggest reference to non-European regions or countries, based on a bottom-up approach, resulting from consultation with different stakeholders as Technology Platforms and past exploratory measures[22].

The International Cooperation dimension is reinforced by the Cross-Cutting Activity (7.2.6) in support to the Sustainable Surface Transport Work Programme, where dedicated Topics are open to particular areas of interest in support to EU Policies, based on a top-down approach.

On-going International Cooperation initiatives in Surface Transport research, recent cooperation agreements (e.g. Joint Statements and Action Plans on EU-Russia rail transport research and EU-India road transport research and EU-South Africa) along with the International Cooperation activities in this Work Programme will reinforce the role of International Cooperation in Sustainable Surface Transport. In 2008 International Cooperation will contribute the follow-up of initiatives already launched and initiate activities towards climate change.

SME relevant research

Specific measures will also be taken to promote the participation of SMEs in Surface Transport research.

The development of competitive supply chains, where SMEs play a central role will be one of the objectives of Surface Transport research. Equally, SMEs are central drivers in innovation of products, systems and components. In both respects, the participation of SMEs in topics defined under activities *4. Safety and Security* and *5. Competitiveness* will be essential. Emphasis will also be placed on facilitating the start-up and emergence of new high-tech SMEs, particularly in the advanced transport technologies and 'service-related' activities specific to Transport.

Specific actions for the stimulation of SMEs participation to the programme particularly the effective participation through industrial and regional clusters is considered under Activity 6-Cross-cutting.

Contribution to ERA in the foundation for an integrated R&D Surface Transport community

Work Programme 2008 reinforces the implementation of the European Research Area (ERA), in particular it stimulates the follow-up of the Green Paper on the "European Research Area: New Perspectives"[23]. In addition, activities encourage the articulation with national strategies and use FP7, such as ERA-NET schemes, as leverage to reinforce good practices and promote their uptake by all Member States and Associated Countries.

Topic SST.2008.6.8 ERA-Net Road II with Community contribution of up to EUR 1.5 million is described in the next section of this chapter and included in call FP7-ERANET-2008-RTD.

[22] such as SIMBA in road transport and GLOBAL VIEW in rail transport
[23] COM(2007)161 of 4 April 2007.

Within cross-cutting activities, actions towards creation of a R&D Surface Transport Community as well as RTD communities related to and exerting impact on surface transport will be carried out. These RTD Communities will be essential to respond to sustainable surface transport challenges of the 21st century.

2. CONTENT OF CALL FOR 2008

ACTIVITY: 7. 2. 1. The greening of surface transport

Developing technologies and knowledge for reduced pollution (air including greenhouse gases, water and soil) and environmental impact on such areas as climate change, health, biodiversity and noise. Research will improve the cleanliness and energy-efficiency of power trains (e.g. hybrid solutions) and promote the use of alternative fuels, including hydrogen and fuel cells as mid and long-term options, taking into account cost efficiency and energy efficiency considerations. Activities will cover infrastructure, vehicles, vessels and component technologies, including overall system optimisation. Research in developments specific to transport will include manufacturing, construction, operations, maintenance, diagnostics, repair, inspection, dismantling, disposal, recycling, end of life strategies and interventions at sea in case of accident.

AREA: 7.2.1.1 The greening of products and operations

The objective is to ensure environmentally friendly surface transport activities through the greening of transport products and operations. Research will concentrate on vehicles, vessels, infrastructures and their interactions with special emphasis on system optimisation. Activities will explore a wide range of possible innovative solutions and technologies for pollution reduction (greenhouse gases, local emissions, noise and vibration, wash), maximisation of energy conversion and rationalisation of energy use.

Expected impact

- Contribution to CO2 reduction emissions from surface transport operations aligned with new policy targets. In the short to medium term (before 2020) reducing greenhouse gas emissions by 30% compared to 1990 levels. Beyond 2050, reducing greenhouse gas emissions by 60% to 80% compared to 1990 levels[24].
- For road transport research will aim by 2020 at a 50% CO2 reduction for new passenger cars and light-duty vehicles and 30% for new heavy-duty vehicles (both based on 2003 figures)[25].
- Reduction of exhaust and local emissions to reach near-zero-emission levels in view of the compliance with future legislation at European and international levels and to allow national and local authorities meet their air quality engagements.
- Increased share of bio-fuels and alternative hydrocarbon fuels in surface transport applications, for bio-fuels and Compressed Natural Gas the aim will be to arrive at a 10% and 2% respectively use in surface transport by 2010[26].

[24] German Presidency Conclusions 2007
[25] ERTRAC Research Framework of April 2006
[26] European Directive 2003/30/CE

- Introduction of hydrogen and fuel cell technology in surface transport applications by 2020 as an economic, safe and reliable alternative to conventional engines[27].
- Reduction of external and interior noise and vibration. For road and rail transport the target will be a 10 dB to a 20dB[28] reduction compared to present noise levels particularly in urban environments.
- Proposals must ensure at least a neutral impact on climate change.

The following topics are for Level 1

SST.2008.1.1.1. Clean and energy efficient gasoline and diesel power trains

Technologies and innovative solutions for clean and highly energy-efficient gasoline and diesel power trains.

Proposals will cover one or more of the following subjects:

- New knowledge for a better understanding of combustion processes and their optimisation, including simulation and experimental validation corresponding to real driving situations.
- Intelligent engine controls (which are model based, closed loop controlled, easy to calibrate and portable) and flexible power-trains.
- New generation of after-treatment systems which are integrated, durable and compact.
- Innovative components and auxiliary systems.
- Overall power-train optimisation.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.2. Electric-hybrid power trains

Technologies and integration for improved hybrid electric power-trains, ranging form low and mild hybrid solutions to full hybridisation and including "plug-in" solutions.

This topic includes engines, components (e.g. new generation energy storage systems, power electronics with emphasis on high temperature and electric drives, transmission systems) and control strategies for the development of innovative electric and electric-hybrid drive-trains.

Emphasis will be placed on low cost, component modularity, durability and optimized overall system efficiency as well as longer term storage solutions and chemistries, in particular for energy applications. Activities will lead to simplified power trains which can be applied to a variety of applications, for example city vehicles and light commercial vehicles.

The research may be extended to all kind of combination of two or more energy storage and converter options and purely battery electric vehicles

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities

[27] ERTRAC SRA
[28] ERTRAC and ERRAC SRAs

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.3 Holistic noise and vibration abatement

Technologies and studies for noise and vibration reduction with focus on comparative cost benefit analysis of noise reduction and unified noise assessment methodologies considering the standing practice of implementation and legislation on noise.

Proposals will cover one or more of the following subjects:

- Holistic noise and vibration abatement solutions which consider the entire vehicle/vessel and infrastructure system and addresses annoyance aspects.
- New technologies and system approaches for improved noise and vibration control at source.
- Noise and vibration attenuation through wave propagation analysis and systems for passive and active compensation.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

The following topics are for Level 2

SST.2008.1.1.4 Future light-duty vehicle engines for road transport

The aim of the research is the development of new powertrain concepts able to give a substantial contribution to the achievement of a 50% CO2 reduction (based on 2005 figures) for passenger cars and light-duty vehicles for the new vehicle fleet in 2020. In particular, the research target on spark ignited (SI) engines powered vehicles is to achieve 40% lower CO2 emissions with respect to the 2005 values and 20% lower CO2 emission than the 2005 level for compression ignition (CI) engine powered vehicles.

The objective includes also the target of near-zero emission levels (better than EURO 6) maintained during the useful life of the engines and keeping into account real life emissions, in line with the intention to amend the test procedures in emission legislation in view of real life emissions.

The perspective will be to support the LEEV (Light-duty Environmentally Enhanced Vehicle) concept, meeting both the next stage of pollutant emission limit values and achieving the above mentioned level of CO2 emissions.

Activities will address research, development, validation and demonstration of:

- new simulation tools describing the strong interactions between combustion systems and engine architecture.
- advanced concepts for future SI engines addressing low-cost / low emission engines for light-duty vehicles.
- advanced engine (CI) concepts based on an integrated and dual-mode combustion system.

Special regard will be devoted to the transient behaviour and the advanced after-treatment of PM, NOx, HC and CO in real life use conditions, with validation in the ARTEMIS cycle and

with the application of PEMS systems, independent of any cycles. Reduction of engine frictions will also be considered.

Deliverables will include up to four prototype engines including the integrated aftertreatment system, with vehicle validation where a suitable maturity is reached, demonstrating the achievement of the project's targets both on the standard homologation cycle with eventual PEMS approaches emerging during the project duration and on the ARTEMIS cycle.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.5 Future power-trains for commercial vehicles

The objective of the research is a substantial reduction of CO2 emissions by at least 20% (based on 2003 figures) through fuel economy improvements for commercial heavy duty vehicles (HDVs) in 2020. The target should also include near-zero-emission levels (better than EURO-VI) maintained during the engine's useful life, taking into account and verifying compliance with provisions for limiting real-world emissions to be introduced in EURO VI regulations. The engine concept should be further fully optimised to meet future demands on bio-based fuel. Activities concern power-trains based on internal combustion engine used in truck, bus, rail-traction and waterway vessel applications.

Research will include new advanced engine concepts with dedicated transmission and integrated after-treatment. The action should make use of the results of relevant RTD projects funded by EU and other sources.

This includes the following subjects:

- Research and development for a better understanding and optimisation of combustion processes.
- Closed loop control of power-trains, including after-treatment.
- Intake air and exhaust gas handling systems, including recuperation for high specific power output.
- Cooling system management to improve efficiency.
- New generation of integrated after-treatment systems.
- Overall power train optimisation.

Deliverables will include a prototype heavy duty vehicle engine including control systems, after-treatment and cooling systems.

This research should contribute to the continuing leadership of Europe in the production of commercial vehicles on competitive basis with other sustainable transport modes in 2013 and beyond.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.6 Emission reduction technologies for diesel locomotives

The objective of this research will be to develop, improve and integrate emissions reduction technologies for diesel locomotives. The quantitative target will be to achieve emission levels

below the limits established by the new European Directive 2004/26/EC and further upcoming directives.

Activities will include:
- Investigation of the state of the art of low emission diesel engines and after-treatment technologies in rail applications. Attention will also be given to progress in road transport and stationary applications and the possibility of technology transfer to rail transport.
- Development of new low emission diesel engines ,Diesel Particulate Filter (DPF) systems, NOx reduction technologies taking into account the size and weight limitations needed in order to comply with rail restrictions
- Complete testing, validation and integration of the whole system in new and existing locomotives architectures complying with railways regulations and standards.
- Studies on the effect of low emissions technologies and after-treatment systems on engine durability, reliability, maintenance and fuel consumption including possible use of bio-diesel.

Project deliverables will include: a state of the art study, recommendations and an effective demonstration concerning the technologies for emission reduction including possible technology transfer from other sectors, the complete design, development, prototyping and validation of a DPF system integrated in a diesel locomotive, and support for the definition of future legislation for limits on particles emissions and NOx in rail transport.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.7 Attenuation of vibrations and vibration-induced noise affecting residents near railway lines

The aim of the research is to develop holistic approaches for an efficient reduction of vibration and induced noise from rail traffic, in particular to mitigate its impact on residents living in the vicinity of railways lines.

Activities will include:
- Establishment of test procedures to efficiently monitor and control the performance of vibration mitigation measures under realistic conditions.
- Technologies and systems for the reduction of noise and vibration creation at source through improved wheel/track interactions, the use of new materials/techniques (including inhibition of roughness growth), advanced braking systems, advanced machining and measuring technologies to keep the required shape and dimensions, active suspension and track infrastructure compensation.
- Develop technologies, concepts and prototypes for the mitigation of vibration of induced noise. Research will address vehicles, infrastructure and maintenance.
- Define and validate procedures for the evaluation of exposure to vibration and to vibration induced interior noise.

Developments will be made on the basis of model and simulation techniques for the validation and optimisation of measures and technologies and will be supported by appropriate field demonstrations. The research will address different categories of rail services inducing different types of vibration. These will include high speed trains, heavy freight trains and urban rail systems.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.8 New ship propulsion systems

The aim of the research is to optimize the hydrodynamic performance of new ship propulsion systems. Activities will address integrated hull forms and complex propulsion configurations to maximise the conversion of ship power into thrust. Investigations will target large area propulsion and distributed propulsion concepts coupled with complex hull designs. Radically new concepts, such as biomechanical design, large area propellers will be proposed for the overall maximisation of energy conversion combined with low levels of propeller cavitation, noise and vibration also considering ice-conditions.

Activities will include:

- The development of methodologies based on advanced CAE tools for the accurate prediction of thrust conversion, noise and vibration
- Application of the above methodologies to predict the hydrodynamic behaviour of new propulsion systems. Validation through physical model testing.
- Definition and assessment of new propeller concepts integrated with innovative hull forms. The research will consider both mechanical and electric drives, in particular high-efficiency water-jets, new pod concepts (including considerations on modular design and in-service replacement), propulsion systems to operate in ice.
- Use of non-metallic propulsion materials will be explored and assessed.
- Analysis of operational reliability, compliance with safety rules and economic factors.

New configurations will be investigated under all operational conditions, for example in manoeuvring rough seas. Deliverables will include concepts for large scale propulsion demonstrating high efficiency gains, propulsion designs integrated with hull design models, concepts for large area propulsion integrated with new ship designs, economic and operational analysis.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.1.1.9 Green corridors

This topic follows on from the logistics action plan adopted on 18 October 2007 and in which the notion of 'green corridors' is introduced. It targets transport axes which are marked by a concentration of freight traffic and by relatively long distances of transport and thus disproportionately suffering from negative effects on the environment and the human habitat. However, density of traffic also offers technological and economic opportunities for the introduction of innovative solutions to render freight transport more sustainable, and these corridors may thus become the backbone of a European logistics policy that optimally combines the different transport modes whilst demonstrating the potential of reducing negative effects including greenhouse gas emissions.

Scope
Transport operators, infrastructure managers and shippers who are united by a common interest in specific freight transport corridors are encouraged to network in order to identify

shared concerns and best practices in order to achieve economic efficiency, social acceptance and environmental sustainability. Potential "green corridors", their possible characteristics and expected energy and environmental performance will be explored, as well as pathways to ensure that these transport corridors efficiently interface to one another. In a subsequent step, it is envisaged that submission of R&D proposals will be requested. These projects should then demonstrate the feasibility of optimally combining rail, road and waterborne transport along a set of major freight corridors, in order to create seamless freight logistics chains. Within each mode, the use of "green propulsion" technologies for vehicles and (alternative) fuels/propulsion systems should be encouraged to foster environmental performance and safety. The integration of information and communication flows shall be targeted and cross-references to work on emerging propulsion technologies and systems will be encouraged.

Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

AREA: 7.2.1.2 Environment-friendly and efficient industrial processes

The objective is to improve the cleanliness and energy efficiency of industrial processes specific to transport products and infrastructure. The whole life-cycle of products will be considered, including all processes ranging from design, manufacturing, assembly, construction to maintenance, repair, recycling and disposal will be considered. Research will define and develop end of life strategies for vehicles, vessels and infrastructures. Innovative solutions for rapid interventions in case of transport accidents and other natural hazards will be proposed for the protection of marine, coastal and land environments.

Expected impact

- Improve recyclability of vehicles and vessels, including used parts and components. For road vehicles the target will be to reach 95% recyclability[29].
- Increase the energy efficiency of transport specific industrial processes by 30%.
- Promote the use of environmentally friendly materials in vessels and vehicles allowing for efficient and safe disposal whilst enhancing their end of life value.
- Substantially decrease the impact of all surface transportation modes on bio-diversity, particularly on fragile eco-systems.
- Proposals must ensure at least a neutral impact on climate change.

The following topics are for Level 1

SST.2008.1.2.1 Preventive and emergency interventions to protect marine, coastal and land environments

Technologies, systems and procedures for preventive and emergency post-accident interventions on vehicles and vessels.

Activities will aim at rapid, effective and safe detection, notification and interventions on vehicles and vessels in emergency situations (e.g. capsized ships, vehicle collisions, oil spills).

[29] ERTRAC SRA

Activities will also include the development of technologies, systems and procedures for accident preventive intervention on vehicles and vessels.

Concerning operations at sea, the research will for example address the integration of underwater robotics, advanced sensing and tooling for effective interventions in wrecks and prevention of oil spills. The mechanical, chemical and biological (including their combination) removal of spillages (oil, other polluting substances, dangerous goods) at sea and on land may also be addressed.

Activities will also include the development of accident modelling and simulation tools for impact prediction and intervention definition in real time.

International Cooperation with USA, Russia and Japan is suggested in particular for underwater interventions.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

AREA: 7.2.1.3. Socio-economic issues

The research shall aim at the creation of a comprehensive, coherent and easy-accessible knowledge-base of the relevant legislative, economic, industrial, operational and technological issues that underpin the transport business for purposes of decision-support both in terms of legislative initiatives as well as in the re-engineering of business/operational processes. The work shall be pursued through a "systems-approach" linking together the analyses of the different issues within common methodological frameworks, notably capable of providing a broader and more-qualified basis for the assessment of feasibility of new measures and/or processes.

Expected impact:
- Medium to long term understanding of the development of transport, including processes, under 'greening' aspects;
- Comprehensive analytical framework and identification of options for actions;
- Knowledge-based decision support tools providing a sound basis for future transport greening related legislation as well as non-legislative measures.

SST.2008.1.3.1 Effects of climate change on inland waterway and transport networks

Context
Inland Waterway Transport (IWT) is recognised and promoted at national and EU level as a safe and environmentally-friendly mode of transport which can significantly help alleviating Europe's transport problems. In certain geographical areas, IWT plays an important role already, in others such as on the Danube, traffic is expected to grow significantly. However, sustainable Inland Waterway Transport requires an efficient network of inland waterways.

Scope
Climate change may have significant adverse effects on the inland waterway network and consequently on the transport system as a whole. Research should address new ways of thinking in terms of spatial planning, infrastructure planning and regional economic policy (ports, industries, logistic centres) as well as new technological and operational concepts and developments (new vessel concepts, new materials, new propulsion systems).

Development of a long-term vision and development plan for Inland Waterway Transport and its role in integrated transport systems, in particular in the light of human-induced climate change and the risks of 'very damaging and potentially irreversible impacts on ecosystems, societies and economies'.

The objective is to assess and manage the risks of climate change regarding the transport system (different transport modes and their connexions), using inland waterway transport system as a case study. In particular research should develop different scenarios and policy options and identify and assess the cost/benefits of possible remedial measures.

Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

ACTIVITY: 7.2.2 ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS

Developing and demonstrating seamless door-to-door transport for people and goods as well as technologies and systems to ensure effective intermodality, including in the context of rail and waterborne transport competitiveness. This includes activities addressing the interoperability and operational optimisation of local, regional, national and European transport networks, systems and services and their intermodal integration in an integrated approach. The activities will aim at European-wide strategies, optimised use of infrastructure including terminals and specialised networks, improved transport, traffic and information management, enhanced freight logistics, passenger intermodality and modal shift strategies to encourage energy efficient means of transport. Intelligent systems, new vehicle/vessel concepts and technologies including loading and unloading operations as well as user interfaces will be developed. Knowledge for policy making will include infrastructure pricing and charging, assessments of Community transport policy measures and trans-European networks policy and projects.

AREA: 7.2.2.1 Logistics and intermodal transport

The objective is to improve transport efficiency between and within different modes while recognising their complementarities within a transport system. It includes activities for the development of high quality logistics, covering all transport modes. Intermodality in passengers and freight will be addressed by activities including seamless and competitive solutions, and, integration of transport hubs (terminals, stations, ports, etc) in all transport modes.

Expected impact

- Improve the efficiency of interfaces between modes through time and cost reductions in terminals.
- Maximize cargo capacity of vehicles and vessels within intermodal door-to-door transportation routes.
- Optimisation of logistics services, transportation flows, terminal and infrastructure capacity within European and global supply chains.
- Proposals must ensure at least a neutral impact on climate change, taking into account the impact of resulting lower costs on total transport volume and modal distribution.

The following topics are for Level 1

SST.2008.2.1.1 Efficient interfaces between transport modes

Technologies, equipments, their integration and their market uptake possibilities for efficient and safe interfaces between transport modes and within intermodal transportation chains and for increased automation within terminals.

Proposals will cover one or more of the following subjects:

- Fast, economic and safe loading/unloading operations for the different types of cargo.
- Systems for cargo transhipment and storage within terminals.
- Systems for the optimal use of storage space in vehicles, vessels and terminals.
- Standardisation of terminals and equipments.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.2.1.2 Improved services in terminals

Technologies and procedures for improved services delivered by transport terminals.

Particular emphasis will be placed on effective, clean and safe operations in terminals and minimisation of turn-round time and cost.

Proposals will cover one or more of the following subjects:

- Vehicles/vessels manoeuvring assistance within and close to terminals/ports.
- Terminal auxiliary services (e.g. infrastructures maintenance and inspection, mooring, hazards mitigation, information and communication).
- Waste management and reduction (including ballast water in ports).
- Loading/unloading of cargo and their transhipment within terminals are not included in this topic (these subjects are included in topic SST.2008.2.1.1).
- Networking/co-operation between terminals.
- Definition of service quality standards for terminals.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

The following topics are for Level 2

SST.2008.2.1.3 New generation of European freight train system

The aim of the research is the development of specifications and concepts for a new generation of freight trains for Europe that will meet today's needs for cost effectiveness, flexibility, punctuality, inter-operability and environmental friendliness. Research will focus as well on wagon load freight trains and block trains.

Activities will include:

- Definition of train specifications fulfilling customers' demands which would be in line with future projections concerning the increase of rail freight traffic. In particular advantages in terms of cost and environmental protection will be addressed and assessed with respect to other transportation modes.
- Development of train concepts which are modular, flexible, interoperable and will maximise axle loads, structural durability and carrying capacity taking into account infrastructure constraints.
- Concepts and integration of advanced technologies for the minimisation of noise, vibration, energy consumption and emission reduction
- Definition of standards and components which are modular and inter-changeable and adaptable to different freight train concepts

The project deliverables will include new freight rolling stock concepts and specifications based on modular components and open train architectures, prototypes for the validation of noise minimisation and energy consumption, studies and research for maximum axle loads and carrying capacity tacking into account infrastructure and technological constraints. Appropriate concepts will be designed and demonstrated.

Developments will be based on existing standards and regulations as well as most advanced results in rail research.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.2.1.4 Continental Shipping

The aim of the research is to promote the development of sustainable waterborne transportation of passengers and goods within Europe, inside its lands and around its coast lines. For the further enhancement of overall transport efficiency, it will be essential to promote alternative transportation modes such as Short Sea Shipping and Inland Navigation which can decongest European transport networks and offer cleaner transport solutions in terms of CO2 emissions. A new generation of vessel concepts will be studied, conceived and validated along with the necessary technological developments. In addition consideration will be given to safety and security problems, ship/shore interface, logistics, LCC optimisation, ice-conditions and Arctic routes and measures for an efficient deployment of the results at fleet level.

Activities will address:

- Innovative vessel concepts and their interfaces with infrastructures
- New ship architectures based on modularisation and standardisation of components for the cost effective design of ship variants, reduction of lead times and sub-system outfitting and maintenance cost.
- Virtual simulation and testing for new ship architectures.
- Innovative hull forms with optimal hydrodynamic performance, integration of innovative drag reduction concepts and enhanced manoeuvrability in restricted waters.
- Innovative ship structures and new material for optimal transported weight/cost performance and increased crashworthiness.
- New propulsion and auxiliary energy systems which are safe, reliable and energy efficient.
- New specialised cargo handling systems and ship/shore interfaces
- Safe operations with special consideration for limited and shallow water conditions, overtaking manoeuvres, collision and grounding.
- Development of navigation systems for optimal route planning and the logistics of traffic flows within door-to-door multimodal transportation chains.
- Innovative environmentally friendly hull coatings to prevent bio-fouling and corrosion.

Activities will lead to the improved environmental and economic performance of European continental waterborne transportation ensuring its increase in market share and volume. They will also look at consolidating the European industrial leadership in the global market and efficiently responding to forthcoming growth in economic activity and transport demand. The economical comparative analysis highlighting advantages of the developed solutions with respect to Far East products is also included

Major deliverables will be innovative ship designs, systems and procedures for their safe operation, integrated logistics concepts for door-to-door transport in EU-27, new concepts for collaborative ship building and harmonised supporting tools for efficient shipbuilding processes.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.2.1.5 Co-modal IT transport solutions

Context
One of the key determinants of efficiency of freight logistics is the capability to draw maximum benefit from information and communication technologies. In this, e-Freight denotes the vision of a paper-free, electronic flow of information associating the physical flow of goods with a paperless trail built by information and communication technologies. It includes the ability to track and trace freight along its journey across transport modes and to automate the exchange of content-related data for regulatory or commercial purposes.

Scope
Based on past and ongoing research activities, research must focus on developing an integrated ICT concept (e-freight) within and across modes in line with the principles of co-modality. The objective of this work is to develop a roadmap for the implementation of e-freight, building on work to develop the "Internet of things" and identifying the problem areas where EU action such as standardisation is required. It will build on emerging electronic capabilities for dependable services and systems, GNSS- Global Navigation Satellite System,

RIS- River Information Systems, TAF/TSI (Telematics Applications for Freight/Technical Specifications for Interoperability) and VTMIS- Vessel Traffic Management Information Services) to create a more efficient, interoperable, harmonised and auditable freight-related information exchange within the logistics chain, covering also the exchanges between businesses and administrations (B2A) and between administrations themselves. Particular aspects to be addressed: e-documentation aiming to develop common terms, messaging systems and simplified/harmonised documentation processes; development and validation of e-transaction and e-security and utilising one-stop shopping and the single window concept. Work must support the implementation of a European e-maritime platform aiming to support specific policies such as the better integration of short sea shipping in the logistics chain through documentary simplification, the improved interfacing with existing and new port information systems and the establishment of motorways of the sea. Furthermore, particular research work is expected to support the needs of the freight-oriented rail network. The integrated approach should explore developments in process interoperability in the context of emerging standards and technologies for an open architecture, communication platform, connectivity, transformation, portability, tracking and tracing and RFID, safety and security.

Funding scheme: Collaborative Project
Open in call: FP7- SUSTAINABLE SURFACE TRANSPORT (SST)–2008- TREN-1

SST.2008.2.1.6 Rail transport in competitive and co-modal freight logistics chains

Scope
The role of rail transport in competitive and co-modal freight logistics chains

Background
In rail, three major projects (ReOrient, TREND, and NewOpera) were launched in the context of FP6 and have contributed to on-going legislative work on market access, interoperability, infrastructure, safety and environment. They also provided input for the projects RETRACK and CREAM, which will demonstrate the potential of interoperable rail freight corridors across Europe. In freight transport and intermodality, projects such as BRAVO and Freightwise are pioneering the integration of rail with other transport modes in order to optimise freight transport. Major policy initiatives will be launched in 2007 to promote freight transport, including on developing a freight-oriented rail network, implementing a logistics action plan and developing a European ports policy.

Objectives
Taking stock of the above results, the Call 2008 should lead to projects which will demonstrate in a real environment the feasibility of efficiently combining different transport modes, whereby explicitly the rail side should be included with the aim of fully developing and demonstrating its integration and competitiveness in logistics chains, benefiting from the rail freight network concept. The activities shall make use of newest technologies and concepts for the management of transport and traffic flows and demonstrate the service quality and reliability of co-modal logistic chains, including the information flow to the customers, monitoring and management of the quality and performance of the services. In addition, they should address the evaluation of the economic impact (evolution of the costs of freight transport, effects on competitiveness of European industries), the social and environmental repercussions (mitigation of noise, pollution and carbon dioxide emissions, needs for recruitment and training), the service performance, using, as possible, the indicators

deriving from the "benchmarking logistics" work from the 1st Call, and assess the status of implementation and impact of applicable legislation, in particular for rail.

The project may be asked to participate in networking activities with other projects in the area of intermodal transport and logistics.

Funding scheme: Collaborative Project
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

AREA: 7.2.2.2 Maritime and inland waterways transport

The objective is to promote the attractiveness of waterborne transport. Activities will cover competitive solutions for short sea shipping, inland waterways and deployment of the Motorways of the Sea, including recourse to the use of modern information/location technologies. Maritime safety will be addressed through information and telematic technologies, optimised man-machine interactions, improved conditions for transport of hazardous goods and maintenance of double-hull vessels.

Expected impact
- Increased modal shift for short sea shipping to reach a modal share of 40 %.
- Increased involvement of private sector.
- Proposals must ensure at least a neutral impact on climate change.

No topic is open in 2008.

AREA: 7.2.2.3 Enhancement of the Knowledge Base of the Rail Sector

The objective is to promote more effective knowledge and human management practices within the rail and light-rail sector stimulating its attractiveness as a working environment. The goal of the research is twofold: (i) the collection of the relevant operational and technical "know-how" currently existing within the sector, the "gap-filling" of such knowledge wherever such is deemed necessary; (ii) the development of appropriate methodologies and tools for long-term knowledge-maintenance and dissemination, notably through state-of-art "hands-on" training. Specific actions will be implemented to mobilise the international research and educational community in developing new educational and training syllabus supporting such goals.

No topic is open in 2008.

AREA: 7.2.2. 4 Quality of Rail Services

The objective is to search for step-changes in the quality of service and in the efficiency of railway operations through the demonstration of innovative railway system concepts of generic applicability addressing two key business railway functions: (i) Customer Service including notably the interface with the customer – passenger and freight - across the whole transportation chain and (ii) Railway Operations comprising key operational areas with the

potential to provide significant returns in terms of responsiveness and efficiency of operations or in a better usage of existing high-value assets.

No topic is open in 2008.

AREA: 7.2.2.5 Interoperability and Safety

The objective of the research will the establishment of a longer-term interoperability and safety perspective as this may emerge from the step-wise integration of the EU-rail-networks and their potential extension to neighbouring regions(e.g. Russia, Balkans, Turkey). The research shall aim at providing interoperability and safety requirements that evolve from new business, operational and technical needs (e.g. issues such as supply-chain networks, third party logistics, real-time management of customer information across a supply chain, the emergence of new technologies, the availability of GALILEO services for safety applications) as well as the evolution of current requirements that might be commanded by the evolving context of integration (notably those specific impositions under the legal regimes of the COTIF and OSJD) . The work will rely on a whole-life-cycle outlook of interoperability and safety regulations from conception through to deployment, including the monitoring and the feedback-assessment of its application.

Expected impact

- All proposals submitted to every topic would have to ensure at least a neutral impact on climate change.
- Enhance interoperability on existing infrastructure and develop new interoperable rail equipment.
- Reduce migration time for the implementation of new interoperable solutions.
- Develop and implement Technical Specifications for Interoperability (TSI's).
- Create the conditions for the operational and technical integration of the different national railway systems in the European Union and accession countries.
- Contribute in capturing twice the freight and passenger market share and three times the market volume in rail transport by 2020 compared to 2000 levels[30].

The following topics are for Level 1

SST.2008.2.5.1 Interoperable rolling stock

Technologies and innovative train concepts for both passengers and freight transport characterised by interoperability and cross-operation between different rail networks.

The proposed solutions will be based on advanced mechatronic systems, on-board electronics, information and communication systems, satellite technology and services. Research results will contribute to standardisation at different levels in particular related to new Technical Specifications for Interoperability (TSI's).

International Cooperation is suggested with Russia for interoperability between different track-gauges.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities

[30] ERRAC SRA

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

AREA: 7.2.2.6 Traffic and information management

In view of optimising the network management, including infrastructure exploitation and congestion management, research activities should address the areas of innovative economic instruments, infrastructure maintenance systems as well as of a comprehensive vehicle to infrastructure communication mechanism through the development, demonstration and validation of Intelligent information and communication strategies, services and equipments, aiming at a more efficient use of the entire (urban and rural) transport network. Such an integrated approach will facilitate the most advanced traffic management, control and information system possible, especially so as its application should be coincident with Galileo coming 'on-stream'.

Expected impact:

- All proposals submitted to every topic would have to ensure at least a neutral impact on climate change.
- Increased security by reduction of human error;
- Enhanced mobility and reduced retentions;
- Emissions' reductions via improved speed regularity.

The following topics are for Level 1

SST.2008.2.6.1 Intelligent highways

Dedicated infrastructure and vehicle technologies for the development of future intelligent highways with optimised safety, environmental impact and infrastructure capacity. Activities will contribute to the evolution of current highways systems towards next generations increasingly based on intelligent infrastructure and vehicles. This evolutionary approach will take into account the maturity of the necessary technology and safety and liability aspects.

Activities will concentrate on central and on-board management and guidance systems which will use satellite and local information to stabilise vehicle trajectories and regulate vehicle speed and separation with high accuracy and reliability. There will be special focus on truck applications (including possible physical separation of automated trucks from passenger trucks and trucks drivers training) which present the potential for short to medium term implementations.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

AREA: 7.2.2.7 Policy support

Methods for estimating transport costs and for implementing innovating charging systems, including ITS technologies and GNSS (Galileo), should contribute to monitor transport costs, better allocate them to user, reduce congestion and manage infrastructure networks. Research will develop methodologies that estimate transport costs and that apportion real costs, of infrastructure use.

Expected impact:

- Development of tools and methodologies for enhanced policy making
- Research into new approaches to policy making and into the wider impacts of individual measures.
- Improved understanding of drivers impacting demand for transport and of the net-externalities (congestions, accidents, emissions, noise) caused by these drivers
- Increased scope and reliability of transport modelling by improving/extending existing EU transport models.

SST.2008.2.7.1 Policy–packages and best practices for transport

Research into optimal policy combinations.
Measures taken in isolation often encounter "perverse effects and unintended consequences" (e.g. road pricing can lead to longer routes being used around the charging area to avoid charges; light urban rail links may initially take traffic off roads, but the reduced congestion on roads leads to higher demand in the longer-term; or, high parking charges may lead to more traffic due to people being driven and dropped-off/collected in urban areas; improved logistics may cause a rebound effect by reducing cost and thereby encouraging more traffic). In these cases, packages of measures are very often necessary to deter such perverse effects. Research is needed into ways of identifying and modelling in advance possible perverse effects, and the construction of optimal packages. Best practice needs to be identified and promulgated. Research is needed to develop tools/methodologies capable of performing the necessary evaluation, including socio-economic assessments of innovative transport policy packages. Such packages must be mindful of the need to maintain the competitiveness of the European economy. Barriers to the implementation of such packages, and the transferability of such packages to different locations, shall be included in the research. All modes of transport must be covered.

Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

SST.2008.2.7.2 Sustainability effects of new logistics and manufacturing systems transport impacts

Research into the effects of globalisation and other industrial developments on the EU transport system. It is proposed to undertake research into the impact of the fragmentation of manufacturing and logistics processes on transport flows and costs. This research should also cover transport costs of a "recycling economy" (where manufacturers choose, or are obliged, to recover waste products for re-processing & or re-use).

Logistics networks are changing due to changes in global consumption, manufacturing technologies, trade and transport conditions. Flexible manufacturing systems and highly responsive logistics networks (i.e. supply chains for individualised products and services) will create additional transport flows. Interesting trade-offs between transport and sustainability present themselves. Logistics efficiency improvements in transport may be beneficial for the environment (such as the optimisation of otherwise empty vehicles/vessels on return legs). At the same time, "reverse logistics" (e.g. collection of used goods) may also imply environmental disbenefits due to increased transport. At present there is insufficient forecasting underway of future trends. Research is needed in order to better understand the

future consequences for transport flows, congestion, transport safety, local noise and global CO2 emissions. The implications for freight and logistics policy need to be identified.

For example, the performance of industries in reducing their CO2 emissions or their waste (e.g. packaging materials) may in part be counteracted by increased CO2 emissions from the transport sector: this is true for the metal industry and for industries/companies for whom there is an economical benefit in recycling. While raw materials have also to be transported, they benefit from very large economies of scale in transport. If used goods or waste are collected and transported for re-processing and/or re-use, the costs and impacts of transport have to be identified (bulk-carrier ships for raw materials versus pick-up trucks for collected used goods/waste).

Research should include an input-output table which will be developed to show the CO2 content of every product and transaction. Analysis will focus on the transport sector represented by its CO2 content or footprint. All economic sectors buy transport CO2: in some occasions this transport CO2 substitutes for other energy/CO2 inputs either through recycling or by allowing for economies of scale which increase the energy efficiency of production; in other cases transport CO2 allows to reduce the cost of other inputs such as labour (outsourcing of some production stage to low labour cost countries) or land (relocalisation to low land cost areas) or even energy (localisation of energy intensive factories near energy sources and far away from markets). By applying the CO2 input/output approach research will identify the net CO2 footprint of the EU transport sector. Research will also seek into the costs and benefits - economic, social, environmental at large - of reducing these footprint in the other transport customer sectors and in the economy at large.

Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

SST.2008.2.7.3 Innovation process in surface transport.

The topic should analyse the innovation process on transport markets with the aim to draw conclusions for policy measures to accelerate the market take-up and to provide a frame for the impact assessment and evaluation of EU measures aiming at innovation. The activities should identify key players for innovation ("pioneer investors"), describe how innovation spreads in the market, how innovation could be stimulated in networks, and what impact different policy measures have. A number of policy initiatives have created precedence which would be worth analysing, best practices should be identified and a conceptual framework for possible policies should be developed.
Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

SST.2008.2.7.4 Development and implementation of data collection methodology for EU transport modelling

Several transport policy support tools have been developed as part of the FP programmes, member state research activities or initiatives in the private sector. Such tools include models, evaluation methodologies and indicator frameworks, all of which can provide useful input to the policy making process. However, two important obstacles for the wider application of such tools are the lack of good quality input data and the resulting discrepancy in starting assumptions that different methodologies use. The objective of this task is to develop a

framework for the collection and dissemination of data and network information related to transport and to provide a central repository to be used by transport policy support tools at EU level.

Several transport models, and extensions to the models, have been developed as part of the FP programmes. The input data needed for the models/extensions are often collected on a one-off basis or potentially, and if available, taken from the ETIS database. ETIS was developed for DG TREN with Year 2000 zones and definitions but it has not been updated since. Despite the attempt of ETIS to improve quality and quantity of EU transport data available for transport models, the current data situation can be described as one of fragmentation of datasets and sources, missing data, lack of standardization/harmonization between datasets and duplication of information collection making it difficult to identify, access and use available data.

With a view to improving data quality and data availability for transport modelling, there is a need for one single source of data. All existing and new models should ideally be sourcing data from the database, and it should be continuously updated and expanded to suit user needs and to provide the most reliable modelling outputs.

The task has multiple objectives. In terms of quantity of data, it is important that the detail of transport and traffic data available is improved. Networks for all transport modes and their corresponding real traffic volumes need to be described in more detail (geographic as well as temporal). Data on variables that influence transport activity or result from it should be also collected. Such data can be used as input to the models or for comparisons with the output of the models. They should include socio-economic and demographic indicators, changing mobility patterns, trade statistics, vehicle sales and stocks, fuel consumption, prices and taxes, etc.
Links with transport statistics in member states and other world regions, local traffic counts and surveys, traffic statistics from private operators and information from new IT applications in transport should be established and a framework for data updates should be designed.

In terms of quality, a validation of the data used in such a framework is necessary. Data and transport network information used in such an EU-wide database needs to be reliable and compatible with the information used in member states. A consensus between developers of evaluation methods and models on the format, collection methods and validation of this information should be reached. Stakeholders at member state level, infrastructure operators and other relevant data providers in the public and private sector should be also consulted.

The updating of this information is a crucial parameter. The current task should update existing data to the current situation (or at least to a reference year of 2005 or later). It should also address issues of improving the temporal coverage by including more reference years and/or further detail as regards variations at more detailed timescales (i.e. seasonal, monthly, daily, etc.). A process for the future updates of the information should be also defined, ideally one allowing some degree of automation.

The aim of the project is to develop a database of transport data, traffic counts and transport network information for all transport modes, covering the EU and the main links with the rest of the world. The database should meet the needs of transport policy support tools and especially models such as TRANSTOOLS, and meet the user requirements identified in relevant FP projects (ETIS-BASE, TRANSFORUM, REFIT, etc.) The project should also

develop a process for the collection and validation of data, including consultations with data providers, users and policy makers. In addition, the project should deliver clear recommendations as to the future management and update of the database.

Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

SST.2008.2.7.5 Transport forecasting and globalisation

Better forecasting to improve policy responses and economic analysis. Research is needed into freight transport growth and into the scale of impact of globalization of transport in relation to EU transport policy. In coming decades, the growth of freight transport will be higher than the growth of passenger transport. On certain (e.g. port related) corridors, flows are expected to quadruple by 2040. This development is potentially a serious threat to the environment and quality of life in surrounding areas and the possibility of maintaining efficient freight corridors in Europe. More accurate modelling and forecasting methods are needed to identify and assess impacts on the problem areas. Knowing that accurate forecasting depend heavily on data input and assumptions about the future, research is needed into means of providing reliable models.

The effects of various methodologies for curbing or accommodating growth need to be better understood to improve policy making in this area. As part of the research, more detailed insights into freight transport elasticities, based on the TRANS-TOOLS model, can be developed. The research needs to address the costs and benefits of national and EU level policy in the area of intermodal and logistics policy, pricing, transport regulation and infrastructure. European policy aims to influence transport flows within Europe, globalization means that a large and growing part of transport flows originates outside of the EU, and as such is less sensitive to European policy. In order to facilitate these flows, and to take sound policy decisions about infrastructure investments, more research is needed to understand intercontinental flows within the EU and determine the factors influencing their growth. This will draw upon the work performed now in 6th Framework Project "WORLDNET". The dimensions that need to be covered will include modelling sea/port choice, containerization and improving the forecasting model for air transport. WORLDNET will make available additional data on trade flows. This should be the basis for research into the development of new trade model including logistics (a determining factor for a large proportion of international flows). A world model will allow the balance between imports and exports to be better understood. The approach of the world energy model as used at the European Energy Agency could be followed. The world trade model could replace the present trade model in TRANS-TOOLS.

Funding scheme: Coordination and Support Action
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

SST.2008.2.7.6 Assessment of ITS tools for better decision making

Objective

The application of information and communication technologies to transport, commonly known as Intelligent Transport Systems and Services (ITS) can make a contribution towards policy objectives such as the reduction of congestion and optimum use of the existing capacity, the improvement of traffic safety and the reduction of negative impacts on

environment and climate change while increasing energy efficiency. For road and public transport a number of ITS applications exist which are mature and being deployed throughout Europe. They cover a range of areas, e.g. traveller information, traffic management, freight and logistics, electronic payment, public transport operations, vehicle-based systems. Under the TEN-T programme the EU is spending a considerable amount for the deployment of ITS and is in parallel preparing an action plan for 2008 to support such deployment.

While the potential of ITS to deliver safe, efficient, sustainable and seamless transport of goods and people is increasingly recognised the deployment is often more technology than benefits driven. To improve the decision making process of public authorities on different levels and to build and maintain the policy and business cases better tools are needed to explain the benefits and costs of ITS applications.

Scope
The general evaluation cycle involves a loop from strategy development based on policy and user needs, pre-implementation evaluation, monitoring, post-implementation evaluation to feedback. The project will be concerned mainly with the pre-implementation evaluation. It should provide an easy-to-use toolkit for decision makers on European, national and local level to assist in the assessment of ITS applications (for road and public transport with co-modal interfaces) with regard to policy objectives. This task will include the differing needs for impact assessment, socio-economic assessment (both monetary and non-monetary benefits and costs), user acceptance assessment and financial assessment (building the business case).

The toolkit will mainly focus on mature ITS applications where more knowledge exists without neglecting emerging developments. It will be based on established indicators and will take into account existing work, e.g. by the TEMPO Evaluation Expert Group, the International Benefits, Evaluation and Costs Working Group (IBEC) and national activities on this subject (e.g. UK, Finland, Czech Republic, USA).

Since benefits can be highly location dependant, a special challenge will be to align the experience to date into a European approach. The project should provide an overview and take into account the varying national requirements and frameworks for evaluation. Evaluation is not static; therefore a mechanism for maintaining and updating the toolkit needs to be proposed.

Expected Output
The project will deliver a ready-to-use toolkit to support decision-makers on different levels in the selection of ITS applications from a policy point of view. The toolkit should visualise the benefits in order to justify public expenditure and enable a harmonised deployment across Europe.

Funding scheme: Collaborative project or Co-ordination and support action (supporting)
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

ACTIVITY: 7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY

Focusing on the mobility of people and goods by research on the 'next generation vehicle' and its market take-up, bringing together all elements of a clean, energy efficient, safe and intelligent road transport system. Research on new transport and mobility concepts, innovative organisational and mobility management schemes and high quality public transport will aim at ensuring access for all and high levels of intermodal integration. Innovative strategies for clean urban transport[31] will be developed and tested. Particular attention will be paid to non-polluting modes of transport, demand management, rationalisation of private transport, and information and communication strategies, services and infrastructures. Tools and models supporting policy development and implementation will cover transport and land use planning including the relationship with growth and employment.

AREA: 7.2.3.1 New transport and mobility concepts

The objective is to develop a more efficient, effective and inclusive urban transport system, bringing together all elements of a clean, energy-efficient, safe and intelligent transport. Research will cover, among other things, the market take up of the 'next generation vehicle', and new transport modes and concepts, and the efficient handling of urban freight, deliveries and services, including the development of the related systems and technologies.

Expected impact

- Increased acceptance and take up of new urban transport solutions and technologies.
- More inclusive urban transport system with better access for all.
- Reduction of CO_2, pollutant emissions and noise at least in compliance with EU legislation.
- Increased energy efficiency by at least 20% in urban transport and improved transport safety.
- Proposals must ensure at least a neutral impact on climate change.

The following topics are for Level 1

SST.2008.3.1.1 New mobility concepts for passengers ensuring accessibility for all

Technological innovation and system development for new mobility concepts aiming at a more efficient organisation of the mobility of people in cities. The research will also address upgrading and better use of existing infrastructure.

Activities will include new guided and non-guided vehicle/vessel concepts and innovative schemes for their deployment and rational use taking into account cost efficiency. Solutions may involve more efficient use of vehicles/vessels (including the deployment of demand actuated systems) and infrastructures including their inter-linkage, where appropriate introducing dedicated infrastructure for motorised and non-motorised vehicles/vessels and for possible innovative transport modes. Emphasis will be placed on ensuring accessibility for all (e.g. introducing adequate provisions for elderly and disabled, travel guidance for foreigners

[31] Building upon the experiences of the CIVITAS Initiative.

and other societal groups etc) and addressing user, future regulation and standardisation requirements. The integration of urban and rural transport is also included.

International Cooperation with industrialised countries is suggested for accessibility and social inclusion problems in relation to population ageing and disabled.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.3.1.2 Intelligent mobility systems and multi-modal interfaces for transport of passengers

Systems, methodologies and techniques for intelligent mobility systems (rail, road and waterborne) and optimal multi-modal passenger trips within cities and between cities and rural environments.

Activities will concentrate on data collection techniques, traffic management systems, route optimisation and traffic planning, safe, secure and efficient multi-modal interfaces linking the different transport systems and modes. Another focus will be systems for user-friendly, reliable and comprehensive travel information to passengers which includes trips combining different transport modes.

Activities may also include socio-economic research involving walking/cycling/public transport and intelligent mobility systems for residents making considerations on their impacts on tourism.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.3.1.3 New vehicle concepts for the delivery of goods

Systems and innovative solutions for new vehicles for the delivery of goods.

New technologies, vehicle concepts and transport modes will aim at efficient, safe, clean and quiet urban and night-time transport and distribution of goods.

Activities will focus on the development, market introduction, implementation and evaluation of economic and social impact of new multi-functional vehicles for different types of freight and goods services that are effective and flexible.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.3.1.4 Urban freight delivery systems

Technologies and systems for freight movements and goods services in cities which minimise their impact upon residents whilst maintaining or increasing overall system efficiency.

Activities will include one or more of the following subjects:

- Loading/unloading systems and urban infrastructure with reduced noise and pollution. Particular attention will be paid to night freight delivery.
- New concepts of urban friendly transport systems for a better integration of functions for freight distribution and collection.
- Appropriate location of depots.
- Optimised fleet management and routing of freight vehicles including relations with extra-urban transport and access schemes for more sustainable concepts.
- Advanced home delivery concepts.
- Advanced concepts and systems for urban freight data collection.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

The following topics are for Level 2

SST.2008.3.1.5 Urban buses and delivery vehicles using second generation hybrid electric technology

The aim of the research will be to demonstrate the full potential of advanced second generation parallel hybrid technology for vehicles in urban fleets such as buses and delivery vehicles. Solutions are to be developed to show good performance in terms of reducing fuel/energy consumption, local and global emissions and noise, ensuring high performance over the life-span with good acceptance by public transport and delivery operators, drivers and passengers.

Activities will include:
- Design of new urban buses and delivery vehicles based on second generation parallel hybrid technology and low weight body and other components where applicable
- Integration of innovative auxiliary components such as efficient and reliable braking energy recovery recuperation systems and, where appropriate component for cooling and air conditioning systems.
- Optimisation of the whole electrical and thermal energy flows within vehicles.
- Demonstration under practical real-life conditions in different cities within the enlarged Europe.

The project is expected to contribute significantly to sustainable development, to clean air strategies and noise abatement in European cities. The research and demonstration results shall lead to economically viable solutions for operators and public authorities.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.3.1.6 Transport planning and traffic information systems in cities

The research will integrate systems for traffic and transport data collection and cross-modal journey planning in urban areas and propose methodologies and techniques for innovative transport planning. The research aims at mobility management in fast growing urban areas in

the emerging Economies like Brazil or China. The results will be validated in service trials and demonstrations.

The work plan will comprise:

1. creation of an integrated approach to innovative systems for traffic data collection, management and personalised delivery of dynamic language independent information;
2. design of an open platform with interfaces to a wide range of mobility services such as journey planning, dynamic route guidance, transport booking and payment, personal communication and safety;
3. demonstration of integrated solutions for cities in Europe and in emerging markets like China and Brazil.

The research will involve users, traffic managers, public authorities, transport operators, equipment manufacturers, vehicle manufacturers, service providers, application and service developers, content owners and providers, and research organisations.
The project outcome will be the design and validation of an open integrated platform for traffic information collection, management, and broadcasting using European developed technologies, standards, and protocols. This platform will create a more efficient urban mobility environment and strengthen the development of intermodal mobility services.
Demonstrating the platform on emerging markets will strengthen the European industry on the global market.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Specific International Cooperation Action (SICA)
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.3.1.7 Large event mobility management (especially in big cities).

The research aims at improving traveller comfort, safety and security, improving the transport efficiency, reducing pedestrian and other road users fatalities, congestion and pollution levels with the help of advanced information & communication technologies. Major special events, such as the FIFA World Cup or the Commonwealth Games, can act as a catalyst for a programme to improve transport networks. Examples include investment in transport networks, public transport operations, traffic management, special transport arrangements (e.g. VIPs and athlete transport, food & beverage deliveries), logistics and multimodality.

This project should be used as a first step of technologies that can then be perpetuated beyond the games for the benefit of local citizens.

Activities will address:

- Dynamic traffic management systems & real-time traffic information for metropolitan areas;
- Public transport:
  - tracking and tracing, fleet management
  - demand-responsive transport
  - integrated ticketing and information for taxis, buses
  - bus and special vehicle priority;

- Implementation of inner-city public transport services along major axes, with links to district hubs, modal interchange points and other centres (e.g. stadium, Olympic village etc.);
- Tools to optimise operational transport plans according to historic and real-time demand data;
- Web-based systems to integrate public transport and traffic management operations, and provide sources of data for delivery to mobile users, both private and commercial;
- Traveller services based on mobile communications, for real-time traffic and public transport service information, mobile payment, special event information and booking, etc.
- Demand management strategies based on economics and measures to influence travel behaviour (e.g. through education and information campaigns);
- Fleet management mechanisms to ensure good practice in terms of safety (safe speeds, use of seat belts, etc.).

The research will involve users, traffic managers, public authorities, transport operators, equipment manufacturers, vehicle manufacturers, service providers, application and service developers, content owners and providers, and research organisations.

Demonstration will be held during the 2010 Soccer World Cup in South Africa and the 2010 Commonwealth Games in India. Synergies will be established with large European events such as the 2012 Olympic Games in London.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Specific International Cooperation Action (SICA)
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

AREA: 7.2.3.2 High quality public transport

The objective is to increase the quality and provide the adequate level of public passenger transport while ensuring access for all and high levels of intermodal integration, including traveller information and ticketing. Activities will include the design and operation of interfaces, seamless door-to-door solutions, tourist traffic, and public transport in sub-urban areas. In addition, the research will address the management of public transport operations, financing and market assessment.

Expected impact
- Increased modal share of public transport and reduced car use in urban and peri-urban areas.
- More attractive and inclusive urban transport system with better access for all.
- Improved overall performance of public transport operations and reduced operational costs and environmental impacts per passenger kilometre.
- Better integration between public transport operators, and between public transport and other modes, to promote co-modality.
- Proposals must ensure at least a neutral impact on climate change.

No topic is open in 2008.

AREA: 7.2.3.3 Demand management

The objective is to promote a more rational use of the private vehicle and the use of non-polluting modes of transport through advanced approaches for demand management. Activities will include the real life testing of traffic restraint measures, parking management, the use of financial (dis)incentives and research on innovative mobility management, marketing and behavioural change schemes. Research will also cover the organisation and quality of urban transport, non-motorised modes and the efficient use of urban transport networks through intelligent information and communication strategies, services and infrastructures.

No topic is open in 2008.

AREA: 7.2.3.4 Innovative strategies for clean urban transport

The objective of CIVITAS-Plus is to test and increase the understanding of the frameworks, processes and packaging required to successfully introduce bold, integrated and innovative strategies for clean and sustainable urban transport that address concerns related to energy-efficiency, transport policy, alternative fuels and the environment. This work will build upon the latest research results and incorporate past experiences of the CIVITAS Initiative. Special attention will be paid to the specific requirements of clean and sustainable urban transport in Europe's countries and regions under rapid development, aiming at economic convergence in the context of Cohesion Policy.

Expected impact

- Increased energy efficiency in urban transport in line with EU policy.
- Contribute to improving road safety in urban areas.
- Increased share of bio-fuels and other alternative road transportation fuels in compliance with EU legislation.
- Reduction of CO2, pollutant emissions and noise in compliance with EU legislation.
- Contribute to improving efficiency and effectiveness of urban transport and increasing modal share towards sustainable modes.

No topic is open in 2008.

AREA: 7.2.3.5 Policy support

The objective is to support policy development and implementation with new tools and models for the development of transport scenarios and forecasts with economic and spatial dimensions that complement impact assessment methodologies and cost-benefit analysis. Research will also address transport and land use planning and will take account of the changing trends within transport, of employment, social cohesion, societal needs, demographic changes and environmental sustainability.

Valorisation activities will include training, take-up and dissemination actions.

No topic is open in 2008.

ACTIVITY: 7.2.4. IMPROVING SAFETY AND SECURITY

Developing technologies and intelligent systems to protect vulnerable persons such as drivers, riders, passengers, crew, and pedestrians. Advanced engineering systems and risk analysis methodologies will be developed for the design and operation of vehicles, vessels and infrastructures. Emphasis will be placed on integrative approaches linking human elements, structural integrity, preventive, passive and active safety including monitoring systems, rescue and crisis management. Safety will be considered as an inherent component of the total transport system embracing infrastructures, freight (goods and containers), transport users and operators, vehicles and vessels and measures at policy and legislative levels, including decision support and validation tools; security will be addressed wherever it is an inherent requirement to the transport system.

AREA: 7.2.4.1 Integrated safety and security for surface transport systems

The objective is to develop new technologies and innovative solutions for the improvement of safety and security in transport operations and the protection of vulnerable users. Activities will address the entire range of approaches and technologies to ensure safer operations based on design for safety, advanced protection systems, intelligent vehicles, vessels and infrastructures (including their interactions) and related socio-economic aspects. Research will also address aspects inherent to the transport system which can lead to the achievement of an adequate level of intrinsic security of transport system and operations.

Expected impact

- All proposals submitted to every topic would have to ensure at least a neutral impact on climate change.
- Increase the level of safety and security of both the whole transport system and its components, thus contributing to the overall scope of reducing the number of fatalities and the severity of injuries caused by transport accidents.
- Enhance the positive interactions between pilots-drivers/infrastructure/vehicles-vessels in order to decrease the level of human error and increase the safety performance of the infrastructure.
- Maintenance/increase of the level of safety and security of the transport system, whilst applying innovative technologies contributing to the mitigation of green house effect and the reduction of CO2 emissions.

The following topics are for Level 1

SST.2008.4.1.1 Safety and security by design

- Technologies and methodologies for the design of transport systems with intrinsic safety and security characteristics which support harmonization and standardization.
- Design of vehicles, vessels and infrastructures with intrinsic safety and security characteristics, including adaptive safety systems, their interactions and their mutual impact.
- Development of innovative solutions combining the need for energy reduction and the required level of safety. Special attention will be devoted to the tyre/road friction problematic.
- Safety of new vehicle design concepts, with attention to changes to structural design deriving from the development of alternative fuels powered vehicles and vessels.

- Vehicle-to-vehicle compatibility, vehicle conspicuity with special attention to Powered Two Wheelers and Heavy Vehicles.
- Integrated solutions for safe and secure transport of hazardous goods (generic technologies for tracing and tracking security systems are not included in this topic).
- Development of technologies, systems and their integration in order to ensure an adequate level of security for transport users, with special focus on large terminals. Methodologies for risk analysis on emergency procedure in transport terminals. Criteria for constructive design upon voluntary and emergency actions. Advanced modelling of the effects of an attack. Pilot test with application of models. Security criteria for constructive design handbook.
- Improvement and evaluation of human comfort in vehicles. Activities should address ergonomics of vehicles and seats as well as cognitive aspects related to driving to minimise the level of human error in traffic and to maximise attention and alertness.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.4.1.2 – Human components

- Systems, technologies and their integration and evaluation aimed at increasing the level of protection of the transport system's users (pilot/drivers, passengers, motorcyclists, workers, pedestrians) with special attention to the most vulnerable ones. Contributions may also include methodological aspects, aiming at the evaluation of social benefits associated to investments in technology for the protection of vulnerable users such as pedestrians and cyclists.
- Enhance safety relevant behaviour of railway workers and road and railway construction workers. Technical and organisational applications to increase workers' safety in these areas.
- Development of solutions for quick evacuation systems of passengers from large vessels, trains, congested tunnels and terminals, with attention to psychological aspects in panic situations.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.4.1.3 Integral system solutions for safety

Full integration of the different components of the transport system for increased safety.

Activities will address methods, tools and technologies for optimal safety solutions which are reliable, fault tolerant and which integrate aspects of human behaviour, preventive and impact mitigating systems, and infrastructure performance. All the components of the safety system (vehicle-vessel/infrastructure/driver-user) must be considered within a holistic integrated approach.

As far as rail and waterborne transports are concerned, research will also include:

- user-friendly human/machine ergonomic interfaces with driving support systems and increased environmental perception performances.

- integration of technologies to sense and predict dynamic and quasi-static infrastructure conditions both at global (e.g. sea state, weather, traffic density, intercepting courses conditions) and local levels.
- Advanced monitoring and diagnostic systems based on multi-sensing and data fusion

As far as powered two-wheelers are concerned, research will include the assessment of the effectiveness of integrated safety solutions (primary and secondary safety devices).

Solutions will be based on intelligent control systems, smart electronic components (sensors and actuators), and communication and information systems and will take into consideration the interrelations between the vehicle/vessel, the driver/passenger/user and the infrastructure.

Funding scheme: Collaborative large scale integrating projects, Coordination and Support actions aiming at coordinating research activities, Coordination and Support actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

The following topics are for Level 2

SST.2008.4.1.4 Road Safety of Vulnerable Road Users in Emerging Economies

The aim of the research will be to define and develop requirements and tools for protecting vulnerable road users, under special consideration of infrastructure design and land-use planning in emerging economies like India, Brazil and/or South Africa. Based on experiences in different European countries and specific needs of emerging economies (as road safety conditions are quite different), options for risk prevention for cyclists, younger and older pedestrians will be researched.

Activities will address the following subjects:

1- Build an innovative methodology of conceiving and maintaining road infrastructure able to ensure a high level of pedestrian safety and develop requirements and tools for protecting vulnerable road users under special considerations of infrastructure design and land use planning. Based on experiences in different European countries and specific needs of emerging economies the approach has to emphasize options for risk prevention.
The stake is to offer an infrastructure able to accommodate various flux of different types of vehicles and diverse kinds of pedestrians (walkers, children and elderly people, pavement dwellers, non motorized two wheelers,…) and make them move together safely.
The approach would be comprehensive and systemic gathering all potential actors and the necessary components to implement potential solutions in a physical, management (traffic, speed, regulations,…), institutional, academic, and educational way.
2- Then the process has to be tested and demonstrated through a pilot project which would be a concrete application to a road construction or renewal project. The relevant area has to be defined: urban, suburban context.

The research will involve users, public authorities, transport operators, road infrastructure and equipment manufacturers, vehicle manufacturers, and research organisations.

The outcomes are road safety audit guidelines and the development of planning tools.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Specific International Cooperation Action (SICA)
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

AREA: 7.2.4.2 Policy support

The continuing objective of further reducing the number of fatalities on the EU roads should be properly supported by research activities addressing in depth road accidents data collection and analysis in the framework of the European Road Safety Observatory, multidisciplinary analysis of the impact of societal trends on road safety (i.e. ageing population) and technology-based solutions to improve infrastructure related road safety. Research activities will include demonstration, validation and implementation of recognised best practices.

Expected impact:
- Contribution to the best possible level of road safety, beyond the common objective proposed by the Commission in 2001, following targets already set by some Member States ("sustainable safety" and the ultimate "vision zero").
- Development of capacities to explore potential road safety improvements that will not have been exploited by the ongoing actions within the 3rd European road safety action programme (2001-2010) and within the 5th and 6th framework programmes.
- Development of new mechanisms for exploiting existing data sources in standardized ways to facilitate analyses and comparison with other traffic crash related databases (already existing or under development).
- Definition of a strategic framework for the selection of pan-European priorities for in-depth data collection.
- Proposals must ensure at least a neutral impact on climate change.

SST.2008.4.2.1 Road safety Data Collection, Transfer and Analysis ("DaCoTA")

Objective
Road safety policy should be based on scientific evidence and the European pooling of knowledge is the most efficient way to transform knowledge into policy. European methods for macroscopic and in depth accident data collection, transfer and analysis have been developed and successfully tested, in particular, but not only, within projects of the 5th and 6th framework programmes.

Data collection, transfer and analysis at European level have reached various levels of maturity – depending on the category of data. Globally speaking, however, the whole process is still far from maturity.

Scope
Road safety data range from macroscopic level (systematic and comprehensive collection of accident reports, risk exposure data, performance indicators) to in-depth data. They also include data for road safety measures evaluation, policies benchmarking and data on behaviours / attitudes. A better integration of various categories of analyses, including data quality and data standardisation, is likely to result in a huge progress in knowledge.

There is a need for a better common understanding of the overall road safety dynamics. National models are needed to make forecasts, define road safety objectives and to support the development of programmes in the EU-27. It would be desirable to *track, explain and forecast* the evolution of victims (fatalities, and no doubt injuries) by country, and perhaps by region as well.

Some problems require multi-country comparisons, indeed. The diversity of trend patterns mong the various countries, but also their similarity, suggests that there is a lot to be gained from systematic international comparison and mutual exchange of competence, experience and data. A coordinated international research effort, drawing on data and models from all participating countries, is called for.

The "Road safety Data Collection, Transfer and Analysis" ("DaCoTA") would be a policy-oriented pilot project building on previous EU-funded projects and implementing for the first time on a full scale what has been tested so far on limited scales. It should gather data and perform comprehensive policy analyses including a review of in-depth accident studies, either at European level or at countries level as a further development of the existing European Road Safety Observatory.

Beyond the scientific community, various categories of stakeholders (public authorities, road operators, vehicle manufacturers, groups of road users, insurance companies, etc.), including their groupings at European level, are encouraged to participate.

Expected outcome
The project under this topic should meet some - but not all - of the needs of data-driven policies. Moreover it should prepare the way for further developments of in-depth data collection and analysis.

In the longer term, it should open the way to a routine and comprehensive activity in all Member States and associated states.

Funding Scheme: Collaborative projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-TREN-1

ACTIVITY: 7.2.5. STRENGTHENING COMPETITIVENESS

Improving the competitiveness of transport industries, ensuring sustainable, efficient and affordable transport services and creating new skills and job opportunities by research and developments. Technologies for advanced industrial processes will include design, manufacturing, assembly, construction and maintenance and will aim at decreasing life cycle costs and development lead times. Emphasis will be placed on innovative and improved product and system concepts and improved transport services ensuring higher customer satisfaction. New production organisation including the supply chain management and distribution systems will be developed.

AREA: 7.2.5.1 Competitive industrial processes

The objective is to strengthen the global competitiveness of transport industries through innovative and cost effective processes. Another aim will be the development of new skills and jobs opportunities for European citizens. Activities will address the complete product life cycle decreasing costs, lead time and environmental impacts. The organisation of the production, including new production schemes and considerations of the entire supply chain will be addressed. Particular attention will be given to the role of SMEs in the innovation process and the supply of components, systems and equipments within the transport sector. Therefore, the involvement of SMEs in project partnerships is important.

Expected impact

- 25% to 30% reduction of development lead time for all surface transport modes[32]
- 30% to 40% reduction of manufacturing and construction cost for all surface transport modes[33]
- 10% reduction in maintenance of transport infrastructures for all surface transport modes
- Increase the level of employment, create new skills especially in the area of green technologies and improve working conditions
- Promote the start-up and emergence of new high-tech SMEs in activities specific to transport processes.
- Strengthened global competitiveness of European Transport industries
- Increase European competitiveness what regards new emerging green technologies
- Proposals must ensure at least a neutral impact on climate change.

The following topics are for Level 1

SST.2008.5.1.1 Advanced and cost effective infrastructure construction, maintenance and monitoring

New design, construction and maintenance processes specific to surface transport infrastructures that address both the construction of new infrastructure and the renovation of existing infrastructure. These processes will aim at high quality, high level of service to the public, cost effectiveness, energy efficiency, low resources consumption and long service life taking into account life cycle performances, durability and impact on traffic (in particular safety and mobility).

Concerning infrastructure monitoring, special attention will be given to monitoring processes that minimise traffic/user disruption and reduce congestion. These will include traffic-speed monitoring of both surface and structural condition. Systems and technologies that are appropriate for the specific applications of both urban and inter-urban situations will be considered.

Standardisation activities will be supported by demonstrations. International cooperation with European neighbour states will be encouraged.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities

[32] Waterborne^{TP} and ERTRAC SRAs
[33] Waterborne^{TP} and ERTRAC SRAs

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

AREA: 7.2.5.2 Competitive surface transport products and services

The objective is to develop innovative products and systems concepts (for vehicles, vessels and infrastructures) meeting end-users expectations and ensuring high quality services enabling Europe to strengthen its global position or to regain competitiveness. Particular attention will be given to the role of SMEs in the innovation process and the supply of components, systems and equipments within the transport sector. Therefore, the involvement of SMEs in project partnerships is important.

Expected impact

- Maintain European share of ultra large cruise ship world production
- Develop new generations of transport products that are highly competitive, emit less CO2 and other pollutants and tailored to customers expectations
- Create new niche markets for high technology added value products[34] and services and take full advantage of eco-innovations.
- Improve the quality and competitiveness of surface transport services considering features such as price attractiveness, environmental friendliness, punctuality, frequency, real time information or leisure and work during travel time[35].
- Drastically reduce maintenance and inspection costs[36].
- Sustain economic development in Europe, create job opportunities and technology skills, with special focus on green technologies
- Promote the start-up and emergence of new high-tech SMEs, particularly in the advanced transport technologies and 'services-related' activities specific to Transport.
- Proposals must ensure at least a neutral impact on climate change.

The following topics are for Level 1

SST.2008.5.2.1 Innovative product concepts

Innovative surface transport products and system concepts (vehicles, vessels and infrastructure) to strengthen the competitiveness of European industry meeting customer requirements, changing markets and environmental challenges.

For the proposed activities emphasis will be placed on product and system concepts rather than process innovation (e.g. the improvement of vehicle, vessels and equipment design and manufacturing techniques are not included, they were proposed in the first call for proposals in 2007 – FP7-SST-2007-RTD-1). Activities will contribute to developing the next generation of innovative products and systems that are highly competitive, emit less CO2, drastically reduce maintenance and inspection costs and are tailored to customer expectations. These new products and systems will enable Europe to strengthen its global position or to regain competitiveness. In particular, for certain categories of products and sectors, high technology value added products will be investigated in order to create and enter new markets (e.g. niche markets).

[34] Waterborne TP SRA
[35] ERRAC SRA
[36] ERRAC SRA and ECTP SRA

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.5.2.2 Competitive transport operations

Innovative methodologies and technologies for more competitive transport operations providing reliable, environmentally friendly, efficient an economic services to customers.

Activities will address one or more of the following subjects:

- Holistic strategies for the minimisation of operation, environmental, maintenance and inspection costs.
- Navigation and control systems for optimised planning and routing across the entire transport chain taking into account real time traffic data.
- Weather and sea state conditions (for waterborne applications) for the optimisation of infrastructure capacity.
- Simplified and low cost maintenance and renovation of transport infrastructures providing reliable and high quality services with less equipments, lower life cycle costs and environmental impacts.
- Improved real time information systems for transport operators, end-users and passengers.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

The following topics are for Level 2

SST.2008.5.2.3 The competitive ship

The objective of the research will be to develop new concepts and technologies for future large and ultra-large passenger ships. Methodologies will employed that are based on a holistic and multi-criteria approach which addresses life-cycle cost optimisation, safety and environmental friendliness.

The research will make use of the most advanced methods and tools available for the design and production of complex technical systems, integrated resources, life cycle management, risk analysis and collaborative design, as well as the most innovative solutions for critical ship systems. These methods and technologies will be applied to a passenger ship to enable a complete revision and elaboration of new architectural and technical concepts based on optimisation and modularisation of components and sub-systems. Emphasis will be placed on lifetime costs, optimal interactions and interchangeability of ship systems for cost effective production and minimal life time operational costs.

Activities will include:

- Methods and concepts to assess and quantify the impact of ship design parameters on life-cycle costs, safety and environment including feedback from ship operation to design. These will be validated based on real vessels and operational data
- In partnership with system suppliers and other important actors in the process chain, establishment of a framework and tools that enable collaborative multi-criteria and multi-

level optimisation taking into account the complexity of large and ultra-large passenger ships together with the real needs and competences of shipyard design offices

- The tools will incorporate breakthrough technologies and architectural concepts that address the following sub-systems and design criteria:
    - Optimisation of space in the different ship areas: public space, passenger cabins and service areas.
    - Improving payload to gross tonnage ratio of hull structures and outfitting components to increase customer value.
    - Increased modularity of all spaces and systems to reduce building cost and allow cost efficient out-fitting and maintenance.
    - Optimisation of the ship propulsion chain, auxiliary systems and overall power management to reduce the consumption of resources and emissions to environment.
    - Minimisation of noise and vibration levels both for passengers inside ships and to reduce emissions in the vicinity of ports.
- Optimisation of the entire logistics chain aboard ship and between ship and shore to improve safety, security and reduce operational cost.
- Application of the developed tools within one or more concept vessels, together with a through life cost benefit analysis that demonstrates the competitive advantage compared to existing techniques and designs.

Activities to ensure the operational take up and application of the tools developed within a commercial environment are included. Establishment of performance indicators that will demonstrate the benefit from the technologies developed after the completion of the research is also included.

Deliverables will consist of: validated new methodologies and tools for life-cycle cost assessment in ship design, framework tools for the optimisation of the ship and its key systems, architectural and technical concepts for ships of the future designed on systems based approach, proof and validation of feasibility of these techniques within an operational commercial environment, concept designs compared to conventional state of the art, prototypes and numerical models for key sub-systems, cost benefit analysis, steps to ensure application of the technologies, performance indicators and measure to ensure continued measurement of the post project impact.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

7.2.6 Cross-cutting activities for implementation of the sub-theme programme

Cross-Cutting Activities in the Sustainable Surface Transport Work Programme 2008 support achieving an Integrated Surface Transport System across strategic Activities on Greening, Co-modality, Urban Mobility, Safety & Security and Competitiveness, common to all surface transport modes.

Impacts of Research Projects within Cross-Cutting Activities are defined with respect to the Work Programme Activity(ies) they concern: Greening, Co-Modality, Urban Mobility, Safety and Security and Competitiveness. All proposals submitted to every topic would have to ensure at least a neutral impact on climate change.

The following topics are for Level 1

SST.2008.6.1 Stimulating participation of Small and Medium Size Enterprises (SMEs) through Regional Clusters

Proposals will demonstrate making contributions to increase the participation of SMEs in the programme, so to enhance the capabilities of the European surface supply chain and to strengthen the competitiveness of the European surface transport industries, with particular focus on green technologies.

Activities may cover:

- support to SMEs through fostering multinational cooperation between Regional Industrial Clusters activities;
- stimulate, encourage and facilitate the participation of SMEs in research activities of the programme reinforcing the adequate involvement of surface transport supply chains adapted to their regional needs by exploiting regional clusters.

Activities should demonstrate relevant contributions to achieving the expected impacts of the five Activities of Sustainable Surface Transport, in particular Activity 7.2.5 on Strengthening Competitiveness. Stimulation actions will address information events targeting different publics, they will include press and media awareness campaigns, brokerage events, networking, studies and workshops.

Funding scheme: Coordination and Support actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.6.2 Stimulation of International Cooperation within Surface Transport Research

Proposals will support the implementation of EU policies in External Relations and Aid to Development in Sustainable Surface Transport research.

Activities may address:

- Enhancing the participation of International Cooperation Partner Countries in European surface transport research to promote an active and purposeful cooperation with other regions, both to strengthen the competitive position of European industry and to respond to global surface transport problems.
- Support the implementation of the Greening of Surface transport Activity (SST.2008.7.2.1) by means of efficient, economic and environmentally friendly transport systems for passengers and goods.

Actions will stimulate, encourage and facilitate the participation of organisations from International Cooperation Partner Countries and/or neighbouring regions in the sub-theme. Stimulation activities will include information events, networking, roadmaps, surveys, studies, debate forum, workshops and dissemination. They could also include the analysis of preferred research subject and win-win situations with respect to specific regions or countries.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.6.3 Encouraging step changes / radical technology changes

The present topic is intended to support the development of transport specific innovations that could deliver step changes into efficiency and cleanness in the next 20 years and beyond.

The proposals will stimulate the development of breakthrough technologies and concepts for transport. New approaches and models will be investigated for radically new solutions and paradigm change in transport, in particular to address impact on climate change and energy dependency.

Activities may include:

- A review and critical assessment of existing or emerging technologies, particularly in other fields of investigation, in view of their application to transport systems. Transport solutions that were discarded in the past due to an insufficient level of enabling technologies will be reassessed;
- Small studies for a first rigorous theoretical validation of innovative concepts by modelling.
- Proof of concepts which have been already sufficiently validated and are highly promising, realisation and testing of proof of concept hardware;
- Studies on mechanisms to define, implement and foster out of the box creative thinking;
- Support measures (such as innovation fairs where new ideas are introduced to possible venture capitalists, websites to allow the encounter between designers in need of specific solution to design, manufacturing, quality assurance, testing etc. problems and providers of advanced technology solutions) to foster and indirectly support the development and take-up of technology breakthroughs, aiming at introducing radical step changes in surface transport.

This topic is open to all types of activities from small collaborative research projects to studies, surveys, communication, tools development, workshops, discussion forums, scientific stimulation and awards, among others.
Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

The following topics are for Level 2

SST.2008.6.4 Analysis and dissemination of key national and regional transport research results

The objective of this topic is to promote transport research results, covering all modes, supported primarily at the national level and – where feasible – also at the regional level. A dissemination platform shall be developed for collection, structuring and accessibility of available results from national and regional transport research programmes across Europe. The platform will contribute to the realisation of a European Research Area (ERA) in Sustainable Transport through a better use of already available research results. This will be achieved through the synthesis, analysis and collation of research results from across Europe in key identified topics..

Activities will include:

- The definition of a methodology fully compatible with that developed within the Transport Research Knowledge Centre (TRKC) for the collection, structuring and mapping of all relevant research results in transport;
- The development and implementation of a methodology for confirming the provenance of research results.
- The development and implementation of a concept for the analysis and disseminating the collected research results, particularly in a format accessible to policy makers, bringing together the output from national programme and EU level projects within TRKC. This should include an investigation of the possibility of utilising existing platforms for dissemination. Ultimately, the chosen approach should be user-friendly, and allow a continuous update of the collected information and require a minimum amount of maintenance;
- An analysis and assessment of the compiled data will be provided in order to facilitate active dissemination to specific target groups, using the same taxonomy as TRKC for thematic analyses and policy brochures;
- The approach will be piloted in a small number of topic areas - a break point is envisaged to assess the approach in the light of experience gained in the pilots analyses.
- Identify gaps in existing knowledge and mechanisms for filling these gaps.
- Identify the lessons learnt on collation and analysis of national research results and make recommendations on how the methodology can be extended - including covering results from non-EU countries.

The action should establish close links to relevant national and regional transport research programmes. Cross-fertilisation and coordination between this initiative and TRKC must be ensured. Close co-operation with relevant ERA-Nets should be sought.

Access to the information will avoid duplication of research and use of research funds thus achieving a greater efficiency in research and the building of scientific knowledge. The availability of comprehensive sources of information on transport research performed and funded at the national and regional levels will support the development of future research initiatives at the regional, national, trans-national and European levels.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST 2008 6.5. Stimulating International Cooperation with Latin American countries in developing sustainable freight transport systems.

The aim of this initiative will be to contribute to the External relations with Latin American countries, specifically Argentina and Brazil through surface transport research addressing the specific area of co-modality in freight transport and better dissemination of the research results.

Activities will include:

- Identify existing technological solutions for sustainable co-modality in freight transportation;
- Survey of existing systems, technologies and solutions for freight transportation that meet regional and local needs;
- Elaboration of a research road map;

- Establish a debate forum;
- Improve dissemination of research results.

Actions of stimulation will include information events, networking, roadmaps, surveys, studies, debate forum, workshops and dissemination actions. They could also include the analysis of preferred research subject and win-win situations with respect to specific regions and countries.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST 2008 6.6 Integration of Marine and Maritime Sciences in Waterborne Transport in support to the European Research Area

Marine and Maritime Research is fragmented by sectors and research communities, with specific competences as Transport, Environment, Energy, Blue bio-Technologies, Fisheries, etc whose results are mitigated when needed to address global challenges as Climate Change and European Competitiveness.

Maritime Transport is one of the most critical sectors as it is a pillar for European economic growth, while having important negative impact on the environment.

In that respect research on Maritime Transport should aim at exploiting synergies between Marine and Maritime Sciences Communities, in line with the political guidelines for the implementation of the European Research Area. Such a collaboration should make full use of the different capacities in order to face Climate Change and European Competitiveness challenges by means of:

- Pooling together Marine and Maritime Basic Sciences with Socio-Economics and Applied Sciences to address global challenges considering the complexity of Oceans and Seas.
- Developing a new holistic approach and research concepts.
- Launching awareness campaigns and open public debates addressing the different communities.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST 2008 6.7. Shaping the New Generation of Sustainable Surface Transport Mobility for Europe

This topic has two focuses:

1) Towards ERA in surface transport research

Surface Transport (road, rail, waterborne) is fragmented by sectorial research communities specific to each transport mode. Surface Transport Research FP7 Work Programme aims at integration of a Sustainable Surface Transport System crossing all its sectors by means of:

- Pooling together Basic Sciences (e.g Nano, Math, ICT, etc) with Socio-Economics (e.g humanities, economics, behaviour, anthropology and sociology, etc) and Applied Sciences (e.g engineering, transport, etc)
- Developing new concepts and skills for young people across sectors.
- Awareness campaigns and open public debates addressing young people and Transport stakeholders.

2) Meeting transport sectoral needs in skill development

The aim will be to develop the necessary conditions (such as training) to have the appropriate scientific and technological skills for the surface transport of the future taking into account the needs of individual transport modes by means of:

- Disseminating the social and industrial benefits of training and education in the different surface transport modes (including logistics) and to develop new and innovative forms for further co-operation with industry
- Supporting and disseminating the idea that surface transport sectors need advanced engineering education connected with research and technological development and that therefore appropriate support has to be given to such education
- Providing access to a range of professional and academic groups in Europe active in surface transport related research and education activities.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2008-RTD-1

SST.2008.6.8 ERA-NET ROAD II

The objective of this initiative is to strengthen the European Research Area in road research by coordinating national and regional road research programmes and policies. The activities will include: exchange of information and knowledge among national programme owners and programme managers as well as the implementation of distinct joint activities. The network will include representatives from national and regional public authorities competent for public road research programmes and support policies. With respect to the previous ERA-NET Road project launched under FP6, the initiative will aim at:

1. Broadening its geographical scope by the inclusion of new member countries in the network;
2. Intensifying cooperation by launching new joint activities: joint calls and ERA-NET +;
3. Strengthening the dissemination of road research results at the national and European level;
4. Structuring public support activities for road research in Europe to increase complementarities; there will be a focus on joint priority setting and a better coordinated research support portfolio;
5. Implementation of joint actions in particular in the field of road network operation research in attendance of the research themes and management procedures defined in ERA-NET ROAD I;
6. Liaising with the relevant European Technology Platforms (ERTRAC, ECTP and EIRAC) to increase coordination with respect to the implementation of the SRAs in this area.
7. Liaising with the ongoing ERA-NET Transport to come to an integrated policy approach and a common platform to coordinate research programmes and funding activities.

Funding scheme: *Coordination and Support actions aiming at coordinating research activities*

Open in call: FP7-ERANET-2008-RTD

3. IMPLEMENTATION OF CALLS

SUSTAINABLE SURFACE TRANSPORT-RTD

- **Call title: FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008- RTD-1**
- **Call identifier: FP7- SST – 2008- RTD-1**
- **Date of publication[37]:** 30 November 2007
- **Deadline[38]:** 7 May 2008 at 17.00.00 (Brussels local time)
  Total Indicative budget[39]: EUR 102.22 million

- **Topics called:**

Activity/ Area	Topics called	Funding Schemes Collaborative Projects (CP), Coordination and Support actions (CSA)
7. 2. 1. The greening of surface transport		
7.2.1.1 The greening of products and operations	SST.2008.1.1.1 Clean and energy efficient gasoline and diesel power trains	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.1.1.2 Electric-hybrid power-trains	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.1.1.3 Holistic noise and vibration abatement	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.1.1.4 Future light-duty vehicleengines for road transport	CP (large-scale integrating projects)
	SST.2008.1.1.5 Future power-trains for commercial vehicles	CP (large-scale integrating projects)
	SST.2008.1.1.6 Emission reduction technologiesfor diesel locomotives	CP (large-scale integrating projects)
	SST.2008.1.1.7 Attenuation of vibrations and vibration-induced noise affecting residents near railway lines	CP (large-scale integrating projects)
	SST.2008.1.1.8 New ship propulsion	CP (large-scale

[37] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[38] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.
[39] Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority. An amount from the 2009 budget is expected to be added to this call for which a new financing decision to cover the budget for that year will be requested at the appropriate time.

	systems	integrating projects)
7.2.1.2 Environment-friendly and efficient industrial processes	SST.2008.1.2.1 Preventive and emergency interventions to protect marine, coastal and land environments	CP (small or medium-scale focused research), CSA (coordinating)
7.2.2 ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS		
7.2.2.1 Logistics and intermodal transport	SST.2008.2.1.1 Efficient interfaces between transport modes	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.2.1.2 Improved services in terminals	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.2.1.3 New generation of European freight train system	CP (large-scale integrating projects)
	SST.2008.2.1.4 Continental shipping	CP (large-scale integrating projects)
7.2.2.5. Interoperability and Safety	SST.2008.2.5.1. Interoperable rolling stock	CP (small or medium-scale focused research), CSA (coordinating)
7.2.2.6 Traffic and information management	SST.2008.2.6.1 Intelligent highways	CP (small or medium-scale focused research), CSA (coordinating)
7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY		
7.2.3.1 New transport and mobility concepts	SST.2008.3.1.1 New mobility concepts for passengers ensuring accessibility for all	CP (small or medium-scale focused research)
	SST.2008.3.1.2 Intelligent mobility systems and multi-modal interfaces for transport of passengers	CP (small or medium-scale focused research)
	SST.2008.3.1.3 New vehicle concepts for the delivery of goods	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.3.1.4 Urban freight delivery systems	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.3.1.5 Urban buses and delivery vehicles using second generation hybrid electric technology	CP (large-scale integrating projects)
	SST.2008.3.1.6 Transport planning and traffic information systems in cities	CP (small or medium-scale focused research), SICA
	SST.2008.3.1.7 Large event mobility management (especially in big cities)	CP (small or medium-scale focused research), SICA
7.2.4. IMPROVING SAFETY AND SECURITY		
7.2.4.1 Integrated safety and security for surface transport systems	SST.2008.4.1.1 Safety and security by design	CP (small or medium-scale focused research),
	SST.2008.4.12 Human components	CP (small or medium-

		scale focused research),
	SST.2008.4.1.3 Integral system solutions for safety	CP (large-scale integrating projects), CSA (coordinating), CSA (supporting)
	SST.2008.4.1.4 Road safety of vulnerable road users in emerging economies	CP (small or medium-scale focused research), SICA
7.2.5. STRENGTHENING COMPETITIVENESS		
7.2.5.1 Competitive industrial processes	SST.2008.5.1.1 Advanced and cost-effective infrastructure construction, maintenance and monitoring	CP (small or medium-scale focused research), CSA (coordinating)
7.2.5.2 Competitive surface transport products and services	SST.2008.5.2.1 Innovative product concepts	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.5.2.2 Competitive transport operations	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2008.5.2.3 The competitive ship	CP (large-scale integrating projects)
7.2.6 CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme		
	SST.2008.6.1 Stimulating participation of Small and Medium Size Enterprises (SMEs) through Regional Clusters	CSA (supporting)
	SST.2008.6.2 Stimulation of International Cooperation within Surface Transport Research	CSA (supporting)
	SST.2008.6.3 Encouraging step changes/ radical technology changes	CP (small or medium-scale focused research), CSA (supporting)
	SST.2008.6.4 Analysis and dissemination of key national and regional transport research results	CSA (supporting)
	SST.2008.6.5 Stimulating International Cooperation with Latin American countries in developing sustainable freight transport systems	CSA (supporting)
	SST.2008.6.6 Integration of Marine and Maritime Sciences in Waterborne Transport in support to the European Research Area	CSA (supporting)
	SST.2008.6.7 Shaping the New Generation of Sustainable Surface Transport Mobility for Europe	CSA (supporting)

- **Evaluation procedure:**
  - The evaluation shall follow a single stage procedure
  - Proposals may be evaluated remotely

- The evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
- No hearings are foreseen.

- Indicative evaluation and contractual timetable:
- Intended period for on-site (BXL) evaluation / panel meetings: starting on 26 May 2008 (three weeks)

The forms of grants which will be offered are specified in Annex 3 to the Cooperation work programme
The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation and outlined below.

Funding scheme	Minimum conditions
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Network of excellence	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (co-ordinating)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (supporting)	At least 1 independent legal entity
Research for the benefit of specific groups, such as SMEs	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Specific International Cooperation Actions	Collaborative projects dedicated to SICA must involve at least two participants from two different Member States or Associated countries and at least two partners from two different ICPCs[40].

[40] With the exception of Brazil, China, India and Russia, for which the required two or more ICPC participants can be located in the same countries. However, in this case, at least two different participants must come from two different provinces, oblasts, republics or states within Brazil, China, India or Russia.

SUSTAINABLE SURFACE TRANSPORT-TREN

- **Call title: FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2008 – TREN–1**
- **Call identifier: FP7- SST – 2008 – TREN–1**
- **Date of publication[41]:** 30 November 2007
- **Deadline[42]:** 7 May 2008 at 17.00.00 (Brussels local time)
- **Total Indicative budget[43]: EUR 36 million**
- **Topics called:**

Activity/ Area	Topics called	Funding Schemes Collaborative Projects (CP), Coordination and Support actions (CSA)
7.2.1. GREENING OF SURFACE TRANSPORT		
7.2.1.1 The greening of products and operations	SST.2008.1.1.9 Green corridors	CSA
7.2.1.3 Socio-economic issues	SST.2008.1.3.1 Effects of climate change on inland waterway and transport networks	CSA
7. 2. 2. ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS		
7.2.2.1 Logistics and intermodal transport	SST.2008.2.1.5 Co-modal IT transport solutions	CP
	SST.2008.2.1.6 Rail transport in competitive and co-modal freight logistics chains	CP
7.2.2.7 Policy support	SST.2008.2.7.1 Policy-packages and best practices for transport	CSA
	SST.2008.2.7.2 Sustainability effects of new logistics and manufacturing systems transport impacts	CSA
	SST.2008.2.7.3 Innovation process in surface transport	CSA
	SST.2008.2.7.4 Development and implementation of data collection methodology for EU transport modelling	CSA
	SST.2008.2.7.5 Transport forecasting and globalisation	CSA

[41] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[42] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.
[43] Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority.

	SST.2008.2.7.6 Assessment of ITS tools for better decision making	CP, CSA (Supporting)
7.2.4. IMPROVING SAFETY AND SECURITY		
7.2.4.2 Policy support	SST.2008.4.2.1 Road safety Data Collection, Transfer and Analysis ("DaCoTA")	CP

- **Evaluation procedure:**
  - The evaluation shall follow a single stage procedure.
  - Proposals may not be evaluated remotely.
  - The evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
  - No hearings are foreseen.
  - Ranked lists of proposals retained for funding with the corresponding reserve lists will be produced at the activity level.

- Indicative evaluation and contractual timetable:
- Intended period for on-site (BXL) evaluation / panel meetings: 2nd half of June 2008.

The forms of grants which will be offered are specified in Annex 3 to the Cooperation work programme

The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation and outlined below.

Funding scheme	Minimum conditions
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Network of excellence	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (co-ordinating)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (supporting)	At least 1 independent legal entity
Research for the benefit of specific groups, such as SMEs	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.

7.3 HORIZONTAL ACTIVITIES for implementation of the TRANSPORT PROGRAMME

1. CONTEXT

The Transport (including Aeronautics) theme aims to support a number of topics that exploit the synergies between air transport and the surface transport modes and that can make a contribution to the common objectives of advancing competitiveness, anticipating and responding to the socio-economic and environmental challenges of the transport system. Potential proposers' attention is drawn on the need in this call to address intermodality and – in general – concerns, which are common or anyhow of interest to more than one transport mode.

Co-ordination
This section of "Theme 7 Transport (including Aeronautics)" is not formally structured in activities and areas according to the Specific Programme[44]. Nonetheless new topics proposed for the second call of the transport horizontal activities (FP7-TPT-2008-RTD-1) are clustered around major EU policy drivers for clarity purposes. These clusters are environmental impacts of transport and climate change; enhanced integration of transport modes; transport system efficiency and competitiveness, and raising awareness of transport research results in Europe.

Funding schemes

Collaborative projects in the call FP7-TPT-2008-RTD-1 are small or medium-scale focused research projects (CP-FP) with a maximum requested Community contribution of up to EUR 1.5 million.
Co-ordination and Support Actions (CSA) are the other funding instrument used in this call. Topics TPT.2008.11 and TPT.2008.12 are equally open to Research for the benefit of Civil Society Organisations (CSOs) funding instrument. Topic TPT.2008.15 targets Specific International Cooperation Actions (SICA). Topic TPT.2008.16 is a call for tender via European Commission's Framework Contract.

2. CONTENT OF CALL FOR 2008

"Greening"/"Climate change" topics

TPT.2008.1. Assessing disruptive effects of extreme weather events on operation and performance of EU transport system

Expected results
Cost assessment of damage and mitigation/ adaptation measures of extreme weather events. Activities undertaken under this topic should focus on (1) needs to adapt transport

[44] Decision 2006/971/CE of the Council adopted on 19/12/2006 adopting the "Specific Programme – Co-operation (2007-2013)"(OJ L54 of 22/12/2006, p.30)

infrastructures to increased frequency of extreme weather events and (2) identification of vulnerabilities to develop relevant responses. Activities will provide input to and support for EU policies on climate change in close co-ordination with relevant on-going activities of EU-funded environment research. Identification of upcoming research needs on transportation technologies, infrastructure planning, construction and maintenance and policymaking.

Scope
Study/ actions should allow for:

- Quantification of market and non-market damage, expected adaptation and mitigation costs for disruptive effects of extreme weather events on transport system performance per mode and as a whole at time horizon 2020;
- Effectiveness of adaptation, time reaction to disruptive events for emergency measures and exchange of good practices;
- Development of new concepts to improve key infrastructure response to natural and man-made hazards, and of innovative monitoring systems for the assessment of damages, the improvement of safety and the reduction of restoring costs;
- Development of new emergency forecasting and management including alert systems that are interoperable across modes;
- Description of technical and organisational opportunities to avoid negative effects.

Funding scheme: Collaborative Project small or medium-scale focused research, Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.2 The climate-friendly travel choice in the city, region and world of tomorrow

Expected results
Traveller should be enabled to understand and reduce the greenhouse gas emissions related to mobility and consumption choices. The development of an integrative platform shall overcome gaps and biased information provided by existing systems. Based on the platform, applications for a vast range of travellers, mobility providers, technology providers and transport planners should enabling them to understand the implications of climate policy and increasing prices for greenhouse gas emissions and to identify new opportunities. The result shall enable public and corporate decision makers to include carbon constraints perspective into planning and innovation processes. On-going research projects (such as Wisetrip and i-Travel) as well as demonstrators under the CIVITAS initiative and at the national level may provide useful complementarities to activities funded under in this topic.

Scope Study/ actions should allow for:

- Design of an open platform with interfaces to a wide range of integrated emission-related information systems.
- Large scale demonstration of integrated solutions for cities in Europe, regional and interregional mobility.
- Identification of scenarios for climate-friendly travel choices in the city, region and world of tomorrow.

Funding scheme: Collaborative Project small or medium-scale focused research
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.3. Lead markets for zero greenhouse gas emission transport systems

Expected results

Efficient technologies and operational measures should help to cut greenhouse gas emissions of the transport sector. A range of new concepts provide solutions to avoid or compensate emissions on a voluntary base, i.e. carbon offsetting, food miles, local sourcing, ecotourism.

These services create a testing field for innovative solutions for carbon constrained transport, long before a mass application. By analysing existing niche markets and assessing their technological potential and testing additional services it shall become possible to assess the chance for the market diffusion on a large scale of zero-emission transport services.

Scope

Study/ actions should allow for:

- Assessment of existing options for zero-emission services for passenger transport and logistics.
- Analysis the demand and market drivers for new services or products
- Demonstrating innovative mobility or logistics concepts

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.4. Impact assessment of transport research funding in Europe on the environment (air, water and soil)

Expected results

Assessment of transport research funding instruments with regard to their impact on the solution of environmental challenges in the transport sector. Co-ordination – as appropriate – with the complementary activities of the Transport Research Knowledge Centre[45] is expected. Co-ordination with the relevant activities of Air-TN and ERANET Transport2 is also expected.

Scope

Study/ actions should allow for:

- Better quantification at the regional level of transport research funding efficiency in Europe with respect to curbing the environmental impacts of transport in presence of growing transport demand;
- Classifying and ranking support measures and incentives per research areas;
- Classifying and ranking support measures and incentives per categories of beneficiaries of research funding.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

[45] http://www.transport-research.info

TPT.2008.5. Techno-economic analysis per mode and combined to meet EU GHG emission reduction targets at time horizon 2020 and beyond

Expected results
Better strategic outlook into the future European transport system in terms of socio-economic measures and costs and identification of technological pathways required to meet the EU GHG emissions targets indicated in COM(2007)2 and endorsed by EU Spring Council 2007.

Scope
Study/ actions should allow for:

- Identifying measures for mitigation and adaptation of transport GHG emissions
- Analysing relevant transport policy and transport research policy measures
- Using identified measures to build scenarios aimed at measuring effectiveness of identified mitigation and adaptation measures
- Assessing technical feasibility, economic affordability, social acceptability, behavioural aspects and overall likelihood of realisation of scenarios.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

"Integration" / "Efficiency" topics:

TPT.2008.6. Optimisation and integration of R&D efforts for transport of passengers by "co-modality"

Expected results
Integration of the different transport systems – aeronautics, road, rail and waterborne - by an optimal and reliable infrastructure interfaces and combined operations. Proposals will contribute to an increased efficiency of R&D efforts by co-operation and sharing of technology between surface modes and aeronautics.

Scope
Study / actions should allow for:

- The identification of needs and research for technical solutions addressing co-modality and door-to-door transport of passengers, integrating and optimising of combined operations and aircraft/vehicle/vessel and infrastructure interfaces.
- Setting up dialogue for cross-fertilisation of technical solutions between modes in selected areas such as passenger cabin comfort, sustainable materials, human factors, stimulation of radical technological changes.
- The research will involve all the relevant stakeholders from aeronautics, rail, road and waterborne sectors. Global dimension should be considered, with actions also taking into account the mobility needs between Europe and the rest of the world, as well as transfer of technology and best practices between the modes.

Funding scheme: Collaborative Project small or medium-scale focused research, Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.7. Market uptake of transport research results and support to Small and Medium Enterprises

Expected results
Better understanding of the context in which research funding for transport takes place in Europe for the different transport modes, including concentration patterns in terms of actors (role and weight of big companies vs. SMEs) and regions; barriers to entry for RTD-performing SMEs in the transport sectors and drivers/barriers (both technical and socio-economic) for market uptake of research results.

Scope
Study/ actions should allow for:

- Mapping the EU-27 landscape and trends in industrial research in the transport sector (identifying also links globally), with the aim of describing the role, weight and profile(s) of innovative SMEs in Europe.
- Assessing research-funding instruments available to SMEs and identifying innovative economic and financial instruments.
- The above analyses should be made in the light of a dynamic (current and prospective) analysis of barriers and drivers to market uptake of transport research results and opportunity costs for innovative SMEs in Europe[46].

Proposals could combine the scope of this topic with that of TPT.2008.8.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.8 Assessing, analysing and defining strategies for realising new Member and Associated States' potentials in transport research

Expected results
Fostering regional, including cross-border, integration between transport research actors (research institutions, companies, including SMEs, local and regional authorities). This topic is instrumental to the construction of the European Research Area (ERA).

Therefore, co-ordination – as appropriate – with the activities of ERA-NETs Transport 2 and Air-TN is expected. Co-ordination – as appropriate – with the complementary activities of the Transport Research Knowledge Centre is also expected.

Scope
Study/actions should allow for:

- Mapping of transport research capacities in new Member States and recent patterns of collaboration aimed at maximising the benefits of transport research at regional level.
- Enhancing market uptake of transport research results via transfer of technology and know how to new Member States.

[46] The analyses should build upon the experience of Aero-PMEs, set up within GIFAS (French Aerospace Industries Association) in June 1996, the AERO-PME Committee was established to enhance SME performances. It brings together only GIFAS member SMEs that are independent of major industrial groups. (https://www.gifas.asso.fr/en/pages.php?tab=gifas&sub=9)

Proposals could combine the scope of this topic with that of TPT.2008.7

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

"Competitiveness" topics:

TPT.2008.9. Prospective study on upcoming global competitors for European transport industry, targeting manufacturers and hi-tech services providers

Expected results
Better understanding of the global position of European transport industry and definition of strategic options for European transport research policy.

Research activities funded under this topic will liaise and co-ordinate – as appropriate – with relevant activities of the Technology Platforms (ACARE, ERRAC, ERTRAC, WATERBORNE and HFP).

Scope
Study/ actions should allow for:
- Assessing today's pre-competitive situation of European transport research per mode and kind of infrastructure;
- Assessing the risk of critical saturation of infrastructure lines and nodes;
- Defining the European best practices to manage, maintain and modify infrastructures with the aim of extending life cycles and preserve asset values;
- Analysing SWOTs and build likely scenarios[47]
- Develop identified scenarios at successive time horizon 2020 and beyond
- Derive and support roadmaps of strategic options for European transport research policy

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.10. Exploring future technology paradigms beyond 2050

Expected results
Establish a discussion forum on S&T and economic perspectives to generate and gather new ideas for the European transport system. Balance between expert input from the different modes in the transport sector and expertise in related fields such as energy, land-use planning, environmental protection should be sought. Co-ordination – as appropriate – with the relevant national research programmes and ERANETs as well as with on-going research projects is expected.

Scope

[47] Scenarios describe the actual and future state of a system, and can consist of all the parameters which can be used as variables in model fragments except from for other model fragments. Scenarios are used as input for the qualitative simulator. The qualitative simulator interprets the scenario (finds applying model fragments, incorporates their consequences, and derives values) to generate one or more start states. These start states are used to analyse in/direct relations and effects based on the definition of system boundaries.

Study/ actions should allow for:

- Designing the transport system of the second half of the 21st century encompassing radically innovative concepts and solutions for the development of future sub-systems;
- Contributing new mechanisms by which the different modes of the transport system could operate in the future beyond 2050;
- Enhancing the different transport modes' attractiveness as sectors for young people to get involved in professionally, for instance via EU-wide open contest(s);
- Communicating and exchanging results of the exploratory exercise with comparable exercises carried out by today's and upcoming competitors.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

"Raising awareness" topics

TPT.2008.11 Communication of Framework Programmes' results for transport research

Expected results

Establishing an open dialogue on the results achieved by transport research and suggestions for improvements. Enhancing dissemination of transport research results and public perception of EU transport research policy. Co-ordination – as appropriate – with the complementary activities of the Transport Research Knowledge Centre[48] is expected.

Scope:

Study/ actions should allow for:

- Raising awareness of EU transport research strategy;
- Getting a better insight of needs of transport services per mode of transport and groups of users with specific attention dedicated to (1) professional user groups, (2) vulnerable user groups, and (3) reduced-mobility user groups.
- Assessing and suggesting ways for improving the responsiveness of EU transport research to identified needs.

Funding scheme: Coordination and Support Action aiming at supporting research activities, and Research for the benefit of Civil Society Organisations CSO
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.12. Raising Citizen Awareness of Research Results for Climate-friendly Transport Systems

Expected results

Proposals should improve the awareness and appreciation among European citizens of the importance of European research and the development of climate-friendly and zero emission technologies in the transport area.

Scope

Study/ actions should allow for:

[48] http://www.transport-research.info

- The action should target various publics and stakeholders, from local decision makers, related industries and public authorities, to students, families and local transport-relevant groups and organisations

Funding scheme: Coordination and Support Action aiming at supporting research activities, and Research for the benefit of Civil Society Organisations CSO
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

"Support to policy" topics

TPT.2008.13. New mobility/ organisational schemes: interconnection between short and long-distance transport networks

Expected results
Development and analysis of new mobility schemes and related organisational patterns at the interface and interconnection between long distance transport networks and local/regional transport networks of all modes.

Scope
The action/study should allow for:
- Enhancing co-ordination between decision-making levels on issues related to the interconnection of transport networks of different scales and modes, addressing institutional, legal, design, planning, technical and deployment aspects.
- Identifying the state of the art of interconnectivity between transport networks by analysing current research results and "pre-deployment" activities in the field, in particular to present progress already made with regard to the interconnection of transport networks;
- Establishing good practices and explore key issues which have not yet been adequately addressed;
- Proposing future requirements and actions to be taken, and;
- Disseminating results to a broad range of actors in the transport field, specifically policy-makers and transport operators at levels.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.14. Fostering coordination between national and European RTD strategies and programmes on climate-friendly transport and mobility

Expected results
This action is instrumental to the construction of the European Research Area by improving cooperation among Member- and Associated States in the field of transport RTD strategy making, programme implementation and evaluation. Therefore, co-ordination – as appropriate – with the activities of the ERANET-Transport is expected. Research funding and innovation processes are a key instrument to reduce greenhouse gas emissions from transport. This initiative will focus on actions aimed at:
- Contributing to the development of a European strategy on climate-friendly transport research funding;

- improving cooperation in setting up or updating transport RTD strategies by mutual information, exchange of experts and other suitable methods;
- Improving synergies between Members States and EU RTD agendas;
- Facilitating and enhancing cooperation in the implementation of national and EU RTD strategies and programmes;
- Fostering cooperation in assessment and evaluation.

Scope
Study/action should allow for:
- monitoring research activities at the national, EU and global levels, including the development of a common set of indicators for the carbon impact of transport research;
- improving knowledge and understanding and facilitating the dissemination of information on RTD in Europe;
- facilitating the exchange of experience and information between research programme managers in the Member States, Associated States and the European Commission.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.15. Cross-fertilisation of Alternative Fuels Research across all transport modes

Expected results
Exchange and transfer/adaptation of latest alternative fuels technologies, procedures and best practices between transport modes e.g. from road transport to air transport.

Proposals should demonstrate contributing to the dissemination of knowledge and/or of the results research in the field of Alternative Fuels research in fields common to several transport modes, thus contributing to improved international co-ordination of research and trans-national technology development.

Scope
Among other activities, proposals will include the organisation of conferences, seminars or workshops at regional, national, European and international level and the setting-up of web-sites and web-based forums.

Proposals may include studies to analyse, compare, assess and link results from past and on-going research projects, comparative between fuel specifications and research in all transport modes (e.g. air transport, road transport including urban transport, maritime transport), identifying commonalities between transport modes and setting recommendations for further research/development in Alternative Fuels transport research.

The events could be focused on specific technical subjects, integrating all transport modes according to fields such as:
- fuel supply chain , including distribution,
- blending techniques,
- operational constraints: storing in existing/new reservoirs (infrastructure, vehicle), fuel lines,
- adaptation of existing engines/power plants

- development of new engines/power plants

Involvement of Technology Platforms such as ACARE and ERTRAC will be an asset.

International Cooperation is encouraged in this activity, in particular
- with Brazil, USA and India on bio-fuels research,
- with South Africa on synthetic fuels research.

Funding scheme: Coordination and Support Action aiming at supporting research activities, Coordination and Support actions aiming at coordinating research activities, Specific International Cooperation Action (SICA)

Open in call: FP7- TRANSPORT (TPT)-2008-RTD-1

TPT.2008.16. Studies supporting FP7 mid-term review and indicators' trends (time horizon 2020)

Expected results
Assess the evolution of result indicators used to measure the specific objectives identified for EU transport research based on the existing sets of indicators in use at the European Commission to assess performances. Detailed technical specifications will be available to potential proposals upon adoption of the present Work Programme 2008.

Scope
Study/actions should allow for:
- Defining and measuring the number of success stories (promising technologies, operational services, etc.);
- Measuring the reduction of emissions in demonstrators compared to identified expected impacts;
- Measuring the coverage of research subjects relevant to objectives and identification of gaps;
- Measuring the degree of cooperation and private investment in RTD among EU stakeholders, and;
- Measuring the proportion of SMEs participation and providing structuring participation into a set of categories based on role(s) played in research activities.

Funding scheme: call for tender of EUR 350 000 via Framework Contract.

3. IMPLEMENTATION OF CALLS TRANSPORT – Horizontal activities

- **Call title: FP7- TRANSPORT (TPT) – 2008- RTD-1**
- **Call identifier: FP7- TPT – 2008- RTD-1**
- **Date of publication[49]:** 30 November 2007
- **Deadline[50]:** 7 May 2008 at 17.00.00 (Brussels local time)
- **Total Indicative budget[51]: EUR 14 650 000**
  Additionally, EUR 350 000 are dedicated to the call for tender launched via topic TPT.2008.16.

- **Topics called:**

Activity/ Area	**Topics called**	**Funding Schemes Collaborative Projects (CP), Coordination and Support actions (CSA), Research for the benefit of Civil Society Organisations (CSO), Specific International Cooperation Actions (SICA)**
Cross-cutting activities for PROGRAMME IMPLEMENTATION		
	TPT.2008.1. Assessing disruptive effects of extreme weather events on operation and performance of EU transport system	CP (small or medium-scale focused research),CSA (supporting)
	TPT.2008.2 The climate-friendly travel choice in the city, region and world of tomorrow.	CP (small or medium-scale focused research)
	TPT.2008.3. Lead markets for zero greenhouse gas emission transport systems	CSA (supporting)
	TPT.2008.4. Impact assessment of transport research funding in Europe on the environment (air, water and soil).	CSA (supporting)
	TPT.2008.5. Techno-economic analysis per mode and combined to meet EU GHG emission reduction targets at time horizon 2020 and beyond.	CSA (supporting)
	TPT.2008.6. Optimisation and integration of R&D efforts for transport of passengers by "co-modality"	CP (small or medium-scale focused research),CSA (supporting)

[49] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[50] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.
[51] Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority.

	TPT.2008.7. Support to Small and Medium Enterprises	CSA (supporting)
	TPT 2008.8. Assessing, analysing and defining strategies for realising new Member and Associated States' potentials in transport research	CSA (supporting)
	TPT.2008.9. Prospective study on upcoming global competitors for European transport industry, targeting manufacturers and hi-tech service providers	CSA (supporting)
	TPT.2008.10. Exploring future technology paradigms beyond 2050	CSA (supporting)
	TPT.2008.11 Communication of Framework Programme's results for transport research	CSA (supporting), CSO
	TPT.2008.12 Raising Citizen Awareness of Research results for Climate-friendly Transport Systems	CSA (supporting), CSO
	TPT.2008.13 New mobility/organisational schemes: interconnection between short and long-distance transport networks	CP (small or medium-scale focused research),CSA (supporting)
	TPT.2008.14 Fostering coordination between national and European RTD strategies and programmes on climate-friendly transport and mobility	CSA (supporting)
	TPT.2008.15 Cross-fertilisation of Alternative Fuels Research across all transport modes	CSA (supporting), CSA (coordinating), SICA
Call for tender	TPT.2008.16 Studies supporting FP7 mid-term review and indicators' trends (time horizon 2020)	

- **Evaluation procedure:**
  - The evaluation shall follow a single stage procedure
  - Proposals may be evaluated remotely
  - The evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
  - No hearings are foreseen.

- **Indicative evaluation and contractual timetable:**
- **Intended period for on-site (BXL) evaluation / panel meetings**: starting on 26 May 2008 (one week)

The forms of grants which will be offered are specified in Annex 3 to the Cooperation work programme

The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation and outlined below.

Funding scheme **Minimum conditions**

Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Network of excellence	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (co-ordinating)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Co-ordination and support action (supporting)	At least 1 independent legal entity
Research for the benefit of specific groups, such as SMEs	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Specific International Cooperation Actions	Collaborative projects dedicated to SICA must involve at least two participants from two different Member States or Associated countries and at least two partners from two different ICPCs[52].

[52] With the exception of Brazil, China, India and Russia, for which the required two or more ICPC participants can be located in the same countries. However, in this case, at least two different participants must come from two different provinces, oblasts, republics or states within Brazil, China, India or Russia.

7.4 GALILEO

Support to the European global satellite navigation system (Galileo) and EGNOS

The activities related to Galileo will be implemented by the GNSS Supervisory Authority that has been established by Council Regulation[53]. All information relating to research activities is available on the website[54].

The European Global Navigation Satellite System, encompasses Galileo and EGNOS, and provides a worldwide positioning and timing infrastructure

New satellite navigation applications are being developed everyday, covering numerous sectors of the world economy. The expected global market in products and services will likely reach EUR 400 billions in 2020. The activities will give European industries the right opportunities to acquire the knowledge and expertise required in a strong international competing environment. Small and Medium Enterprises are key players for innovation in this sector.

The European infrastructure is being implemented in an incremental way. The overall GNSS performances will gradually improve, allowing the smooth development of receiver technologies and applications. The set of activities will follow the incremental build up of the infrastructure, i.e. EGNOS in 2007, four satellites for in orbit validation in 2009, and the full 30-satellites constellation in 2011. The activities will build on existing infrastructure elements, including ground-based test and verification facilities.

The Galileo concessionaire will manage and exploit the infrastructure according to the contract signed with the European GNSS Supervisory Authority. In parallel, the "Evolution programme" of the European Space Agency will maintain the technology at the state-of-the-art level. The activities will be coordinated with these actors.

The European GNSS, as a global navigation system, has a strong international dimension. All activities will fully take into consideration the cooperation frame established with partner countries in order to promote the use of the European Navigation system worldwide.

The following research areas will be implemented by the European GNSS Supervisory Authority, through calls with specific topics.

For doing so, the amount of EUR 40 million should be transferred to the European GNNS Supervisory Authority, for the year 2008. Details about the call content in 2008 will be given as soon as a decision on budgetary and financial aspects is taken.

[53] Council Regulation 1321/2004 as amended by Council Regulation 1942/2006.
[54] http://ec.europa.eu/dgs/energy_transport/galileo/

For initial Galileo activities of the 7FP, priority is given to actions sustaining the preparation of the market of Galileo at "Final Operational Capability", by fostering and pushing the development of new services and applications and by creating the necessary enablers.

ACTIVITY: 7.4.1 EXPLOITING THE FULL POTENTIAL

Promoting growth in the use of the services ranging from open to commercial access, safety-of-life to “search and rescue” and public regulated service; freight transport management applications including freight and hazardous materials transportation; exploiting by-product services; demonstrating the benefits and efficiencies of satellite navigation.

AREA: 7.4.1.1 Mass market applications

The objective of this area is first to foster the use of positioning and navigation functions in the foreseen GNSS mass-market applications, e.g. Location Base Service (LBS), fleet management, road application, etc. and second to place EU industries at the forefront in order to capture part of the growing worldwide satellite navigation market (EUR 60 billions in 2005).

R&D support will span the whole range of “free of charge” applications, mainly based on the signals provided by the open access services of Egnos and Galileo through a close coordination with Areas and Topics in sub-themes Aeronautics and Surface Transport to avoid duplications. The use of some Safety of Life service features will also be considered (e.g. authentication, simplified use of integrity information).

Furthermore, as the new mobile telephony concepts (“4G”) are developing telecommunication techniques based on the knowledge of the position of the different users, synergies with Galileo will be exploited.

AREA: 7.4.1.2 Professional applications

The objective is to promote the use of the European GNSS navigation functions for all applications requiring high performances and quality of service guarantees.

The activities will encompass the whole transport chain e.g. for goods, freight, passengers, animals, hazardous materials, valuables and transport modes for which guaranteed positioning and navigation services are required, through a close coordination with Areas and Topics in sub-themes Aeronautics and Surface Transport to avoid duplications. Other domains will be explored e.g. agriculture, environment, justice and home affairs, etc.

AREA: 7.4.1.3 Scientific Applications

The objective is to promote the use of Galileo navigation functions in the scientific community.

The activities will address the use of all the European GNSS signals for specific purposes in the scientific domains: geodesy, meteorology, oceanography, ionosphere studies, fundamental physics, etc. All opportunities offered by the European satellite navigation signals to fundamental research applications will be explored.

AREA: 7.4.1.4 Safety-of-life applications

The objective is to put in place all necessary elements to allow the use of satellite navigation for safety-of-life applications not only in the aviation sector but also for railway, maritime and road modes.

The activities will address the technical requirements and demonstrate the feasibility of robust, reliable and safe applications based on the integrity message.

AREA: 7.4.1.5 Timing and Synchronisation applications

The objective is to promote the use of the European GNSS for Timing and Synchronisation applications worldwide.

The activities will address several domains of application ranging from scientific timing to synchronisation of telecommunication network.

AREA: 7.4.1.6 Governmental applications

The objective is to derive from the PRS policy of access a set of forerunner applications for governmental organisations.

The activities will address each potential application, verify their economies, design the functions and demonstrate the benefits through implementation of full scale experiments.

AREA: 7.4.1.7 New and innovative applications and services

The objective is to promote innovation in the domain of the new applications for the European GNSS.

The activities will focus on supporting innovative ideas for new applications. The development of new services based on these applications will also be covered. A specific emphasis will be given to support research & development activities in small and medium enterprises.

AREA: 7.4.1.8 Search and Rescue Applications

The objective is to integrate Galileo search and rescue functions into the international Cospas-Sarsat effort.

The activities will ensure full use of the incremental improvement of the search and rescue functions through satellite navigation systems. Demonstration of outstanding service performances to users will contribute to gradual development of rescue operations based on Galileo functions.

AREA: 7.4.1.9. Regulated applications

The objective is to support the use of EGNOS/Galileo as an option for new regulation and legislation.

The activities will encompass all activities linked to the development of the "GNSS Regulated Applications", for which the use of satellite navigation is either promoted either mandated through specific legislation (e.g. regulation on animal tracking, E-112, control of fishing vessels, road tolling, etc.).

AREA: 7.4.1.10 Liability Critical applications

The objective is to put in place all necessary elements to allow the use of satellite navigation for Liability Critical applications, i.e. those where the computed position is used as the basis for legal decisions or economical transactions.

The activities will address the technical requirements and demonstrate the feasibility of robust, reliable and liable applications based on the integrity message.

ACTIVITY: 7.4.2 PROVIDING THE TOOLS AND CREATING THE APPROPRIATE ENVIRONMENT

Ensuring safe and secure use of services mainly through certification in key application domains; preparing and confirming the adequacy of services to new policies and legislation, including their implementation; addressing public regulated services according to the approved policy of access; developing essential digital topology, cartography, geodesy data and systems for use in navigation applications; addressing safety and security needs and requirements.

AREA: 7.4.2.1 Tools

The objective is to ensure that all elements directly related to positioning and navigation are available for application developers.

Activities will list the required "side-technologies" which decuple the usefulness of satellite navigation functions. Specific focus will be placed on e.g. digital maps design and build up, design of dynamic information database for "on-the-move" applications, advanced man-

machine interface for guidance, topology and geodesy adaptation and improvement to high sub-meter accuracy.

AREA: 7.4.2.2 Certification and Standardization

The objective is to ensure that the legal framework surrounding satellite navigation applications permits safe use of timing, positioning and navigation functions within defined boundaries.

The activities will pursue standardisation efforts within the appropriate bodies, at EU and global level for all modes of transport and in the telecommunication area. In particular, finalization of Safety of Life standards in the Aviation, Maritime and Rail communities will address system aspects, service levels as well as user receivers. Other standards developments will be launched consistently with on-going EU policies in the several domains, such as road transportation (e.g. road tolling, intelligent transport systems) or personal mobility (e.g. E112, Location Based Services).

The activities will also contribute to the gradual overall system certification, starting first with Egnos and preparing the required elements for Galileo certification. They will similarly ensure certification at sectorial level in all areas of satellite navigation use.

ACTIVITY: 7.4.3 ADAPTING RECEIVERS TO REQUIREMENTS AND UPGRADING CORE TECHNOLOGIES

Improving receiver performances, integrating low-power consumption and miniaturisation technologies, completing in-door navigation coverage, coupling with radio frequency identification devices, exploiting software receiver technology, combining with other functions as telecommunication, supporting key navigation ground-based infrastructure technology to ensure robustness and flexibility.

AREA: 7.4.3.1 Receivers

The objective is to integrate into receivers all new technologies that can contribute to the improvement of performances.

The activities will address first the improvement of hardware, with technologies allowing e.g. interference mitigation, decrease of power consumption, increase of processing power capabilities, miniaturisation, dynamic antenna patterns, etc. and second the use of new software techniques e.g. positioning algorithms, signal processing, “software-defined receivers”, multi-GNSS constellation computation, etc.

AREA: 7.4.3.2 Customised user terminal

The objective is to take benefit of other means and functions available to determine locations. Hybridisation with other positioning technologies (inertial sensors, magnetic sensors, network-enabled positioning, etc.) will be addressed in order to facilitate navigation in difficult environments (e.g. indoor, in urban canyon…) and ensure seamless positioning solutions. Synergies with telecommunication services for both positioning services and communication of the position related information will also be addressed.

AREA: 7.4.3.3 Local elements

The objective is to bring local element technologies to the maturity level required for provision of services at "final operational capability".

Activities will encompass the development of pseudolites for the five European GNSS services, improvement of "real time kinematics" techniques and differential GNSS, provision of local integrity. A support to the evolution of existing local elements will be provided.

ACTIVITY: 7.4.4 SUPPORTING INFRASTRUCTURE EVOLUTION

Preparing second generation system, adapting to evolving user demands and market forecasts, taking advantage of infrastructure internationalisation to address global markets and developing world-wide standards.

AREA: 7.4.4.1 User need and mission evolution

The objective is to collect the user feedback and translate new needs and requirements into new mission and service concepts.

Activities will first address new user needs and new functional parameters to be translated into mission concepts. The setting up of User Groups and User Fora will be promoted in order to organise proper user feedback and to plan corresponding system evolutions. These will take into account other evolving infrastructures and services e.g. earth observation and telecommunications.

AREA: 7.4.4.2 Space and ground segment evolution

In such complex space ventures, ten years are required from "design" to "full implementation". The objective is to prepare the elements ensuring that the second generation system will meet requirements.

Activities will address, in coordination with the evolution programme of the European Space Agency, the adaptation of existing space and ground assets to new mission requirements. They will equally address the development of new space and ground facilities.

AREA: 7.4.4.3 International co-operation and awareness

The objective is to ensure that the European GNSS services, applications and standards are known and can be used throughout the world.

The activities will contribute to the cooperation schemes which have been established with partner countries worldwide. Activities will provide guidance and support to non-EU countries to set up regional and local facilities to adapt services to local needs and ensure that no unnecessary restriction to the use of the European GNSS is applied.