WORK PROGRAMME 2010

Cooperation

THEME 7

TRANSPORT (INCLUDING AERONAUTICS)

(European Commission C(2009) 5893 of 29 July 2009)

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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 market.

I.0. CONTEXT

I.0.1. 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 European 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, and Hydrogen and Fuel cells) have elaborated long-term visions and strategic research agendas which constitute useful inputs that complement those from the Transport Advisory Group to the approach and activities of the Transport theme and the needs of policy makers and expectations of society.

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[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'.

*Following the adoption by the Commission of the **'European Economic Recovery Plan'**[4] on 26 November 2008, a **'European Green Cars Initiative'** is being launched involving research on a broad range of technologies and smart energy infrastructures essential to achieve a breakthrough in the use of renewable and non-polluting energy sources, safety and traffic fluidity. The initiative would be funded by the Community, the European Investment Bank (EIB), industry and Member States.*

I.0.2. 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.

For the 2010 work programme, the following key policy drivers have been considered for defining the work programme strategy:

- **Long term perspective of competitiveness and sustainability**, by focusing on breakthrough technologies aimed at achieving step changes in the Transport system.
- **Climate change and energy transition,** by prioritising activities to reduce or eliminate CO2 emission, enhance energy efficiency, reduce dependency on fossil fuels, and adapt the Transport system to climate change.
- **Broad societal changes in Europe and beyond**, including demographic changes and social behaviour, by focusing research on enhanced safety and security, also involving end users in 'eco-safe-behaviours', and ensuring accessibility and efficient operation for all.
- **Globalisation, external dimensions and international cooperation**, by **continuing** research targeted to sustaining the sector's competitiveness, tackling global challenges, and cooperating with other countries in line with the specificities of the Transport theme.
- **Further development and implementation of EU transport policy**, as outlined in the White Paper and its mid-term review, by taking into account all subsequent related policy initiatives, such as maritime policy, inland waterways, rail freight development, intelligent transport systems, logistics and urban transport action plans, co-modality considerations, etc.
- **Enhancing and strengthening the ERA**, by supporting ERA-Net schemes, selecting topics with potential structuring effects and EU added value, and enhancing training and mobility of researchers in line with the EU's Growth and Jobs agenda.
- **Joint Programming**, by helping MS/AS engagement in defining and implementing common research agendas, as a possible outcome of the pro-active approach in the Sustainable Development Strategy and the Marine and Maritime Research Strategy, as well as a synergetic action regarding the Clean Sky and FCH Joint Technology Initiatives.

[4] COM(2008) 800 final.

- **Coordination** between themes that fund transport-related research, by a coherent programming, and by launching coordinated and joint calls going beyond mere complementarity of research activities.
- **Galileo**, by emphasising the need of making the maximum use of it in the light of the new Community ownership of this programme.
- ***The European Economic Recovery Plan****, by implementing the Transport technology research part of the* ***'European Green Cars Initiative'****. This initiative will involves research on a broad range of technologies for road transport essential to achieve a breakthrough in the use of renewable and non-polluting energy sources, as well as in safety and mobility.*

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

7.1. AERONAUTICS and AIR TRANSPORT (AAT)
7.2. SUSTAINABLE SURFACE TRANSPORT (SST) including the 'European Green Cars Initiative'
7.3. HORIZONTAL ACTIVITIES for implementation of the TRANSPORT PROGRAMME (TPT)
7.4. 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 'Aeronautics and Air Transport' and 'Sustainable Surface Transport' in this work programme, so as to have a common categorisation of topics. Due to the specificities of the sectors and the transport modes included, the definitions of Levels for these two sub-themes are different. They are provided in detail in the 'Context' sections of the sub-themes (see I.1.1 and I.2.2.).

I.0.3. Implementation of calls for 2010

The Work Programme has the following calls that will be open during 2010:

- FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1
- FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA
- FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA
- FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1 (including the 'European Green Cars Initiative')
- FP7-TRANSPORT-2010-TREN-1
- 'Sustainable automotive electrochemical storage' (FP7-2010-GC-ELECTROCHEMICAL-STORAGE)
- 'The ocean of tomorrow' (FP7-OCEAN-2010)
- FP7-TRANSPORT (TPT)-2010-RTD-1

In addition to the above calls for proposals, a call for tenders will be published by DG TREN (see part IV. Other actions).

I.0.4. Main differences with Work Programme 2008

The 2010 work programme has a different approach from the two previous ones (2007 and 2008)[5] in the sense that previous calls embraced the entire scope of the Transport part of the Specific Programme. This has led to a wide number of topics with a good balance between upstream research and technology development in Aeronautics and Air Transport, as well as between bottom-up and top-down research in Sustainable Surface Transport. By switching to full annuality of budget consumption, 2010 calls of the Transport theme will be substantially smaller than all the previous calls, including those for horizontal activities. This together with the involvement of Transport theme in the **'European Green Cars Initiative'** lead to the need of being more focused on particular activities, areas and topics. The balance between bottom-up and top-down research, between upstream research and research on technology integration, as well as between various research areas and funding schemes, will be attained in a multi-annual perspective by integrating for the successive work programmes in the period 2010-2013. The results of the 2007 and 2008 calls have also been considered in selecting topics for Work Programme 2010.

Aeronautics and Air Transport chapter

In addition to the above considerations, the AAT strategy takes into account the deterioration of success rate of upstream Level 1 proposals in previous calls for proposals, in spite of the high quality of proposals received. It also relies on the ACARE Strategic Research Agenda and its Addendum of 2008, which take into consideration the major recent global developments affecting the Air Transport sector. The work programme for 2010 is thus based on the following principles:

- Complementarity with the work programme for 2011, each one exhibiting an annual focus: Work Programme 2010 addresses Level 1 topics while Work Programme 2011 will address mainly Level 2 topics.
- Focusing on the activities of greater strategic importance: 'The Greening of Air Transport', aiming at reducing the environmental impact of aviation regarding emissions and noise; 'Improving Cost efficiency', for industrial competitiveness as well as energy efficiency; and 'Pioneering the Air Transport of the Future', to foster the development of breakthrough technologies and concepts that would enable the needed step changes in aviation.
- Ensuring complementarity and synergy with the 'Clean Sky' and 'Fuel Cell and Hydrogen (FCH)' Joint Technology Initiatives, particularly in the selection of topics for 'The Greening of Air Transportation'. The work on hydrogen and fuel cells has been eliminated from the 2010 calls as the relevant work will be covered by the FCH JTI.

For international cooperation the 2010 work programme proposes topics of interest for collaboration with specific ICPC countries to capitalise on the results of on-going stimulation initiatives and collaboration agreements. In particular, coordinated calls with Russia and with China are included.

[5] There were no calls in 2009.

Sustainable Surface Transport chapter including the 'European Green Cars Initiative'

The 2010 work programme is designed to have a more specific annual focus and is thought to be complementary to the one for 2011. It takes also into account the Transport research part of the **'European Green Cars Initiative'**. Three major strategic lines are proposed:

- Major reduction in CO2 emissions, with the emphasis on step-change research.
- Strengthening European competitiveness through exploitation of the potential of eco-innovation, both to protect the environment and to offer competitive advantage for those which look at the possibility to create new innovation-driven markets.
- Deepening ERA in Surface Transport.

A fourth line of horizontal nature aiming at addressing untapped research potential in Sustainable Surface Transport enables to take on board some of the as yet unanswered subjects, as wells as needs not falling under the above three major lines.

A majority of research funded from the two previous calls is of incremental nature. To address this imbalance, the 2010 call places greater emphasis on breakthrough research aiming at radically new approaches able to respond to societal need in a time horizon of 2015-2020, at a time when the Transport system would no longer be completely reliant on fossil fuels.

Particular emphasis is put on the areas of electric road and urban transportation systems, which are part of the **'European Green Cars Initiative'**, as well as in the development of rail freight transportation, which is not making sufficient progress in Europe. Eco-innovation is also considered as it represents an opportunity for ship-building, repair and operation to maintain its technological advance vis-à-vis Far East countries. In addition to this special focus, a few important topics are reintroduced, especially related to reduction of CO_2 emission and socio-economic issues of Transport, which failed in previous calls due to the high participation and the lack of funding.

Coordination efforts have resulted in the participation of this Transport sub-theme in two joint calls ('Sustainable automotive electrochemical storage' and 'The ocean of tomorrow'), which contents are detailed in chapter 7.2.

In turn, the 2011 call would be given a special focus on optimisation at the overall transport system performance and characteristics, in particular better traffic flows, logistics and co-modality for both passengers and goods.

Horizontal Activities chapter

Activities of policy and socio-economic character for implementing the Transport programme, including the integration of transport modes and cross-cutting research, will be carried out. These activities will:

- Address socio-economic research and technology foresight aimed at identifying innovation-driven markets and mapping common research and demonstration needs, as well as emerging policy needs and international research and innovation patterns.

- Strengthen links and integration, and identify mutually interesting, cross-cutting research areas across Transport modes and research communities. Such actions should be based on strategy needs, enhancing cross-fertilization of technologies, approaches and solutions, thus maximising the impact of research funding.
- Analyse the state of ERA development within the Transport domain, establishing a base for evidence, and identify new opportunities to overcome fragmentation thus supporting the achievement of the ERA objectives.
- Encourage participation of all Member and Associate States up to the maximum of their capabilities, with special attention to weaker players.
- Reinforce dissemination and awareness of research results for ensuring the take up and use of them.

The topics on horizontal activities included in Work Programme 2008 that were not covered by selected proposals, and that are in line with the strategy here defined, are retained in this work programme, but they have been updated or even merged to better adapt to this strategy (topics TPT.2008.3 and TPT.2008.9 have been merged and updated to become topic TPT.2010-2; topic TPT.2008.6 has been updated as topics TPT.2010-4 and TPT.2010-5; topic TPT.2008.7 has been updated as topic TPT.2010-9; topic TPT.2008.10 has been updated as topic TPT.2010-3; and topic TPT.2008.15 has been updated as topic TPT.2010-6).

Galileo

For budgetary reasons, there will be no calls for Galileo in Transport Work Programme 2010. Research activity will be carried out, on the need basis, in parallel to the development phase that is demonstrating the technical feasibility and the European capacity of implementing an independent satellite navigation infrastructure, the deployment of the full Galileo satellite constellation and the associated ground segment.

I.0.5. Funding schemes

The same approach, structure and funding schemes are maintained in this work programme with regard to Work Programme 2008, including Research for the Benefit of Specific Groups – Civil Society Organisations (BSG-CSO).

Collaborative projects for specific cooperation actions (SICA) dedicated to international cooperation partner countries are also considered for topics in Chapter 7.3 (see the list of Specific International Cooperation Actions in section I.0.6).

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 Specific Groups – Civil Society Organisations (BSG-CSO) 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 5 million in the FP7-AERONAUTICS and AIR TRANSPORT-(AAT)-2010-RTD-1 call.
- Sustainable surface transport small or medium-scale focused research projects with a maximum requested Community contribution of up to EUR 3 million in the FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1.
- Sustainable surface transport large-scale integrating projects with a minimum requested Community contribution of EUR 3 million in the FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1.
- Collaborative projects (CP-FP) in the call Horizontal activities for implementation of the transport programme (FP7-TRANSPORT (TPT)-2010-RTD-1) are small or medium-scale focused research projects with a maximum requested Community contribution of up to EUR 1.5 million.
- Aeronautics and air transport small or medium-scale focused research projects (CP-FP) with a maximum requested Community contribution of up to EUR 1.5 million in the FP7-AERONAUTICS and AIR TRANSPORT-(AAT)-2010-RTD-RUSSIA call.
- Aeronautics and air transport small or medium-scale focused research projects (CP-FP) with a maximum requested Community contribution of up to EUR 1.5 million in the FP7-AERONAUTICS and AIR TRANSPORT-(AAT)-2010-RTD-CHINA call.

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 activities under SESAR will not be elaborated in this work programme, but will be available on the respective websites[6]. In accordance with the respective Council Regulations, SESAR activities will be implemented by the SESAR Joint Undertaking[7], and Galileo activities by either the European Commission Directorate General TREN or the GNSS Supervisory Authority (GSA)[8].

On the basis of Article 171 of the Treaty the Clean Sky Joint Technology Initiative[9] and the Hydrogen and Fuel Cell Technology Joint Technology Initiative[10] will both be relevant to and will impact on transport research and technological developments. These activities will be

[6] SESAR: http://www.sesarju.eu/public/subsite_homepage/homepage.html
GALILEO: http://ec.europa.eu/dgs/energy_transport/galileo/
[7] Council Regulation 219/2007 of 27 February 2007 as amended by Council Regulation 1361/2008 of 16.12.2008.
[8] Council Regulation 1321/2004 as amended by Council Regulation 1942/2006.
[9] Commission Decision COM(2007)315 of 13 June 2007 and adopted by the Council on 20 December 2007.
[10] Commission Decision COM(2007)571 of 9 October 2007 and adopted by the Council on 30 May 2008.

implemented by separate mechanisms and the details of topics will not be elaborated in this work programme.

I.0.6. International cooperation

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

- 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 four mechanisms:

1. All activities will be open to researchers and research institutions from third countries[11]. 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, collaborative projects for specific cooperation actions (SICA) dedicated to international cooperation partner countries will be implemented following identification through on-going dialogue with third countries/regions on the basis of mutual interest and mutual benefit.
3. Coordination and Support Actions will be included to explore and stimulate further international cooperation.
4. Coordinated calls will be implemented with third countries with whom an agreement for such coordination has been reached on the basis of mutual interest and mutual benefit.

List of topics for collaborative projects for specific cooperation actions (SICA) dedicated to international cooperation partner countries

Topics	**Targeted Country/Region**
TPT.2010-6. Alternative fuels in transport	Brazil / India / South Africa

[11] Both International Co-operation Partner Countries (ICPC) and non-ICPC countries can participate. Organisations from EU Member States, from Associated States to FP7 and from ICPC can be funded in all cases, while from other countries only if indispensable (Cf. FP7 Rules for Participation). The list of eligible ICPC countries is provided in Annex 1.

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[12].

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.

Coordinated call Aeronautics and Air Transport – Russia

The European Commission and the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation) jointly agreed to co-fund up to one project per topic in the fields of advanced aerodynamics (AAT.2010.1.1-6), advanced engine noise control (AAT.2010.1.1-7), enhanced maintenance and operational safety (AAT.2010.3.4-6), novel composite structures and associated manufacturing methods based on geodesic concepts (AAT.2010.4.1-6), and advanced simulation in propulsion (AAT.4.1-7).

A minimum number of two participants established in the Russian Federation is requested, which is an eligibility criterion, in order to ensure a balance between EU and Russian participants. The European Commission and the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation) will each reserve a dedicated indicative budget of EUR 4 million to fund the projects. The European partners will be funded by the European Community. The Russian partners will be funded by the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation). The maximum Community funding to a project will be limited to EUR 1.5 million, which is also an eligibility criterion.

Coordinated call Aeronautics and Air Transport – China

The European Commission and the Ministry of Industry and Information Technologies (MIIT) of the People's Republic of China jointly agreed to co-fund up to one project per topic in the fields of advanced aircraft noise prediction and control methods (AAT.2010.1.1-8), casting of large titanium aerostructures components (AAT.2010.4.1-8), and flow control for drag reduction and wing aeroelastic optimisation (AAT.2010.4.2-7).

A minimum number of two participants established in the People's Republic of China is requested, which is an eligibility criterion, in order to ensure a balance between EU and Chinese participants. The European Commission and the Ministry of Industry and Information Technologies (MIIT) of the People's Republic of China will each reserve a dedicated indicative budget of EUR 3 million to fund the projects. The European partners will be funded by the European Community. The Chinese partners will be funded by the MIIT. The maximum Community funding to a project will be limited to EUR 1.5 million, which is an eligibility criterion.

I.0.7. Small and Medium Size Enterprises (SMEs) relevant research

[12] 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.

Participation of SMEs is encouraged throughout the 2010 work programme 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 in the Transport research area and specific support to the involvement of weaker players including SMEs. Where appropriate, the topics open for proposals will indicate whether there is particular relevance or encouragement for the participation of SMEs.

I.0.8. ERA related activities and Technology Platforms

The theme will support ERA-NET[13] 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 SST.2010.6-3 ERA-NET MARTEC II, with Community contribution of up to EUR 2.0 million is subject to a joint call (FP7-ERANET-2010-RTD) that will be launched separately.

Coordination will also be stimulated through the Technology Platforms (TPs). This work programme includes topics of potential interest for TPs. In particular, topics AAT.2010.7-13 and AAT.2010.7-15 could be of interest to ACARE. Funding will be available to support new, time-bound activities, with clear objectives and deliverables, covering the updating of the Strategic Research Agenda (topic AAT.2010.7-15) and the analysis of progress in its implementation (topic AAT.2010.7-13). Also, for the implementation of the Public-Private Partnership in the 'European Green Cars Initiative', topic SST.2010.7-6 is of relevance for ERTRAC, EPoSS and Smart Grid. Further, for some surface transport and horizontal activities included in this work programme, such as SST.2010.6-3, TPT.2010-1, TPT.2010-2, TPT.2010-3, TPT.2010-6 and TPT.2010-8, TPs could play a role.

I.0.9. 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. Therefore, all projects are encouraged to have a balanced participation of women and men in their research activities and to raise awareness on combating gender prejudices and stereotypes. When human beings are involved as users, gender differences may exist. These will be addressed as an integral part of the research to ensure the highest level of scientific quality. In addition, specific actions to promote gender equality in research can be

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

financed as part of the proposal, as specified in Appendix 8 of the Negotiation Guidance Notes[14].

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.

I.0.10. 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.

I.0.11. 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.

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.

Further to the RSFF scheme, the EIB has other instruments including the 'European Clean Transport Facility', to provide cost-based loans to the transport sector (producers and suppliers) to finance innovation, with particular attention to the **'European Green Cars Initiative'**, where technologies improving safety and the environmental performance of vehicles and systems are targeted.

[14] ftp://ftp.cordis.europa.eu/pub/fp7/docs/negotiation_en.pdf

7.1. AERONAUTICS AND AIR TRANSPORT

I.1. CONTEXT

The scope of research includes the technologies, services and operations of all the components 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[15]:

- 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

I.1.1. Approach

The work programme for Aeronautics and Air transport in FP7 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 further below, are applicable. Within this structure, Topics are grouped in Areas.

Against this background, the work programme for the 2010 call (WP2010) is based on the following principles:

- WP2010 **will address Level 1 topics while WP2011 will address mainly Level 2 topics.**
- Focusing on the activity lines of the Specific Programme text of **greater strategic** importance for the sector. These activity lines will contribute also to the fulfilment of the objectives of the 'European Economic Recovery Plan':
  - **'The Greening of Air Transport'**, aiming at reducing the environmental impact of aviation regarding emissions and noise.
  - **'Improving Cost efficiency'**, for industrial competitiveness as well as energy efficiency.
  - **'Pioneering the Air Transport of the Future'**, to foster the development of breakthrough technologies and concepts that will enable the needed step changes in aviation.
- Conversely, the **following** activity lines **are significantly reduced (or eliminated)** in 2010 to only a few topics or areas where research is particularly needed (topics and areas not included in the WP2010 may be taken again in subsequent Calls):

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

  - 'Increasing Time Efficiency', except for airports related work, as most of the relevant research work (air traffic management) is covered in the SESAR Joint Undertaking.
  - 'Ensuring Customer Satisfaction and Safety', while a few safety-related topics will be retained.
  - 'Protection of Aircraft and Passengers', as there is substantial relevant research carried out under the Security theme of FP7.
- **Ensuring complementarity and synergy with the 'Clean Sky' and 'Fuel Cell and Hydrogen' (FCH) Joint Technology Initiatives**, particularly in the selection of topics for 'The Greening of Air Transport'. Note that, in particular, work **on hydrogen and fuel cells has been eliminated from the 2010 calls** as the relevant work will be covered by the FCH JTI
- The ATM research is managed and coordinated by the SESAR Joint Undertaking, created by Council Regulation 219/2007. Its scope is described below under the section I.1.3. The SESAR Programme is covering ATM airport surface and turnaround process in the "Gate-to Gate" perspective. Where proposals for call topics in 2010 address issues related to ATM, the complementarity and coordination with the SESAR Programme and the potential added value needs to be demonstrated.

The inclusion of topics for **Networks of Excellence may be considered for 2011**, but not in 2010, depending also on the conclusions and recommendations from the on-going reflection in the Commission regarding this funding scheme.

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 research 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 Projects' of small or medium-scale (CP-FP) with a maximum requested Community contribution of up to EUR 5 million, which is an additional eligibility criterion.

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.

No topic is open in 2010 calls.

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.

No topic is included in this Work Programme for 2010 calls.

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. '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 'Coordination and Support Actions - Coordinating Action' (CSA-CA).

Topics open to 'CSA-CA' 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 the subject of 'Coordination and Support Actions - Supporting Action' (CSA-SA).

I.1.2. 'Clean Sky' Joint Technology Initiative

The 'Clean Sky' Joint Technology Initiative[16] (www.cleansky.eu) 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.

[16] The 'Clean Sky' Joint Undertaking was established under Council Regulation (EC) N° 71/2008 of 20 December 2007*, **OJ L 30, 04.02.2008*.

'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.

I.1.3. SESAR – Single European Sky Air Traffic Management (ATM) Research

The background of the SESAR Programme

The SESAR (Single European Sky ATM Research) Programme has been launched as an integrated part of the Single European Sky initiative (SES).This programme represents the technological pillar of the SES and aims at developing a modernised and high-performance air traffic management infrastructure which will enable the safe, cost-efficient and environmentally friendly development of air transport.

In order to rationalise and organise ATM research so that it leads to actual operational and industrial implementation, all Air Traffic Management (ATM) research in the Seventh Framework Programme will be undertaken and implemented by the SESAR Joint Undertaking (SJU), established by a Council Regulation[17], under Article 171 of the Treaty. This Joint Undertaking coordinates the SESAR programme with other aeronautical research activities in order to maintain a consistent system wide approach for the entire air transport system and manages all ATM research in order to avoid possible duplications between different programmes.

The SESAR Programme is composed of three phases

- Definition phase (2005-2008), which delivered an ATM Master Plan for 2020 and beyond, defining the content of the next generation of ATM systems, and identifying the necessary elements for its realisation. The Definition Phase resulted in 6 Deliverables[18] of which the main one is the ATM Master plan, which constitutes the road map for the development and deployment of the future European ATM system. The ATM Master plan was endorsed by the Council of the European Union in March 2009.
- Development phase (2008-2013), which will develop the necessary elements on the basis of the Definition phase findings.
- Deployment phase (2013-2020), through which there will be large scale production and implementation of the new air traffic management infrastructure, composed of fully

[17] Council Regulation (EC) N° 219/2007, amended by Council Regulation 1361/2008 of 16.12.2008

[18] D1: Air Transport Framework – the current situation; D2: the ATM Performance Targets; D3: the ATM Target Concept; D4: the ATM Deployment Sequence; D5: the SESAR Master plan; once endorsed by the EU Council, it will become the ATM Master plan; D6: the Work Programme for 2008-2013.

harmonised and interoperable components which guarantee high performance air transport activities in Europe.

The structure of the SESAR Programme

The whole ATM Network R&D Programme activities will develop and deliver the necessary operational and technical materials (specifications, procedures, mock-ups, prototypes, validation reports, etc.) for the progressive industrialisation, deployment and operation of a new ATM system.

The SESAR work programme of the SESAR Development Phase is divided into following Work Packages (WPs) and thematic areas:

1) **Operational ATM research will be addressed under WPs:**
   a) WP 4: En-route Operations
   b) WP 5: Terminal Management Areas (TMA) Operations
   c) WP 6: Airport Operations
   d) WP 7: Networking Operations

2) **System research considerations are addressed under WPs:**
   e) WP 9: Aircraft systems
   f) WP 10: En-Route & Approach ATC Systems
   g) WP 11: Flight Operations Centre System
   h) WP 12: Airport Systems
   i) WP 13: Network Information Management System
   j) WP 15: Non Avionics Communication-Navigation-Surveillance (CNS) Systems

3) **System Wide Information Management (SWIM) considerations are addressed under WPs:**
   k) WP 8: Information Management
   l) WP 14: SWIM Technical Architecture

4) **Transversal activities,** such as validation infrastructure, development of safety, security, environment and human performance cases, maintenance and updates of the European ATM Master Plan, of the Target Concept and its Architecture, are dealt by a number of additional WPs, which are**:**
   m) WP B: (High-level) Target concept and architecture maintenance
   n) WP C: Master Plan maintenance
   o) WP 3: Validation infrastructure needs management
   p) WP 16: R&D Transversal areas

It is expected that the transversal WPs will contribute to maximising benefits of operational and system Work Packages.

The SESAR development phase programme is composed of over 250 research projects and transversal activities. Most of these projects and activities will be carried out by the members of the SJU, which have been selected through a call for expressions of interests. This procedure has concluded with the submission and selection of the final and binding offers from the preselected candidate members in March 2009. However, a number of activities shall be launched directly by the SJU through calls for tender or calls for proposals.

The detailed description of the Work Packages and technical description of work can be obtained via the SJU webpage under the following link: http://www.sesarju.eu

The ATM research activities will be managed and implemented by the SJU through separate mechanisms. The details will not be developed in this Work Programme for 2010.

The Community will provide a maximum total contribution of EUR 700 million to the SJU for the development phase of the programme over the period 2007-2013. This amount will be provided in equal parts from the Seventh Framework Programme for research and technological development and from the Trans-European Network programme. The contribution of EUR 350 million from FP7 shall be transferred to the SJU by the Commission through annual contributions over the entire programme. This contribution shall be used to co-finance the costs of the activities in the relevant areas indicated in the work programme and the running costs of the SJU. For this purpose, an amount of EUR 55 million will have to be transferred to the SJU for the year 2010.

I.1.4. International cooperation

International co-operation is already promoted through a number of stimulation actions launched in previous Calls for Proposals in relation to some International Cooperation Partner Countries (ICPC)[19]:

Geographical area	**Stimulation action**	**Web site**
China	AeroChina-2	http://www.cimne.com/aerochina2/
Africa (e.g. South Africa)	Aero-Africa-EU	http://www.aeroafrica-eu.org/
Ukraine	Aero-Ukraine	http://www.aero-ukraine.eu/
Latin America	CoopAIR-LA	http://www.coopair-la.eu

International cooperation will be implemented through three mechanisms:

1) All areas and topics in this work programme are open to researchers and organisations from third countries, in particular countries from the ICPC, and from countries with which the EU has a relevant scientific and technological cooperation agreement. Except if specified differently, funding will be provided to ICPC participants. Funding for organisations from other third countries may be provided on a case-by-case basis if considered necessary for carrying out the project.
   It is especially encouraged to tackle issues of global air transport interest such as:
   - Safety, in line with the topics open under the activity line 'Ensuring customer satisfaction and safety'.
   - Environment, in line with topics open under the activity line 'The greening of air transport'.
2) Topic AAT.2010.7-6 and AAT.2010.7-16 to explore and stimulate the international cooperation with ICPC from Asia, in particular India, and with the US, respectively.

[19] The list of International Partner Countries is included in Annex 1.

3) Co-ordinated Calls with Russia and with China, building upon recent stimulation actions and agreements reached between the Commission and the relevant administrations of the Russian federation and of the People's Republic of China.

Co-ordinated Call Aeronautics and Air Transport – Russia

The European Commission and the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation) jointly agreed to co-fund up to one project per topic of the following topics:

- AAT.2010.1.1-6. Enhancing strategic international co-operation with Russia in the field of advanced aerodynamics and innovative design concepts for high-aspect ratio wings and associated high-lift systems.
- AAT.2010.1.1-7. Enhancing strategic international co-operation with Russia in the field of advanced engine noise control based on plasma actuators.
- AAT.2010.3.4-6. Enhancing strategic international co-operation with Russia in the field of enhanced maintenance and operational safety.
- AAT.2010.4.1-6. Enhancing strategic international co-operation with Russia in the field of novel composite structures and associated manufacturing methods based on geodesic concepts.
- AAT.2010.4.1-7. Enhancing strategic international co-operation with Russia in the field of advanced simulation in propulsion.

In order to ensure a balance between EU and Russian participants a minimum number of two participants established in the Russian Federation is requested. This is an eligibility criterion. The proposals will be evaluated with the peer-review evaluation system of the European Commission and on the basis of the evaluation criteria set out in Annex 2 of this work programme. In addition, a separate evaluation of the Russian part of the project will be carried out by the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation).

The European Commission and the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation) will each reserve a dedicated indicative budget of EUR 4 million to fund the projects. The European partners will be funded by the European Community. The Russian partners will be funded by the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation). The European Community may contribute to the Russian participants up to 5% of their total eligible costs. This contribution is included in the EUR 4 million of the Community funding. This contribution will only cover costs which are not funded by the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation), such as translations, travelling and management costs. The maximum Community funding to a project will be limited to EUR 1.5 million. This is an eligibility criterion.

Co-ordinated Call Aeronautics and Air Transport – China

The European Commission and Ministry of Industry and Information Technologies (MIIT) of the People's Republic of China jointly agreed to co-fund up to one project per topic of the following topics:

- AAT.2010.1.1-8. Enhancing strategic international co-operation with China in the field of advanced aircraft noise prediction and control methods.
- AAT.2010.4.1-8. Enhancing strategic international co-operation with China in the field of casting of large Titanium aerostructures components.
- AAT.2010.4.2-7. Enhancing strategic international co-operation with China in the field of flow control for drag reduction and wing aeroelastic optimisation.

In order to ensure a balance between EU and Chinese participants a minimum number of two participants established in the People's Republic of China is requested. This is an eligibility criterion. The proposals will be evaluated with the peer-review evaluation system of the European Commission and on the basis of the evaluation criteria set out in Annex 2 of this work programme. In addition, a separate evaluation of the Chinese part of the project will be carried out by the MIIT.

The European Commission and the MIIT will each reserve a dedicated indicative budget of EUR 3 million to fund the projects. The European partners will be funded by the European Community. The Chinese partners will be funded by the MIIT. The European Community may contribute to the Chinese participants up to 5% of their total eligible costs. This contribution is included in the EUR 3 million of the Community funding. This contribution will only cover costs which are not funded by the MIIT, such as translations, travelling and management costs. The maximum Community funding to a project will be limited to EUR 1.5 million. This is an eligibility criterion.

I.1.5. Small and Medium Size Enterprises

The participation of SME in the programme is highly encouraged, continuing the successful actions undertaken in Framework Programme 6 and previous calls in FP7 (www.aeroportal.eu), so to support the development of a strong supply chain in a competitive aeronautical sector.

SME participation is expected in Collaborative Projects at Level 1, 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.

The stimulation action AAT.2010.7-11 is open in the Work Programme, for Coordination and Support Actions – Supporting to continue promoting the participation of SME in the Transport programme.

I.1.6. Relevant calls for 2010

Call title	Indicative budget (million EUR)[20]
FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1	101.29
FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA	4.00
FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA	3.00
Total for AAT-2010-RTD calls	**108.29**

Note. All budgetary figures above are indicative. Following the evaluation of proposals, the final budget awarded to calls may vary by up to 10% of the total value of the overall budget above.

[20] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budgetary authority.

II.1. CONTENT OF CALLS FOR 2010

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.

► *TOPICS FOR LEVEL 1*

AREA 7.1.1.1. Green aircraft

The aim is to ensure more environmentally friendly air transport focussing on the greening and energy optimisation of aircraft operations, without compromising safety. 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 10 EPNdB.

AAT.2010.1.1-1. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits

Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.1-2. Aerostructures

Advanced concepts and technologies for increased and optimised use of light-weight metallic, composite materials, including 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.1-3. 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.

Note: Work on hydrogen and fuel cells has been excluded from the 2010 calls as the relevant work will be covered by the FCH JTI.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.1-4. Systems and equipment

Advanced concepts and technologies to enable the all-electric aircraft, reducing engine bleed and systems weight, including power generation, distribution and management; advanced concepts to reduce weight of mechanical, pneumatic and hydraulic systems; advanced flight control systems technologies supporting optimised flight procedures for environmentally friendly operation (noise and emissions), including take-off and climbing, cruise and approach, descent and landing (work should ensure adequate complementarity/synergy with SESAR); new concepts for aircraft anti-icing and de-icing.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.1-5. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.1-6. Enhancing strategic international cooperation with Russia in the field of advanced aerodynamics and innovative design concepts for high-aspect ratio wings and associated high-lift systems

The aim is to promote an effective cooperation for taking advantage of the application of high-aspect ratio wing to transport aircraft configurations intended for cruise flight Mach number = 0.75 – 0.8. Expected significant improvement in transport aircraft aerodynamic characteristics, mainly full layout CL/CD, will allow to increase aircraft fuel efficiency and, accordingly, to reduce pollution emissions and noise during take-off and landing and provide additional economical benefits.

The following are some of the topics to be addressed:
- Determination of the main parameters of the high-aspect ratio wing in the concept of green transport aircraft.
- Aerodynamic optimization of aircraft configuration with high-aspect ratio wing for cruise flight speed corresponding to Mach number = 0.75 – 0.8.
- Development and experimental studies of advanced high-lift systems compatible with high-aspect ratio wing, including low-noise variants.
- Design, manufacturing and testing of wind tunnel models for transonic and subsonic regimes.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA

AAT.2010.1.1-7. Enhancing strategic international co-operation with Russia in the field of advanced engine noise control based on plasma actuators

The aim is to promote an effective cooperation and use the knowledge gained in plasma actuators and engine noise control. In particular the topic is focused in the reduction of

engine noise through the suppression or reduction of instability waves, which are an important source of noise in the exhaust jets.

The following are some of the aspects to be addressed:
- Theoretical investigation of instability waves signature on the nozzle surface.
- Experimental characterization of the initial amplitude of instability waves.
- Methodology for the generation of instability waves in anti-phase, based on robust theoretical formulas.
- Noise control based on corona discharge and plasma actuators.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA

AAT.2010.1.1-8. Enhancing strategic international co-operation with China in the field of advanced aircraft noise prediction and control methods

The aim is to promote an effective cooperation in airframe and engine noise reduction technologies through improved understanding of noise generation mechanisms and active noise control via effective flow control techniques.

The following are some of the aspects to be addressed:
- Identification of the most promising noise reduction methodologies for airframe, engine and jet noise based on flow control techniques.
- Revision and further enhancement of computational aero acoustics prediction tools and related optimisation methods for application to flow control techniques for noise reduction.
- Investigation of the main issues associated with the application of the developed concepts into the airframe, engine and nacelle components affecting cost, weight and performance.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA

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. Where appropriate the modification of maintenance rules should be considered.

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.2010.1.2-1. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.2-2. Maintenance and disposal

Advanced concepts and techniques for the elimination of toxic chemicals and materials and reduction of waste in maintenance operations; 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

Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-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 including energy-optimised aircraft 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 and energy optimised operations in aircraft movements and hence reduced pollution (including noise), as well as to provide tools for improved understanding of the environmental role of aviation and support to European policy-making.

Expected impact
The same objectives as for Area 7.1.1.1 ‘Green Aircraft’ apply here.
In addition: 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.

AAT.2010.1.3-2. Airports

Concepts and technologies for replacing ground vehicle services with alternative techniques able to provide support to aircraft at the gate, which provide evidence of energy and fuel efficiency and possible reduction of noise pollution; advanced concepts and technologies for greener apron operations; and new environmentally friendly 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 detection and 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.1.3-3. Design systems and tools - Understanding interactions between air transport, environment and society

The objective is to establish a modelling tool and to carry out an analysis to identify and asses the impact of air transport on the environment in a systemic approach. The modelling tool should consider interdependencies between air transport environmental impact, technological evolutions and economical impact. Priority will be given to proposals that take advantage of existing tools and further extend and validate the European modelling capabilities in the view of providing support for the assessment of forecasting scenarios and the impact of European policies.

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 coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 3*

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

► *TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH*

No topic is open in 2010 calls.

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.

► *TOPICS FOR LEVEL 1*

AREA 7.1.2.1. Aircraft systems and equipment for improved aircraft throughput

No topic is open in 2010 calls.

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.

Where addressing air traffic management, proposals under this Area should demonstrate co-ordination and the potential for synergies with the SESAR Programme.

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 three 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.2010.2.2-2. 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; 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 3*

The SESAR Joint Undertaking will cover Level 3 research activities.

► *TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH*

No topic is open in 2010 calls.

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.

► *TOPICS 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.2010.3.1-2. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AREA 7.1.3.2. Passenger friendly air transport operations

No topic is open in 2010 calls.

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.2010.3.3-1. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.3.3-2. Systems and equipment

Advanced 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.3.3-3. Avionics

Advanced concepts and technologies to counteract hazards specific to the flight operation of small-size aircraft operating in non-scheduled flights, improving automation, smart responsiveness to unforeseen situations in piloting the vehicle, including those adapted to less-skilled pilot operations.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-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.

Expected impact
Proposals should demonstrate making contributions to the following objective for technology readiness by 2020:

- To reduce accident rate by 80%.

AAT.2010.3.4-1. Design systems and tools

Advanced concepts and procedures in support of novel approaches to certification of aeronautical products and operations. Where appropriate, the activities should be coordinated with the SESAR Programme and/or EASA.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.3.4-6. Enhancing strategic international co-operation with Russia in the field of enhanced maintenance and operational safety

The aim is to promote an effective cooperation to ensure that aviation safety remains at the current high standards or it is even improved, regardless of air transport growth, through the application of innovative maintenance techniques and processes.

The following are some of the aspects to be addressed:
- Advanced concepts and technologies to enable 'smart' maintenance, including self-inspection and self-repair capabilities.
- Advanced technologies for cost-effective detection of structural damage and ageing as well as for avoidance / mitigation of structural corrosion.
- Methods and techniques for on-time maintenance and unscheduled maintenance.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA

► *TOPICS FOR LEVEL 2*

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 3*

There are no topics open in the 2010 calls for Level 3 research activities for 'Ensuring Customer Satisfaction and Safety'.

► *TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH*

No topic is open in 2010 calls.

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.

► *TOPICS 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.2010.4.1-1. 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, flutter and dynamic loads, flight dynamics, 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.1-2. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.1-3. 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; advanced data networks and information management systems, including wireless on-board communications, advanced on-board processing and middleware.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.1-4. Avionics

Advanced concepts and techniques to develop robust, affordable, scalable and reconfigurable modular avionics architectures; data networks, packaging and information management systems.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.1-5. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.1-6. Enhancing strategic international co-operation with Russia in the field of novel composite structures and associated manufacturing methods based on geodesic concepts

The aim is to promote an effective cooperation in the development of light, low-cost airframe fuselage structures made of new generation of composite materials based on geodesic / iso-grid technologies.

The following are some of the aspects to be addressed:

- Identification of airframe parts most suitable for the utilisation of geodesic concepts and application of structural optimisation techniques to evaluate potential cost and weight benefits.
- Manufacturing of representative test articles to obtain a practical appraisal of the cost effectiveness of the new manufacturing processes as well as to perform structural tests for the validation of the geodesic technologies.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA

AAT.2010.4.1-7. Enhancing strategic international co-operation with Russia in the field of advanced simulation in propulsion

The aim is to promote an effective cooperation in the simulation and optimisation of some propulsion systems, through definition of study cases and methods, computation and benchmarking of results, including manufacturing and testing to validate the numerical results.

The following are some of the aspects to be addressed:

- Aero-acoustic and aero-mechanic optimisation of propellers and their actuation system.
- Aero-acoustic and aero-mechanic optimisation of boosters.
- Simulation of icing phenomena (shedding, ice crystals) to advance the numerical approach for ice protection.
- Simulation of heat exchangers and sound absorbers

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA

AAT.2010.4.1-8. Enhancing strategic international co-operation with China in the field of casting of large titanium aerostructures components

The aim is to promote an effective cooperation to further develop knowledge in the manufacturing processes to cast high-integrity, large structural components in Titanium alloys for cost effective application in the airframe and aero-engine sectors.

The following are some of the aspects to be addressed:

- Identification of target Ti components, most likely in the 50-100 kg weight range, of complex and near cylindrical shape, such as casings and struts, suitable for the application of casting, and identification of the optimum Ti alloys.
- Advanced modelling of the casting process and validation of the model.
- Development of the casting technologies that minimise risk of contamination and materials defects, both for low-temperature and high-temperature applications.

– Development and validation on a representative generic airframe component and aero-engine component.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA

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.2010.4.2-1. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.2-2. 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

Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.2-3. 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.

Note: Work on hydrogen and fuel cells has been excluded from the 2010 calls as the relevant work will be covered by the FCH JTI.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.2-4. Systems

Advanced concepts and technologies to enable the all-electric aircraft, reducing engine bleed and systems weight, including power generation, distribution and management; 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.2-5. 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. Where operational issues related to ATM are addressed, complementarity and coordination with the SESAR Programme needs to be demonstrated.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.4.2-7. Enhancing strategic international co-operation with China in the field of flow control for drag reduction and wing aeroelastic optimisation

The aim is to promote an effective cooperation in two important fields supporting aircraft design: 1) computational fluid dynamics and flow control devices to discover effective means of flow separation control and relevant aircraft drag reduction, through an improved understanding of the effect of Reynolds stress; and 2) aeroelastic prediction tools to optimise wing designs in composite materials through optimal fibre orientations.

The following are some of the aspects to be addressed:

- To control turbulent flow effectively from a more fundamental level by investigating directly the behaviour of Reynolds stress under the effect of periodic excitation.
- To conduct both computational simulations and experimental tests to extract reliable flow physics, for a number of active flow control devices, e.g. movable VG, dimples, plasma, synthetic jets.
- To explore large scale unsteadiness (unsteady jets, wakes and vortices) produced from these devices for effective turbulent flow control.
- To apply and optimise these devices for separation control (higher shear, including lift enhancement), drag reduction (lower shear).
- To develop very fast methods based on Reduced Order Modeling (ROM) techniques for real time prediction of aeroelastic behavior.
- To review and enhance multidisciplinary fluid-structure coupling optimization tools for aeroelastic prediction specially suited to anisotropic structures.

Funding scheme: Collaborative Projects small or medium-scale focused research
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA

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. Where issues related to ATM are addressed, work should be complementary and in coordination with the SESAR programme.

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.2010.4.3-4. Human factors

Advanced concepts and techniques, including training, to support the acquisition and retention of skills and knowledge of personnel across the whole air transport system

(design, production, maintenance and airport operation), with particular focus on organisational processes for managing change in an integrated way. Where issues related to ATM are addressed, the proposals under this topic should demonstrate their complementarity and coordination with the SESAR Programme.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 3*

There are no topics open in the 2010 calls for research activities in 'Improving Cost Efficiency'.

► *TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH*

No topic is open in 2010 calls.

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.

► *TOPICS FOR LEVEL 1*

AREA 7.1.5.1. Aircraft security

No topic is open in 2010 calls.

AREA 7.1.5.2. Operational security

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 2*

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 3*

There are no topics open in the 2010 calls for Level 3 research activities for 'Protection of Aircraft and Passengers'.

► *TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH*

No topic is open in 2010 calls.

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.

► *TOPICS 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.2010.6.1-1. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.1-2. 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.

Note: Work on hydrogen and fuel cells has been excluded from the 2010 calls as the relevant work will be covered by the FCH JTI.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.1-3. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.1-4. 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 environmentally friendly novel materials.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-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.2010.6.2-1. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.2-2. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.2-3. 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
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-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[21] 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.

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.2010.6.3-1. 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.2010.6.2-1 and AAT.2010.6.2-3.

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

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.3-2. 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 impelling the vehicle to take 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.2010.6.2-1 and AAT.2010.6.2-3.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.3-3. Personal air transport systems

The aim is the research 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.2010.6.2-1.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.6.3-4. 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.2010.6.1-2.

Note: Work on hydrogen and fuel cells has been excluded from the 2010 calls as the relevant work will be covered by the FCH JTI

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support Actions aiming at coordinating research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

No topic is open in 2010 calls.

► *TOPICS FOR LEVEL 3*

There are no topics open in the 2010 calls for Level 3 research activities for 'Pioneering the Air Transport of the Future'.

► *TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH*

No topic is open in 2010 calls.

7.1.7. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME

AAT.2010.7-3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles

Expected impact: Proposals should demonstrate contributing 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)-2010-RTD-1

AAT.2010.7-4. 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; user needs, cost-benefit analysis of retrofitting including implications in manufacturing, certification and maintenance; and related socio-economic factors. Where appropriate, the activities should be coordinated with EASA.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT) - 2010-RTD-1

AAT.2010.7-6. Stimulating research with International Cooperation Partner Countries

Expected impact: Proposals should demonstrate contributing to enhance the participation of third countries at large and in particular International Cooperation Partner Countries from Asia (e.g. India), 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)-2010-RTD-1

AAT.2010.7-9. Supporting the organisation of conferences and events of special relevance to aeronautics and air transport research

Expected impact: Proposals should demonstrate contributing to raise the profile of European aeronautics and air transport research.

Scope: Activities will include in particular the organisation of conferences or other type of events at European level. The events should be focused on broad policy issues and technical or socio-economic subjects important to the sector and with a significant European or world-wide dimension.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-11. Stimulating the participation of small and medium size enterprises (SME) and other small organisations for improved integration of the European Research Area

Expected impact: Proposals should demonstrate contributing to support the participation of SME and small entities in general in the programme, so to strengthen the capabilities of the European aeronautical supply chain and to enhance the competitiveness of the European aeronautical industry.

Scope: Actions to disseminate information about Aeronautics and Air Transport Calls and ongoing research projects, to provide ad hoc support and training for partners and coordinators who want to set-up a proposal. The actions will target partners who have difficulties to access relevant information, such as SMEs and small entities embedded in larger organisations. Particular attention will be dedicated to Member States who have a deficit of integration to the European Research Area. The actions will also contribute to assess the participation of this type of organisations.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-12. Assessing and further developing the role of small aircraft in the air transport system

Expected impact: Proposals should demonstrate contributing to an improved understanding of the role that small-size aircraft operating on scheduled or non-scheduled flights can play as a component of the air transport system to satisfy the needs of transportation in regions where transport networks are underdeveloped.

Scope: Study to develop a road map and supporting business case to address the benefits of the use of small aircraft as a component of the air transport systems. The task will identify the technologies necessary to meet the safety, environmental, operational and economic requirements, including integration into the European ATM environment,

ensuring complementarity with SESAR. The implications of the safety regulation process as it applies to small aircraft will also be considered.
The existing capabilities in the Member States and Associated Countries regarding this sector should be assessed.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-13. Observation platform to assess the fulfilment of Vision 2020 goals from technological and institutional standpoints

Expected impact: The proposals should demonstrate the capability to assess the contribution of past and on-going research in Europe to Vision 2020[22] goals and ACARE's[23] Strategic Research Agenda.

Scope: Vision 2020 set a number of technical goals reflected in the Strategic Research Agenda prepared by ACARE. It established also a vision on mechanisms – the institutional enablers – which will enable achieving the technical goals. The study subject of this topic should measure and evaluate progress achieved in research carried out under the Framework Programme as well as National Programmes in terms of the Vision 2020 goals. The study should assess progress regarding the institutional enablers as well. Complementary to this objective, the study should set the appropriate monitoring structure and process to capture the relevant information.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-14. Platform to stimulate the development of breakthrough technologies and concepts enabling step changes in aviation

Expected impact: Proposals should demonstrate the ability to identify, assess, nourish and facilitate the development of breakthrough technologies and concepts that could become operational towards the second half of this century.

Scope: The platform should go beyond the proof of concept developed in the CREATE project by actually performing the implementation and operation of the comprised elements. The platform should include, amongst other elements, the continuous operation of the "technology watch", the maintenance and enrichment of the repository of information (Wikipedia based or alike), the organisation of creative experts workshops, the merging of ideas and the rigorous assessment of these ideas.It will undertake also specific actions to engage regularly a broad range of specialists from within and outside the air transport sector – including young researchers where appropriate –, the promotion of the platform, dissemination of reports, providing an accessible database on a regular and continuous basis, etc.

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[22] 'European Aeronautics: A Vision for 2020'. Report of the Group of Personalities, January 2001.
[23] ACARE: Advisory Council for Aeronautics Research in Europe (www.acare4europe.org).

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-15. Updating the strategic agenda for aeronautics and air transport research in Europe

Expected impact: Proposals should demonstrate the capability to develop a strategic research agenda for research in Europe to realise a vision for this sector in a 2030+ horizon. The agenda should be able to influence the definition of research in the Framework Programmes, national programmes and industrial programmes.

Scope: It is expected that following Vision 2020, Europe will engage in 2010 in establishing a new Vision for the aeronautics and air transport sector with a 2030 and beyond horizon. A revision of the existing editions .of 2002 and 2005 of the Strategic Research Agenda and of the Addendum of 2008 prepared by ACARE will have to be undertaken in order to set a plan to materialise the new Vision.
The activities subject of this topic should include those required to carry out the broad consultation and involvement of all the stakeholders of this sector for the development of the agenda, from its initial conception to final publication.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-16. Exploring opportunities and stimulating research cooperation with the United States of America

Expected impact: Aeronautics and air transport face global challenges such as the environmental impact, safety, security and the interoperability of operational systems. Europe and the United States are world leaders in commercial aviation, providing a large majority of its operations and products. Significant benefits could be obtained for future air transport and for the industry in both sides if Europe and the United States could join efforts in research dealing with key issues of the challenges facing the sector at global scale. Proposals should demonstrate having a good knowledge of research mechanisms in the EU and US and contribute to explore and stimulate opportunities of research cooperation, taking into account already ongoing cooperation initiatives.

Scope: Actions aiming to set a platform of communication and forward looking between research organisations and/or institutions in both sides. They could include the organisation of workshops and short term studies to identify preferred areas of common interest and win-win situations, barriers and solutions for improved cooperation and recommendations for future actions, including relevant roadmaps.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1

AAT.2010.7-17. Socio-economic incentives and barriers to innovation in air transport

Expected impact
Proposals should analyse the incentives and barriers to innovation and technologies uptake in the area of air transport. The proposals should analyse the current situation and propose improvements in terms of law-making mechanisms, financial mechanisms, and relations between education, industry and access to finance. Proposals should study and demonstrate how the best practices for innovation promotion can be implemented and wide-spread over Europe and propose concrete implementation plans at national and European levels.

Scope
The objectives of the socio-economic project on incentives and barriers to in the air transport are to exploit current strategies for innovation and for technologies uptake by all relevant air-transport stakeholders (airlines, Air Navigation Service Providers, National Supervisory Authorities, certification ad standardisation bodies, airports, military users). The project should contain the analysis of national and international administrative procedures which are necessary for technologies uptake, certification and commercialisation of new products and services and propose tailored solutions and case-studies to remove or simplify these administrative burdens and procedures. The project should aim at analysing how the emergence of the joint undertakings financed though the Seventh Framework Programme for RD such as SESAR or Clean Sky could contribute to the successful deployment of innovative technologies by simplifying consultation procedures and contributing to the development of international standards specifications (such as Implementing Rules or Community Specifications). The project is expected to provide an analysis of existing financial possibilities at national and international levels, which would facilitate air-transport stakeholders' access to finance and to explore and research for the new innovative methods and sources of financing of projects of European interest allowing to share financial intrinsic risks between private and public sectors. The project should also analyse the relations between universities, private sector companies involved in the air-transport business and the national banking systems of different European countries in order to understand the best legal and financial arrangements and educational incentives leading to promoting innovation and creation of (inter) national technologies clusters. Security requirements in the air transport, and the relation to innovation promotion should be properly covered.

Given the scope of the project, the proposals should contain appropriate arrangements for the cooperation and inputs from the joint undertakings and the European Investment Bank. The applicants should demonstrate their knowledge in micro-finance given the importance of the innovative financial component of this project. An implementation roadmap for promoting innovation in air transport is expected to be presented.

Funding Scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7-TRANSPORT-2010-TREN-1

7.2. SUSTAINABLE SURFACE TRANSPORT (INCLUDING THE 'EUROPEAN GREEN CARS INITIATIVE')

I.2. 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.

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 that 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[24] have equally been taken into account.

The 2010 work programme is divided into two major action lines:

1) Six *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
- These five activities are complemented with cross-cutting actions addressing several activities.

2) Actions supported under the 'European Green Cars Initiative'

The 'European Green Cars Initiative' belongs to the '**European Economic Recovery Plan',** an initiative to coordinate efforts and implement joint actions to contain the scale of the economic downtown and to stimulate demand and confidence. Within the Recovery Plan, the **'European Green Cars Initiative'** is a series of measures boosting research and innovation aiming at facilitating the deployment of a new generation of passenger cars, trucks and buses that will spare our environment and lives and ensure jobs, economic activity and competitive advantage to car industries in the global market. A series of different measures are proposed: support to research and innovation through FP7 funding schemes, specific EIB loans to car and other transport industries and their suppliers, in particular for innovative clean road transport, and a series of legislative measures to promote the greening of road transport (circulation and registration taxes, scrapping of old cars, procurement rules, CARS21 initiative).

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

I.2.1. Approach

The Sustainable Surface Transport (SST) work programme covers a comprehensive and co-related spectrum of activities:

- **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.
- 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.

I.2.2. Structure

Activities

The Sustainable Surface Transport work programme is structured according to:

- Six activities: Greening (7.2.1), Co-modality (7.2.2), Urban Mobility (7.2.3), Safety & Security (7.2.4) and Competitiveness (7.2.5), with additional Cross-Cutting (7.2.6) activities in support to the implementation of the Sustainable Surface Transport work programme across all the other activities.
- The 'European Green Cars Initiative' (7.2.7).

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 schemes. Funding schemes 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.

Funding schemes

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

Collaborative projects are subdivided as follows in the call FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1:

- 'Collaborative Project' small or medium-scale focused research projects with a maximum Community contribution of up to EUR 3 million.
- 'Collaborative Project' large scale integrating projects with a minimum Community contribution of EUR 3 million.
- 'Collaborative Project' for the 'European Green Cars Initiative' with a maximum Community contribution of EUR 3 million, except topic "GC.SST.2010.7-8 Green Cars - Integrated EU demonstration project on electromobility" and topic "GC.SST.2010.7-9. Materials, technologies and processes for sustainable automotive electrochemical storage applications".

'Coordination and Support Actions' for Levels 1 and 2 contribute to the structuring of European Surface Transport research and support for programme implementation.

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

I.2.3. Strategic objectives of the work programme

Call emphasis

The emphasis of the 2008 work programme was placed on CO_2 emission reduction and mitigating climate change.

In 2010, the work programme has been designed to respond to the following major strategic objectives:

- The development of rail freight transportation (Group of topics N° 1).

- Eco-innovations in shipbuilding and waterborne transportation (Group of topics N° 2).
- The 'electrification' of road and urban transport (Group of topics N° 3).
- In addition, a few topics proposed in previous FP7 calls (in 2007 and 2008) which could not be supported due to lack of budget will be reintroduced in this work-programme (Group of topics N° 4).

For the different themes, a budget has been ear-marked according to the following repartition:

- Group of topics N° 1: EUR 22.895 million
- Group of topics N° 2: EUR 22.895 million (inc. EUR 2 million for ERA-NET MARTEC II)
- Group of topics N° 3: EUR 40 million
- Group of topics N° 4: EUR 10 million

Topics belonging to group of topics N° 1, 2 and 4 are described under the six activities of the work programme, topics from group of topics N° 3 are described in a separate sub-division under the heading **'European Green Cars Initiative'**.

For every topic, the group of topics to which it belongs is indicated at the end of its description.

International cooperation

The strategy for international cooperation for surface transport system is reinforced 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[25], in order to enhance worldwide competitiveness of EU industry, to tackle research needs at a global level and support to the internationalisation of the European Research Area.

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.

SME relevant research

[25] 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 1.

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 activity 7.2.5 (Competitiveness) will be important. 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.

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

Work Programme 2010 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'[26]. 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 States.

Topic SST.2010.6-3 ERA-NET MARTEC II with Community contribution of up to EUR 2 million is described in chapter II.2 and included in call FP7-ERANET-2010-RTD.

I.2.4. Implementation of the work programme

The 2010 work programme will be implemented by means of a series of calls for proposals which are listed below:

- FP7-SST-2010-RTD-1: the normal annual call implemented by Sustainable Surface Transport sub-theme (RTD part), which includes the 'European Green Cars Initiative' (SST/RTD part).
- FP7-TRANSPORT-2010-TREN-1: the normal annual call implemented by Sustainable Surface Transport sub-theme (TREN part), which includes the 'European Green Cars Initiative' (SST/TREN part).
- FP7-ERANET-2010-RTD: a cross-thematic joint call on ERA-NETs.
- 'Sustainable automotive electrochemical storage' (FP7-2010-GC-ELECTROCHEMICAL-STORAGE): a cross-thematic joint call on automotive batteries.
- 'The ocean of tomorrow' (FP7-OCEAN-2010): a cross-thematic joint call on marine/maritime research.

[26] COM(2007)161 of 4 April 2007.

II.2. CONTENT OF CALLS FOR 2010

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, and 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[27].
- 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)28.
- 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[29].
- Introduction of hydrogen and fuel cell technology in surface transport applications by 2020 as an economic, safe and reliable alternative to conventional engines[30].

[27] German Presidency Conclusions 2007.
[28] ERTRAC Research Framework of April 2006.
[29] European Directive 2003/30/CE.
[30] ERTRAC SRA.

- Reduction of external and interior noise and vibration. For road and rail transport the target will be a 10 dB to a 20dB[31] reduction compared to present noise levels particularly in urban environments.
- Proposals must ensure at least a neutral impact on climate change.

► *TOPICS FOR LEVEL 1*

SST.2010.1.1-1. Carbon footprint of freight transport

The different modes of transport have different carbon footprints. Road transport is often seen as the most environment unfriendly mode of transport. Except for the direct emissions stemming from the vehicle or the vessel, the carbon footprint is also dependent on the use made of them, i.e. the logistic efficiency in the transport and distribution system itself.

The transport and distribution industry have recognised the green factor as a commercial factor and have deployed individual initiatives. Much of the current initiatives to reduce emissions, and especially the trading mechanisms require accurate measurement of the amount of emission of economic activities. In case this involves transportation and related activities, part of which take place outside Europe, such measurement is severely hampered by the difficulty to monitor transport and logistics chains worldwide.

The aim of this topic is to add on environment related information to the regular data flow on operational supply chain management systems as being developed within the individual transport modes but also integrated intermodal systems or concepts, such as e-freight, port community systems, SICIS, etc.

The activities will address the definition of:
- information needs for emissions
- the gathering of emissions' information along the supply chain
- environmental parameters
- their measurement methods
- their integration into the information systems/platforms for logistic chain management

The outcome of this project will be a measurement framework on emissions (particular CO_2) in the context of logistics chains and to demonstrate that accurate measurements of these emissions can contribute to a much more accurate estimate of the carbon footprint of cargo transported into Europe.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Group of topics N° 1
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.1.1-2. Energy efficiency of ships

[31] ERTRAC and ERRAC SRAs.

The objective of the research is to optimize the energy efficiency of cargo ships for given service and environmental conditions by optimizing ship design and operation for a variety of transport tasks.

The overall energy efficiency of ships and ship operations should be considered, in particular the efficiency benefits that can be achieved in applying a holistic approach to life-cycle aspects of varying operation. Furthermore, the use of unconventional sources of energy shall be considered.

Activities will include:

- The development of tools to assess the overall energy balance in the ship design phase.
- Analysis of prime (environmental and operational) factors affecting energy consumption and develop strategies and tools to optimise energy consumption during service.
- Analysis, development and application of drag reduction technologies, based on CAE and experimental techniques, to minimise ship resistance.
- The development and validation of concepts for improved energy efficiency through integrated combinations of design and operational aspects including increased propulsive efficiency.
- Definition of advanced concepts for energy generation and improved energy efficiency through integrated conventional and unconventional approaches from non-polluting sources (solar, wind, batteries, LNG, heat pumps, etc.) and advanced recovery systems.
- Considerations on the energy efficiency optimisation of existing ships and ways to improve their energy efficiency. Development of a tool to assess/record the energy efficiency of ships in operation.
- Analysis of operational reliability, compliance with safety rules and economic factors.

Funding scheme: Collaborative Project small or medium-scale focused research
Group of topics N° 2
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

SST.2010.1.1-3. Attenuation of ground-borne vibration affecting residents near railway lines

Infrastructure managers and railway operators face growing concern from residents disturbed by vibrations transmitted through the ground. While wayside noise is being reduced using measures such as barriers and rail absorbers, there is scope for further work in relation to mitigation measures for vibration. In the near future it could be envisaged that legislation on ground borne vibration could potentially limit the capacity of rail routes and dictate implementation of capital-intensive action plans much in the same way as noise legislation does at present. This, in combination with the relatively low number of solutions to mitigate vibration from surface tracks, has the potential to affect freight traffic, which runs mainly at night. There is a strong need to develop and harmonise methods,

tools, procedures and knowledge for ground vibration to a similar level as that achieved for noise during the last two decades and to develop cost-effective industrialised solutions.

The aim of the research is to develop cost-efficient and industrially viable mitigation measures for ground-borne vibration from rail traffic. The research should cover vibration causing annoyance as whole body vibration (WBV). This problem is predominantly associated with freight traffic. The aim is to develop methods to reduce impact of WBV on residents living in the vicinity of railway lines. These methods will concentrate on freight traffic in particular but may have some applicability to rail traffic in general.

Activities will address:

- The definition and validation of procedures for the evaluation of annoyance and exposure to vibration, taking into consideration previous research work carried out in this area.
- The development of cost-efficient and industrially viable technologies, concepts and prototypes for the mitigation of vibration and of vibration induced noise covering:
- Reduction of vibration creation at source through improved vehicle/track interactions, improved maintenance strategies for track and rolling stock, and the development of designs, components or new techniques. (Topics should include track irregularities, maintenance of wheel shape, rolling stock and track design).
- Reduction of vibration emission from the infrastructure and transmission in the ground.
- The establishment of test procedures to efficiently monitor and control the performance of vibration mitigation measures under realistic conditions.
- The establishment and validation of engineering tools to assess the efficiency of rolling stock- and infrastructure-based mitigation measures.

The research will follow a holistic approach addressing vehicles, infrastructure and maintenance. Developments will be based on a combination of model and simulation techniques and practical field tests.

Due consideration should be taken of previous research activities on ground borne vibration which could provide useful input to the work to be undertaken.

Activities will help to reduce the vibration impact of freight services on residents in the vicinity of railway lines, leading to a potential increase in the amount of freight traffic able to be moved.

Funding scheme: Collaborative Projects large scale integrating project
Group of topics N° 4
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.1.1-4. Advanced after treatment solutions for mitigation of emissions from ships

The objective of the research is to develop and validate combined solutions for cost-effective reduction of emissions (CO_2, NO_x, SO_x, PM2.5) of all type of ships (including leisure vessels) at sea, in coastal areas and in ports.

Activities will include:

- Further development of smoke-free and emission reduction after treatment technologies that enable higher fuel efficiency compared to existing after treatment systems.
- Elaboration and validation of advanced cost-effective scenarios and operations to reduce emissions of existing vessels by technology combinations e.g. reduction of speed limit, seawater scrubbing, etc.
- Elaboration and validation of advanced cost-effective scenarios to reduce emissions during port operations, including mooring.

Funding scheme: Collaborative Project small or medium-scale focused research
Group of topics N° 2
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

AREA 7.2.1.2. Environment-friendly and efficient industrial processes

No topic is open in 2010

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.

TOPICS FOR LEVEL 2

SST.2010.1.3-1. Transport modelling for policy impact assessments

Research into developing the European transport network model TRANSTOOLS

[32] ERTRAC SRA.

The European transport network model, TRANSTOOLS, was developed for DG TREN under FP6 with the purpose of providing policy makers with a tool for assessing and developing better transport policies.

A new and improved version of TRANSTOOLS should be developed and calibrated based on year 2010 data. The new model should update the modules of the previous versions of TRANSTOOLS and incorporate improved data, networks and modelling techniques of other projects related to TRANSTOOLS (iTREN2030, ETIS plus, LOGMAN, etc.).

The level of detail of the rail, maritime and air transport modules should furthermore be increased in order to better analyse issues of cost, capacity and externalities of transport.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7-TRANSPORT-2010-TREN-1

SST.2010.1.3-2. Social and economic impacts of transport policy

Research into social and economic impacts of transport policy

Passenger and freight transport are essential for undertaking social and economic activities. However, transport is at the same time causing a range of negative impacts affecting people and companies in the EU. Moreover, some market failures hamper the competitiveness of transport.

With a view to developing and assessing sustainable transport policy measures - striking the right balance between positive and negative impacts of transport - it is required to carefully analyse and quantify social and economic impacts of policy measures. These impacts should be quantified at European, national and regional levels.

A methodology/tool, possibly building on research completed in earlier FP-calls, and building on empirical results of transport policy implementations, should be developed to assist the Commission and other policy makers in assessing and comparing transport policy measures.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7-TRANSPORT-2010-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.

► *TOPICS FOR LEVEL 1*

SST.2010.2.1-1. Fast implementation of innovative/effective rail technologies to improve rail freight services

The aim of the research is to develop technologies and solutions to improve competitiveness of rail freight. These technologies and solutions must be cost effective, should be technically and operationally fast and easy to implement in the sector without high investment costs. The technologies should also have a positive impact on the environment (less energy consumption, lower noise, promote co-modality). Therefore the proposed solutions should be economically viable. The developments may be less of high innovative character but more focused on the effective application of previously developed knowledge, products and processes, either within or outside the rail sector.

Projects could cover aspects of the different elements in rail freight such as rolling stock, infrastructure, operations and logistics including the development and validation of appropriate hardware solutions. These could include:

- Design of rolling stock and infrastructure components and systems which will have short term impact and an intrinsic effect on boosting the competitiveness of the rail freight sector.
- Development of rail freight solutions near to market or with the ability to result in rapid implementation and with the potential to promote a step change in rail freight traffic.
- Technologies and methodologies for the design of components and systems to stimulate rail freight.
- Developing rail freight systems which will impact on harmonisation and standardisation to encourage greater freight productivity.
- Collaborative development processes to evaluate the suitability of emerging technologies to fast implementation.

Activities will lead to the fast implementation of innovative solutions related to rail freight technology which will improve the competitiveness of rail services.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Group of topics N° 1
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

SST.2010.2.1-2. Efficient interfaces between transport modes

Over recent years sea ports have experienced tremendous growth rates of container handling (many EU ports have seen an annual growth of between 5 to 10% in the last decade). The efficiency of ports to cope with the container flux is not only dependent on their own processes and available infrastructure and facilities, but also on their connection with the hinterland, notably the efficiency and quality of the inland terminals.

The primary function of intermodal inland terminals is to handle intermodal loading units between road, rail or barge, including auxiliary services such as damage inspection and security checks. Increasing numbers of intermodal terminals are involved in hub or gateway services which have led to a significant growth of rail to rail or barge to barge transhipments of loading units. Inland terminals often also offer additional services such as storage, agency or trucking, maintenance and repair, electric supply for reefers. As a result, basic and additional inland terminal services involve many different actors and processes. The optimisation of these transhipment capacities, terminal services and processes will greatly improve sea port performance and allow them to grow without further spatial development claims on the local area. In order that the entire distribution system works effectively, intermodal inland terminals need to be fully integrated into the supply chain.

The aim of the research is to decongest European container seaports by enhancing the role, capacity and capability of inland terminals in the supply chain. This should allow a faster throughput of containers in ports which must cope increasingly with spatial limitations and

congested road access. Activities will address innovative or improved container handling technologies and supply chain management processes in particular:

- The integration of terminal processes within the supply chain.
- Optimisation, and possibly automation, of physical handling of containers in inland terminals.
- Definition and validation for operational use of service quality standards for inland terminals as well as for port – hinterland connections.

The expected outcome is a greater productivity both in terms of the capacity of inland terminals and of collaborative supply chain management systems between ports and inland terminals.

Funding scheme: Collaborative Projects small or medium-scale focused research
Group of topics N° 4
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.2.1-3. Development and promotion of best practice in freight logistics

Context and scope
As outlined in the Freight Transport Logistics Action Plan, the European freight logistics sector must cope with growing congestion and demands to reduce environmental impact, while improving the competitiveness of European supply chains. Although freight transport may be less visible than passenger transport, it is equally important as it enables inter- and intra-EU trade and supports European industry. Knowledge of effective, efficient and sustainable solutions for organising freight logistics is therefore a key to meeting the above challenges.

European Commission has funded numerous research projects that have contributed to building up a knowledge base on these issues. FP6 included Bestufs II and Promit, to name some of the projects contributing to best practice knowledge sharing. Bestufs II identified, described and disseminated best practices, success factors and bottlenecks in urban logistics. It identified the problems and the requirements of the cities as well as of private actors involved in urban freight and maintained an environment for policy and research recommendations. Promit carried out cost-efficient appraisals of inter-modal operations along five logistics themes: 'organisation', 'infrastructure and equipment', 'information and communication technologies', 'benchmarking' and 'inter-modal operation and services'.

This work needs to be continued in order not to lose momentum and to advance the evolving field of freight logistics. The aim of the project is to develop, disseminate and promote best practices of logistics that contribute to meeting European transport policy objectives, primarily with regard to competitiveness and environmental impact. The results of earlier research projects should be taken into account. In the long term, the project is expected to contribute to a knowledge base that would allow making simplifications to administrative requirements in the freight logistics sector.

Activities
The activities to be carried out as a part of the project are mainly related to various forms of advancing and disseminating best practice in freight logistics. A central activity will be

maintaining, updating and further developing a website where best practices in freight logistics are collected and made available to carriers, shippers, policy makers, academics and other interested parties. Knowledge sharing through workshops and conferences is also expected to be a major focus in this project. In particular, thematic best practice dissemination events should be organised across the EU member states. Finally, policy and research recommendations for solutions in freight logistics should be proposed as a part of the project.

Deliverables
The project deliverables will include various outlets of knowledge sharing, such as for example websites and handbooks for specific themes in the field of freight logistics, national and international workshops to exchange experiences and recommendations for policy tools for facilitating best practices and simplifying administrative processes.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-TRANSPORT-2010-TREN-1

SST.2010.2.1-4. Demonstration project for the rail freight network

Context and Scope
There is a need of achieving a greater degree of effectiveness, efficiency and competitiveness on the European Rail Freight Network. This is now perceived as being key for a more sustainable freight mobility. The reduction of road congestion, accidents, emission on the atmosphere and the negative effects on climate changes are leading to a safer and better environment for improving the quality of life of European citizens. In particular the recent breaks in trends in global trades brought about by EU enlargement and by the enormous traffic flows with the Far East and South East Asia, handled by giant container vessels, have highlighted the impossibility of road modality of sustaining by its own the future European need of freight mobility.

Several demonstration projects have already been launched in former Framework Programmes. These projects were prepared by research actions which defined the corridors and the business models.

As port congestion has become a common feature both in the North and South of Europe to the extent that only a new distribution system to/from ports to inland destinations based on industrial intermodal shuttle trains represents the solution of this problem; the challenge is therefore to provide a solution to EU ports and road congestion reaching European inland destinations in an industrial and effective way leading to sustainable mobility.

Activities
A further demonstration project is proposed in 2010 with the following objectives:
- Increase of the efficient utilisation of the available quay spaces in seaports by implementing "dry ports".
- Improve slot capacities usage in rail traffic by optimising the train utilisation between the seaports and hinterland traffic hubs.
- Increase the handling facilities usage along the transport chain by improving operations co-ordination and control on the interfaces between sea port - rail, and inland terminals - rail.

- Secure rail sustainable competitiveness in sea port inland traffic.

Funding scheme: Collaborative Projects with demonstration content
Open in call: FP7-TRANSPORT-2010-TREN-1

AREA 7.2.2.2. Maritime and inland waterways transport

No topic is open in 2010

AREA 7.2.2.3. Enhancement of the knowledge base of the rail sector

No topic is open in 2010

AREA 7.2.2.4. Quality of rail services

No topic is open in 2010

AREA 7.2.2.5. Interoperability and safety

No topic is open in 2010

AREA 7.2.2.6. Traffic and information management

No topic is open in 2010

AREA 7.2.2.7. Policy support

No topic is open in 2010

ACTIVITY 7.2.3. ENSURING SUSTAINABLE URBAN MOBILITY

[33] ERRAC SRA.

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[34] 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

No topic is open in 2010

AREA 7.2.3.2. High quality public transport

No topic is open in 2010

AREA 7.2.3.3. Demand management

No topic is open in 2010

AREA 7.2.3.4. Innovative strategies for clean urban transport

No topic is open in 2010

AREA 7.2.3.5. Policy support

No topic is open in 2010

ACTIVITY 7.2.4. IMPROVING SAFETY AND SECURITY

[34] Building upon the experiences of the CIVITAS initiative.

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.
- 10% reduction in maintenance of transport infrastructures for all surface transport modes

► *TOPICS FOR LEVEL 1*

SST.2010.4.1-1. Safety and security by design in transport stations and terminals

Technologies and methodologies for the design of transport stations and terminals with intrinsic safety and security characteristics which support harmonisation and standardisation in one or more of the following specific areas:

- Methodologies for risk analysis on emergency procedure in transport stations and terminals.
- Criteria for constructive design of transport stations and terminals upon voluntary and emergency actions. Advanced modelling of the effects of an attack. Security criteria for constructive design handbook.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Group of topics N° 4
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

► *TOPICS FOR LEVEL 2*

SST.2010.4.1-2. Minimizing the risk of fatigue failure of railway axles

One of the major challenges that infrastructure managers are facing in the last years is increasing inspection intervals of railway axles without reducing the level of safety. Various research projects have addressed this issue so far, but still there is no common approach to that subject. In principle, there is a need to benchmark the methods developed, compare them, validate and develop a commonly accepted procedure. Railway axles are one of the most critical factors affecting safety and the ultimate aim of designers and operators is to minimize the possibility of axle failure in service since it could lead to severe consequences including fatalities. In order to ensure that axles are reliable and to promote innovative solutions ensuring their proper performance, fatigue limits shall be clearly defined. In addition, innovative methodologies and techniques are needed to allow fast and effective inspection of axles without stopping the train for some days which at present represents an important maintenance cost.

The aim of research is to find a practical solution to fatigue limit determination in railway axles, including new steel grades applied for high speed train axles, with a view to reducing the cost of maintenance without compromising safety requirements. Research activities will address the following main areas:

- Design fatigue limit – innovative method(s) to determine the fatigue limit for existing and new steel grades including safety considerations. These developments shall contribute to improvement of the European standards for railway axles and wheelsets.
- Improved design of the axles for roughness including development of painting and coating innovative solutions with regard to environmental requirements. These developments shall lead to improved fatigue resistance of railway axles due to paint adhesion problems.
- Simplified non destructive testing (NDT) techniques that will allow inspection under the train without any disassembly and train stopping. These methods need to be validated and shall facilitate the inspection and allow measurements with significantly raised safety level.

Activities will lead to a better design validation and inspection technologies of the wheel axle, which, associated with RAMS and LCC models and appropriate maintenance plans, will lead to the optimisation of the costs of the product and its safety characteristics.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Group of topics N° 1
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

AREA 7.2.4.2. Policy support

No topic is open in 2010

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[35].
- 30% to 40% reduction of manufacturing and construction cost for all surface transport modes[36].
- 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.

► *TOPICS FOR LEVEL 1*

[35] Waterborne^{TP} and ERTRAC SRAs.
[36] Waterborne^{TP} and ERTRAC SRAs.

SST.2010.5.1-1. Improved through-life asset management through application of advanced production, retrofit and dismantling processes

The research shall aim at improving the competitive position of European companies in the shipbuilding sector by introducing environmentally friendly and efficient materials and processes in the new building, repair, retrofit and dismantling of ships (all type of ships including leisure vessels). In addition, research should help to create new joint business opportunities for the entire life cycle by improved exchange of information and cooperation between them.

Activities will include:

- Identification of eco innovative processes, materials and modules specific to waterborne transport applications and validation of their impact on life cycle economy, energy, environmental performance and safety.
- Prototype designs and applications demonstrating the life cycle benefits.
- Identification and validation of scenarios for the application of eco innovative processes, materials and modules in retrofit and dismantling of existing vessels.
- Identification of skills and technologies required to consistently use those techniques over the entire life cycle (i.e. for new building, repair, maintenance, retrofit and dismantling).
- Development of concepts for improved cooperation between European actors in the ship life cycle with the potential to create new business opportunities with high economic potential and improved environmental performance.

Funding scheme: Collaborative Project small or medium-scale focused research
Group of topics N° 2
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-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 CO_2 and other pollutants and tailored to customers expectations.
- Create new niche markets for high technology added value products[37] and services and take full advantage of eco-innovations.

[37] Waterborne TP SRA.

- 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[38].
- Drastically reduce maintenance and inspection costs[39].
- 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.

► *TOPICS FOR LEVEL 2*

SST.2010.5.2-1. Automated and cost effective railway infrastructure maintenance

As key routes reach full capacity, opportunities for maintenance decrease although the need increases. The rail freight sector is most seriously affected by this conflict as most maintenance is performed outside normal passenger train traffic hours. Automation and computational intelligence techniques offer a step change in the efficiency and optimisation of maintenance, greatly increasing the availability of key routes for freight traffic, the realisation of the 24 hour railway and future cost savings. Increased automation will also ensure best use of the scarce technical workforce and improve safety by reducing the number of personnel working on the tracks.

The aim of research is to find solutions that will reduce the time required for possessions or ultimately remove the need for them, leading to increased time capacity for freight at lower cost than providing additional infrastructure. These solutions will deliver automated planning, maintenance (including inspection) and component renewal methodologies and techniques, building upon the current technologies in use in the railway sector and other recent research projects, as well as transferring advanced manufacturing technology and robotic experience from other industries.
Transfer of maintenance techniques and management approaches between the rail and road sectors, as well as a joint approach to the development of innovative tools may result in facilitating the implementation of innovation and ultimately accelerate the attainment of low-maintenance infrastructure at reduced costs. When opportunities exist to immediate transfer of advanced maintenance techniques and development of more collaborative techniques between both sectors, they should be considered within this topic where beneficial.

Activities that will be undertaken include:

- Design of modular infrastructure and components as a first step towards fully automatic maintenance and component renewal, including signalling systems. This will include developing standardised products and delivery of a technology demonstrator of an automated component renewal system.

[38] ERRAC SRA.
[39] ERRAC SRA and ECTP SRA.

- Analysis of the current maintenance activities and re-evaluating whether the current structure of maintenance activities applies to an automated maintenance system, including development of algorithms and neutral processes to recommend the most effective and economic maintenance techniques.
- Development of automatic maintenance planning systems, fitting maintenance into the timetable with the least interruption to services and automatic scheduling of the maintenance hardware. The system will also include intelligent monitoring systems for application during daily operation activities and during construction and maintenance.
- Innovation for increasing the speed at which maintenance activities are carried out, eliminating the need to take possessions, and innovations that can remove or reduce the need for the most costly and slow maintenance activities.
- Research into high speed infrastructure inspection techniques and the development of algorithms for automated analysis.
- Development of methodologies and decision support tools to maximise utilisation of capacity and best system performance of infrastructure, rolling stock and operations.

Activities will result in delivery of supporting technologies, demonstrators and standards leading towards automated railway infrastructure maintenance improving availability, safety and integrity of the railway.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Group of topics N° 1
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.5.2-2. The sustainable freight railway: Designing the freight vehicle – track system for higher delivered tonnage with improved availability at reduced cost

The aim of the research is to improve the sustainability and competitiveness of rail freight by reducing maintenance time and cost, thus facilitating traffic increase and the opening up of new market opportunities. The core principle will be a whole system approach to vehicle and track degradation; improvements in track design and materials alone are not enough as demands are increasing in an unsustainable way. Improvements made in rail freight vehicle bogie design have not enabled European freight vehicles to operate at the same speeds as the passenger traffic with which they share the network. This imposes constraints on network capacity and makes rail transport an unattractive option for freight customers. Furthermore, recent research has demonstrated that both freight and passenger vehicle bogies have contributed to the increase in track maintenance and renewal costs. The aspiration to run freight at line speed cannot be achieved without a combination of a step change in running gear design and a holistic approach to the freight vehicle/track system.

The study will include vehicle dynamics simulation to optimise bogie design for a new generation of low impact freight vehicles. The optimised design will identify speed-critical aspects, including identification of design requirements to reduce damage from higher speed freight vehicles. The project will use the latest knowledge of optimised track design and materials from within and outside Europe, as well as building on the outputs from INNOTRACK and other projects, to potentially double the life of track components when

combined with low impact vehicles. This will be supported by a demonstration of improved bogie/suspension characteristics running over track with optimised geometry and components. LCC and RAMS analysis will be used to demonstrate the economic viability of new designs to ensure that they can be cost effective for freight vehicle builders and operators. Due consideration should be made to ensure that derived solutions will be able to have impact on existing harmonisation and standards.

Activities will address the following elements taking due account of the interactions between them:

- Benchmarking to establish existing state of the art for comparison activities, including correlation of track damage levels with vehicle design parameters on two or more example routes in the EC.
- Duty requirements for current and future freight traffic flows.
- The business case for the freight vehicle-track system for higher delivered tonnage.
- Track design requirements for reduced maintenance time and whole life cost based on optimised vehicle characteristics.
- Wheelset design requirements, including consideration of unsprung mass and fatigue life.
- Suspension design requirements, including the need for acceptable dynamic performance in tare (empty) and fully laden conditions.
- Novel design and materials for lightweight high performance freight vehicles, bogies and brake systems.
- Recommendations for whole-system implementation, including strategies for the equitable redistribution of whole-system savings.
- A practical demonstration of potential technological solutions.

Activities will lead to reduced maintenance costs and, as a consequence, to potential improvements in system reliability, which will free up capacity for freight at the times when maintenance is normally carried out.

Funding scheme: Collaborative Projects large scale integrating projects
Group of topics N° 1
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.5.2-3. Step changes in rail freight logistics: new technologies and methods to increase freight competitiveness in the emerging low density, high value market

Modern manufacturing techniques and logistics require reliable, time sensitive delivery of lower density and higher value goods. This presents a market opportunity for rail freight to grow, partly due to increasing congestion on roads, and mainly due to the need for reliable and environment friendly transport of goods. At the same time, to meet customer requirements, rail freight has to rise to the challenge of needing to be reliable and available, as well as complying with other market demands. Depending on the market segment these may be faster transport time, specialised goods systems, tracking and tracing, greater flexibility, lower prices, premium services or in congested situations rail freight may have to be compatible with the performance of other traffic.

The aim of the research is to optimise rail freight services to match seamlessly with customers' supply chains. The project will determine how to effectively integrate low volume high value high speed (LVHVHS) freight services with existing passenger services without detriment to either service type taking into consideration operational, technological and logistics requirements.

Activities will:

- Assess the feasibility of LVHVHS services within existing networks in terms of available infrastructure and operational capacity.
- Define a business case on the basis of the market demand and the required investment in rolling stock, infrastructure including handling facilities.
- Develop freight trains with modular design to meet new market demands (e g temperature controlled cargo), with higher productivity, volume and lower unit costs.
- Develop freight trains with optimal length and design, able to operate seamlessly with rail passenger traffic, carrying goods at speeds compatible with daytime passenger traffic.
- Develop suitable handling and transhipment techniques and deployment.
- Specify critical process improvements to enhance interfaces with other transport modes in the supply chain.

Activities will lead to new technologies and methods in rail freight logistics needed to increase rail freight market share.

Funding scheme: Collaborative Projects small or medium-scale focused research
Group of topics N° 1
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.5.2-4. Competitive continental shipping including port operations

The research shall aim at making short-sea and inland shipping more competitive, safer and cleaner while ensuring efficient door-to-door supply chains through the development of co-modality and logistics. A key issue is to efficiently link motorways of the sea with coastal and inland routes and to be more competitive by developing innovative, safe, efficient clean short sea and inland ships that are acceptable to the market. The research should concentrate on utilising cutting edge technologies to obtain the largest possible effect on operational efficiency, reliability and cost-effectiveness with regard to safety and low environmental impact at sea, inland and in ports. The research shall consider solutions (market and technological) tailored to continental shipping that facilitate efficient cooperation between transport modes – particularly in relation to rail.

Activities will include:

- Development and validation of novel next generation ship types for inland and short-sea shipping. These developments should be targeted to feasible markets with the largest impact in terms of efficiency and overall CO_2 reduction compared to current transport practices. Designs should also include effective solutions for ships operating under extreme conditions, such as low water depths present within the river Danube, ice and small waterways, etc.

- Development of novel ship concepts based on modularization and standardization of components for the cost effective design of ship variants. Performance based approaches and advanced materials should be incorporated to improve safety, payload-to-weight ratios and production lead times.
- Development of new integrated, safe and reliable energy systems for propulsion and auxiliary services. Alternative energy sources and fuels will be considered to obtain low fuel usage and low emission levels, anticipating of forthcoming environmental regulations. Combustion diesel engine technology shall not be developed, but needs to be considered as part of the propulsion and energy trains.
- Development of innovative solutions for efficient and clean operations in ports: swift and environmentally friendly manoeuvring and entry into ports and ship-shore interfaces facilitating the integration with other surface transport modes.
- Development of methods and tools to support collaborative design of ships which should be capable to be integrated in existing design and simulation platforms in a flexible way. No new platforms shall be developed in the project considering previous developments.

A sufficient involvement of ship operators and shipyards will ensure an efficient deployment of the results at fleet level.

Funding scheme: Collaborative Project large scale integrating projects
Group of topics N° 2
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.5.2-5. Upgraded maritime transport information management

Context and scope
The Commission adopted Communications[40] aiming to support actively the efforts of the European maritime sector in offering quality shipping services. These communications shape the requirements for improved maritime transport information management.
Such information management should facilitate integration across areas of operations and responsibilities to enable the identification, monitoring, tracking and reporting of all vessels and cargo at sea and on inland waterways to and from European ports and in transit through or in close proximity to EU waters.
The integrated information management system would be part of the EU e-Maritime initiative as it has been announced in the Commission's Mid-term Review White paper on Transport Policy[41] and repeated in the above mentioned Communications that followed.

Approach
Research demonstration and assessment activities on the European capabilities, strategies

[40] On the 21st January 2009, the Commission adopted the EU Maritime Transport Strategy 2018, COM(2009) 8; and the establishment of the European Maritime Space without barriers, COM(2009) 11. In addition COM(2005) 589 amending Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system of the 3rd maritime safety package was adopted by the European Parliament on the11th March 2009. For Reference: http://ec.europa.eu/transport/maritime/index_en.htm.
[41] The Communication is "Keep Europe moving - Sustainable mobility for our continent" (COM (2006) 314 final of 22 June 2006); see http://ec.europa.eu/transport/transport_policy_review/index_en.htm.

and policies should be aimed at facilitating the development of advanced but user friendly, internet based systems and services in support of an efficient and sustainable waterborne transport system fully integrated throughout Europe.
A detailed work-plan should address the development of innovative, versatile, configurable and highly automated port and ship information systems that can bring about a new generation of maritime transport practices to meet European economic, social and environmental needs. For this existing leading edge ICT technologies could be used and legacy systems should be converted into services that can be seamlessly combined with new innovative solutions. High levels of dependability will be needed to gain the trust of business leaders and potential users.
Combined top-down and bottom-up approaches must be applied to ensure that existing systems will be taken into account and that the main efforts will be dedicated to filling the gaps and making existing systems interoperable.
We envision distributed architectures and services, hierarchical organization of regional, national and cross-national interests and "virtual organizations" at business level. Information integrity, confidentiality and security are crucial for this purpose. Human/machine interfaces and optimised training needs of users must be properly addressed.
Appropriate links with other relevant EU and international initiatives such as the e-Navigation, e-Freight, e-Customs, Maritime Surveillance and Security and Intelligent Transport Systems must be ensured. The present as well as the future requirements of all actors must be considered.

Expected outputs
The developed capabilities will encompass legal, organisational and technical frameworks to enable maritime transport operators, shippers/ freight forwarders, and maritime administrations to seamlessly and effortlessly exchange information in order to improve the efficiency and quality of their services.
With appropriate consideration of previous research and developments in this area, the work should address in particular:

- Adequate information and communication technologies (ICT) inspection and monitoring tools, also related to surveillance. Advanced telecommunication systems to facilitating fleet management, cooperative planning of resources, remote monitoring, performance control and support of equipment and vessels.
- Improvement of quality of life at sea in areas such as on-board healthcare, distance learning as well as personal communications. These actions should contribute to retain core human and technological know-how in Europe.
- Applications of simplified procedures, reporting and documentation handling satisfying the needs of all involved in door-to-door logistics whilst simplifying the burden on maritime transport providers.
- Support improved information exchange between Administrations and business (A2B & B2A) through trusted interoperability platforms and protocols (Single Windows), web-based services and regulatory compliance reporting systems that will ensure the appropriate information is received only by those that need it, when they need it on a European wide basis utilising SafeSeaNet.
- Research pathways in essential interoperable ICT, Intelligent Transport Systems (ITS), on-line and web based transactions, effectively simplified administrative compliance functions and real-time monitoring of transportation processes.
- Specification of the legal framework for adopting new capabilities for electronic information exchange supporting border crossings, safety and security issues.

- Specifications and possibly simulation of operational scenarios addressing interoperation between ships, national systems and EU platforms and bringing out the economic benefits of optimization to all maritime stakeholders.
- Development of tools for generating and making available to transport stakeholders web services from distributed databases at EU and national level, particularly extending the use of SafeSeaNet.

Expected impact
The output should demonstrate the practical implementation of integrated information management systems between businesses and administrations including detailed cost benefit analysis. It should maximise the efficiency of the overall transport, ease administrative procedures for ships entering or leaving Community ports as well as ports located in third countries and contribute to the achievement of sustainable mobility.

Funding scheme: Collaborative Projects
Open in call: FP7-TRANSPORT-2010-TREN-1

7.2.6. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME

Cross-cutting activities in the Sustainable Surface Transport Work Programme 2010 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 activities they concern: Greening, Co-Modality, Urban Mobility, Safety and Security and Competitiveness.

► *TOPICS FOR LEVEL 2*

SST.2010.6-1. Towards improved technology transfers

Proposals are aimed to support the application of research results and innovative technologies in smaller companies (including new building and repair yards as well as equipment suppliers and service providers) by an enhanced partnership, information exchange and technology transfer between them, with large industries, research and academia within the shipbuilding sector.

The coordination action will facilitate exchange of technologies towards SMEs, considering their specific need for robust, efficient and cost efficient technologies which fit their specific design and production environments.

Activities will include:
- Identification of technologies with the highest potential impact on competitiveness and environmental performance. Smaller companies and their associations shall be sufficiently included in this analysis.

- Dissemination of information about best practice and available research results towards small and medium sized companies.
- Implementation of selected "show cases" to demonstrate the potential of technology transfer towards a wider community of European SMEs.
- Definition and validation of concepts for collaborative services, design and production networks.

The action shall seek to establish lasting and autonomous networks on European scale including European less developed regions.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Group of topics N° 2
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

SST.2010.6-2. Maritime industry knowledge network

This research is in support of the Communication of the 'EU maritime transport strategy 2018'[42]. With the 'human factor' at the centre, the aim will be to develop a European maritime transport knowledge network.

Activities will include:

- Networking and policy research activities to improve the image and to intensify awareness of the Community's shipping.
- Enhancing the attractiveness for young people both of the seafaring professions and careers onshore within the maritime sector.
- Setting up a network of centres of excellence in maritime transport/logistics training.
- Promote e-learning for maritime transport industry professionals focusing on seafarers.
- Support the development of information knowledge and entertainment sharing facilities for seafarers.

Expected results should include content development on job opportunities and career management of maritime professions at EU level; an EU portal promoting the 'image of shipping'; research on human factors; and review of pertinent policies and practices in different maritime countries.
An indirect impact could aim to improved living and working conditions (including safe manning) on board vessels.

Funding scheme: Collaborative Projects
Open in call: FP7-TRANSPORT-2010-TREN-1

SST.2010.6-3. ERA-NET MARTEC II

The objective of this initiative is to strengthen the European Research Area in waterborne research by coordinating and developing synergies between national and regional maritime research programmes and policies. The activities will include: exchange of information and

[42] COM(2009) 8.

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 maritime research programmes and support policies.

With respect to the previous ERA-NET MARTEC project launched under FP6, the initiative will aim at:

- Broadening its geographical scope by the inclusion of new member countries in the network.
- Intensifying cooperation by launching new joint activities: joint calls and ERA-NET Plus.
- Strengthening the dissemination of waterborne research results at the national and European level.
- Structuring public support activities for maritime research in Europe to increase complementarities; there will be a focus on joint priority setting and a better coordinated research support portfolio.
- Implementation of joint actions in particular in the field of waterborne network operation research in attendance of the research themes and management procedures defined in ERA-NET MARTEC.
- Liaising with the relevant European Technology Platform (WATERBORNE) to increase coordination with respect to the implementation of the SRA in this area.
- Liaising with SURSHIP to coordinate maritime safety related topics together.
- Liaising with the ongoing ERA-NET Transport II to come to an integrated policy approach and a common platform to coordinate research programmes and funding activities.

Further details about ERA-NET calls are set out in Annex 4 of the 'Cooperation' work programme.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Group of topics N° 2
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-ERANET-2010-RTD[43]

7.2.7. THE 'EUROPEAN GREEN CARS INITIATIVE'

The 'European Green Cars Initiative' includes three major research and development avenues within its RTD pillar:

- ***Research for heavy duty vehicles based on internal combustion engines (ICE)*** [Sustainable Surface Transport sub-theme (SST)]: The research will primarily concentrate on advanced ICE with emphasis on new combustion, the use of alternative fuels,

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

intelligent control systems, 'mild' hybridisation (use of recuperated electricity to power the auxiliary systems) and special tyres for low rolling resistance.

- ***Research on electric and hybrid vehicles**:* This component will be the most essential in this package. To have a real impact on the green economy, research in this field should no longer focus on electric vehicles technologies seen in isolation from the rest of the transport system: a massive introduction of the technology requires the availability of smart electricity grids and intelligent vehicle charging systems tailored to customers' needs.
- ***Logistics and co-modality*** combined with ***intelligent transport system*** technologies are essential to optimize the overall system efficiency and sustainability avoiding for example that empty trucks circulate on highways due to sub-optimal logistics. In this respect, smooth and co-operative interactions between the different transport modes will be essential.

The 2010 work programme focuses on the second research avenue: electric and hybrid vehicles and their infrastructures.

► *TOPICS FOR LEVEL 1*

GC.SST.2010.7-1. Electrical machines

The successful introduction of electric vehicles in the market requires the development of electric machines that are at the same time cheap and highly efficient (on a wide torque/speed range) with high power to weight and volume ratios. At the same time they should also be reliable and robust, in order to withstand the harsh environmental and usage conditions imposed by the automotive standards achieved with the internal combustion engines.

With regard to the integration of electrical machines in a car, it is of high relevance to develop electronic architectures, compact/miniaturised mechatronic modules and highly integrated, energy efficient power electronics technologies and subsystems for power conversion.

At the same time these advanced machines will have to be produced in numbers which have never been achieved before, and this might put a strain not only on the current production technologies, but also on the availability of some raw materials, in particular those needed for the magnetic components. Particular attention should therefore be paid to these aspects when designing these devices, as well as to the integration with the required electronic components. The proposals should therefore focus on achieving the above mentioned requirements by:

- Exploring innovative topologies and concepts (including consideration of intrinsic fault tolerance or methods to cope with unavoidable faults) for the various types of applications (from in-wheel to stand-alone or engine-integrated ones).
- Researching high performance conductive, magnetic and insulating materials.
- Defining simplified, high efficiency cooling concepts.
- Developing advanced magnetic modelling tools.
- Defining automated manufacturing concepts that, given the gradual introduction of these devices, are flexible enough to be capable of supporting efficient manufacturing

at the different rates needed in the early and full scale phases of the electrification process.

Funding scheme: Collaborative Projects
Group of topics N° 3
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-2. Integrated electric auxiliaries and on-board systems

The challenges of the implementation of a world class electric car include matching as well as possible current customer expectations in other domains such as comfort, safety and driveability. This entails the electrification and integration on board of several power-hungry devices, from climate control to lighting, from power steering to infotainment, from braking systems to pumps for several liquids (cooling, fuel, oils, depending on the application) and after treatment. These should be optimised in order to be competitive with the highly refined mechanical equivalents, and not to add too large an energy burden to the vehicle.

The proposals should therefore focus on:

- Developing optimised electrified components and subsystems (as listed above) in terms of efficiency, size, power-class, weight and cost (design for manufacturing) In some cases, such as steering and braking, due consideration of regulations and safety, needs to taken.
- Developing energy harvesting concepts which could compensate other auxiliaries' energy consumptions.
- Studying other energy control devices, such as actively controlled glasses, to optimize the energy flows.

Electric safety of the new on-board devices and systems must be kept at least at the safety level which is established today for other type of equipments through the EC Low Voltage Directive. The development of specific auxiliaries and heat recovery systems for heavy duty vehicles (in particular buses) is also acceptable for applications where these differ significantly form light duty vehicle ones and where they represent a significant share of the vehicle's global energy requirements and therefore would provide a significant power saving potential. Synergies with other transport modes such as light rail would be preferable.

Funding scheme: Collaborative Projects
Group of topics N° 3
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-3. Optimised thermal engine development and integration

Advanced plug-in hybrids and electric vehicles with range extenders need to benefit from highly efficient, compact, clean and low cost engines to provide battery charging over longer trips or in areas where electric recharge infrastructure is not available. In order to be

consistent with the "zero emissions" label of electric vehicles, these engines should aim at significantly improving over future Euro 6 standards for noxious emissions.

Proposals should therefore deal with the development and integration of:
- Highly innovative engines, based on alternative architectures or cycles, particularly adapted for this application.
- Extremely downsized automotive engines with the associated gearbox if necessary.
- Existing engines from other applications potentially well adapted to the range extender role

Funding scheme: Collaborative Projects
Group of topics N° 3
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-4. Smart storage integration

Battery packs for pure electric and plug-in vehicles, even with the most advanced batteries available today and in the near future, will be bulky and heavy components. Their integration would therefore be problematic, and even more so when the emerging concepts in which these packs would need to be removable for fast "refuelling" over long trips are considered.

Proposals will therefore aim at:
- Developing innovative concepts for the physical integration in the vehicle structure.
- Smartly integrating the battery pack in the various on-board systems (electric, cooling, monitoring).
- Considering the implications of both the above points in the case of removable packs and assess the benefits and disadvantage, and therefore the feasibility of the quick-change concept (if possible also in view of its environmental, cost, logistic and life cycle impacts).

The novel concepts for smart electrical storage in vehicles must also provide adequate level of safety. Proposals may address aspects of electrical safety, fire and safety at misuse.

Funding scheme: Collaborative Projects
Group of topics N° 3
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-5. Advanced electric vehicle concepts

The electrification of road vehicles, if brought to its extreme consequences, can have a significant impact on the basic vehicle concept. Today's cars are shaped in ways that strongly descend from the presence of an internal combustion engine on board, with its architectural constraints, dictated by mechanical, thermal, or safety considerations.
The requirements and constraints deriving from an electrical powertrain are much less stringent in several areas, yet not fully explored.

Therefore projects aiming at exploring all the aspects and requirements emerging from this new paradigm are needed, particularly for urban vehicles.
Proposals will address aspects such as:

- Innovative concepts for light weight and crashworthy architectures.
- Optimised aerodynamic bodies for the new packaging constraints.
- Ergonomic on board passenger space and for assembly/maintenance/repair accessibility.
- Modular vehicle architectures that benefit from the absence of many mechanical constraints in the current vehicles both in the construction and use phases.
- EMI/EMC aspects of the new electric vehicle to ensure the successful integration of novel drive systems into complete vehicles.
- Overall optimization of efficiency and reliability of the drive train.

These concepts will be considered in a holistic way to achieve optimised performance with as little as possible cost, weight, comfort and performance penalties compared to today's vehicles.

Funding scheme: Collaborative Projects
Group of topics N° 3
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-6. Implementing Public-Private Partnership in the 'European Green Cars Initiative'

In the frame of the recently launched 'European Green Cars Initiative' this Coordination Action will support the realisation of a Public Private Partnership (PPP) in connection to this initiative (In particular, research priorities within FP7 and a roadmap of R&D activities for Europe).

In this context, road transport sector industries will interact with public authorities both at the level of the implementation of FP7 and national schemes. This Coordination Action will also look at coordinating efforts at the level of the different European Technology Platforms linked to the "European Green Cars Initiative" (ERTRAC, EPoSS and Smart Grid) and research supported by MS/AS.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Group of topics N° 3
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-7. Raising awareness of potential job opportunities related to the electrification of road transport

This Coordination Action aims at raising awareness of job creation opportunities and future prospects for young people deriving from the emergence of electrification as an important research and development trend in the automotive sector, which adds a new dimension to the traditional skills taught to automotive engineers and technicians.
The following activities might be included:

- Encourage young people to seek for high skilled jobs in sectors related to road transport electrification with special focus on science, research and innovation.
- Evaluate and demonstrate the potential of research outputs, outcomes and impacts to create and maintain jobs giving special consideration to opportunities for young people and gender balance.
- Extensive and broad communication and stimulation campaigns targeting young people of different ages (from high school to university). These could be: travelling workshops, competitions, animations and broad media actions directed to a young target, etc.

Proposals will focus on all major research priority lines defined for electrification research activities and might involve all major research stakeholders from industry, academia and society.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Group of topics N° 3
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1

GC.SST.2010.7-8. Green Cars - Integrated EU demonstration project on electromobility

Context and scope
The development of an electric vehicle market in the EU shall be stimulated through a large size integrated demonstration project, including vehicles, infrastructure and standards. Such a European project should also provide input for the smart grid development, integrating a whole new category of electricity users. This large-scale project should include demonstration in cities of captive fleets and their charging infrastructure. Electric vehicles are well adapted to urban vehicle mission profiles and the electrical infrastructure can readily be upgraded in cities, as can support services - leading to greater impact.
Fleets are expected to include several types of autonomous road vehicles with differing drive-train technologies, provided electricity for the electric drive can be taken from the grid. The demonstrations should be broad ranging - investigating different scenarios for vehicle-grid interaction. The project time-frame should consider latest technological developments in Community-funded or national and regional programs. The best use of electric vehicles in terms of range, CO2 emission and pollutant emissions should be considered. Fuel cell electric vehicles are not addressed here, as they are covered by the Fuel Cells and Hydrogen Joint Undertaking.

Activities
The activities to be carried out should include:
- Demonstration of the use of electricity as energy vector for road transport in a wide range of real-life operating conditions, including climatic and geographical conditions. The project should demonstrate several autonomous vehicle types from powered two-wheelers to buses with different types of electrical power train systems, including plug-in-hybrid to full battery electric technologies. Focus should be on vehicles where fossil fuel can be substituted and with an electric-only range consistent with typical operating ranges.

- Demonstration of all aspects of fixed infrastructure including different and bidirectional vehicle-to-grid interactions scenarios, and maintenance facilities.
- Development of standards; comprehensive safety assessment of vehicles and infrastructure; Technology validation for performance, durability and costs, under real-world driving conditions and including full energy and environmental impact.
- Assessment of impact on the electricity grids of a broad roll-out of electric vehicles, using modelling based on the real-life results of the project.
- Assessment of the impact on energy and environment, including a Well-to-Wheels analysis, and assessment of the lifetime economics.
- Assessment of customer acceptance, markets potentials and travel patterns.
- Communication, dissemination of information, and education.

Expected impact
The expected impact of this project is an acceleration of the market roll-out of electric vehicles in order to meet EU policy objectives. This project should contribute to clarify the safety, economic and technical viability of the different types of electrical vehicles for broad market introduction, as well as identify needed standards and requirements for fixed electrical infrastructure at European level. The results will be used as input for next generation development of electric vehicles and components**.**

Other information
A typical consortium could include cities or regional authorities, fleet operators, vehicles and equipment manufacturers, utilities, research centres and universities.

Funding scheme: Collaborative Project with a predominant demonstration component. The marginal cost associated with the innovation element compared to state-of-the-art vehicles will be considered as eligible cost.
Open in call: FP7-TRANSPORT-2010-TREN-1

GC.SST.2010.7-9. Materials, technologies and processes for sustainable automotive electrochemical storage applications

This topic will be implemented via a joint call between the following themes: NMP, Energy, Environment and Transport.

One of the crucial aspects of research needed for electric and hybrid vehicles related to electrochemical storage. It should concentrate on both: new low cost materials (nickel and cobalt oxides are expensive and their prices are exploding) and on safety problems related to thermal runaway. Research on these issues is multidisciplinary and must involve several themes to gather specialised knowledge and critical mass in a research field where step changes are needed. Another aspect that will be looked at is the issue of the recycling of batteries at the end of their life cycle and the development of technologies to maximise the recovery of materials, in particular for those of high added-value or presenting high environmental impacts.

The call is jointly organised by the Directorates NMP, Energy, Environment and Transport of DG RTD. The indicative budget of the NMP part for this 'Green Cars' PPP initiative is EUR 10 million in 2010, while the other Directorates each contribute EUR 5 million. The Community funding part of the indicative budget of the Call is thus EUR 25 million. The

deadline is fixed on January 14, 2010 at 17.00 (Brussels local time). The Call fiche of this joint call is found below and in Annex 5.

Contents/scope: Research projects are called for addressing innovative materials and technologies for battery components, material architectures and systems for automotive electrochemical storage within a responsible, sustainable and environmental-friendly approach looking at the entire life cycle.

Projects for batteries and/or electrochemical capacitors are eligible. For batteries, research should focus on innovative developments for lithium-based energy storage technologies improving on safety and energy density. Alternatively, projects can be looking at completely different technologies, architectures and chemistries, such as open cells for higher energy densities.

For existing or near-to-market types of lithium-based batteries, projects dealing with the recycling, recovering and re-use of materials are eligible, as well as projects on the comprehension, modelling and management of degradation drivers and processes with the aim to extend the calendar and operational life of the cells.

The environmental sustainability of each developed solution shall be assessed via life cycle assessment studies carried out according to the International Reference Life Cycle Data System (ILCD) Handbook[44].

Cost, recyclability and safety issues should be prominently emphasized in all projects, as well as proof of concept in terms of product and/or process (not necessarily reaching the industrial scale but convincingly proving scalability towards industrial needs), thereby exploring their standardisation potential. The effect of bidirectional flow at charge stations should be taken in due account, as well as the potential for fast charging (at least 5C) without significant life reduction.

Participation from the manufacturing industrial sector is requested in each project. Aspects like characterisation, standardisation and synergies with other applications, availability of concerned materials, eco-design, manufacturing, can be covered.

At the same level of quality resulting from the evaluation by independent experts, priority for funding should be given to proposals that allow covering this topic as completely as possible.

Work on fuel cells is excluded since it is already covered in the related JTI, but research on synergies of specific storage chemistries and architectures with fuel cell vehicle applications is also considered.

Expected impact: Establishing the basis for a world level European automotive battery and electrochemical capacitors industry, with significant contributions to lead the market in the area of recycling[45]. Fostering the constitution of interdisciplinary consortia. The expected impact has to be credibly motivated in terms of performance, cost, recyclability and life-cycle sustainability. Quantitative targets for lithium-based energy storage technologies include cost reduction down to a system level target value[46] of maximum 150 €/kWh for mass production and improvement of safety and energy density up to at least 200 Wh/kg. For electrochemical capacitors the corresponding targets are respectively a

[44] http://lca.jrc.ec.europa.eu/EPLCA/Deliverables/ILCD_handbook.htm
[45] A Lead Market Initiative for Europe, http://ec.europa.eu/enterprise/leadmarket/recycling.htm.
[46] All targets are at end of life, cell level for mass produced elements unless otherwise specified.

cost reduction down to maximum of 10 €/kW and a specific power of at least 25 kW/kg, with an energy density of at least 10 Wh/kg. Advanced chemistries should target energy densities of at least 300 Wh/kg.

Funding scheme: Collaborative Projects
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: Sustainable automotive electrochemical storage (FP7-2010-GC-ELECTROCHEMICAL-STORAGE)

7.2.8. CALL 'THE OCEAN OF TOMORROW' – JOINING RESEARCH FORCES TO MEET CHALLENGES IN OCEAN MANAGEMENT

A special attention is paid to encourage pluri-disciplinarity in marine sciences and technologies which cuts across themes as mentioned in the Specific Programme 'Cooperation'[47] and in the Communication[48] on 'A European strategy for Marine and Maritime Research'. Such cross-thematic approach is addressed through a call on 'The ocean of tomorrow: Joining research forces to meet challenges in ocean management' involving various Cooperation themes (Theme 2 - Food, Agriculture and Fisheries, and Biotechnologies; Theme 5 - Energy; Theme 6 - Environment (including Climate Change); Theme 7 - Transport; and Theme 8 - Socio-economic Sciences and Humanities). The call is implemented through three different topics: topic 1 'Quantification of climate change impacts on economic sectors in the Arctic'; topic 2 'Vectors of changes in marine life, impact on economic sectors'; and topic 3 'Sub-seabed carbon storage and the marine environment'.

Introduction

Oceans offer opportunities for sustainable economic development. However, human activities are exerting increasing environmental pressure on the oceans, which is threatening marine ecosystems and sustainable maritime activities. In particular, the growing demand for maritime transport, offshore energy, tourism, coastal development, fisheries and aquaculture, security and surveillance pose a major threat to the marine environment.

The European Union has taken up this challenge and established a new integrated maritime policy, of which the "European Strategy for Marine and Maritime research"[49] is a fundamental part. The strategy highlights the importance of integration between established marine and maritime research disciplines in order to reinforce excellence in science and to

[47] OJ L 400/102 30.12.2006 Council Decision of 19 December 2006 concerning the Specific Programme "Cooperation" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013).
[48] Com (2008) 534 final, 3.9.2008 - Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: A European Strategy for Marine and Maritime Research : A coherent European Research Area framework in support of a sustainable use of oceans and seas.
[49] Com (2008) 534 final, 3.9.2008 - Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: A European Strategy for Marine and Maritime Research : A coherent European Research Area framework in support of a sustainable use of oceans and seas.

reconcile the growth of sea-based activities with environmental sustainability as highlighted in the European Marine Framework Directive 2008/56/C. In particular, the Commission announced the launch of a joint call under FP7 on major research topics requiring a cross-thematic approach.

The aim of the call "The ocean of tomorrow: Joining research forces to meet challenges in ocean management" is to improve our understanding and the predictive capacity concerning how marine ecosystems respond to a combination of natural and anthropogenic factors. Also how rapid environmental changes will affect the full range of goods and services provided by the oceans and the measures that could be developed to mitigate or adapt to these changes. Research addressed in the call will be of cross-thematic nature, integrating in a coherent way marine and maritime research domains in order to reach an impact that a single Theme of the Cooperation programme could not attain on its own.

The call will be implemented through three different topics: topic 1 "Quantification of climate change impacts on economic sectors in the Arctic"; topic 2 "Vectors of changes in marine life, impact on economic sectors" and topic 3 "Sub-seabed carbon storage and the marine environment".

A multi-disciplinary approach and a multi-sectoral partnership are considered essential to achieving the expected impacts.

OCEAN.2010-1. Quantification of climate change impacts on economic sectors in the Arctic

Changing climatic conditions in the Arctic have far reaching consequences both economically and environmentally, in particular considering the specificity and vulnerability of the region and its local populations. On the one hand there may be opportunities due to enhanced accessibility; on the other hand changes in the future use of the Arctic region would involve potentially increased anthropogenic environmental pressures, such as: noise affecting marine mammals, fisheries, shipping, accident risk and consequence, soot, pollution etc. The research is to be seen in the context of policies, such as the Communication of the Commission 'The European Union and the Arctic Region' (COM(2008) 763 final) and relevant actions in the Communication should be noted.

The project will focus on assessing and quantifying Climate change impacts on both macro and meso-economic level for key sectors (maritime transport, fisheries, tourism and resource extraction) and on how these sectors could affect the Arctic environment, including climate feedbacks.

Research concerning these sectors, in particular maritime transport and fisheries, should draw upon environmental and economic modelling and explore the potential scale, benefits and issues of these activities within the Arctic environment (e.g. exploitation of sensitive habitats, accident response, infrastructure, noise, ship types). The project should also discuss policy and governance options including marine spatial planning, for sustainable development, whilst protecting and preserving the Arctic environment. Governance including geopolitical aspects in relation to these activities and climate change has also to be addressed, including foresight and assessment of economic impacts. A multi-disciplinary approach and a multi-sectoral partnership are considered essential to achieving the expected impacts.

Expected impacts

- Providing a foundation for the sustainable development of human activities, with a minimal impact on the sensitive Arctic environment (e.g. noise affecting marine mammals, fisheries, shipping , accident risk and consequence, soot, pollution).
- Quantifying climate change impacts at macro and meso-economic levels and in key economic sectors in the Arctic, using an integrated and trans-sectoral approach.
- Understanding the economic and social impact of climate changes in the Arctic region, and assess the risks and opportunities in relation to climate change.
- Providing a scientific foundation to support governance, geopolitics, ecosystem conservation, and socio-economic issues necessary for sustainability in relation to the expected increase in human activities in the Arctic region including with a forward-looking perspective an assessment of the state and evolution of the Arctic environment in relation to economic activities to contribute to formulation of appropriate EU policies.

Funding scheme: Collaborative project (Large-scale integrating project)
Additional eligibility criteria: The requested EC contribution shall not exceed EUR 11 000 000
Open in call: **'The ocean of tomorrow' (FP7-OCEAN-2010)**

OCEAN.2010-2. Vectors of changes in marine life, impact on economic sectors

Marine environments are under major global threats and subject to many changes. However, the mechanisms inducing these changes in particular changes in marine life are poorly understood and quantified. It is crucial to better understand and assess, in an integrated way, the interaction between changes in marine life and European marine and maritime economic sectors. Research shall contribute to formulating feasible adaptive management strategies for the EU.

The project will include consideration of human induced changes on marine life, including impact from transport, energy devices, exploitation of living resources, discharges, together with environmental changes (including climate changes). The focus will be on outbreaks of invasive or indigenous species, changes in distribution of population of marine organisms such as fish populations, on vectors of changes and the impacts of these changes on biodiversity and related economic sectors. Research should consider the present situation and investigate future scenarios for adaptation and mitigation considering the introduction of new technologies and structures, such as new ballast water practices, ocean and off-shore wind energy devices, new fishing strategies and new policies needs.

The project will improve the understanding of the mechanisms causing outbreaks of indigenous species e.g. jellyfish; the presence of invasive species caused by transport or via other transfer vectors; changes in fish distribution and productivity (including exploited species) at population and community level, caused by environmental and human-induced changes. It will quantify the impact of these changes on the ecosystem and identify the trends on ecosystem structures (e.g. biodiversity) and function (e.g. food chain). It will also provide data and tools to relevant stakeholders within the environmental, policy and economic spheres e.g. for exploitation of offshore devices, transport and fisheries.

Moreover, the project will evaluate the social and economic consequences of changes in the marine ecosystems, market and non-market impacts including public perception and engagement, risk and vulnerability for related sectors (public health, tourism, transport, fisheries and aquaculture, ocean and off-shore wind energy devices, etc). When appropriate, the project should consider forthcoming strategies such as the IMO Convention on ballast water management. It will also investigate feasibility of additional management measures if necessary to address changes in the marine environment in cooperation with stakeholders, aiming to contribute information and knowledge that is vital for addressing forthcoming requirements, policies and regulations such as the EU Maritime Policy and Marine Strategy Framework Directive 2008/56/EC, Common Fisheries Policy, IMO conventions.

The project should maximise its impact by addressing several ocean and sea areas bordering the EU and when appropriate building upon existing work. A multi-disciplinary approach and a multi-sectoral partnership are considered essential to achieving the expected impacts.

Expected impacts

- Improved knowledge on the impact of human induced and environmental changes on marine life and economic activities in several ocean and sea areas bordering the EU.
- Quantification of the impact of changes in marine life (invasive species, outbreak, changes in marine organisms populations such as fish populations) on biodiversity and

related economic sectors (tourism, fisheries and aquaculture, transport, energy), including public perception.
- Provide scientific foundation for feasible, sustainable management measures supporting policies and possible related technologies.
- Contributing to sustainable management of marine ecosystems and activities.

Funding scheme: Collaborative project (Large-scale integrating project)
Additional eligibility criteria: The requested EC contribution shall not exceed EUR 12 500 000
Open in call: **'The ocean of tomorrow' (FP7-OCEAN-2010)**

OCEAN.2010-3. Sub-seabed carbon storage and the marine environment

The EU Climate-Energy package contains a directive on Geological Storage of Carbon Dioxide which allows sub-seabed storage of CO_2. Moreover, in order to prepare for the large-scale use of Carbon Capture and Storage technology, the European Commission proposes to launch a European Industrial Initiative on CO_2 capture, transport and storage, to stimulate, coordinate and support a series of large-scale demonstration plants that should be operational by 2015. Several of these demonstration projects could rely on sub-seabed storage sites. Confidence in the technology would be further enhanced by increased knowledge and assessment ability, in particular with respect to the environmental impact of CO_2 on the marine seafloor. So far, few studies specifically address possible effects on marine ecosystems in case of CO_2 seepage from sub-seabed geological storage.

The project will address the potential impact of sub-seabed CO_2 storage on marine ecosystems: during the deployment of the CO_2 injection equipment, during the injection of CO_2 into the storage site, and after the end of the storage operations. It should identify and focus on those aspects likely to be novel as compared with related activities such as hydrocarbon extraction. The project should encompass modelling as well as field studies in at least one existing European off-shore storage site. It should establish a framework of best environmental practices in the management of off-shore CO_2 injection and storage, tested in situ at least at small scale. This shall include procedures for establishing an environmental baseline for a prospective storage site (including a quantitative assessment of the vulnerability of surrounding ecosystems), and for assessment of the actual environmental impact of the sites. The development of innovative monitoring techniques able to detect episodic events and/or prolonged low-flux seepage is a key element of the project. Possible environmental impacts on long time scales (several decades to centuries), and associated risk management needs, will also need to be investigated. The scope of the project should be ambitious but realistic; the investigations should be extended to water depths with expected relevance to CO_2 storage including the continental margins. Economic issues such as the cost of long term monitoring or the cost of intervention if leakage were to happen should be considered, taking account of general site characteristics such as storage type, water depth, etc. Public acceptance of sub-seabed carbon storage should also be assessed.

The project shall take account of knowledge accumulated in ongoing CO_2 storage experiments in Europe. A multi-disciplinary approach and a multi-sectoral partnership are considered essential to achieving the expected impacts.

Expected impacts

- A better understanding of the potential impact of the whole life cycle of sub-seabed carbon storage on marine ecosystems in accordance with the precautionary principle of the EU marine strategy.
- Development and use of innovative monitoring techniques able to detect episodic events and/or prolonged low-flux seepage.
- Improved economic assessment of monitoring costs and possible mitigation costs.
- Assessment of public perception of sub-seabed carbon storage.
- Enhanced international collaboration.

Funding scheme: Collaborative project (Large-scale integrating project)
Additional eligibility criteria: The requested EC contribution shall not exceed EUR 10 500 000
Additional information: The participation of industrial partners operating - or planning to operate – sub-seabed CO2 storage sites is crucial to the implementation of the project. Because sub-seabed carbon storage is a global issue, the participation of one or several partners (funded under their national budget) from either Japan, Australia or the US would maximise the impact of the project. This will be considered in the evaluation.
Open in call: **'The ocean of tomorrow' (FP7-OCEAN-2010)**

7.3. HORIZONTAL ACTIVITIES FOR IMPLEMENTATION OF THE TRANSPORT PROGRAMME

I.3. CONTEXT

I.3.1. Approach

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, co-modality and – in general – concerns that are common or anyhow of interest to more than one transport mode. The strategic objectives for this call have been presented in section I.0.4. Main differences with Work Programme 2008.

I.3.2. Structure

This section of 'Theme 7 Transport (including Aeronautics)' is not formally structured in activities and areas according to the Specific Programme[50]. Nonetheless, for the sake of clarity the topics proposed for the third call of the transport horizontal activities (FP7-TPT-2010-RTD-1) are presented accordingly with the major strategic objectives of these horizontal activities. Four groups of topics have been established: 1) socio-economic research and technology foresight; 2) integration of transport modes and cross-cutting research; 3) strengthening the European Research Area and encouraging participation; and 4) dissemination and awareness of research results.

I.3.3. Funding schemes

Collaborative projects in the call FP7-TPT-2010-RTD-1 are small or medium-scale focused research projects (CP-FP). Co-ordination and Support Actions (CSA) is the other funding scheme used in this call. Topic TPT.2010-5 is equally open to Research for the Benefit of Specific Groups – Civil Society Organisations (BSG-CSO) funding scheme. Topic TPT.2010-6 targets also collaborative projects for specific cooperation actions (SICA) dedicated to international cooperation partner countries.

The maximum requested Community contribution for CP for specific cooperation actions (SICA) dedicated to international cooperation partner countries and for CP-FP is up to EUR 1.5 million, which is an eligibility criterion.

[50] 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).

II.3. CONTENT OF CALL FOR 2010

II.3.1. Socio-economic research and technology foresight

TPT.2010-1. Global challenges in a long term perspective: 2030-2050

Scope and expected results
A forward-looking activity has to be developed aiming at identifying and anticipating the key drivers of change and the related socio-economic impacts in the Transport theme. This forward-looking activity should help to identify future research and innovation priorities contributing to build a strong European Research Area in the specific Transport theme. It will also provide strategic intelligence useful for the preparation of the future Framework Programme.

Research activities funded under this topic would liaise and co-ordinate as appropriate with relevant activities of related Technology Platforms (TPs), e.g. ACARE (see topic AAT.2010.7-15), ERRAC, ERTRAC, WATERBORNE and HFP, as well as with the "Future of Transport initiative"[51], in order to create synergy and avoid duplication.

Proposals could combine the scope of this topic with that of TPT.2010-2, particularly on addressing new clean technologies for transport systems and market drivers.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-2. Prospects on upcoming global competition for the European transport industry on clean transport systems

Expected results
Better understanding of the global position of the European transport industry and definition of strategic options for European transport research policy, in a context where efficient technologies and operational measures should help to reduce drastically or even eliminate greenhouse gas emissions and other environmental impacts of the transport sector.

Scope
Study/actions would allow for:
- Assessing the present situation of European transport research per mode regarding the impact of European environmental policy on the global competitiveness of the EU transport industry (manufacturers and related services).
- Appraising existing options and possible innovative solutions for clean transport, services and logistics long before mass application.
- Evaluating the impact of these transport innovations on the global competitiveness of major EU industrial sectors, including a preliminary evaluation of the actual impact of travel costs and performance on the global competitiveness of those industrial sectors.

[51] http://ec.europa.eu/transport/strategies/2009_future_of_transport_en.htm

- Analysing the demand and market drivers for new services or products related to the transport sector.
- Developing identified scenarios at successive time horizon 2020 and beyond.
- Deriving and supporting roadmaps of strategic options for European transport research policy.

Research activities funded under this topic would liaise and co-ordinate as appropriate with relevant activities of related TPs (e.g. ACARE, ERRAC, ERTRAC, WATERBORNE and HFP), including the 'European Green Cars Initiative'.

Proposals could combine the scope of this topic with that of TPT.2010-1, particularly on addressing key drivers of change and related socio-economic impacts.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-3. Exploring future transport 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 and environmental protection should be sought. Co-ordination – as appropriate – with the relevant national research programmes and ERA-NETs as well as with on-going research projects is expected.

Scope
Study/actions would allow for:
- Outlining the transport system of the second half of the 21st century encompassing radically innovative concepts and solutions for the development of future sub-systems, and their integration in the existing system when appropriate, contributing to identify new mechanisms by which an integrated transport system and its comprising modes could operate beyond 2050.
- Elaborating scenarios about the transport systems after 2050 while taking into consideration different societal trends and challenges.
- Facing challenges of safety measures in transport with regard to the serious societal problems like massive increase of obesity, which might be involved within the broader scope of research activities analysing future transport paradigms.

Actions funded under this topic would liaise and co-ordinate as appropriate with related activities, such as the 'Future of Transport' initiative[52] and the Transport-related TPs agendas (e.g. see topic AAT.2010.7-15), in order to create synergy and avoid duplication.

Funding scheme: Coordination and Support Action aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

[52] http://ec.europa.eu/transport/strategies/2009_future_of_transport_en.htm

II.3.2. Integration of transport modes and cross-cutting research

TPT.2010-4. Optimisation and integration of R&D efforts for transport of passengers by enhanced intermodality

Expected results
Proposals should contribute to enhance the integration of the different systems of transport of passengers – aeronautics, road, rail and waterborne – by optimal and reliable infrastructure interfaces and combined operations. Increased efficiency of R&D efforts by co-operation and sharing of technology between surface modes and aeronautics is of paramount importance.

Scope
Study/actions would allow for:

- The identification of needs and research for technical solutions addressing intermodality and door-to-door transport of passengers, integrating and optimising combined operations and aircraft/vehicle/vessel and infrastructure interfaces (e.g. the connection between high speed trains and airports).
- Setting up a dialogue for cross-fertilisation of technical solutions, analysing the transferability of the findings and best practices between modes in selected areas such as sustainable materials, human factors (including passenger comfort), and stimulation of radical technological changes.
- The research would involve 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.

Proposals could combine the scope of this topic with that of TPT.2010-5.

Funding scheme: Collaborative Project small or medium-scale focused research, and Coordination and Support Actions aiming at supporting research activities
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-5. Demand/supply management and logistics for transport of passengers through increased co-modality and understanding of social behaviour

Expected results
Proposals should contribute to the definition of processes and development of methodologies for better visualise potential improvement of passengers transport chains, including technical, economic, environmental and social considerations. The understanding of social and behavioural issues that influence modal choice would help promote a new culture for environmentally friendly mobility.

Scope
Study/actions would allow for:

- Improving transport demand management (with focus on soft measures) and personalisation/customisation of transport services (e.g. real-time travel information to the public and accessibility, ICT common solutions to purchase of tickets and the tracking of luggage, etc.) to improving passenger time efficiency and comfort.
- Improving transport supply management, which would involve a higher transparency of the supply chain, collaborative processes and new business models.
- Innovative methods for increasing capacity and efficiency of existing road/urban space, airports and railway systems.
- Analysing differences in traveller behaviour across European countries and regions.
- Developing medium (10 years) and long-term (30 years) scenarios in modelling, forecasting and analysing factors influencing transport and travel behaviour: transport demand, social trends and demographics and the drivers of travel behaviour in different social groups, including older and disabled people and socially excluded groups.

Proposals could combine the scope of this topic with that of TPT.2010-4 and may take into account the priorities (which are relevant to this topic) of the 'Socio-Economic Sciences and the Humanities' theme of the FP7 'Cooperation' specific programme. International cooperation could also be taken into account.

Funding scheme: Collaborative Project small or medium-scale focused research, Coordination and Support Actions aiming at supporting research activities, Research for the Benefit of Specific Groups – Civil Society Organisations (BSG-CSO)
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-6. Alternative fuels in transport

Expected results
Exchange, transfer or 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 research results on alternative fuels of interest for several transport modes, thus contributing to improved international co-ordination of research and trans-national technology development. Efficiency increase, emissions reduction and sustainability should be guiding dimensions for comparing different options.

Scope
All transport modes are researching alternative fuels that should ideally be efficient, economic and environmentally friendly. The success and increased use of such fuels will be conditioned by their capacity to answer each of these qualities while ensuring an appropriate balance between them. The point of equilibrium is the result of the interactions between different stakeholders, i.e. the fuel producers, the regulatory authorities, the vehicle manufacturers, the energy infrastructure and the operators. The optimum fuel or use of different fuels may vary depending on the transport mode. This action will gather the relevant stakeholders in the view of understanding the rules and mechanisms that lead to find this optimum. They would investigate the most appropriate approach for each sector and identify bottlenecks that prevent the use of alternative fuels beyond experimental scale. Solutions would be proposed to overcome these impediments. Proposals could include specific technical subjects relevant to this topic, such as fuel supply chain (including

distribution), blending techniques, operational constraints (infrastructure, vehicle), and adaptation or development of engines and power plants. Proposals should built on existing results and research projects and may also include studies to analyse, compare, assess and link results from past and on-going research projects, identifying commonalities between transport modes and setting recommendations for further research and technology development on alternative fuels for transport.

Actions funded under this topic would liaise and co-ordinate as appropriate with related activities of those TPs that are relevant to the case (e.g. the European Biofuels Technology Platform), as well as other related actions. Adequate dissemination activities should be included.

International Cooperation is encouraged in this activity, in particular with:
- Brazil, USA and India on bio-fuels research
- South Africa on synthetic fuels research.

Funding scheme: Coordination and Support Actions aiming at supporting research activities, Coordination and Support Actions aiming at coordinating research activities, and Collaborative Project for specific cooperation actions (SICA) dedicated to international cooperation partner countries
Note: Limits on the EC financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the call fiche for details of these limits
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-7. Noise mitigation research in transport: coordination of research and strategies

Expected results
External noise from all transport modes impacts the citizens. This action should aim at coordinating the research actions that target the reduction of external noise in the different transport modes, after an adequate assessment of the overlay of the external noise generated by them.

Scope
The project will provide a regularly updated state of the art, identify the domains where coordination would bring added value and implement this coordination. It should also identify deficiencies in the research landscape and discuss and define strategies for future research. The exchange of best practices in noise reduction and an analysis of the impact of different measures aiming at reducing the external noise would also be of value. The results of the project will be made available to the research community and dissemination events will be organized.

International Cooperation is encouraged in this activity.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

II.3.3. Strengthening the European Research Area and encouraging participation

TPT.2010-8. Analysis of the state of ERA development within the transport domain

Expected results
Evaluate progress towards the realisation of the ERA in the transport sector. Identify strengths and weaknesses of research in this domain, specific barriers impeding the realisation of ERA, and new opportunities to overcome fragmentation, thus supporting the achievement of the ERA objectives.

Scope
The ERA Green Paper[53] identified six non-sector specific dimensions or "axes" (realising a single labour market for researchers; developing world-class research infrastructures; strengthening research institutions; sharing knowledge; optimising research programmes and identifying priorities; and opening to the world through international cooperation) in which action should be taken in order to realise ERA. A number of documents have been and will be adopted as a result. It is likely however, that the extent to which there are deficiencies in these areas and hence the extent to which remedial action is required will vary according to the specific research sector in question. Taken together, these observations provide strong support for an ERA focussed sectoral stock-taking of the strengths, weaknesses, opportunities and threats in the Transport sector. Such work would identify the extent to which ERA is being realised in the Transport sector by identifying the barriers causing weaknesses in the sector or characteristics contributing to success. Where possible, trends would be identified, permitting a regular assessment of progress.

The results of the work would be used by the Commission in the further development of ERA research policy, and would also contribute to the development of future Framework Programmes.

Actions funded under this topic would liaise and co-ordinate as appropriate with related activities of TPs in the Transport sector.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-9. Market uptake of transport research and role of actors and regions

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 smaller actors in the transport sectors and drivers/barriers (both technical and

[53] COM(2007) 161 final (http://ec.europa.eu/research/era/pdf/era_gp_final_en.pdf).

socio-economic) for market uptake of research results. Action results should contribute to encourage and help weaker players to participate in RTD initiatives.

Scope
Study/ actions would 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 actors and regions in Europe (e.g. knowledge and innovation clusters, poles of attraction for research and innovation).
- Assessing research-funding instruments available to research actors and identifying innovative economic and financial instruments.
- Identifying weaker players and possible ways to encouraging their involvement in RTD programmes.

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 actors in Europe[54].

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

II.3.4. Dissemination and awareness of research results

TPT.2010-10. Supporting the organisation of conferences or events of special relevance to the European transport sector

Expected results:
Proposals should demonstrate relevant contribution to the dissemination of knowledge or results of European research in the field of transport, with the objective to improve co-ordination of research and technology development in the sector.

Scope:
Activities will include in particular the organisation of conferences or other type of events at European level. The events should be focused on broad policy issues and technical or socio-economic subjects of high relevance for the sector and with clear European or world-wide dimension.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

TPT.2010-11. Environmental transport database

Expected results

[54] The analyses could take into account the experience of Aero-PMEs, set up within GIFAS (French Aerospace Industries Association) in June 1996, as well as other possible ones related to other Transport sectors and players (https://www.gifas.asso.fr/en/pages.php?tab=gifas&sub=9).

Well-to-wheel exercises are limited in scope and coverage of transport modes and technological paths to measure and compare energy efficiency and environmental data (namely emissions). Environmental data and well-to-wheel analyses are crucial for the validation of the modelling of vehicles/vessels/aircraft environmental impacts. Results are currently spread under different formats and access conditions. The aim of this action is to facilitate access to reliable well-to-wheel data relevant to the transport sector.

Scope
This action will perform a survey of the available relevant data and develop a comprehensive database with harmonised formats and access conditions across the transport modes. Issues related to data quality and data collection must be considered as well. IPR issues and legal matters will be addressed. The database will be publicised and made available to modellers. Networking and dissemination events will be organised to tighten the links between experimentalists and modellers as well as to encourage testing of real-world data (e.g. historical series) for on-going refinement of datasets.

Actions funded under this topic would liaise and co-ordinate as appropriate with related activities and models as well as with EUROSTAT, in order to have a coherent approach by defining/using comparable datasets and reference cross-checking methodologies and avoid duplication. It should be ensured that the database is made available to all relevant stakeholders use.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-TRANSPORT (TPT)-2010-RTD-1

7.4. GALILEO

The European Global Navigation Satellite System, encompasses Galileo and EGNOS, and provides a worldwide positioning and timing infrastructure.

In parallel to the development phase, that is demonstrating the technical feasibility and the European capacity of implementing an independent satellite navigation infrastructure, the deployment of the full Galileo satellite constellation and the associated ground segment starts in 2008. The procurement activities include full system validation and are foreseen to lead in 2013 to an operational infrastructure owned by the European Community.

The main objective of the deployment phase is to procure and set up the various elements that constitute the Galileo infrastructure, in particular the completion of the space and ground infrastructures, system support tasks, launch and operation of services, as well as the development of external interfaces for the future service/application systems and test receivers. Beyond manufacturing of equipments, the procurement activities encompass trade-offs and analysis, simulations, testing, demonstration, in-orbit validation, and other activities that increase competencies of European companies in satellite navigation.

According to the European GNSS Regulation[55], the financial envelope foreseen to implement the above activities (EUR 3.4 billion for EGNOS and Galileo) includes the sum of EUR 400 million made available from the Seventh Research and Development Framework Programme for the period 2007-2013.

A delegation agreement between the European Commission and the European Space Agency has been concluded in the course of 2008, pursuant to Article 54(2) of the EC Financial Regulation, allowing ESA to procure the Galileo deployment in the name and on behalf of the Commission. Therefore, the implementation of the above activities will not be detailed in this work Programme. Finally, the Commission will procure performance monitoring facilities.

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 R&D activities will follow the incremental build up of the infrastructure, i.e. EGNOS in 2009, four satellites for in orbit validation in 2011, and the full 30-satellites constellation in 2013. The activities will build on existing infrastructure elements, including ground-based test and verification facilities.

[55] Regulation (CE) n° 683/2008 of European Parliament and Council of 9 July 2008

The 'GNSS Evolution programme' of the European Space Agency will maintain the technology at the state-of-the-art level. The activities within European GNSS Supervisory Authority and European Space Agency are coordinated.

The European GNSS, as a global navigation system, has a strong international dimension. All R&D 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 financial envelope foreseen to implement Galileo deployment activities (EUR 3.4 billion for EGNOS and Galileo), includes the sum of EUR 400 million made available from the Seventh Framework Programme for research technological development and demonstration activities for the period 2007-2013. **As a result there will be no calls for Galileo under the Theme Transport of the 2010 Work Programme, although a budget of 30 millions will be allocated for the financing of the Delegation Agreement executed with the European Space Agency for the deployment of the Galileo constellation of satellites.**

III.1. IMPLEMENTATION OF CALLS AERONAUTICS AND AIR TRANSPORT

III.1.1. Main call

- **Call title: FP7- AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1**
- **Call identifier: FP7-AAT-2010-RTD-1**
- **Date of publication:** 30 July 2009
- **Deadline[56]:** 14 January 2010 at 17.00.00 (Brussels local time)
- **Indicative budget[57]**: EUR 101.29 million
  The indicative distribution of the call budget is as follows:
  - EUR 3 million for CSA–SA;
  - EUR 98.29 million for topics funded via CP-FP (Level 1) and CSA-CA.

  The budget for this call is indicative. The final budget awarded to actions implemented through calls for proposals may vary:
  - The final budget of the call may vary by up to 10% of the total value of the indicated budget for each call; and
  - Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.
- **Note:** no topics for NoE or CP-IP (Level 2) are open in this call.

- **Topics called:**

Activity / Area	Topics called	Funding Schemes
7.1.1. THE GREENING OF AIR TRANSPORT		
7.1.1.1. Green aircraft	AAT.2010.1.1-1. Flight physics	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.1.1-2. Aerostructures	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.1.1-3 Propulsion	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.1.1-4. Systems and equipment	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.1.1-5. Avionics	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.1.2. Ecological production and maintenance	AAT.2010.1.2-1. Production	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.1.2-2. Maintenance and	CP-FP (small or medium-

[56] The Director-General responsible may delay this deadline by up to two months.
[57] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budget authority.

	disposal	scale focused research), CSA-CA (coordinating)
7.1.1.3. Green air transport operations	AAT.2010.1.3-2. Airports	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.1.3-3. Design systems and tools - Understanding interactions between air transport, environment and society	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.2. INCREASING TIME EFFICIENCY		
7.1.2.2. Time efficient air transport operations	AAT.2010.2.2-2. Airports	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.3. ENSURING CUSTOMER SATISFACTION AND SAFETY		
7.1.3.1. Passenger friendly cabin	AAT.2010.3.1-2. Noise and vibration	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.3.3. Aircraft safety	AAT.2010.3.3-1. Aerostructures	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.3.3-2. Systems and equipment	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.3.3-3 Avionics	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.3.4. Operational safety	AAT.2010.3.4-1. Design systems and tools	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.4. IMPROVING COST EFFICIENCY		
7.1.4.1. Aircraft development cost	AAT.2010.4.1-1. Design systems and tools	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.1-2. Aerostructures	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.1-3. Systems and equipment	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.1-4. Avionics	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.1-5. Production	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.4.2. Aircraft operational cost	AAT.2010.4.2-1. Flight Physics	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.2-2. Aerostructures	CP-FP (small or medium-

		scale focused research), CSA-CA (coordinating)
	AAT.2010.4.2-3. Propulsion	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.2-4. Systems	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.4.2-5. Avionics	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.4.3. Air Transport system operational cost	AAT.2010.4.3-4. Human factors	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.5. PROTECTION OF AIRCRAFT AND PASSENGERS		
7.1.6. PIONEERING THE AIR TRANSPORT OF THE FUTURE		
7.1.6.1. Breakthrough and emerging technologies	AAT.2010.6.1-1. Lift	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.1-2. Propulsion	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.1-3. Interior space	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.1-4. Life-cycle	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.6.2. Step changes in air transportation	AAT.2010.6.2-1. Novel air transport vehicles	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.2-2. Guidance and control	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.2-3. Airports	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
7.1.6.3. Promising pioneering ideas in air transport	AAT.2010.6.3-1. The cruiser/feeder concept	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.3-2. Take-off and landing with ground-based power	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.3-3. Personal air transport systems	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)
	AAT.2010.6.3-4. New sources of aircraft main propulsive power	CP-FP (small or medium-scale focused research), CSA-CA (coordinating)

7.1.7. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME		
	AAT.2010.7-3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles	CSA-SA (supporting)
	AAT.2010.7-4. Retrofitting for improved sustainability and economic viability of aeronautical products	CSA-SA (supporting)
	AAT.2010.7-6. Stimulating research with International Cooperation Partner Countries	CSA-SA (supporting)
	AAT.2010.7-9. Supporting the organisation of conferences and events of special relevance to aeronautics and air transport research	CSA-SA (supporting)
	AAT.2010.7-11. Stimulating the participation of small and medium size enterprises (SME) and other small organisations for improved integration of the European Research Area	CSA-SA (supporting)
	AAT.2010.7-12. Assessing and further developing the role of small aircraft in the air transport system	CSA-SA (supporting)
	AAT.2010.7-13. Observation platform to assess the fulfilment of Vision 2020 goals from technological and institutional standpoints	CSA-SA (supporting)
	AAT.2010.7-14. Platform to stimulate the development of breakthrough technologies and concepts enabling step changes in aviation	CSA-SA (supporting)
	AAT.2010.7-15. Updating the strategic agenda for aeronautics and air transport research in Europe	CSA-SA (supporting)
	AAT.2010.7-16. Exploring opportunities and stimulating research cooperation with the United States of America	CSA-SA (supporting)

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Table of standard minimum number of participating legal entities for all funding schemes used in the call, in line with the Rules for Participation:

Funding scheme	**Minimum conditions**
Collaborative Projects	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or

	AC
Coordination and Support Actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and Support Actions (supporting action)	At least 1 independent legal entity.

- The following additional eligibility criterion apply in this call: Maximum requested Community contribution to CP-FP (Level 1) projects is limited to EUR 5 million per project.
- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
  - The Commission will instruct the experts to disregard any pages exceeding these limits.
  - The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
  - The evaluation shall follow a single stage procedure.
  - Experts will not carry out the individual evaluation of proposals remotely.
  - The procedure for prioritising proposals with equal scores is described in Annex 2 of the work programme.
  - The evaluation will produce 2 ranked lists of proposals retained for funding with the corresponding reserve lists:
    - CP-FP (Level 1) and CSA-CA (coordinating)
    - CSA-SA (supporting)

- **Indicative timetable:**
  - Intended period for on-site (Brussels) evaluation / panel meetings: From 1st to 19th March 2010
  - Intended start date for grant agreement negotiations: June 2010

- **Consortia agreements:** participants in Collaborative Projects are required to conclude a consortium agreement; participants in Coordination and Support Actions are encouraged, but not required, to conclude a consortium agreement.

- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website:

http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.1.2. Call with Russia

- **Call title: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA**
- **Call identifier: FP7-AAT-2010-RTD-RUSSIA**
- **Date of publication:** 30 July 2009
- **Deadline[58]:** 14 January 2010 at 17.00.00 (Brussels local time)
- **Indicative budget[59]**: EUR 4 million
  The budget for this call is indicative. The final budget of the call may vary by up to 10% of the total value of the indicated budget for the call. In case the total budget could not be consumed, the remaining amount shall be transferred to the main call (Call identifier: FP7-AAT-2010-RTD-1).
- **Notes:**
  1. The indicative budget of EUR 4 million will be used to fund the participants from the EU and Associated Countries and to fund up to 5% of the total eligible costs of the Russian participants in order to cover costs not funded by the Russian Federation, such as translations, travelling and management costs.
  2. The Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation) has agreed to dedicate to this call a similar budget of EUR 4 million for the funding of the Russian participants, in accordance with its procedures.

- **Topics called:**

Activity / Area	Topics called	Funding Schemes
7.1.1. THE GREENING OF AIR TRANSPORT		
7.1.1.1. Green aircraft	AAT.2010.1.1-6. Enhancing strategic international cooperation with Russia in the field of advanced aerodynamics and innovative design concepts for high-aspect ratio wings and associated high-lift systems	CP-FP (small or medium-scale focused research)
	AAT.2010.1.1-7. Enhancing strategic international cooperation with Russia in the field of advanced engine noise control based on plasma actuators	CP-FP (small or medium-scale focused research)
7.1.3. ENSURING CUSTOMER SATISFACTION AND SAFETY		
7.1.3.4. Operational safety	AAT.2010.3.4-6. Enhancing strategic international co-operation with Russia in the field of enhanced maintenance and operational safety	CP-FP (small or medium-scale focused research)
7.1.4. IMPROVING COST EFFICIENCY		
7.1.4.1. Aircraft development cost	AAT.2010.4.1-6. Enhancing strategic international co-operation with Russia in the field of novel composite structures and associated manufacturing methods based	CP-FP (small or medium-scale focused research)

[58] The Director-General responsible may delay this deadline by up to two months.
[59] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budget authority.

	on geodesic concepts.	
	AAT.2010.4.1-7. Enhancing strategic international cooperation with Russia in the field of advanced simulation in propulsion	CP-FP (small or medium-scale focused research)

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Table of standard minimum number of participating legal entities for the funding scheme used in the call, in line with the Rules for Participation:

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. At least 2 participants established in the Russian Federation.

  - The following <u>additional</u> eligibility criterion apply in this call: Maximum requested Community contribution to a project is limited to EUR 1.5 million.
  - Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
  - The Commission will instruct the experts to disregard any pages exceeding these limits.
  - The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
  - The evaluation shall follow a single stage procedure.
  - Experts will not carry out the individual evaluation of proposals remotely.
  - The procedure for prioritising proposals with equal scores is described in Annex 2 of the work programme.
  - In addition, the Russian proposal part of the proposal relevant to Russian work in the project will be evaluated by the Department of Aviation Industry (Ministry of Industry and Trade of the Russian Federation) according to its procedures.
  - Only proposals which have passed satisfactorily both the EC and Russian evaluations may be selected for funding.
  - The number of proposals that can be funded per topic is limited to ONE.

- **Indicative timetable:**

- Intended period for on-site (Brussels) EC evaluation / panel meetings: From 1st to 19th March 2010
- Intended start date for grant agreement negotiations: June 2010

- **Consortia agreements:** participants in Collaborative Projects are required to conclude a consortium agreement.

- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.1.3. Call with China

- **Call title: FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA**
- **Call identifier: FP7- AAT- 2010- RTD-CHINA**
- **Date of publication:** 30 July 2009
- **Deadline[60]:** 14 January 2010 at 17.00.00 (Brussels local time)
- **Indicative budget[61]**: EUR 3 million
  The budget for this call is indicative. The final budget of the call may vary by up to 10% of the total value of the indicated budget for the call. In case the total budget could not be consumed, the remaining amount shall be transferred to the main call (Call identifier: FP7-AAT-2010-RTD-1).
- **Notes:**
  1. The indicative budget of EUR 3 million will be used to fund the participants from the EU and Associated Countries and to fund up to 5% of the total eligible costs of the Chinese participants in order to cover costs not funded by the People's Republic of China, such as translations, travelling and management costs.
  2. The Ministry of Industry and Information Technologies (MIIT) of the People's Republic of China has agreed to dedicate to this call a similar budget of EUR 3 million for the funding of the Chinese participants, accordingly with its procedures.

- **Topics called:**

Activity / Area	Topics called	Funding Schemes
7.1.1. THE GREENING OF AIR TRANSPORT		
7.1.1.1. Green aircraft	AAT.2010.1.1-8. Enhancing strategic international co-operation with China in the field of advanced aircraft noise prediction and control methods	CP-FP (small or medium-scale focused research)
7.1.4. IMPROVING COST EFFICIENCY		
7.1.4.1. Aircraft development cost	AAT.2010.4.1-8. Enhancing strategic international co-operation with China in the field of casting of large titanium aerostructures components.	CP-FP (small or medium-scale focused research)
7.1.4.2. Aircraft operational cost	AAT.2010.4.2-7. Enhancing strategic international co-operation with China in the field of flow control for drag reduction and wing aeroelastic optimisation.	CP-FP (small or medium-scale focused research)

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Table of standard minimum number of participating legal entities for the funding scheme used in the call, in line with the Rules for Participation:

[60] The Director-General responsible may delay this deadline by up to two months.
[61] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budget authority.

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. At least 2 participants established in the People's Republic of China.

- The following additional eligibility criterion apply in this call: Maximum requested Community contribution to a project is limited to EUR 1.5 million.
- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
  - The Commission will instruct the experts to disregard any pages exceeding these limits.
  - The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
  - The evaluation shall follow a single stage procedure.
  - Experts will not carry out the individual evaluation of proposals remotely.
  - The procedure for prioritising proposals with equal scores is described in Annex 2 of the work programme.
  - In addition, the Chinese proposal part of the proposal relevant to Chinese work in the project will be evaluated by the MIIT according to its procedures.
  - Only proposals which have passed satisfactorily both the EC and Chinese evaluations may be selected for funding.
  - The number of proposals that can be funded per topic is limited to ONE.

- **Indicative timetable:**
  - Intended period for on-site (Brussels) EC evaluation / panel meetings: From 1st to 19th March 2010
  - Intended start date for grant agreement negotiations: September 2010

- **Consortia agreements:** participants in Collaborative Projects are required to conclude a consortium agreement.

- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website:

http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.2. IMPLEMENTATION OF CALLS SUSTAINABLE SURFACE TRANSPORT

III.2.1. Sustainable Surface Transport (including the 'European Green Cars Initiative') - RTD

- **Call title: FP7- SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1**
- **Call identifier: FP7-SST-2010-RTD-1**
- **Date of publication:** 30 July 2009
- **Deadline[62]:** 14 January 2010 at 17.00.00 (Brussels local time)
- **Indicative budget[63]:** EUR 93,79 million
  The indicative distribution of the call budget is as follows:
  - EUR 22.895 million for Group of topics (GT) Nº 1: The development of rail freight transportation.
  - EUR 20.895 million for Group of topics (GT) Nº 2: Eco-innovations in shipbuilding and waterborne transportation.
  - EUR 40 million for Group of topics (GT) Nº 3: The 'electrification' of road and urban transport.
  - EUR 10 million for Group of topics (GT) Nº 4: The rest of topics of this call.

  The budget for this call is indicative. The final budget awarded to actions implemented through calls for proposals may vary:
  - The final budget of the call may vary by up to 10% of the total value of the indicated budget for each call; and
  - Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.
  - In case the budget of one or more topic groups could not be consumed (totally or partially), the remaining budget shall be transferred to the other topic groups in accordance with the opinion of the evaluation review panel.

- **Topics called:**

Activity / Area	Topics called	GT Nº	Funding Schemes
7. 2. 1. THE GREENING OF SURFACE TRANSPORT			
7.2.1.1. The greening of products and operations	SST.2010.1.1-1. Carbon footprint of freight transport	1	CP-FP (small or medium-scale focused research)
	SST.2010.1.1-2. Energy efficiency of ships	2	CP-FP (small or medium-scale focused research)
	SST.2010.1.1-3. Attenuation of ground-borne vibration affecting residents near railway lines	4	CP-IP (large scale integrating project)

[62] The Director-General responsible may delay this deadline by up to two months.
[63] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budget authority.

	SST.2010.1.1-4. Advanced after treatment solutions for mitigation of emissions from ships	2	CP-FP (small or medium-scale focused research)
7.2.2 ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS			
7.2.2.1 Logistics and intermodal transport	SST.2010.2.1-1. Fast implementation of innovative/effective rail technologies to improve rail freight services	1	CP-FP (small or medium-scale focused research)
	SST.2010.2.1-2. Efficient interfaces between transport modes	4	CP-FP (small or medium-scale focused research)
7.2.4. IMPROVING SAFETY AND SECURITY			
7.2.4.1 Integrated safety and security for surface transport systems	SST.2010.4.1-1 Safety and security by design in transport stations and terminals	4	CP-FP (small or medium-scale focused research)
	SST.2010.4.1-2. Minimizing the risk of fatigue failure of railway axles	1	CP-FP (small or medium-scale focused research)
7.2.5. STRENGTHENING COMPETITIVENESS			
7.2.5.1 Competitive industrial processes	SST.2010.5.1-1. Improved through-life asset management through application of advanced production, retrofit and dismantling processes	2	CP-FP (small or medium-scale focused research)
7.2.5.2 Competitive surface transport products and services	SST.2010.5.2-1. Automated and cost effective railway infrastructure maintenance	1	CP-FP (small or medium-scale focused research)
	SST.2010.5.2-2. The sustainable freight railway: Designing the freight vehicle – track system for higher delivered tonnage with improved availability at reduced cost	1	CP-IP (large-scale integrating projects)
	SST.2010.5.2-3. Step changes in rail freight logistics: new technologies and methods to increase freight competitiveness in the emerging low density, high value market	1	CP-FP (small or medium-scale focused research)
	SST.2010.5.2-4. Competitive continental shipping including port	2	CP-IP (large-scale integrating projects)

	operations		
7.2.6. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME			
	SST.2010.6-1. Towards improved technology transfers	2	CSA-CA (coordinating)
7.2.7. THE 'EUROPEAN GREEN CARS INITIATIVE'			
	GC.SST.2010.7-1. Electrical machines	3	CP
	GC.SST.2010.7-2. Integrated electric auxiliaries and on-board systems	3	CP
	GC.SST.2010.7-3. Optimised thermal engine development and integration	3	CP
	GC.SST.2010.7-4. Smart storage integration	3	CP
	GC.SST.2010.7-5. Advanced electric vehicle concepts	3	CP
	GC.SST.2010.7-6. Implementing Public-Private Partnership in the 'European Green Cars Initiative'	3	CSA-CA (coordinating)
	GC.SST.2010.7-7. Raising awareness of potential job opportunities related to the electrification of road transport	3	CSA-CA (coordinating)

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Table of standard minimum number of participating legal entities for all funding schemes used in the call, in line with the Rules for Participation:

Funding scheme	**Minimum conditions**
Collaborative Projects	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and Support Actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC

  - The following additional eligibility criterion apply in this call: Maximum requested Community contribution to CP-FP projects is limited to EUR 3 million per project. Minimum requested Community contribution to CP-IP projects is EUR 3 million. Maximum requested Community contribution to CP projects (European Green Cars Initiative) is EUR 3 million.

- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
  - The Commission will instruct the experts to disregard any pages exceeding these limits.
  - The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
  - The evaluation shall follow a single stage procedure.
  - Proposals may be evaluated remotely
  - The procedure for prioritising proposals with equal scores is described in Annex 2 of the work programme.
  - No hearings are foreseen.
  - The evaluation will produce 4 ranked lists of proposals retained for funding with the corresponding reserve lists:
    - Group of topics Nº 1
    - Group of topics Nº 2
    - Group of topics Nº 3
    - Group of topics Nº 4

- **Indicative timetable:**
  - Intended period for evaluation and panel meetings: February to early May 2010.
  - Intended start date of grant agreement negotiations: June 2010

- **Consortia agreements:** participants in Collaborative Projects are required to conclude a consortium agreement; participants in Coordination and Support Actions are encouraged, but not required, to conclude a consortium agreement.

- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.2.2. Transport - TREN

- **Call title: FP7-TRANSPORT-2010-TREN-1**
- **Call identifier: FP7-TRANSPORT-2010-TREN-1**
- **Date of publication[64]:** 30 July 2009
- **Deadline[65]:** 14 January 2010 at 17.00.00 (Brussels local time)
- **Indicative budget[66]:** EUR 35 million
  The indicative distribution of the call budget is as follows:
  - EUR 23 million for the 'European Green Cars Initiative' topics
  - EUR 12 million for the rest of topics.

  The budget for this call is indicative. The final budget awarded to actions implemented through calls for proposals may vary:
  - The final budget of the call may vary by up to 10% of the total value of the indicated budget for each call; and
  - Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.
  - In case the budget of one group of topics could not be consumed (totally or partially), the remaining budget shall be transferred to the other group of topics.

- **Topics called:**

Activity/ Area	**Topics called**	**Funding Schemes**
7.1. AERONAUTICS AND AIR TRANSPORT		
7.1.7. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME		
	AAT.2010.7-17. Socio-economic incentives and barriers to innovation in air transport	CSA-SA (supporting)
7.2. SUSTAINABLE SURFACE TRANSPORT (INCLUDING THE 'EUROPEAN GREEN CARS INITIATIVE')		
ACTIVITY 7. 2. 1. THE GREENING OF SURFACE TRANSPORT		
7.2.1.3. Socio-economic issues	SST.2010.1.3-1. Transport modelling for policy impact assessments	CSA-SA (supporting)
	SST.2010.1.3-2. Social and economic impacts of transport policy	CSA-SA (supporting)
7.2.2. ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS		
7.2.2.1 Logistics and intermodal	SST.2010.2.1-3. Development and promotion of best practice in freight	CSA-CA (coordinating)

[64] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[65] The Director-General responsible may delay this deadline by up to two months.
[66] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budget authority.

transport	logistics	
	SST.2010.2.1-4. Demonstration project for the rail freight network	CP
7.2.5. STRENGTHENING COMPETITIVENESS		
7.2.5.2 Competitive surface transport products and services	SST.2010.5.2-5. Upgraded maritime transport information management	CP
7.2.6. CROSS-CUTTING ACTIVITIES FOR IMPLEMENTATION OF THE SUB-THEME PROGRAMME		
	SST.2010.6-2. Maritime industry knowledge network	CP
7.2.7. THE 'EUROPEAN GREEN CARS INITIATIVE'		
	GC.SST.2010.7-8. Green Cars - Integrated EU demonstration project on electromobility	CP

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Table of standard minimum number of participating legal entities for all funding schemes used in the call, in line with the Rules for Participation:

Funding scheme	**Minimum conditions**
Collaborative Projects	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and Support Actions (supporting action)	At least 1 independent legal entity.
Coordination and Support Actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC

  - Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
  - The Commission will instruct the experts to disregard any pages exceeding these limits.

- The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
- The evaluation shall follow a single stage procedure.
- The procedure for prioritising proposals with equal scores is described in Annex 2 of the work programme.
- The number of proposals that can be funded per topic is limited as follows: 1 project per topic.
- The evaluation will produce two ranked lists of proposals retained for funding with the corresponding reserve lists:
  - The 'European Green Cars Initiative' topic(s)
  - The rest of topics

- **Indicative timetable:**
  - Intended period for evaluation / panel meetings: February to April 2010.
  - Intended start date of grant agreement negotiations: June 2010

- **Consortia agreements:** participants in Collaborative Projects are required to conclude a consortium agreement; participants in Coordination and Support Actions are encouraged, but not required, to conclude a consortium agreement.

- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.2.3. Public-Private Partnership Green Cars: Cross-thematic cooperation between NMP, Energy, Environment (including Climate Change) and Transport (including Aeronautics)

Call title: Sustainable automotive electrochemical storage

Call identifier: FP7-2010-GC-ELECTROCHEMICAL-STORAGE

Date of publication: 30 July 2009[67]

Deadline: 14 January 2010 at 17.00.00 (Brussels local time)[68].

Indicative budget [69,70]: EUR 25 million from the 2010 budget of which:

- EUR 10 million from Theme 4 – Nanosciences, nanotechnologies, materials and new production technologies (NMP)
- EUR 5 million from Theme 5 – Energy
- EUR 5 million from Theme 6 – Environment (including Climate Change)
- EUR 5 million from Theme 7 – Transport (including Aeronautics).

The budget for this call is indicative. The final budget of the call may vary by up to 10% of the total value of the indicated budget for the call.

In case the budget can not be consumed (totally or partially), the remaining budget will be returned to each FP7 theme according to its respective contribution.

Topics called

The topic on Sustainable Automotive Electrochemical Storage is evaluated and implemented jointly by the Themes 4, 5, 6, and 7. It is identical in each theme. When applying for this call please use one of the activity codes below. Each proposal must be submitted only once.

Activity/ Area	Topics called	Funding Schemes
GC.NMP.2010-1	**Materials, technologies and processes for sustainable automotive electrochemical storage applications**	Collaborative Project
GC.ENERGY.2010.10.2-2		
GC.ENV.2010.3.1.3-3		
GC.SST.2010.7-9		

An overview of all PPP-related topics is provided in Annex 5.

Eligibility Conditions

[67] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[68] The Director-General responsible may delay this deadline by up to two months.
[69] A single reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.
[70] Under the condition that the preliminary draft budget for 2010 is adopted without modification by the budgetary authority.

The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

The minimum number of participating entities required, for all funding schemes, is set out in the Rules for Participation: For Collaborative projects, the minimum condition shall be the participation of 3 independent legal entities, each of which is established in a Member State or Associated Country and no two of which are established in the same Member State or Associated Country.

Under this topic, the requested Community contribution must not exceed EUR 4 million.

Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

Evaluation procedure

- For this call the evaluation shall follow a single-stage evaluation procedure.
- Proposals will not be evaluated anonymously.
- Proposals will be evaluated remotely with the consensus session being held in Brussels.
- The page limits that apply to proposals submitted under this call are given in the Guide for Applicants and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages in excess of these limits.
- At the Panel stage, proposals with equal overall scores will be prioritised according to their scores for the S/T Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion.
- Proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	**3/5**
Implementation	**3/5**
Impact	**3/5**
Overall threshold required	**10/15**

Particular requirements for participation, evaluation and implementation

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

Indicative Evaluation and contractual timetable

Evaluation: remote phase January 2010, consensus phase February 2010. Evaluation results: estimated to be available by April 2010. A single reserve list of projects might be established, for which the results are estimated to be available by the second semester of 2010.

Consortia agreements

Participants in Collaborative Projects are required to conclude a consortium agreement prior to grant agreement.

Use of flat rates for subsistence costs:

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.2.4. 'The ocean of tomorrow'

- **Call identifier:** FP7-OCEAN-2010
- **Date of publication:** 30 July 2009[71]
- **Deadline:** 14 January 2010 at 17.00.00, Brussels local time[72]
- **Indicative budget[73]:** EUR 34 million from the 2010 budget of which:
  - EUR 9 million from Theme 2 – Food, Agriculture and Fisheries, and Biotechnology (KBBE)
  - EUR 6 million from Theme 5 – Energy
  - EUR 10.5 million from Theme 6 – Environment (including climate change)
  - EUR 7.5 million from Theme 7 – Transport (including Aeronautics)
  - EUR 1 million from Theme 8 – Socio-economic Sciences and Humanities

  The budget for this call is indicative. The final budget awarded to actions implemented through this call for proposals may vary:
  - The final budget of the call may vary by up to 10% of the total value of the call; and
  - Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.

- **Topics called:**
  The three topics of 'The ocean of tomorrow' call are implemented jointly by the Themes 2, 5, 6, 7 and 8 mentioned above and have identical descriptions under each Theme.

Theme / Activity / Area implementing jointly 'The ocean of tomorrow' Location of the call and topics descriptions	**Topics called**	**Funding Scheme**
Theme 2 – Food, Agriculture and Fisheries, and Biotechnology Area 2.1.5 Call 'The ocean of tomorrow'– Joining research forces to meet challenges in ocean management **Theme 5 – Energy** Area ENERGY.10.1 Call 'The ocean of tomorrow' – Joining research forces to meet challenges in ocean management **Theme 6 – Environment (including climate change)** Area 6.2.2.2 Call 'The ocean of tomorrow' – Joining research forces to meet challenges in ocean management	OCEAN.2010-1 Quantification of climate change impacts on economic sectors in the Arctic	Collaborative Project (large scale integrating project)
	OCEAN.2010-2 Vectors of changes in marine life, impact on economic sectors	Collaborative Project (large scale integrating project)
	OCEAN.2010-3 Sub-seabed carbon storage and the marine	Collaborative Project (large scale integrating project)

[71] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[72] The Director-General responsible may delay this deadline by up to two months.
[73] Under the condition that the preliminary draft budget for 2010 is adopted without modification by the budgetary authority.

Theme 7 – Transport (including Aeronautics) Activity 7.2.8 Call 'The ocean of tomorrow' – Joining research forces to meet challenges in ocean management **Theme 8 – Socio-economic Sciences and Humanities** Activity 8.8 Horizontal Actions Call 'The ocean of tomorrow' – Joining research forces to meet challenges in ocean management	environment	

- **Indicative budget per topic:**

Topic code	Topic title	Indicative budget[74]
OCEAN.2010-1	Quantification of climate change impacts on economic sectors in the Arctic	EUR 11 million
OCEAN.2010-2	Vectors of change in ocean and seas marine life, impact on economic sectors	EUR 12.5 million
OCEAN.2010-3	Sub-seabed carbon storage and the marine environment	EUR 10.5 million

A maximum of one project per topic will be funded.

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the Guide for Applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - The minimum number of participating legal entities required for this funding scheme is set out in the Rules for Participation. They are summarised in the table below[75]:

Funding scheme	Minimum conditions
Collaborative Project (large scale integrating project)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC.

  - The following additional eligibility criteria apply in this call:
    - The requested EC contribution shall not exceed the indicative budget for the topic chosen (see table displayed above).
    - Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

[74] In case the budget can not be consumed (totally or partially), the remaining budget will be returned to each FP7 theme according to its respective contribution.
[75] MS = Member States of the EU; AC = Associated country.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in annex 2 of the work programme.
  - Proposal page limits: applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
  - The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
  - The Commission will instruct the experts to disregard any pages exceeding these limits.
  - The evaluation shall follow a single stage evaluation procedure. Proposals will be evaluated remotely with the consensus session being held in Brussels.
  - The result of the evaluation will be one ranked list per topic. Only the most highly ranked proposal above the minimum threshold per topic will be recommended for support. A reserve list of projects will be established to be used in case the negotiation for entering into a grant agreement fails. Up to one project per topic may be funded.

- **Evaluation criteria and threshold:**
  Proposals are evaluated on the basis of the following three criteria: 1. S/T quality; 2. Implementation; 3. Impact. For each criterion marks will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	3/5
Implementation	3/5
Impact	3/5
Overall threshold required	10/15

  Proposals with equal overall scores will be prioritised according to their scores for the S/T quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion.

- **The following points will be reflected in the evaluation:**

  A multi-disciplinary approach and a multi-sectoral partnership are considered essential to achieving the expected impacts.

  In addition, the following point will be reflected in the evaluation of the topic OCEAN.2010-3 "Sub-seabed carbon storage and the marine environment":

  The participation of industrial partners operating – or planning to operate – sub-seabed CO2 storage sites is crucial to the implementation of the project. Because sub-seabed carbon storage is a global issue, the participation of one or several partners (funded under their national budget) from either Japan, Australia or the US would maximise the impact of the project.

- **Indicative evaluation and contractual timetable:**
  - Evaluation results: four months after the relevant deadline mentioned above.
  - Grant agreements signature: it is estimated that the first grant agreements related to this call will come into force at the end of 2010.

- **Consortia agreements:**
  Participants are required to conclude a consortium agreement prior to grant agreement.

- **The forms of grant and maximum reimbursement rates** which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

III.3. IMPLEMENTATION OF CALLS TRANSPORT – HORIZONTAL ACTIVITIES

- **Call title: FP7-TRANSPORT (TPT)-2010-RTD-1**
- **Call identifier: FP7-TPT-2010-RTD-1**
- **Date of publication:** 30 July 2009
- **Deadline[76]:** 14 January 2010 at 17.00.00 (Brussels local time)
- **Indicative budget[77]:** EUR 6 million
  The budget for this call is indicative. The final budget of the call may vary by up to 10% of the total value of the indicated budget for the call.

- **Topics called:**

Activity / Area	Topics called	Funding Schemes
HORIZONTAL ACTIVITIES FORIMPLEMENTATION OF THE TRANSPORT PROGRAMME		
Socio-economic research and technology foresight	TPT.2010-1. Global challenges in a long term perspective: 2030-2050	CSA-SA (supporting)
	TPT.2010-2. Prospects on upcoming global competition for the European transport industry on clean transport systems	CSA-SA (supporting)
	TPT.2010-3. Exploring future transport paradigms beyond 2050	CSA-SA (supporting)
Integration of transport modes and cross-cutting research	TPT.2010-4. Optimisation and integration of R&D efforts for transport of passengers by enhanced intermodality	CP-FP (small or medium-scale focused research), CSA-SA (supporting)
	TPT.2010-5. Demand/supply management and logistics for transport of passengers through increased co-modality and understanding of social behaviour	CP-FP (small or medium-scale focused research), CSA-SA (supporting), BSG-CSO
	TPT.2010-6. Alternative fuels in transport	CSA-SA (supporting), CSA-CA (coordinating), CP-SICA
	TPT.2010-7. Noise mitigation research in transport: coordination of research and strategies	CSA-CA (coordinating)
Strengthening the European Research Area and encouraging participation	TPT.2010-8. Analysis of the state of ERA development within the transport domain	CSA-SA (supporting)

[76] The Director-General responsible may delay this deadline by up to two months.
[77] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budget authority.

	TPT.2010-9. Market uptake of transport research and role of actors and regions	CSA-SA (supporting)
Dissemination and awareness of research results	TPT.2010-10. Supporting the organisation of conferences or events of special relevance to the European transport sector	CSA (supporting)
	TPT.2010-11. Environmental transport database	CSA (supporting)

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Table of standard minimum number of participating legal entities for all funding schemes used in the call, in line with the Rules for Participation:

Funding scheme	**Minimum conditions**
Collaborative Projects	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Collaborative Project for specific cooperation actions (SICA) dedicated to international cooperation partner countries	At least 4 independent legal entities. Of these, 2 must be established in different MS or AC. The other 2 must be established in different international cooperation partner countries (ICPC).
Coordination and Support Actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and Support Actions (supporting action)	At least 1 independent legal entity.
Research for the benefit of specific groups	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC. At least 1 of the legal entities has to be a civil society organisation (CSO).

  - The following additional eligibility criterion apply in this call: Maximum requested Community contribution to CP-FP and CP-SICA projects is limited to EUR 1.5 million per project.
  - Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.

- Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.
- The Commission will instruct the experts to disregard any pages exceeding these limits.
- The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
- The evaluation shall follow a single stage procedure.
- Proposals may not be evaluated remotely.
- The procedure for prioritising proposals with equal scores is described in Annex 2 of the work programme.
- No hearings are foreseen.

- **Indicative timetable:**
  - Intended period for evaluation / panel meetings: From 1st to 5th March 2010.
  - Intended start date of grant agreement negotiations: June 2010

- **Consortia agreements:** participants in Collaborative Projects are required to conclude a consortium agreement; participants in Coordination and Support Actions are encouraged, but not required, to conclude a consortium agreement.

- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

IV. OTHER ACTIONS

IV.1. Transport - TREN - Call for tender

EU Transport Research Knowledge Centre – continuation of activities

This activity, to be executed via a tender for a service contract, aims at continuing the successful implementation of the ongoing Transport Research Knowledge Centre 'ExtraWeb II'[78], which comes to an end in early 2010. The aim is to continue and to expand one single portal for all transport research conducted on EU and Member State level, and eventually to expand it to other international research, e.g. on OECD level.

Content/scope: Valorisation of results from research and demonstration projects is fundamental to progress towards the work programme objectives. The aim would be to develop and establish an internet based Portal that would work as knowledge platform presenting in a structured way and analysing at scientific and political level the results from projects or clusters of projects. The scope would be primarily Community and Member States funded projects, but international projects (outside the EU) would be included when relevant. The Transport Research Knowledge Centre will disseminate both project (fact sheets, projects profiles, results sheets) and sector level information (sector report, clusters, etc.), including the development appropriate reporting tools.

The tenderer will develop a transparent framework for presenting the results from projects or clusters of projects which can be used by the Communities themselves, the Commission services, and on the web site for open publication. The tenderer will ensure that this frame is compatible with the one developed by TRKC.

Impact: Effective spread of information and results of the programme, both at project and sector level.

Funding scheme: CSA, public procurement[79]

Indicative budget: EUR 3.0 million

Indicative timetable:
- Launch of tender: by end 2009
- Contract start: by mid 2010 until end 2013

[78] See http://www.transport-research.info/web/

[79] In accordance with Article 14 of Regulation (EC) No 1906/2006 of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme and for the dissemination of research results (2007-2013).

INDICATIVE BUDGET FOR TRANSPORT (INCLUDING AERONAUTICS) THEME FOR THE 2010 WORK PROGRAMME

A. DG RTD indicative budget for the 2010 Work Programme[80]

European Commission - DG Research	**2010 (million EUR)**
FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-1	101.29
FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-RUSSIA	4.00
FP7-AERONAUTICS and AIR TRANSPORT (AAT)-2010-RTD-CHINA	3.00
FP7-SUSTAINABLE SURFACE TRANSPORT (SST)- 2010-RTD-1 (including the 'European Green Cars Initiative')	93.79
FP7-ERANET-2010-RTD (joint call)	2.00*
Sustainable automotive electrochemical storage (FP7-2010-GC-ELECTROCHEMICAL-STORAGE)	5.00
'The ocean of tomorrow' call (FP7-OCEAN-2010)	7.50
FP7-TRANSPORT (TPT)-2010-RTD-1	6.00
Total for calls for proposals	**222.58**
General activities (cf. Annex 4)	3.78
Other activities:	
Evaluations	1.00
Grants to named recipients	-
Calls for tenders	-
Estimated total budget allocation	**227.37**

* Indicative amount for ERA-NETs – An ERA-NET is included in Work Programme 2010 for Transport (including Aeronautics): SST.2010.6-3. ERA-NET MARTEC II, which is part of the FP7-ERANET-2010-RTD joint call.

All budgetary figures given in this work programme are indicative. The final budgets may vary following the evaluation of proposals.

The final budget awarded to actions implemented through calls for proposals may vary:

- The total budget of the call may vary by up to 10% of the total value of the indicated budget for each call; and
- Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.

[80] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budgetary authority.

For actions not implemented through calls for proposals:

- The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions;
- The final budget awarded for all other actions not implemented through calls for proposals may vary by up to 10% of the indicated budget for these actions.

B. DG TREN indicative budget for the 2010 Work Programme[81]

European Commission - DG Transport and Energy	**2010** **(million EUR)**
FP7-TRANSPORT-2010-TREN-1	35.00
Total for calls for proposals	**35.00**
General activities (cf. Annex 4)	0.30
Other activities:	
Sesar	55.0
Galileo	30.00
Call for tenders	3.00
Evaluations and monitoring	1.00
Programme impact assessment	-
Information / communication	-
Estimated total budget allocation	**124.30**

All budgetary figures given in this work programme are indicative. The final budgets may vary following the evaluation of proposals.

The final budget awarded to actions implemented through calls for proposals may vary:

- The total budget of the call may vary by up to 10% of the total value of the indicated budget for each call; and
- Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.

For actions not implemented through calls for proposals:

- The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions;
- The final budget awarded for all other actions not implemented through calls for proposals may vary by up to 10% of the indicated budget for these actions.

[81] Under the condition that the preliminary draft budget for 2010 is adopted without modifications by the budgetary authority.

C. Summary of RTD budget allocation to general activities for 2010 (cf. Annex 4)

European Commission's DG Research	2010 (million EUR)
Cordis	0.72
Eureka/Research organisations	0.03
COST	2.93
Strategy oriented support actions	0.10
Total	**3.78**

D: Summary of TREN budget allocation to general activities for 2010 (cf. Annex 4)

European Commission's DG Transport and Energy	2010 (million EUR)
Cordis	0.25
Eureka/Research organisations	0.01
COST	-
Strategy oriented support actions	0.04
Total	**0.30**