WORK PROGRAMME 2007-2008

COOPERATION

THEME 7

TRANSPORT (INCLUDING AERONAUTICS)

(European Commission C(2007)2460 of 11 June 2007)

Changes to the Cooperation Work Programme: Transport including Aeronautics Theme*

This work programme is an update with respect to the version adopted on 26 February 2007. Beyond minor typographical corrections, substantive modifications are as follows:

pages 9-10	Revised budget table adding 64 M€ to the AAT-2007-RTD-1 call and 42.2 M€ to the SST-2007-RTD-1 call from 2008 budget
page 13	Clarifications on JTI "Clean Sky" CSA to direct beneficiaries.
page 45	Revised budget adding 64 M€ to the AAT-2007-RTD-1 call
page 96	Revised budget adding 42.2 M€ to the SST-2007-RTD-1 call Call Fiche SST-2007-RTD-1: revised closing dates
page 99	Call fiche SST-2007-TREN-1: revised closing dates

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THEME 7: TRANSPORT (including AERONAUTICS)

Objective:

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

Context

Policy Context

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. 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. Research priorities outlined in this wok programme are based on these transport policy objectives as well as on support to industry competitiveness.

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

Approach

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

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

[1] COM (2001) 370 final
[2] Keep Europe Moving – sustainable mobility for our continent - COM (2006) 314 final

AERONAUTICS and AIR TRANSPORT,

SUSTAINABLE SURFACE TRANSPORT,

GALILEO

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

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

Due to the specificities of the sectors and the transport modes included, definitions of *Levels* are provided in detail in the 'Approach' sections of the sub-themes (p. 10-11 for air transport and p. 50 for surface transport).

A number of horizontal activities supporting integration within the transport theme are described in chapter 7.3 of the work programme.

For topics with a predominant policy-making component based on the White Paper on Transport *"European Transport Policy for 2010: Time to Decide"* and its Mid-term review detailed descriptions are provided.

Implementation of calls for 2007

The work programme has the detail of five calls that will be open during 2007:

FP7- AERONAUTICS and AIR TRANSPORT (AAT) - 2007- RTD-1

FP7- AERONAUTICS and AIR TRANSPORT (AAT) – 2007 – TREN-1

FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- RTD-1

FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- TREN-1

FP7- TRANSPORT (TPT) – 2007- RTD-1

Funding schemes

The calls will be implemented by the following funding schemes: Collaborative Projects (CP), Networks of Excellence (NoE) and Coordination and Support Actions (CSA). The funding schemes applicable to each topic are indicated in the work programme, along with guidance to 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 with a maximum requested Community contribution of up to 8 million Euros;
- Aeronautics and air transport large-scale integrating projects with a minimum requested Community contribution of 8 million Euros up to a maximum of 60 million Euros;
- Sustainable surface transport small or medium-scale focused research projects with a maximum requested Community contribution of up to 4 million Euros in the FP7-SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- RTD-1;

- Sustainable surface transport large-scale integrating projects with a minimum requested Community contribution of 4 million Euros FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- RTD-1;
- Collaborative projects in the call Horizontal activities for implementation of the transport programme (FP7- TRANSPORT (TPT) – 2007- RTD-1) are small or medium-scale focused research projects with a maximum requested Community contribution of up to 1.5 million Euros.

It is important to note that for the calls above, the mentioned funding thresholds 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 the one-step procedure in these calls.

The activities related to the Single European Sky Air Traffic Management Research (SESAR) and Galileo will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme, but will be available on the respective websites[3] in due course. In accordance with the proposed Council Decisions, SESAR activities will be implemented by the SESAR Joint Undertaking and Galileo activities by the GNSS Supervisory Authority.

The Commission expects to make specific proposals to set up Joint Technology Initiatives during 2007, on the basis of Article 171 of the Treaty. The proposed Clean Sky Joint Technology Initiative and the Hydrogen and Fuel Cell Technology Joint Technology Initiative will both have relevance and impact on transport research and technological developments. These activities will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme.

International Co-operation

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

- 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 the 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.

[3] SESAR: http://www.eurocontrol.int/sesar ; GALILEO: http://ec.europa.eu/dgs/energy_transport/galileo/

All activities will be open to researchers and research institutions from third countries[4]. 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. Certain industrialised countries such as USA and Japan are identified for potential collaboration in certain topics. Mediterranean Partner Countries are addressed within a surface transport sub-theme.

The International Cooperation activities will be embedded in the main calls. Coordination/Support Actions will be included to explore and stimulate further International Cooperation. The International Cooperation activities in this work programme will pave the way for Specific International Cooperation Actions in future work programmes.

SME relevant research

Specific measures will also be taken to promote the development of robust supply chains where SMEs are significant technology drivers in innovations. Emphasis will also be made 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. Where appropriate, the topics open for proposals will indicate whether there is particular relevance or encouragement for the participation of SMEs.

Horizontal and cross-cutting activities

Effective transport solutions need inputs from many different technologies and scientific disciplines. Activities supporting cross-cutting thematic topics will focus on transport specificities, for example security aspects as an inherent requirement to the transport system; the use of alternative energy sources in transport applications; and monitoring of environmental effects of transport, including climate change. Co-ordinated calls are envisaged with Energy, Environment and Security Themes.

Other activities

The theme will support ERA-NET[5] 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.2007.6.7. ERA-NET Transport II** (see description on page 93), with Community contribution of up to

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

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

3 million Euros, is subject to a joint call (FP7-ERANET-2007-RTD) that will be launched separately.

Additional topics within the Transport theme may be considered for new ERA-NETs during FP7. These should address at least the first three steps, but are encouraged to aim at the "four step approach", as described above. No new topics are open for 2007.

Coordination will also be stimulated through the Technology Platforms.

A Network of National Contact Points (NCP) is instrumental for helping access to FP7 calls, to lower entry barriers for newcomers, and to raise the average quality of submitted proposals. A topic for supporting a transnational NCP network through a coordination and support action is included in the first call of 2007 (TPT.2007.9).

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. 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.

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 is an important component of the communication and dissemination strategy for the Transport theme and specific actions will be taken to ensure greater visibility and understanding of the EU investments.

Risk Sharing Finance Facility

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

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

In accordance with the Specific Programme 'Cooperation', which stipulates that the Community contribution to RSFF will be funded by *proportional contributions of all Themes, except Socio-economic Sciences and the Humanities*, the Commitment Appropriations for this Theme to RSFF in 2007 will be 21.33 million Euros. This amount will be committed entirely in 2007.

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.

Minimum number of participants

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

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

Indicative budget for Transport (including Aeronautics) Theme for the 2007-2008 Work Programme

European Commission's DG Research	Total[6]	2007 (M€)	2008 [7] (M€)
FP7- AERONAUTICS and AIR TRANSPORT (AAT) - 2007- RTD-1	**217.48**	153.48*	64
FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- RTD-1	**195.68**	153.48**	42.2
FP7- TRANSPORT (TPT) – 2007- RTD-1	**12**	12	
Total for RTD calls	**425.16**	318.96	**106.2**
General activities (cf. Annex 4)	**25.788**	25.788	
Other activities: • Evaluations (1 M €) • Grants to named recipients[8] (Co-ordination and support action, supporting) (2M€)	**3**	3	

[6] The total funding is shown, together with the breakdown of how this is financed through the annual budgets.
[7] Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority.

Estimated total budget allocation	**453.94**	347.75M€	

***** This amount includes an indicative amount of up to €3M for the ERA-NET foreseen under this Theme – See Annex 4 (Table 2 - Overview of Activities and Topics mentioned in Cooperation Themes which are part of the FP7-ERANET-2007 –RTD joint call).

European Commission's DG Transport and Energy	**2007**
FP7- AERONAUTICS and AIR TRANSPORT (AAT) – 2007 – TREN-1	4M€
FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- TREN-1	60M€
Total for TREN calls	**64 M €**
General activities (cf. Annex 4)	6.99M€
Other activities: • Galileo (40M€) • Sesar (10M€) • Evaluations and monitoring (0.7 M€) • Programme impact assessment • Information/ communication	 40M€ 10M€ 0.7M€
Estimated total budget allocation	121.69M€

Summary of RTD budget allocation to general activities for 2007 (cf. Annex 4)

Cordis	0.686 M €
Eureka/Research organisations	0.078 M €
COST	2.941 M €
ERA-NET	6.18 M €
RSFF	15.91 M €
Total	**25.795 M €**

Summary of TREN budget allocation to general activities for 2007 (cf. Annex 4)

Cordis	230 070
Eureka/Research organisations	26 294
COST	986015
ERA-NET	328 672
RSFF	5 420 000
Total	**6 991 051 €**

8 In compliance with Article 14(a) of the Rules of Participation and Article 168 of the Implementing Rules of the Financial Regulation. This action is aimed at supporting the early start-up of the JTI 'Clean Sky'.

7.1 AERONAUTICS and AIR TRANSPORT

1. CONTEXT

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

Six *Activities* are addressed in agreement with the Strategic Research Agenda of ACARE[9]:

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

Approach

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

Level 1

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

Broad topics of investigation for *Level 1* are identified in the corresponding part of the work programme. For each one of the six Activities (see above list of Activities), the work programme is divided in a number of areas, which in turn include a number of topic domains. They can be addressed in the proposals with a high degree of flexibility, selecting only some of the topics or combining them where needed. They will be the subject of 'Collaborative Projects' of small or medium-scale with a maximum requested Community contribution of up to 8 million Euros.

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

Level 2

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

Specific topics for *Level 2* are identified in the corresponding part of the work programme. Proposals can address only one of the proposed topics and should address it in its entirety. They will be the subject of large-scale integrating 'Collaborative Projects' with a minimum Community requested contribution of 8 million Euros up to a maximum of 60 million Euros.

Level 3

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

These activities of full-system technologies demonstration will be undertaken in large-scale public-private partnerships especially established for this purpose in specific areas: the 'Clean Sky' Joint Technology Initiative relevant mainly to the work programme Activity 'The Greening of Air Transport' and SESAR, Single European Sky Air Traffic Management Research, which are in preparation. 'Clean Sky' and SESAR will cover as well 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

It comprises of activities aiming at strengthening excellence in particular research fields through networking. They will be the subject of 'Networks of Excellence' or 'Coordination and Support Actions', depending on the level of integration amongst partners that the networking activities pursue.

Specific topics for 'Networks of Excellence' are identified in the corresponding part of the work programme. Proposals can address only one of the proposed topics and should address it in its entirety. Topics for Networks of Excellence are likely to be different in each Call for Proposals.

Topics open to 'Coordination and Support Actions' 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

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

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

The 'Clean Sky' Joint Technology Initiative

The 'Clean Sky' Joint Technology Initiative 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 will contribute to a future air transport system with lower environmental impact while securing EU industrial leadership, thereby contributing to a more sustainable air transport system in Europe and world-wide.

'Clean Sky' activities will be focussed on the integration of advanced technologies, validation in complex models and testing in full scale ground and flight demonstrators. It is expected that 'Clean Sky' will be articulated around a number of vehicles 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 will be ensured through a continuous 'Clean Sky' technology assessment and driver activity. The Joint Undertaking will ensure coordination of 'Clean Sky' activities with other relevant research in the Framework Programme, national or industrial programmes.

The Commission expects to make a specific proposal for a Joint Undertaking on the environmental impact of Air Transport, on the basis of Article 171 of the EC Treaty. The Joint Technology Initiative activities will be outside of the mainstream "calls for proposals" means of implementation of the work programme.

In order to facilitate the early start-up of the Joint Undertaking and to ensure a rapid transition to full operational readiness, the Commission intends to contribute to this initiative through a Co-ordination and Support Action (CSA) (subject to satisfactory negotiation) with the Founding Members of the "Clean Sky" Joint Technology Initiative. The principle activities will be:

- to carry out, in collaboration with the European Commission, all the preparatory activities necessary to ensure an immediate launch of the Joint Undertaking as soon as possible after the Council Regulation is adopted;
- to start the build-up of the necessary resources and support structures to ensure the operational readiness of the Joint Undertaking, via bridging activities such as for example definition of stakeholders' agreement, implementation rules, contractual rules, calls for proposals, etc..

The industrial partners responsible for building up the "Clean Sky" JTI would therefore be direct beneficiaries of up to 2 M€ Coordination and Support Action in compliance with Article 14(a) of the Rules of Participation[10] [11].

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

The SESAR initiative aims to develop the new tools and technologies needed to sustain air traffic growth in Europe for the next 20 years in an economically and environmentally sound way. The target operational concepts, as well as the associated research programme, are being

[10] These partners are: Agusta, Airbus, Alenia Aeronautica, Dassault, Eurocopter, Liebherr, Rolls-Royce, Safran, and Thales (they have signed a Memorandum of Understanding committing themselves to full participation to the JTI), EADS CASA, SAAB, Fraunhofer Gesellschaft, that is the ITD leaders in "Clean Sky". EC funding (up to 2M€) will be allocated to the direct beneficiaries based on the organisation and distribution of workload in the proposal.

[11] Regulation 1906/2006/EC of 18 December 2006, concerning the rules for participation of undertakings, research centres and universities in the European Community Seventh Framework Programme (2007-2013)

developed in the SESAR definition phase, which is a cooperative, industry-led effort. In order to rationalise and organise ATM research so that it leads to actual operational and industrial implementation, all ATM research in the 7th Framework programme will be undertaken within the SESAR initiative. A SESAR Joint Undertaking will be created in order to manage consistently and in a rationalised manner the research activities. This Joint Undertaking will coordinate the SESAR programme with other aeronautical research activities in order to maintain a consistent system wide approach for the entire air transport system.

It is expected that SESAR activities will be organised around the following themes:

New air traffic management tools and systems

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

New technologies for air traffic management

The objective is to develop new technologies which can support air traffic management development, including more aircraft autonomy such as:

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

Integration and validation projects

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

In order to manage the SESAR activities, a joint undertaking will be established by a Council Regulation, under Article 171 of the Treaty, by the end of 2006. The Commission will provide annual contributions from the 7th Framework Programme to the SESAR Joint Undertaking who will carry out the activities in the relevant areas indicated in the work programme. As required by the above mentioned Regulation, the amount of 10 Million € will have to be transferred to the SESAR Joint Undertaking for the year 2007 in order to set up its structure and to start its operations.

International Co-operation

The Work-programme encourages International Cooperation to enhance competences in EU industry and to tackle global air transport issues, for instance, by building upon existing collaboration with certain third countries.

For this purpose a stimulation action (AAT.2007.7.7) to promote the participation of organisations from International Cooperation Partner Countries in the programme activities is open for Coordination and Support Actions proposals.

A number of stimulation actions have taken place recently with Russia, other Eastern Europe and Central Asia States and China, which have resulted in identifying fields of mutual interest for research actions with EU partners in the work programme, as follows:

Co-operation with Eastern Europe and Central Asia (including Russia).

Building upon the outcome of two workshops on Co-operation in aeronautics research with Russia in 2003 and 2006 and on the implication of Russia and other Eastern Europe and Central Asia States in Framework Programme 6, enhanced participation of these countries is encouraged within Collaborative Projects. In particular, enhanced participation in the following subjects:

Flow control, computational fluid dynamics and airframe noise reduction (in topic AAT.2007.1.1.1.), aeroelasticity and nanotechnologies (in topic AAT.2007.1.1.2.), alternative fuels and engine noise reduction (in topic AAT.2007.1.1.3.), propulsion breakthrough technologies (in topic AAT.2007.6.1.2.), optimised flight procedures for noise and emissions reduction (in topic AAT.2007.1.1.4.), elimination of toxic materials in production processes (in topic AAT.2007.1.2.1.), cabin environmental control systems (in topic AAT.2007.3.1.3.), structural dynamics loads modelling (in topic AAT.2007.3.3.1.), ice protection (in topic AAT.2007.3.3.2.), ergonomics in human-machine interaction (in topic AAT.2007.3.3.4.), multidisciplinary optimisation tools and structural, wind-tunnel and flight testing techniques (in topic AAT.2007.4.1.1.), aerostructures (in topic AAT.2007.4.1.2.), smart and self-repair materials (in topic AAT.2007.4.2.6. and AAT.2007.6.1.4.), explosives detection techniques (in topic AAT.2007.5.1.2.).

Co-operation with China

Building upon the conclusions of a workshop on Co-operation in aeronautics research with China in 2005, enhanced participation of Chinese partners is encouraged in the within Collaborative Projects on following subjects:

Flow control, computational fluid dynamics and airframe noise reduction (in topic AAT.2007.1.1.1.), alternative fuels and engine noise reduction (in topic AAT.2007.1.1.3.), optimised flight procedures for noise and emissions reduction (in topic AAT.2007.1.1.4.), elimination of toxic materials in production processes (in topic AAT.2007.1.2.1.), cabin environmental control systems (in topic AAT.2007.3.1.3.), ergonomics in human-machine interaction (in topic AAT.2007.3.3.3.), multidisciplinary optimisation tools and structural, wind-tunnel and flight testing techniques (in topic AAT.2007.4.1.1.), aerostructures (in topic AAT.2007.4.1.2.), smart and self-repair materials (in topic AAT.2007.4.2.6. and AAT.2007.6.1.4.).

In further Calls, specific topics of research in partnership with other International Cooperation Partner Countries could be identified emerging from relevant stimulation actions (AAT.2007.7.7) which might take place.

Small and Medium Size Enterprises

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

The stimulation action AAT.2007.7.5 is open in the work programme for Coordination and Support Actions to continue promoting an increased participation of SME in the programme.

SME participation is expected in Collaborative Projects both in *Level 1* and in *Level* 2, as well as in the research carried out in the 'Clean Sky' Joint Technology Initiative and the SESAR Joint Undertaking. Targeted projects which are typically short term, focussed on particular interests of SME activities, with budgets adapted to their financial capabilities, with significant SME participation are especially encouraged in *Level 1*. All research areas and topics of the work programme for *Level 1* are open to this type of projects of interest to SME.

2. CONTENT OF CALL FOR 2007

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 (CO_2), cut specific emissions of nitrogen oxides (NOx) by 80% and halve the perceived noise. Research will focus on furthering green engine technologies including alternative fuels technology as well as improved vehicle efficiency of fixed-wing and rotary wing aircraft (including helicopters and tiltrotors), new intelligent low-weight structures, and improved aerodynamics. Issues such as improved aircraft operations at the airport (airside and landside) and air traffic management, manufacturing, maintenance and recycling processes will be included.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

AREA 7.1.1.1 Green Aircraft

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

Expected Impact

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

1. To reduce fuel consumption and hence CO_2 emissions by 50% per passenger-kilometre,
2. To reduce NO_X emissions by 80% in landing and take-off according to ICAO standards and down to 5 g/kg of fuel burnt in cruise,
3. To reduce unburnt hydrocarbons and CO emissions by 50% according to ICAO standards,

4. To reduce external noise by 10 EPNdB per operation of fixed-wing aircraft. For rotorcraft the objective is to reduce noise foot-print area by 50% and external noise by 10EPNdB.

AAT.2007.1.1.1. 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 landings flight profiles; advanced concepts and technologies for improved airframe/engine integration aiming at reduced drag and/or reduced noise; development of wing morphing technologies; concepts and technologies to reduce airframe noise in subsonic or supersonic flight.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.1.1.2. Aerostructures

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.1.1.3. 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; 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. liquid hydrogen, second generation bio-fuels and other "green" synthetic fuels); concepts and technologies to reduce power-plant (turbofan, propeller, propfan, rotorcraft rotor) noise by active and/or passive methods.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.1.1.4. Systems and Equipment

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

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

AAT.2007.1.1.5. Avionics

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.1.2 Ecological Production and Maintenance

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

Expected Impact

Proposals should demonstrate making contributions to achieving the following objective:

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

AAT.2007.1.2.1. Production

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.1.2.2. Maintenance and Disposal.

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

repair techniques for increased re-use of components; concepts and techniques for increasing the life-time of aeronautical products.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.1.3 Green Air Transport Operations

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

Expected Impact

The same objectives than for Area 7.1.1.1 'Green Aircraft' apply here.

AAT.2007.1.3.1. Flight and Air Traffic Management

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

AAT.2007.1.3.2. Airports

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

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

AAT.2007.1.4.1. Integrated approach to novel engine architectures

Expected Impact: The work should aim at providing the European aeroengine industry with improved ability to define, design and develop highly efficient aircraft engines able to meet stringent environmental requirements, in particular reduction of CO_2 emissions, including the viability of using alternative fuels..

Scope: The project should include the definition, development, integration and validation of advanced engine concepts and technologies at both components and

system levels in novel engine architectures. The project shall include, where applicable, the latest advances in engine integration, validation and modelling.

In a holistic approach the project should further advance the introduction of active engine control technologies, integrated electrical systems, develop novel turbomachinery (i.e. variable pitch open rotors, tandem rotors) and improve engine structures with the aim to add functionality, reduce mass and increase efficiency of the engine. The objective is to deliver a validated simulation platform to cover a number of essential functions. Validation of essential elements of the platform will be performed on realistic rigs. The project should address as well the viability of using alternative fuels with thermo-chemical characteristics acceptable for use in aviation, including fuel identification, evaluation of engine impact and emissions levels through testing at small engine scale.

The project should capitalise results of current projects at European and national level.

Funding scheme: Collaborative Projects large-scale integrating projects

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 3*

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

ACTIVITY: 7.1.2 INCREASING TIME EFFICIENCY

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

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

AREA: 7.1.2.1 Aircraft Systems and Equipment for Improved Aircraft Throughput

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

Expected Impact

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

1. To enable 99% of flights to arrive and depart within 15 minutes of their scheduled departure time, in all weather conditions,
2. 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.2007.2.1.1. Systems and Equipment

Advanced technologies for improved modelling, prediction and detection of wake vortex and wind shear; advanced technologies to enable full automatic approach and landing in all weather taking into account concepts developed in SESAR; advanced cockpit display technologies for all-weather, 24-hour (day/night) operation; advanced concepts for fault tolerant systems, including auto reconfiguration capabilities; advanced concepts for multi-access cabin architectures; advanced concepts and technologies for increased independence of the aircraft from the infrastructure at apron area.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.2.1.2. Avionics

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

AAT.2007.2.1.3. Maintenance and Repair

Advanced concepts and techniques for continuous health and usage monitoring of structures and systems; advanced concepts and technologies for 'smart' maintenance systems, including self-inspection and self-repair capabilities; methods and techniques for on-time maintenance and elimination of unscheduled maintenance.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.2.2 Time Efficient Air Transport Operations

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

Expected Impact

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

1. To enable the air transport system to accommodate 3 times more air movements,
2. To enable 99% of flights to arrive and depart within 15 minutes of their scheduled departure time, in all weather conditions,
3. 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.2007.2.2.1 Air Traffic Management

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

AAT.2007.2.2.2 Airports

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

Note. There are no topics open in the work programme for *Level 2* research relevant to Air Traffic Management. The SESAR Joint Undertaking will cover *Level 2* research activities in this domain.

THE FOLLOWING TOPICS ARE FOR *LEVEL 3*

The SESAR Joint Undertaking will cover *Level 3* research activities.

ACTIVITY: 7.1.3 ENSURING CUSTOMER SATISFACTION AND SAFETY

Introducing a quantum leap in passenger choice and schedule flexibility, whilst achieving a five-fold reduction in accident rate. New technologies will enable a wider choice of aircraft/engine configurations ranging from wide body to smaller size vehicles including

rotorcraft, increased levels of automation in all the elements of the system. Focus will also be on improvements for passengers comfort, well being and new services, cabin logistics systems and active and passive safety measures with special emphasis on the human element. Research will include the adaptation of airport and air traffic operations to different types of vehicles and 24-hour utilisation at acceptable community noise levels.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*.

AREA: 7.1.3.1 Passenger Friendly Cabin

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

Expected Impact

Proposals should demonstrate making contributions to achieving the following objective:

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

AAT.2007.3.1.1. Design Systems and Tools

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.1.2. 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 other unwanted dynamics effects of flight (ride comfort).

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.1.3. Systems and Equipment

Advanced technologies and systems architectures to enable home-like and office-like cabin environments with regard to on-board communication, entertainment and information services; advanced catering systems; advanced concepts and technologies for enhanced cabin environment with regard to temperature, pressure, humidity, ventilation and health, including personalised climate control; advanced technologies for high performance air/ground data links and communication including automated on-board flight information systems taking into account concepts developed in SESAR.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.3.2 Passenger Friendly Air Transport Operations

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

Expected Impact

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

1. To increase passenger services and choice
2. To enable 99% of flights to arrive and depart within 15 minutes of their scheduled departure time, in all weather conditions
3. 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.2007.3.2.1. Maintenance and Repair

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.2.2. Airports

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.3.3 Aircraft Safety

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

Expected Impact

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

1. To reduce accident rate by 80%
2. To achieve a substantial improvement in the elimination of and recovery from human error
3. To mitigate the consequences of survivable accidents.

AAT.2007.3.3.1. Aerostructures

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.3.2. Systems and Equipment

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.3.3. Avionics

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

AAT.2007.3.3.4. Human Factors

Methods and techniques for improved understanding of the human factor in support of human-machine interaction and crew performance in the cockpit; advanced concepts to enable improved human centred design of cockpit displays, training of crews and flight control systems.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.3.4 Operational Safety

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

Expected Impact

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

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

AAT.2007.3.4.1. Design Systems and Tools

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.4.2. Maintenance

Advanced concepts and techniques for continuous health and usage monitoring; advanced concepts and technologies to enable ‘smart’ maintenance, including self-inspection and self-repair capabilities.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.4.3. Air Traffic management

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

AAT.2007.3.4.4. Airports

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.4.5. Human Factors

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

AAT.2007.3.5.1. Integrated approach to scalable fault-tolerant avionics

Expected Impact: The work should aim at enhancing the capability of the European aeronautical industry to produce the new generation of on-board electronics systems with increased functions, greater adaptability to all aircraft types and more fault tolerant for improved reliability.

Scope: The project should integrate and validate the basic elements of a comprehensive aircraft electronics platform, including the relevant tools and methods. These activities will be followed by the demonstration of the integrated platform in terms of functionality, reconfigurability, fault tolerance and cost.

Activities will include new electronic architecture concepts with the associated hardware, middleware and software, development of applications kits for the coupling of the platform with any independently developed function, as well as solutions for fault tolerant reconfiguration of the platform to new applications.

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

Funding scheme: Collaborative Projects large-scale integrating projects

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.3.5.2. Integrated approach to aircraft electromagnetic environment

Expected Impact: The work should aim at providing the European aeronautical industry with increased level of confidence in electromagnetic compatibility design and testing leading to the relevant of fixed-wing and rotary-wing aircraft and to integrate this capacity in order to address the vehicle electromagnetic environment as a whole.

Scope: The proposed project should develop integrated modelling, simulation, testing, certification and maintenance solutions able to cope with the overall aircraft electromagnetic environment. The research and development work should consider the different flight phases and cover a broadband of electromagnetic perturbations, including the occurrence of exceptionally aggressive perturbations. The increasing use of composite materials and its consequence on shielding should also be addressed. The project should built on the knowledge of past and ongoing works in this field and take advantage of the existing elements that can be included in the integrated approach. It should also consider an open and evolutionary architecture to allow a fast and easy insertion of modules targeting specific problems and to permit a progressive sophistication. The system validation shall be performed by tests on aircraft.

Funding scheme: Collaborative Projects large-scale integrating projects

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 3*

There are no topics open in the 1st Call for *Level 3* research activities for 'Ensuring Customer Satisfaction and Safety'.

TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH

AAT.2007.3.6.1. Integration of research capacities in the domain of aviation safety

Expected Impact: The work should aim at strengthening scientific/technical excellence in aviation safety by setting the framework for closer and long-term cooperation of the existing European actors with analytical and/or experimental research capabilities in the field.

Scope: Create and maintain a network of excellence bringing together the required competences to cover the full range of research activities underpinning certification and regulatory aspects in the different technical domains relevant to aviation safety. The network should cover research capacities such as those related to safety modelling and metrics, human behaviour, software and hardware certification criteria including new approaches to certification procedures, etc. The network should establish a joint programme of activities to include a shared resource allocation of test facilities and future joint investment plans, exchange of personnel and tools, common research plans and jointly executed research and, exchange of information of best practices Taking into account the nature and implications of the subject, the network should establish appropriate relationships with certification and regulatory authorities as well

as with the manufacturing industry and operators with a view to obtain the necessary guidance and to align the network activities with European objectives.

Funding scheme: Networks of Excellence

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

ACTIVITY: 7.1.4 IMPROVING COST EFFICIENCY

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

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*.

AREA: 7.1.4.1 Aircraft Development Cost

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

Expected Impact

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

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

AAT.2007.4.1.1. Design Systems and Tools

Advanced modelling and simulation tools to include ‘virtual reality’ in support of design and ‘virtual prototyping’; development of advanced computational tools in the fields of structural analysis, computational fluid dynamics, aeroelasticity, aerothermodynamics, icing thermodynamics and multidisciplinary optimisation to exploit state-of-the-art computer technologies; knowledge-based design tools and methods to include integrated life-cycle (design, manufacturing, maintenance, re-use or disposal) product definition; concepts and methodologies for efficient multi-site product development in support of the extended enterprise; methods and tools to support reconfigurable customisation of aircraft cabin architectures and interior designs; advanced testing tools and methods to improve cost-efficiency and reduce testing time of laboratory, on-ground and in-flight tests; advanced concepts and

procedures in support of novel approaches to certification of aeronautical products and operations.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.1.2. Aerostructures

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.1.3. Systems and Equipment

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.1.4. Avionics

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.1.5. 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; development of techniques for increased flexible tooling; advanced in-process inspection and quality control, including knowledge-based diagnosis and prognosis.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.4.2 Aircraft Operational Cost

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

Expected Impact

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

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

AAT.2007.4.2.1. Flight Physics

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.2.2. Aerostructures

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.2.3. Propulsion

Advanced concepts and technologies for improving engine thermal efficiency and reducing secondary air losses; advanced concepts and technologies for improving engine propulsive efficiency; design tools and techniques for increased application of

advanced light-weight high-temperature materials; advanced light-weight engine architectures and components.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.2.4. Systems

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.2.5. Avionics

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.2.6. Maintenance

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.4.3 Air Transport System Operational Cost

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

Expected Impact

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

1. To reduce operating costs by 20%,
2. To reduce travel charges.

AAT.2007.4.3.1. Design Systems and Tools

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.3.2. Air Traffic Management

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

AAT.2007.4.3.3. Airports

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

Funding scheme: Collaborative Projects, Coordination and Support Actions aiming at coordinating research activities

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-TREN-1*

AAT.2007.4.3.4. Human Factors

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*.

AAT.2007.4.4.1. Integrated approach to life-cycle based development of aircraft structures

Expected Impact: The work should aim at providing the European aeronautical industry with improved ability to design, develop and maintain advanced composite airframe structures at considerable lower cost, reduced time to market and more mature entry into service with less maintenance costs.

Scope: The project should develop a numerical modelling system which provides a step change in integrated virtual design, virtual manufacturing and in-service maintenance and derivatives development so covering the full life-cycle of an aircraft structure. The objective is to deliver a validated simulation platform to cover a number of essential functions such as: optimisation in the pre-design and design phases with increased capacity to incorporate innovative technologies in the design, integration of aircraft systems aspects in the design, virtual testing for right-first-time validation of the design, embedded structural health monitoring in the design, virtual manufacturing for early integration of manufacturing processes aspects in structural sizing. Platform validation will be performed on a realistic advanced major aircraft structure.

Complementary to the platform development, the project should deliver an associated strategy for introducing a 'cultural' change in developing and servicing future airframe structures.

The project should capitalise results of current projects at European and national level.

Funding scheme: Collaborative Projects large-scale integrating projects

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.4.2. Integrated approach to network centric aircraft communications for global aircraft operations

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

Scope: The project should define, develop and demonstrate an aircraft communication concept which will integrate a full range of applications and services, including airlines operations, cabin crew operations, in-flight and on-ground passenger services, airport operations, security services and air traffic management related operations, including the unification of all the related networking protocols. Account should be taken of communication concepts developed in SESAR for air traffic management.

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

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

Funding scheme: Collaborative Projects large-scale integrating projects

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.4.4.3. Integrated approach to health monitoring and non-destructive evaluation of aircraft structures

Expected Impact: The work should provide the European aeronautical industry with a platform of more accurate, more efficient and readily operational non destructive testing techniques to monitor the health of structures for aircraft and engines in the view of extending the in-service life of components (i.e. reduce costs) and increase the level of safety.

Scope: The approach will consider a large ensemble of non destructive testing techniques. The applications should cover fixed-wing and rotary-wing aircraft as well as engines components. The research and development work will include the assessment and improvement of the accuracy and the robustness of the measurement techniques, consider a sound modelling approach for health monitoring and the detection of defects and, wherever appropriate, aim at developing an automated testing method. The relevant non destructive testing techniques will be applied to products and components covering their full life i.e. after manufacturing, in service and after overhaul. The consortium will demonstrate a high level of integration gathering research centres and universities developing the measurement techniques, the supply chain providing the equipment and the final users i.e. aircraft and engine industry. The final validation shall be performed by tests on aircraft and engines.

Funding scheme: Collaborative Projects large-scale integrating projects

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 3*.

There are no topics open in the 1st Call for research activities for 'Improving Cost Efficiency'

TOPICS FOR STRUCTURING EUROPEAN AERONAUTICS RESEARCH

AAT.2007.4.5.1. Integration of research capacities in the domain of aerodynamic flows modelling

Expected Impact: The work should aim at strengthening scientific/technical excellence by setting the framework for closer and long-term cooperation of the existing European actors in high-precision numerical simulation of internal and external aerodynamic flows.

Scope: Create and maintain a network of excellence with all the necessary competence to cover key upstream modelling and simulation areas relevant to the virtual prototyping activities of the European aeronautical industry in the field of advanced fluid dynamics. The network should foster and co-ordinate relevant research on long-term goals, by gathering the highly-skilled knowledge in flow modelling and simulation from academia, research centres and other relevant players in the field, aiming at transferring fundamental research results into the industrial framework. The network should establish a joint programme of activities on theoretical and experimental methods, shared resource allocation with exchange of personnel, common test programmes and research plans with jointly executed research, formation

of a joint knowledge basis, exchange of information on best practices. Industry should be involved to provide guidance on specific objectives and contribute to the assessment of progress towards these objectives.

Key areas to be addressed are: advanced turbulence modelling; advanced transition modelling; unsteady flows; new algorithms; experiments for model validation; relevant optimisation strategies.

Funding scheme: Networks of Excellence

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

ACTIVITY: 7.1.5 PROTECTION OF AIRCRAFT AND PASSENGERS

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

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*.

AREA: 7.1.5.1 Aircraft Security

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

Expected Impact

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

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

AAT.2007.5.1.1. Aerostructures

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.5.1.2. Systems and Equipment

Advanced concepts for secured systems designs and architectures against external and internal threats to ensure safe functionality following a major component or system failure; advanced on-board (cabin and cargo) explosives detection systems; advanced

concepts and techniques for secured wide-band communication systems; advanced cost-effective techniques to detect and counteract missiles attack to aircraft.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.5.1.3. Avionics

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AREA: 7.1.5.2 Operational Security

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

Expected Impact

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

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

AAT.2007.5.2.1. Air Traffic Management

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

AAT.2007.5.2.2. Airports

Advanced security control methods based on biometric data or other novel non-interfering detection techniques; advanced techniques for detection of hazardous materials; development of tracing mechanisms for communicable diseases, development of advanced secured communication systems.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.5.2.3.Human Factors

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 2.*

There are no topics open in the 1st Call for *Level 2* research activities for 'Protection of Aircraft and Passengers'

THE FOLLOWING TOPICS ARE FOR *LEVEL 3.*

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

ACTIVITY: 7.1.6 PIONEERING THE AIR TRANSPORT OF THE FUTURE

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

THE FOLLOWING TOPICS ARE FOR *LEVEL 1.*

AREA: 7.1.6.1 Breakthrough and Emerging Technologies

Only though 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.2007.6.1.1. Lift

Investigation of new approaches to produce or to control the forces that govern flight, in particular those that lift the vehicle. It could consider topics such as other principles of physics as alternative to conventional fluid dynamics, computer controlled aircraft

morphing into different aerodynamic forms for different flight phases, thrust vectoring to provide lift and control.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.6.1.2. 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, hydrogen, new-generation biofuels or "green" synthetic fuels, hybrid propulsion as well as other types of energy such as nuclear, plasma jets, beamed energy or ground-based energy forms, propulsion systems for supersonic, hypersonic and suborbital flight.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.6.1.3. Interior Space

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.6.1.4. 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.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-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.2007.6.2.1. Novel Air Transport Vehicles

Investigation of novel aircraft configurations which could be better adapted to provide the services that future air transportation concepts demand. 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, addressing the environmental concerns regarding energy consumption and noise.

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.6.2.2. Guidance and Control

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.6.2.3. Airports

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

THE FOLLOWING TOPICS ARE FOR *LEVEL 2.*

There are no topics open in the 1st Call for *Level 2* research activities for 'Pioneering the Air Transport of the Future'.

THE FOLLOWING TOPICS ARE FOR *LEVEL 3.*

There are no topics open in the 1st Call for *Level 3* research activities for 'Pioneering the Air Transport of the Future'.

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

AAT.2007.7.1 Understanding interactions between air transport, energy, environment and society

Expected Impact

Proposals should demonstrate making contributions to a better understanding of the role of air transportation in a future socio-economic context and to provide operational tools to support European policy-making.

Scope:

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

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007. 7.2. Understanding the behaviour of the different actors and drivers of the Air Transport System

Expected Impact

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

Scope:

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

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

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.7.3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles

Expected Impact

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

1. To increase passenger choice with regard to best air transportation means connecting point A with point B,
2. 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) – 2007-RTD-1*

AAT.2007.7.4.Stimulating radical technological changes

Expected Impact

Proposals should demonstrate making contributions to stimulating the development and capture of know-how and technologies which will enable the air transport of the second half of this century.

Scope

Study to define and implement a mechanism to foster the creative thinking, as well as the development and take-up of technology breakthroughs, aiming at introducing radical step changes in aviation. The mechanism should include a ‘technology incubator’ to perform analyses of the potential of radical and novel ideas as well as a ‘technology watch’ for spotting and monitoring progress in emerging technologies from other sectors with potential application to enhance solutions and concepts in air transport.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.7.5 Stimulating participation of small and medium size enterprises (SME)

Expected Impact

Proposals should demonstrate making contributions to increase the participation of SME in the programme, so to enhance the capabilities of the European aeronautical supply chain and to strengthen the competitiveness of the European aeronautical industry.

Scope:

Actions to stimulate, encourage and facilitate the participation of SME in the research activities of the programme Level 1 and Level 2 projects. Actions of stimulation will include information events, networking, studies, workshops and servicing. Proposals could combine the scope of this topic with that of AAT.2007.7.6.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.7.6.Stimulating improved participation of Member States with aeronautical R&D potential.

Expected Impact

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

Scope:

Actions to stimulate and encourage the participation of organisations from Member States with aeronautical R&D potential in the activities of the programme. Actions of stimulation will include information events, networking, studies and workshops. Proposals could combine the scope of this topic with that of AAT.2007.7.5.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: *FP7-AERONAUTICS and AIR TRANSPORT (AAT) – 2007-RTD-1*

AAT.2007.7.7.Stimulating Research with International Cooperation Partner Countries

Expected Impact

Proposals should demonstrate making contributions to enhance the participation of Australia as well as International Cooperation Partner Countries from Asia and Latin America, 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) – 2007-RTD-1*

3. IMPLEMENTATION OF CALLS

AERONAUTICS AND AIR TRANSPORT

- **Call title: FP7- AERONAUTICS and AIR TRANSPORT (AAT) - 2007- RTD-1**
- **Call identifier:** FP7- AAT- 2007- RTD-1
- **Date of publication:** 22 December 2006
- **Deadline:** 3 May 2007 at 17.00h (Brussels local time)
- **Revised Indicative budget[12]: 217,48 M€**

- Topics called:

Activity/ Area	Topics called	Funding Schemes **Collaborative Projects (CP), Network of Excellence (NoE), Coordination and Support actions (CSA)**
7.1.1 THE GREENING OF AIR TRANSPORT – LEVEL ONE		
7.1.1.1 Green Aircraft	AAT.2007.1.1.1. Flight Physics	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.1.1.2. Aerostructures	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.1.1.3 Propulsion	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.1.1.4. Systems and Equipment	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.1.1.5. Avionics	CP (small or medium-scale focused research), CSA (coordinating)
7.1.1.2 Ecological Production and Maintenance	AAT.2007.1.2.1. Production	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.1.2.2. Maintenance and Disposal	CP (small or medium-scale focused research), CSA (coordinating)

[12] This amount includes 64 M€ from the 2008 budget, which is added under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority.

7.1.1.3 Green Air Transport Operations	AAT.2007.1.3.2. Airports	CP (small or medium-scale focused research), CSA (coordinating)
7.1.1 THE GREENING OF AIR TRANSPORT – LEVEL TWO		
	AAT.2007.1.4.1. Integrated approach to novel engine architectures	CP (large-scale integrating projects)
7.1.2 INCREASING TIME EFFICIENCY – LEVEL ONE		
7.1.2.1 Aircraft Systems and Equipment for Improved Aircraft Throughput	AAT.2007.2.1.1 Systems and Equipment	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.2.1.3. Maintenance and Repair	CP (small or medium-scale focused research), CSA (coordinating)
7.1.2.2 Time Efficient Air Transport Operations	AAT.2007.2.2.2. Airports	CP (small or medium-scale focused research), CSA (coordinating)
7.1.3 ENSURING CUSTOMER SATISFACTION AND SAFETY – LEVEL ONE		
7.1.3.1 Passenger Friendly Cabin	AAT.2007.3.1.1.Design Systems and Tools	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.1.2. Noise and Vibration	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.1.3. Systems and Equipment	CP (small or medium-scale focused research), CSA (coordinating)
7.1.3.2 Passenger Friendly Air Transport Operation	AAT.2007.3.2.1. Maintenance and Repair	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.2.2. Airports	CP (small or medium-scale focused research), CSA (coordinating)
7.1.3.3 Aircraft Safety	AAT.2007.3.3.1. Aerostructures	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.3.2. Systems and Equipment	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.3.4. Human Factors	CP (small or medium-scale focused research), CSA (coordinating)
7.1.3.4 Operational Safety	AAT.2007.3.4.1. Design Systems and Tools	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.4.2.Maintenance	CP (small or medium-scale

		focused research), CSA (coordinating)
	AAT.2007.3.4.4. Airports	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.3.4.5.Human Factors	CP (small or medium-scale focused research), CSA (coordinating)
7.1.3 ENSURING CUSTOMER SATISFACTION AND SAFETY – LEVEL TWO		
	AAT.2007.3.5.1. Integrated approach to scalable fault-tolerant avionics	CP (large-scale integrating projects)
	AAT.2007.3.5.2. Integrated approach to aircraft electromagnetic environment	CP (large-scale integrating projects)
7.1.3 ENSURING CUSTOMER SATISFACTION AND SAFETY – STRUCTURING		
	AAT.2007.3.6.1. Integration of research capacities in the domain of aviation safety	NoE
7.1.4 IMPROVING COST EFFICIENCY – LEVEL ONE		
7.1.4.1 Aircraft Development Cost	AAT.2007.4.1.1. Design Systems and Tools	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.1.2. Aerostructures	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.1.3. Systems and Equipment	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.1.4. Avionics	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.1.5. Production	CP (small or medium-scale focused research), CSA (coordinating)
7.1.4.2 Aircraft Operational Cost	AAT.2007.4.2.1. Flight Physics	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.2.2. Aerostructures	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.2.3. Propulsion	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.2.4. Systems	CP (small or medium-scale focused research), CSA (coordinating)

	AAT.2007.4.2.5. Avionics	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.2.6. Maintenance	CP (small or medium-scale focused research), CSA (coordinating)
7.1.4.3 Air Transport System Operational Cost	AAT.2007.4.3.1. Design Systems and Tools	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.4.3.4. Human Factors	CP (small or medium-scale focused research), CSA (coordinating)
7.1.4 IMPROVING COST EFFICIENCY – LEVEL TWO		
	AAT.2007.4.4.1. Integrated approach to life-cycle based development of aircraft structures	CP (large-scale integrating projects)
	AAT.2007.4.4.2. Integrated approach to network centric communications for global aircraft operations	CP (large-scale integrating projects)
	AAT.2007.4.4.3. Integrated approach to health monitoring and non-destructive evaluation of aircraft structures *(provisional)*	CP (large-scale integrating projects)
7.1.4 IMPROVING COST EFFICIENCY – STRUCTURING		
	AAT.2007.4.5.1. Integration of research capacities in the domain of aerodynamic flows modelling	NoE
7.1.5 PROTECTION OF AIRCRAFT AND PASSENGERS – LEVEL ONE		
7.1.5.1 Aircraft Security	AAT.2007.5.1.1.Aerostructures	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.5.1.2. Systems and Equipment	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.5.1.3. Avionics	CP (small or medium-scale focused research), CSA (coordinating)
7.1.5.2 Operational Security	AAT.2007.5.2.2. Airports	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.5.2.3. Human Factors	CP (small or medium-scale focused research), CSA (coordinating)
7.1.6 PIONEERING THE AIR TRANSPORT OF THE FUTURE – LEVEL ONE		
7.1.6.1 Breakthrough Technologies	AAT.2007.6.1.1. Lift	CP (small or medium-scale focused research), CSA (coordinating)

	AAT.2007.6.1.2. Propulsion	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.6.1.3. Interior Space	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.6.1.4. Life-Cycle	CP (small or medium-scale focused research), CSA (coordinating)
7.1.6.2 Step Changes in Air Transportation	AAT.2007.6.2.1. Novel Air Transport Vehicles	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.6.2.2. Guidance and Control	CP (small or medium-scale focused research), CSA (coordinating)
	AAT.2007.6.2.3. Airports	CP (small or medium-scale focused research), CSA (coordinating)
7.1.7 CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme		
	AAT.2007.7.1. Understanding interactions between transport, energy, environment and society	CP (small or medium-scale focused research), CSA (supporting)
	AAT.2007.7.2. Understanding the behaviour of the different actors and drivers of the Air Transport system	CP (small or medium-scale focused research), CSA (supporting)
	AAT.2007.7.3. Improving passenger choice in air transportation with the incorporation of additional and new vehicles	CSA (supporting)
	AAT.2007.7.4. Stimulating radical technological changes	CSA (supporting)
	AAT.2007.7.5. Stimulating participation of small and medium size enterprises (SME)	CSA (supporting)
	AAT.2007.7.6.Stimulating improved participation of Member States with aeronautical R&D potential	CSA (supporting)
	AAT.2007.7.7.Stimulating research with International Cooperation Partner Countries	CSA (supporting)

- Evaluation procedure:

– The evaluation shall follow a single stage procedure
– Proposals may not be evaluated remotely
– The evaluation criteria and sub-criteria (including weights and thresholds) for the different funding schemes are set out in Annex 2 to this work programme
– Hearings are foreseen for Networks of Excellence and Level 2 projects.

- Indicative evaluation and contractual timetable:

– Intended period for on-site (BXL) evaluation / panel meetings: 28th May - 8th June and 25th June – 6th July

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

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

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

AERONAUTICS AND AIR TRANSPORT

- **Call title: FP7- AERONAUTICS and AIR TRANSPORT (AAT) - 2007- TREN-1**
- Call identifier: FP7- AAT - 2007- TREN-1
- Date of publication: **22 December 2006**
- Deadline: **3 May 2007 at 17.00h (Brussels local time)**
- Total Indicative budget**: 4M€**
- Topics called:

Activity/ Area	**Topics called**	Funding Schemes **Collaborative Projects (CP), Network of Excellence (NoE), Coordination and Support actions (CSA)**
7.1.4 IMPROVING COST EFFICIENCY – LEVEL ONE		
7.1.4.3 Air Transport System Operational Cost	AAT.2007.4.3.3. Airports	CP

- Evaluation procedure:

– The evaluation shall follow a single stage procedure
– Proposals may not be evaluated remotely
– The evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
– Hearings are foreseen for Networks of Excellence and Level 2 projects.

- Indicative evaluation and contractual timetable:

– Intended period for on-site (BXL) evaluation / panel meetings: 28th May – 8th June

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

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

4. INDICATIVE PRIORITIES FOR FUTURE CALLS (2008)

Topics for *Level 1,* Collaborative research, Coordination and Support Actions for -*Structuring European Aeronautics*- and -*Supporting Programme Implementation*– are likely to be valid throughout the duration of the Framework Programme. However, some new topics could be added for further Calls for Proposals or some of the present ones could be modified or discarded.

Topics for *Level 2* and Network of Excellence for -*Structuring European Aeronautics*- are likely to be different in the Call for Proposals in 2008. These will be developed during 2007 following consultation with the Technology Platform (ACARE) and stakeholders.

7.2 SUSTAINABLE SURFACE TRANSPORT

1. CONTEXT

The research scope will consider the surface transport system embracing all its constituents: products (vehicles, vessels and infrastructures), services, operations and users integrating organisation, legal and policy frameworks.

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

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

The policy dimension of the work programme derives from the objectives and priorities described in the White Paper on Transport *"European Transport Policy for 2010"* and its id-term review. The industrial dimension of the work programme has benefited from the inputs of 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[13] were equally taken into account.

Approach

The system approach proposed by the work programme will be pursued by means of a broad, comprehensive and integrated 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 linked to transport (e.g. society, environment, energy, economy and industrial activity).
- **Basic and applied research** contributing to technological and scientific progress.
- Development of **innovative solutions** for surface transport products (vehicles, vessels, infrastructure and their components), processes, operations and services.
- **Large scale and multi-disciplinary** technology and socio-economic integration, validation and demonstration.
- **Structuring European surface transport research** and strengthening excellence trough co-ordination and networking activities.
- **Supporting programme implementation** in aspects related to **dissemination and exploitation** of existing research results, stimulating SME participation and International Cooperation, communication, citizen awareness and support to new policies linked to transport.

Activities are to be addressed by topics and classified in two broad categories according to the degree of specification of the topic considered: “level 1" (generic activities) and "level 2” (specific activities).

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

Level 1

Topics in level 1, being generic, define broad fields of activity and will normally concern the three surface transport modes, unless differently specified in the text. They will encourage and enable technological synergies and technological transfer between transport modes. Proposals may be approached with some degree of flexibility (addressing only part of their content or combining them as required). Research and development activities within level 1 will contribute to the technological foundation of the sub-theme.

Level 2

Topics in Level 2, being specific, refer to well identified industrial, policy and socio-economic matters. They are explicit in their formulation. They may for example give indications on the type of activity, the research approach, characteristics of the partnership and expected outcomes. Proposals addressing a level 2 topic will cover it in its entirety.

Funding Schemes

Topics will be addressed by *Collaborative Projects, Coordination* and *Support Actions and Networks of Excellence*.

Collaborative projects are subdivided as follows in the call FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- RTD-1:

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

The expected size of the proposal(s) is indicated at topic description.

Coordination and Support Actions for level 1 and 2 will contribute to structuring European surface transport research and supporting programme implementation. Activities may also propose strategic studies and actions for transport and related policies (e.g. the future maritime policy). Under level 1 *Coordination and Support Actions* may address individual topics. However preference will be given to proposals addressing issues at area, activity or sub-theme level via the combination of several topics.

Networks of Excellence: no topic for this instrument is proposed in the 2007 Work Programme.

International cooperation

The strategy for International co-operation for surface transport systems is two-fold:

1. Specific to a sector or area aiming to enhance European industrial competitiveness;
2. Specific to a region aiming to support developing countries through research;

Topics across all Activities are open to researchers and research institutions from third countries[14]. International Cooperation is encouraged in all topics in order to tackle issues at a global level and enhance the competitiveness of EU industry. In addition, in **cross-cutting**

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

activity, dedicated topics address the stimulation of international cooperation as well as the regional dimension of the strategy.

Contributions from Technology Platforms, ongoing initiatives to stimulate international cooperation[15] and other relevant stake holders have been taken into account.

In 2007 international cooperation will contribute to achieving policy, research and programme objectives such as:

- Joint development of knowledge and technology for the implementation of common methodologies and tools: e.g. cooperation with India, USA and Japan to develop mathematical models for crash and safety simulation (in topic SST.2007.4.1.1).
- Addressing common challenges: e.g. cooperation with industrialised countries to improve accessibility of ageing population to transport services (in topic SST.2007.3.1.1).
- Protecting people and environment: e.g. cooperation with South-Asian countries to develop technology for clean ship dismantling and minimum human exposure to toxic substances (in topic SST.2007.1.2.2).
- Integrating Developing Countries through transport networks: e.g. cooperation with Mediterranean Partner Countries to develop Short Sea Shipping transport links through the Mediterranean Sea (in topic SST.2007.2.1.1).

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) along with the international cooperation activities in this work programme will reinforce the role of international cooperation in surface transport.

SME relevant research

Specific measures will also be taken to promote the participation of SME in surface transport research. The development of competitive supply chains where SMEs play a central role will be one of the objectives of surface transport research. Equally, SMEs are central drivers in innovation of products, systems and components. In both respects, the participation of SMEs in topics defined under activity 7.2.5 (Strengthening competitiveness) will be essential. Emphasis will also be placed on facilitating the start-up and emergence of new high-tech SMEs, particularly in the advanced transport technologies and 'services-related' activities specific to Transport.
Under **Cross-cutting activities** (refer to the following item) one topic is proposed for the stimulation of SME participation.

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

The work programme proposes topics which cut across the five surface transport activities. They are defined in sub-division 7.2.6 and will primarily aim at supporting programme implementation and structuring European surface transport research.

Incorporating breakthrough technologies

[15] such as SIMBA in road transport and GLOBAL VIEW in rail transport

Exploring radical changes will be essential to respond to surface transport challenges of the 21st century. Therefore, an essential element of the research will be the incorporation of breakthrough technologies and results from interdisciplinary fields such as nanotechnologies and biotechnologies into surface transport applications.

2. CONTENT OF CALL FOR 2007

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

Expected impact

1. Contribution to CO_2 reduction emissions from surface transport operations aligned with Kyoto targets. For road transport research will aim by 2020 at a 40% CO_2 reduction for new passenger cars and light-duty vehicles and 10% for new heavy-duty vehicles (both based on 2003 figures)[16].
2. Reduction of exhaust and local emissions 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.
3. 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 5,75% and 2% respectively use in surface transport by 2010[17].

[16] ERTRAC Research Framework of April 2006
[17] European Directive 2003/30/CE

4. Introduction of hydrogen and fuel cell technology in surface transport applications by 2020 as an economic, safe and reliable alternative to conventional engines[18].
5. Reduction of external and interior noise and vibration. For road and rail transport the target will be a 10 dB[19] reduction compared to present noise levels particularly in urban environments.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.1.1.1. Promoting the use of bio-fuels and alternative hydrocarbon fuels

New technologies and innovative solutions for the progressive introduction of bio-fuels and alternative hydrocarbon fuels.

Proposals will cover one or more of the following subjects:

1. adaptation and optimisation of existing power trains (based on gasoline or diesel), systems (including after-treatment), components and materials;
2. new power train concepts with emphasis on efficiency and environmental impact, covering power ranges for al transport modes;
3. effective, safe and clean delivery of these fuels at distribution points.

International Cooperation with Brazil, USA and India is suggested.

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

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.1.1.2. Vehicle/vessel and infrastructure technologies for optimal use of energy

Vehicle/vessels and infrastructure technologies (excluding research on power-trains which are covered in previous topics) to further reduce energy consumption.

Proposals will cover one or more of the following subjects:

1. advanced low mass, low friction and low rolling resistance concepts and materials applied to components and structures for vehicles and vessels;
2. fluid-dynamic and aero-dynamic analysis and solutions for drag reduction;
3. exploiting additional natural and non-polluting sources of energy such as wind or solar energy;
4. improved interactions between vehicles/vessels and infrastructure (including the surrounding medium) for minimal energy consumption and wash (for high speed vessels);

[18] ERTRAC SRA
[19] ERTRAC and ERRAC SRAs

5. smart components and auxiliary systems to reduce energy consumption and/or which make use of energy harvesting;
6. design tools and methodologies for optimised overall energy efficiency and life cycle performance.

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

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.1.1.3 Integrating natural gas power-trains

Demonstrate the full potential of natural gas when applied to a custom designed light duty engine (including, for instance, higher or variable compression rates) integrated with specific after-treatment systems dealing more efficiently and at a lower cost than current technology with the reduction of methane emissions in addition to the other pollutants already treated by three way catalysts. Advanced storage systems and vehicle architectures, as well as multi-grade fuel tolerance and fuel flexibility are additional features to be researched.

The research will lead to increased efficiency by 10 % compared with diesel engines of today (2006), particularly at part load, and ultra low emissions (better than EURO 6 and US tier 2).

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.1.1.4 Electric ship technology

The objective of the research is to significantly enhance the overall efficiency and cost effectiveness of electric power and propulsion systems, in order to enlarge the economically viable range of vessel applications.

Activities will address research, development and validation of advanced concepts and technologies towards an all electric ship. This includes the following subjects:

1. New power generation, control and drive machinery, components and systems with higher power and torque density, efficiency and flexibility in design and operation, all at lower cost, size and weight.
2. New concepts enabling the maximum benefits of electric propulsion, control, manoeuvrability and low noise to apply to a wider range of vessels and operating speeds with lower build and operating costs.
3. New transformers, frequency converters, motor and generator designs based on high speed drives, Permanent Magnet and Super-Conducting component technologies.

4. Electrical actuation of major equipment to provide reduced footprint, installation design flexibility and more controllable, reliable operation for new vessels.
5. New electrical power system and ship designs to enable operation from clean shore power supplies to eliminate airborne emissions in harbour.

Expected outcomes will include: electrical power, actuation and propulsion system designs and models that demonstrate increased efficiency and cost effectiveness for existing and new vessel concepts; new validated component designs for high power generators and propulsion systems.

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.1.1.5. Clean and energy efficient marine diesel power trains

The objective of the research is to significantly reduce pollutant emissions and increase the overall efficiency of marine diesel propulsion systems, hence reduce fuel consumption and CO_2 emissions. Furthermore, NOx emissions reduction and the use of alternative fuels should be included.

Activities will address research, development and validation of advanced concepts and technologies towards an efficient, fuel flexible and reliable marine diesel propulsion system that drastically reduces gaseous and particulate emissions.

Proposals will cover the following subjects:

1. new knowledge for better understanding of the spray, mixing and combustion process, including validated soot formation models;
2. validated thermophysical fuel properties data.
3. development of advanced testing facilities towards better understanding and validation of numerical models and concepts.
4. intelligent engine controls (which are model based and closed loop controlled) and flexible power-trains;
5. new generation of after-treatment systems which are integrated, durable and compact. Research should include better understanding of the process ;
6. innovative components and auxiliary systems;
7. overall power-train optimisation.

This topic is open for waterborne transport only. The proposals should take into account previous collaborative research efforts.

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.1.2 Environment-friendly and efficient industrial processes

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

Expected impact

1. Improve recyclability of vehicles and vessels. For road vehicles the target will be to reach 95% recyclability[20].
2. Increase the energy efficiency of transport specific industrial processes by 20%.
3. Promote the use of environmentally friendly materials in vessels and vehicles allowing for efficient and safe disposal whilst enhancing their end of life value.
4. Substantially decrease the impact of maritime transport on bio-diversity, particularly on fragile eco-systems.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.1.2.1 The greening of transport-specific industrial processes

Technologies will concentrate on innovative industrial processes and methods specific to surface transport products characterised by a high degree of complexity and the necessity to couple environmental objectives with consideration to competitiveness and working conditions.

Proposals will address cleanliness and energy efficiency in one or more of the following processes: manufacturing; assembly; construction (of surface transport infrastructures); maintenance; repair and recycling. Activities may also address design for ecological processes, models and systems for inspection and condition assessment.

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

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.1.2.2 End of life strategies for vehicles/vessels and infrastructures

New methods and processes for improved vehicles, vessels and infrastructure end of life strategies.

[20] ERTRAC SRA

Proposals will cover one or more of the following subjects:

1. ecological processes for clean and safe dismantling;
2. clean and safe disposal;
3. cost-effective and clean recycling (in particular for hard-to-recycle materials such as composites) and re-use of vehicles/vessels and infrastructures including conversion and retrofitting.
4. Vehicles/vessels and infrastructure end of life analysis addressing industrial, ecological and economic criteria.

For processes involving human operations special consideration will be given to the improvement and safety of working conditions, the minimisation of human intervention and exposure to potentially harmful substances.

International Cooperation with China, India, Brazil, Russia and South Africa is suggested in the field of recycling. Concerning dismantling and disposal International Cooperation with additional Asian countries (in particular Pakistan and Bangladesh) is also suggested specially for ship dismantling.

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

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.1.2.3 ECO-SHIP

The research objective is to minimise the impact of ships on eco-systems by minimizing waste and water residues and discharges into water and by developing technology and designs for the next generation of efficient and environmentally friendly vessels, particularly cruise and Ropax, whilst aiming at efficient operational and maintenance costs.

Activities will address:

1. Research, development and validation for innovative vessel and system designs with low environmental impact, operationally and cost effective ballast water treatment and reduced or no dependency on ballast. All waste sources (including ballast water) will be addressed in a holistic way:
2. Explore ways by which one system waste can be used as input to another. Innovative flue gas cleaning systems will be designed to recover waste heat and waste water to be used in diesel engine injection systems in order to reduce NO_x.
3. For the expanding fleet of smaller recreational vessels, economic, efficient and robust anti-pollution processes, technologies and systems are to be developed and validated.

Expected outcomes include: verifiable reduced impact on eco-systems as compared to existing vessel types; validated designs of vessels with zero or minimal impact from ballast water; innovative designs and logistic chain developments leading to reduced dependency on ballast; recovery of waste and flue gas (for example using plasma reduction); solutions against bio-pollution and anti-fouling contamination of water.

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.1.3. Socio-economic issues

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

No topic is open in 2007.

ACTIVITY: 7.2.2 ENCOURAGING AND INCREASING 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 quality logistics, covering all transport modes. Intermodality in passengers

and freight will be addressed by activities including seamless and competitive solutions, and, integration of terminals in all transport modes.

Expected impact

1. Improve the efficiency of interfaces between modes through time and cost reductions in terminals.
2. Maximize cargo capacity of vehicles and vessels within intermodal door-to-door transportation routes.
3. Optimisation of logistics services, transportation flows, terminal and infrastructure capacity within European and global supply chains.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.2.1.1 Vehicle/vessels and infrastructure concepts for intermodal freight transport

Innovative vehicle/vessels and infrastructure concepts for optimal operation in multimodal transportation chains.

Activities may address concepts for one or more transport modes (road, rail and waterborne). Emphasis will be placed on reliability, flexibility, speed, optimal infrastructure and carrying cargo capacity, ease of infrastructure interactions and manoeuvrability in the context of intermodal transport and optimisation of logistics chains. Technologies for cargo loading/unloading are not included in this topic. This issue will be included in call 2008 under "Efficient interfaces between transport modes".

International Cooperation is suggested with Russia for the development of heavy rail freight transportation and Baltic Sea shipping, with Mediterranean Partner Countries for the development of Short Sea Shipping traffic.

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

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.2.1.2 Benchmarking logistics

Support the development of a quality logistics system (including advanced technologies) aiming to improve the efficiency within and across different modes of

transport, as stipulated in the Communication on Freight Transport Logistics in Europe[21].

To accomplish this, a methodology must be established to assess transport logistics performance in quantitative terms at different levels in Europe and globally. The internal strengths and weaknesses of different modes separately and in comparison with each other must be measured reliably. Benchmarking can be used to evaluate and compare the performance of individual transport modes, supply chains and logistics companies including third-party (3PL) and fourth-party (4PL) logistics, as well as the European logistics performance relation to other major logistics players in the global market. Existing standards (e.g. ISO, CEN) need to be examined and new quality standards for transport logistics must be considered. The work should build on existing knowledge base and the state of art. As results are needed urgently, a project with short duration will be preferred.

Expected impact:
- a set of practical and feasible indicators, in particular statistics indicators, to measure transport logistics performance and trends in Europe and between continents at macro level.
- a set of usable benchmarks that can be used in a company and between companies to measure transport logistics performance at different levels.
- a demonstration vehicle to test the indicators and benchmarks in practice.
- a draft quality standard for transport logistics.

Funding scheme: Collaborative Projects, Coordination and Support Actions aiming at coordinating research activities
Open in call: FP7- SUSTAINABLE SURFACE TRANSPORT (SST)–2007- TREN-1

SST.2007.2.1.3 Smart supply chain management in intermodal door-to-door container transport

The aim of the research is the reduction of logistics costs and maximisation of the efficiency, safety and security of the whole supply chain in global and European intermodal container shipment. The research will focus on the integration of information technologies, logistics and inspection including customs procedures.

Activities will address research, development and demonstration of a full scale integration of:

1. technologies which enable the continuous monitoring and control of containers and the status of the cargo (the use of GNSS shall be considered),
2. communication systems and platforms used by the transport business community and controlling authorities,
3. supportive innovative procedures and processes in ports and terminals with the aim to establish seamless and high capacity container transport flows in the European and global supply chains.

[21] COM(2006)336final of 28/06/2006.

Expected outcomes will include: shared information system of vessel and cargo tracking accessible to shippers, operators and authorities; integration of multi-sensor information as to the conditions of the goods in containers, notably suspicious changes, into the shared information system; cargo handling processes and equipment interacting with the shared information system; alignment of information handling and customs procedures, contracting, and permitting. The above outcome should translate into verifiable benefits. International Cooperation is recommended for this topic in order to address transport of container at global level.

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.2.1.4 Preparatory action on Innovative Transport Networks

Objective: Congestion, accidents and pollution are considered as serious problems which together with the dependence on fossil fuels represent key challenges for an efficient long-distance freight transport system.

The Mid-term Review of the White Paper and the Energy Policy Green Paper highlight the potential of a more integrated approach towards transport and energy issues in order to address these problems.

The future of a sustainable European transport system requires innovation at all levels including infrastructure, vehicles, services and user behaviour. In addition, new options for policy measures may need to be developed to encourage innovation.

The question is how to structure the variety and complexity of the different requirements related to technologies, systems, use of the transport systems and the policy environment.

The objective of this preparatory action is to create an innovation forum involving stakeholders and researchers with the task of developing a vision for a future innovative, energy-efficient and sustainable European transport system.

This will provide input for the development and demonstration of innovative integrated solutions that will be effective across a wide spectrum of transport and policy measures.

Scope: Main task of the preparatory action is to define an overall concept for the intelligent integration of transport and energy technologies together with appropriate policy options aiming at energy-efficient, low-emission, safe and efficient European transport corridors and networks in which the transport modes are efficiently used individually as well as in intelligent combinations. The concept should encompass infrastructure, vehicles, fuels, transport services and operations (and their interaction), maintenance and should incorporate a strong user perspective.

The concept should have a long-term time horizon, but the approach for its implementation should be modular (step-by-step). It should identify categories of

measures which could be combined to support and accelerate the introduction of innovative technologies and systems. Possible measures are e.g. energy-efficient and clean vehicles, use of alternative fuels, traffic and transport management systems and related information services, regulatory or socio-economic incentives. Scenarios should include measurable parameters to compare them with a 'do nothing' scenario in order to assess the effectiveness of different possible measures.

As an important part of this action an agenda for further research, technological development and demonstration (RTD) should be developed, as well as adequate implementation strategies, together with a clear roadmap. In particular, the preparatory action should define a framework to test and validate solutions in specific inter-urban transport corridors/networks, without pre-judging the term 'corridor'/'network'. It should ensure industrial and political involvement and support and establish the necessary partnerships.

The action should make use of the results of relevant RTD projects funded by the EU, at national level or by industry and establish links to the European Technology Platforms in the transport sector and the ERA-NET Transport actors.

Expected results: The action should lead, within maximum 18 months, to a vision validated by key stakeholders, an RTD agenda, possible implementation strategies and business models. Relevant actors should be identified.

Funding scheme: Co-ordination and Support Action aiming at supporting research activities

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

SST.2007.2.1.5 Future long-distance freight road transport

The research will aim at the development of an integrated transport solution for the secure, flexible, reliable, clean, energy efficient and safe road transportation of goods throughout the enlarged Europe with substantially reduced CO_2 impact.

The work plan will include:

1. modularisation and optimisation of goods carrier and vehicle architectures to improve load factors and loading efficiency;
2. optimal use of energy through reduced aerodynamics, tyre/road rolling losses and optimal power train controls, leading to measurable and quantifiable improvements in energy efficiency;
3. innovative intelligent real-time path planning and transport operation schemes associated with load matching, and infrastructure improvements and deterioration controls. Additional consideration will be given to information and enforcement schemes preventing inappropriate access to the secondary road network. The use of GNSS shall be considered.

Researching driver support systems and advanced training schemes to improve driver capabilities including consideration of gender issues will be an important matter.

The project outcome will consist of pan-national demonstrations based on transport systems integrating the above functions. Hauliers, operators and road authorities

across Europe will be used to validate the concept. Links with maritime and rail routes will be considered. The partnership should also include partners from Eastern Europe to support common standards.

Funding scheme: Collaborative Projects large scale integrating projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.2.2 Maritime and inland waterways transport

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

Expected impact

1. Increased modal shift for short sea shipping to reach a modal share of 40 %
2. Increased involvement of private sector

SST.2007.2.2.1 Promotion of inland waterway transport

Objective

In order to strengthen the competitive position of inland waterway transport and to enhance its integration into intermodal supply chains, the European Commission has launched an ambitious European Action Programme for Inland Waterway Transport (IWT), the 'NAIADES'[22] programme. NAIADES identified five areas - markets, fleet, jobs and skills, image and infrastructure - in which actions are required. Possible instruments to realise these actions can be of a legislative, policy or supportive nature.

The objective of this task is to establish a knowledge network bringing together all relevant actors concerned which can support the Commission in the implementation of the NAIADES action programme.

Scope

A co-ordination action will be established. In order to set up a strong network and partnership amongst the different actors involved in the Inland Waterway Transport (IWT) sector and to ensure a solid knowledge basis.

The co-ordination action shall be run by a technical secretariat which facilitates the management and administration of the action. The technical secretariat should be of

[22] Communication from the Commission on the promotion of inland waterway transport "NAIADES", An integrated European Action Programme for Inland Waterway Transport, COM (2006) 6 final, 17.1.2006

sufficient size and should reflect the multi-disciplinary requirements and complexity of the subject.

The co-ordination action itself shall - in close co-operation with the European Commission - contribute to the development of a detailed roadmap for the implementation of the different actions envisaged, identify the necessary measures, spot and bring together the required stakeholders and develop the necessary knowledge and tools.

The co-ordination action shall be organised around the five NAIADES action areas, ensure an active participation of key industrial stakeholders, associations and Member States administrations, build up a solid network amongst those, allow for the organisation of workshops, expert meetings and working groups a well as the carrying-out of research studies and the establishment of databases required for the implementation of the actions.

It should take the lead in co-ordinating activities relevant to the promotion and development of the inland waterway sector. It should help to bridge the gap between research and the industry and increase awareness regarding the possibilities the sector offers. It should identify best practices and serve as an exchange, discussion and promotion platform.

It should further strengthen the co-ordination between national, EU and industrial research, assist in assessing research and connected implementation activities, engage in dissemination activities and assist in technology assessment, forecast and transfer.

Co-operation with third countries should be ensured and their active participation, where appropriate, sought.

Expected results

1. Enhanced awareness of the possibilities the sector offers
2. Knowledge network
3. Enhanced co-ordination between activities and stakeholders
4. Clustering of RTD activities
5. Dissemination activities and promotion of research results and best practices
6. Strategies and solutions in support of transport policy objectives
7. Roadmap and measures
8. Identification of relevant sets of stakeholders as regards the different measures
9. Prepare for public private partnerships with respect to the implementation of measures
10. Workshops, expert groups, working groups
11. Research studies, data bases, market observation and benchmarks
12. Technology forecast and assessment
13. Contribution to the development of legislation and technical specifications

Funding scheme: Co-ordination and Support Action aiming at coordinating research activities

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

SST.2007.2.2.2 Advanced RIS-based transport management solutions for the IWT sector

Objective

To strengthen the competitive position of inland waterway transport (IWT), establish competitive IWT services and foster their integration into the entire transport chain, The NAIADES[23] action programme stipulates therefore, amongst others, the setting up of research actions dedicated to IWT.

Scope

The IWT sector has to comply with the requirements of modern supply chain management.

Open and interoperable information and communication systems providing real-time information, advanced information services and the harmonisation of both technical standards and interfaces are a key prerequisite.

The collaborative research action envisaged shall base itself on previous research and in particular take into account the results of the FP6 project FREIGHTWISE[24] regarding a common framework for interoperable information and transport management systems.

The action shall exploit the developments in the area of River Information Services (RIS). RIS can benefit the efficiency of intermodal transport operations by the provision of seamless traffic-related information and the interlinking with transport information. RIS facilitate an enhanced real-time monitoring of resources, goods, and changing fairway conditions. This allows improved fleet management and vessel deployment, better voyage planning, an enhanced use of infrastructures and faster and more efficient border controls.

The action should develop dedicated services and applications which use RIS information for the planning, management and monitoring of logistics and transportation processes as a whole and which facilitate the collection, distribution and exchange of information between authorities (national and cross border) and commercial actors.

The interfaces between inland navigation, nodal points and other modes of transport are of key interest and any solution should reflect that. The action should identify the need for further standardisation as well as .implementation strategies, business and organisational models. In this context, the technical advantages and the operational framework of the European GNSS (EGNOS and Galileo) will be considered.

The action should validate, test and demonstrate the results in IWT-focused intermodal transport chains, bringing together all relevant actors including possibly shipper/cargo owners.

[23] Communication from the Commission on the promotion of inland waterway transport "NAIADES", An integrated European Action Programme for Inland Waterway Transport, COM (2006) 6 final, 17.1.2006

[24] Freightwise, FP6 Integrated project , DG TREN

Expected results

Validation and demonstration of a harmonised framework for information and transport management systems in IWT-specific intermodal transport and logistics chains. Identification of implementation strategies and possible business models; provision of best practice examples and creation of multiplier effects.

Funding scheme: Collaborative projects

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

SST.2007.2.2.3 Promotion of short sea shipping and intermodality

As noted in the recent Communication on short sea shipping (COM(2006) 380 final), the efficiency of the mode could be improved by overcoming obstacles to its development and by integrating it to the multimodal logistics chain. A clear methodology and specific promotional campaigns should be established to promote short sea shipping individually and as part of the multi-modal logistics chain, to improve its image and to increase its use leading to sustainable modal shift. The impacts of such campaigns should also be assessed.

Special attention should be paid to the integration of short sea shipping in the logistics, door-to-door chains, including hinterland connections. The proposed promotion and campaigns actions should be Europe-wide, should create European added value complementing and extending the ongoing work by Short-sea Promotion Centres aiming to improve the overall image of waterborne transport. The methodology must be designed to be utilised by existing short-sea promotion bodies also after the end of the project. This will be in accordance with ongoing work towards extending the scope of Short-sea Promotion Centres towards multimodal inland transport, without creating new, parallel structures. The candidate research project should function as a catalyst for improving the efficiency, integration, modal shift potential and image of short sea shipping in Europe's co-modal transport system. Furthermore, increased involvement of private sector in supporting the work of the Promotion Centres must be stimulated.

Expected results:

- a workable and replicable methodology for practical promotion activities for SSS and intermodality devised in co-operation with Promotion Centres
- extended activities of existing mode-specific promotion centres to encompass a wider concept of the inland - intermodal transport
- a demonstration of the methodology in conjunction with Shortsea Promotion Centres
- best practice on improved integration in relevant inland logistics chain

Funding scheme: Collaborative Projects, Coordination and Support Actions aiming at coordinating research activities

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

SST.2007.2.2.4. Maritime and logistics co-ordination platform

The efficiency of maritime transport and the total logistics chain can still be substantially improved for the benefit of the whole economy.

The aim of the research topic is to gather expertise in order to improve knowledge of the challenges faced by the maritime and logistics industry and to propose and assess solutions. The activity should build on past activities and link with on-going ones. It should involve significant number of interested parties whether industrial (shippers, forwarders, transport providers, banks, insurances, technology providers, promotion centres), governmental (agriculture, health, customs, economic affairs, police, transport authorities) or researchers. The envisaged duration of the activity is three years.

Expected results:

- a knowledge base and expertise for an integrated maritime transport policy
- facilitate the exchange of information, raise awareness and disseminate research results, technologies and best practice at a European, national and regional scale.
- technology forecasting and assessment
- study obstacles, propose and assess solutions for Europe.
- develop a series of best practices and recommendations;
- advice on various policy initiatives such as legislation (including simplification), standardisation, research, networking and co-operation between administrations.

Funding scheme: Collaborative Projects, Coordination and Support actions *aiming at coordinating research activities*
Open in call: FP7- SUSTAINABLE SURFACE TRANSPORT (SST)–2007- TREN-1

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

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

No topic is open in 2007.

AREA: 7.2.2. 4 Quality of Rail Services

The objective is to search for step-changes in the quality of service and in the efficiency of railway operations through the demonstration of innovative railway system concepts of generic applicability addressing two key business railway functions: (i) **Customer Service** including notably the interface with the customer – passenger and freight - across the whole transportation chain and (ii) **Railway Operations comprising** key operational areas with the potential to provide significant returns in terms of responsiveness and efficiency of operations or in a better usage of existing high-value assets.

No topic is open in 2007.

AREA: 7.2.2.5 Interoperability and Safety

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

Expected impact

1. Enhance interoperability on existing infrastructure and develop new interoperable rail equipment.
2. Reduce migration time for the implementation of new interoperable solutions.
3. Develop and implement Technical Specifications for Interoperability (TSI's).
4. Create the conditions for the operational and technical integration of the different national railway systems in the European Union and accession countries.
5. Contribute in capturing twice the freight and passenger market share and three times the market volume in rail transport by 2020 compared to 2000 levels[25].

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.2.5.1 Interoperable rolling stock

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

The proposed solutions will be based on advanced mechatronic systems, on-board electronics, information and communication systems, satellite technology and

[25] ERRAC SRA

services. Research results will contribute to standardisation at different levels in particular related to new Technical Specifications for Interoperability (TSI's).

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

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

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.2.5.2 Delivering ERTMS-compliant Interlocking Systems

The aim of the research will be to define and develop specifications and hardware for a new generation of interlocking systems in line with the relevant European norms addressing railway operation and safety systems to facilitate the introduction of ERTMS systems. The project will build on common harmonised operational requirement specifications and the results of existing work where national, European, functional, operational and performance requirements have been established. It will include the enlargement of the requirements database.

Activities will include:

1. The definition of a common kernel of functionalities with agreement between railways and signalling suppliers on a common allocation of functions to sub-systems and/or to adjacent systems such as traffic management systems or radio block centres.
2. Using a cost/benefit analysis, interfaces where standardisation leads to significant economical benefit will be identified.
3. Common procedures for the safety case facilitating cross-acceptance as well as methods and tools for highly automated data preparation will be defined.

Specific attention will be given to an optimal transition to ERTMS Levels 2 and 3 and the incorporation of inputs from European research into satellite based positioning.

Close collaboration of infrastructure managers, railway undertakings and systems suppliers will be established including the dialogue with railway organisations having specific requirements, in order to reduce any non-standard conditions to a minimum.

The research will lead to standardised and cost effective European interlocking systems designed to facilitate the introduction of ERTMS particularly on pan-European corridors. Based on a cost/benefit analysis, a number of interfaces between interlocking sub-systems or adjacent systems will be standardised. The project will contribute to drive the harmonisation of functional, operational, performance and technical requirements in the railway signalling area to achieve a harmonised European safety level.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.2.6 Traffic and information management

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

No topic is open in 2007.

AREA: 7.2.2.7 Policy support

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

No topic is open in 2007.

ACTIVITY: 7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY

Focusing on the mobility of people and goods by research on the 'next generation vehicle' and its market take-up, bringing together all elements of a clean, energy efficient, safe and intelligent road transport system. Research on new transport and mobility concepts, innovative organisational and mobility management schemes and high quality public transport will aim at ensuring access for all and high levels of intermodal integration. Innovative strategies for clean urban transport[26] will be developed and tested. Particular attention will be paid to non-polluting modes of transport, demand management, rationalisation of private transport, and information and communication strategies, services and infrastructures. Tools and models supporting policy development and implementation will cover transport and land use planning including the relationship with growth and employment.

AREA: 7.2.3.1 New transport and mobility concepts

The objective is to develop a more efficient, effective and inclusive urban transport system, bringing together all elements of a clean, energy-efficient, safe and intelligent transport.

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

Research will cover, among other things, the market take up of the 'next generation vehicle', and new transport modes and concepts, and the efficient handling of urban freight, deliveries and services, including the development of the related systems and technologies.

Expected impact

1. Increased acceptance and take up of new urban transport solutions and technologies
2. More inclusive urban transport system with better access for all
3. Reduction of CO_2, pollutant emissions and noise in compliance with EU legislation
4. Increased energy efficiency in urban transport and improved road safety

***THE FOLLOWING TOPICS ARE FOR* LEVEL 1**

SST.2007.3.1.1 New mobility concepts for passengers ensuring accessibility for all

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

Activities will include new guided and non-guided vehicle/vessel concepts and innovative schemes for their deployment and rational use taking into account cost efficiency. Solutions may involve more efficient use of vehicles/vessels and infrastructures including their inter-linkage, where appropriate introducing dedicated infrastructure for motorised and non motorised vehicles/vessels. Emphasis will be placed on ensuring accessibility for all (e.g. introducing adequate provisions for elderly and disabled, travel guidance for foreigners, etc) and addressing user, future regulation and standardisation requirements. The integration of urban and rural transport is also included.

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

Funding scheme: Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.3.1.2 Intelligent mobility systems and multi-modal interfaces for transport of passengers

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

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

Funding scheme: Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.3.2 High quality public transport

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

Expected impact

1. Increased modal share of public transport and reduced car use in urban and peri-urban areas.
2. More attractive and inclusive urban transport system with better access for all.
3. Improved overall performance of public transport operations and reducing operational costs per passenger kilometre.
4. Better integration between public transport operators and between public transport and other modes to promote co-modality.

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.3.2.1 European Bus Systems of the Future

The research will conceive and develop an innovative high quality bus system which will demonstrate the full potential of a new generation of urban bus networks, using state of the art clean vehicle technologies. It will integrate all the necessary elements and include a break-through design of vehicles, infrastructures and operations placing emphasis on system approaches and identifying the potential for technical harmonisation and standardisation.

The work plan will consist of:

1. based upon existing user needs assessments, the design of a new generation bus system with emphasis on components and sub-systems modularity and the definition of open interfaces;
2. maximisation of energy conversion through vehicle technologies and intelligent power-train controls;
3. increase the speed of operation through methods and systems which address features such as dedicated infrastructures, bus priority measures;
4. improved flow of passengers in the bus, efficient ground-vehicle passengers transfers, fast payment, rotation of vehicles on the line. Special attention will be given to specific needs of elderly and disabled persons.

The research will involve operators, vehicle manufacturers, public authorities, research organisations and users groups. The project outcome will be the design and validation of a new generation of urban bus system which will stimulate European cities to deploy new bus lines making public transport more attractive and maintain or improve the competitive position of European bus manufacturers and operators.

Funding scheme: Collaborative Projects large scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.3.3 Demand management

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

No topic is open in 2007.

AREA: 7.2.3.4 Innovative strategies for clean urban transport (To be also covered by Energy Work Programme (ENERGY.2007.8.6)

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

Expected impact

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

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.3.4.1 Testing innovative strategies for clean urban transport (see also topic ENERGY.2007.8.5.1 from Energy Work Programme)

Objective

To achieve policy objectives in the fields of energy, transport, and in other relevant fields, innovative, integrated and bold strategies for clean, energy-efficient sustainable urban transport need to be introduced. The barriers towards change remain significant, which leads to failures in the acceptance of new and improved policies, services and technologies. Experimental testing, combined with targeted research, can help to better understand the frameworks, processes and packaging required to successfully introduce these strategies.

Scope

CIVITAS-Plus builds upon and adds value to the earlier experiences of the CIVITAS Initiative. This topic addresses Europe's leading and learning cities.

Leading cities

In each leading city, the existence of an ambitious local transport plan together with clear intentions, political commitment and stakeholder support are absolutely needed. The cities will test, demonstrate and evaluate the key elements of the plan in an innovation area, i.e. in one specific zone or corridor. An ambitious mix of bold tools and measures should be implemented in that aims at an increased energy-efficiency in transport, better and safer transport conditions for all, a higher share of alternative fuels and a cleaner environment (including noise reduction). Each city-proposal should address energy and transport issues on an equal and well-balanced basis and should combine, in an integrated way, tools and measures from as many as possible (but only where relevant) of the following categories that contribute to:

- Increasing the use of alternative fuels and of clean and energy efficient vehicles, and enhancing their integration into the urban transport system[27];
- Stimulating high quality and innovative energy-efficient collective passenger transport services, including intermodal integration with other transport modes;
- Implementing demand management strategies based upon economic (dis)incentives, regulatory measures (including zoning and spatial planning), and tele-services;
- Influencing travel behaviour and modal choice through mobility management plans, marketing, communication, education and information campaigns;

[27] Key elements of this integration are innovative energy-efficient, cost-effective and clean public and/or private vehicle fleets for passenger and/or freight transport (minimum IV standard) that use alternative fuels, and the necessary infrastructure, in particular for the storage of the alternative fuels and the specific fuelling equipment. The focus should be put on short/medium term alternatives, i.e. innovative bio-fuels and natural gas, including hybrid vehicles that use these fuels, and electric transport. A vehicle fleet is a coherent group of vehicles operated by a single operator in a single urban area.

- Developing safe and secure road-infrastructure and means of travel for all users;
- Introducing mobility services that promote new forms of more energy-efficient vehicle use and/or ownership and a less car-dependent lifestyle;
- Promoting energy-efficient freight logistics services and new concepts for goods distribution;
- Enhancing the use of innovative transport telematics systems for traffic management and traveller support, including solutions based upon satellite applications/GALILEO.

Learning cities

A learning city is a city that is developing a policy package and wants to learn from the leading cities involved in the project. The existence of an outline plan together with clear political commitment and stakeholder support are absolutely needed. Learning cities, at the end of the project, should aim at having an ambitious integrated transport plan in place that is adapted to their local circumstances and ready for city-wide implementation. In line with the approach outlined for leading cities, small elements of this plan can be tested, demonstrated and evaluated in an innovation area as part of the plan-making process.

Consortia

Particular emphasis in this call is put on small and medium-sized cities providing clear evidence of added value.

Proposals should consist of at least three leading cities of which at least one should be from one of Europe's countries and regions under rapid development, aiming at economic convergence in the context of Cohesion Policy. It may also include up to two learning cities.

This call focuses on cities that have not been involved in previous demonstration projects under the CIVITAS Initiative except for "follower cities" from previous CIVITAS projects that now want to play to a leading role. Large scale infrastructure investments will not be co-financed. The Commission may decide to cluster and/or merge successful proposals.

Expected results

For each city, conclusions and recommendations should be developed that also pay attention to indirect effects and that cover different sectorial policies, including energy policy and transport policy. This should lead to a better understanding of the difficult choices and questions that face policy makers and politicians, as well as increased knowledge on the frameworks, processes and packaging required to successfully introduce innovative, integrated and bold strategies for clean, energy-efficient sustainable urban transport.

Participating cities will need to implement a robust ex-ante impact assessment and evaluation plan, based upon a do-nothing scenario, and an own local dissemination plan. These plans should fit within a common approach that will be developed and coordinated by the support actions. Active participation of all cities in the activities organised by the CIVITAS Initiative is expected. Cities will co-operate with each other and with the support actions in managing dissemination activities and in co-ordinating training activities.

Funding scheme: Collaborative projects large-scale integrating project
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

SST.2007.3.4.2 Support action for evaluation and monitoring (see also topic ENERGY.2007.8.6.1 from Energy Work Programme)

Objective

As part of this CIVITAS-Plus call, one separate support action is envisaged to develop and undertake an independent evaluation and monitoring programme[28] that takes into account both, transport and energy indicators.

Scope

This support action should cover the following tasks:

1. The development and implementation of a European cross-site evaluation programme, which will consist of an impact evaluation and a process evaluation. This will be managed in full independence but in close co-operation with the demonstration cities and projects, on the basis of before and after data as well as of regular process information that will be provided by the demonstration cities.
2. In support of the European Commission, taking care of independent project monitoring and providing specialist and independent advice on the progress in the implementation of the demonstrations based upon a review of the regular technical and management reports provided by the demonstration cities to the Commission. This task might also include site visits and technical audits. This task should be undertaken in strict separation from any other activities inside or outside the support action.

The performance of the evaluation, coordination and dissemination tasks will be supported and monitored by three independent experts (the CIVITAS Advisory Committee, CAC). They will be appointed by the European Commission and contractually linked to this support action.

Expected results

It is expected that the project will deliver the following specific results:

- an independent cross-site evaluation programme;
- independent monitoring of the implementation of the projects;
- ensuring comparable city-results and identification of causal connections;
- clear European-level policy recommendations;
- dissemination of best practice experience in project monitoring and evaluation;
- contribution to the development of European expertise on the evaluation of large projects;

[28] Neither the partners of the consortium nor the sub-contractors should have a direct or indirect involvement in the work of the demonstration sites. Full confidentiality in the relationship with the demonstration cities should be respected.

- the provision of specialist and independent advice to the Commission.

Funding scheme: Coordination and Support actions aiming at supporting research activities

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

SST.2007.3.4.3 Support action for coordination and dissemination (see also topic ENERGY.2007.8.7.2 from Energy Work Programme)

Objective

As part of this CIVITAS-Plus call, one separate support action is envisaged to develop and implement a programme of European-level coordination, dissemination and awareness raising activities that targets both the transport and energy communities.

Scope

This support action should cover the following tasks:

1. The development and implementation of a European programme for dissemination and awareness raising activities, in close co-operation with the cities. This includes providing information on contents and results of the city-projects as well as promoting the CIVITAS Initiative as a whole.
2. The coordination and facilitation of certain activities that are common for all cities and demonstration projects and that will be decided after user needs assessment. This might include dissemination/evaluation liaison groups and technical working groups looking at one specific tool or measure area and training activities.
3. Providing the secretariat of the CIVITAS Political Committee (PAC) as well as the organisation of the annual CIVITAS Forum meetings.

Expected results

It is expected that the project will deliver the following specific results:

- a programme for European-level dissemination and awareness raising activities, in order to support acceptance and normalisation and to maximise policy impacts;
- coordination and facilitation of certain common activities;
- providing the secretariat of the PAC and the organisation of the annual CIVITAS Forum.

Funding scheme: Coordination and Support actions aiming at supporting research activities

Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-TREN-1

Common information for Topics SST.2007.3.4.1, SST.2007.3.4.2 and SST.2007.3.4.3

Applicants are requested to provide a detailed breakdown of budgets and to take into account the information given under every topic that is part of this call. It is anticipated that a Memorandum of Understanding will be signed between the two support actions and the cities to formalise the co-operation and co-ordination. Proposals should always address energy and transport issues on an equal and well-balanced basis. A separate guidance document for proposers will be prepared.

AREA: 7.2.3.5 Policy support

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

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

No topic is open in 2007.

ACTIVITY: 7.2.4. IMPROVING SAFETY AND SECURITY

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

AREA: 7.2.4.1 Integrated safety and security for surface transport systems

The objective is to develop new technologies and innovative solutions for the improvement of safety and security in transport operations and the protection of vulnerable persons. Activities for safety will address the entire set 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 integrated safety. Concerning security, aspects which are inherent to the transport system will be addressed, in particular the design of vehicles, vessels and infrastructure leading to transport systems and operations with intrinsic security.

Expected impact

1. Halving the number of road fatalities by 2010 (respect to 2001 levels)[29] and reducing number and severity of injuries caused by road accidents
2. Halving the number of fatalities in rail transport by 2020 (respect to 2000 levels) [30]
3. Contribute towards further reducing the risk to human life and environment associated to maritime transport
4. Ensuring that the level of safety and security of the transport system will respond to the increasing mobility demand and crime emergence
5. Decrease the level of human error

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.4.1.1 Safety and security by design

Technologies and methodologies for the design of transport systems with intrinsic safety and security characteristics.

1. advanced modelling, simulation, engineering and testing tools aimed at the improvement of safety and security performance of transport systems. In particular developments will include methodologies and design environments for risk based design and approval, crash test dummies and virtual testing methods, pre-normative research towards standards and regulations, and explanatory measures to assess their impact;
2. design of vehicles, vessels and infrastructures with intrinsic safety and security characteristics , their interactions and their mutual impact (e.g. self-explaining and forgiving infrastructure design, advanced infrastructure equipment and signalling, vehicle and vessels designs for fast evacuation of passengers, vehicle tyre/road friction);
3. mechatronic systems for dynamic stability, reliable and effective braking, anti roll-over and capsizing systems for vehicles and vessels. Consideration will be given to electro-magnetic compatibility;
4. structural integrity and crashworthiness of vehicles, vessels and infrastructures for human protection (car occupants, pedestrian, crew etc), deployment of innovative materials to resist fatigue and avoid dangerous emissions;
5. advanced components for secondary safety (e.g. intelligent restraints), motorcyclist protective clothing (including helmets);
6. safety of new vehicle design concepts, with attention to changes to structural design deriving from the development of alternative fuels powered vehicles and vessels;
7. vehicle-to-vehicle compatibility, vehicle conspicuity with special attention to Powered Two Wheelers and Heavy Vehicles;

[29] White Paper "European transport policy for 2010: time to decide"
[30] ERRAC SRA

8. concepts and procedures for the tracing and tracking of ITUs with special consideration to hazardous goods (generic technologies for tracing and tracking security systems are not included in this topic).

International Cooperation with India, USA and Japan is suggested for mathematical modelling, crash and safety simulations.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.4.1.2 Human physical and behavioural components

Technologies and systems which consider human physical and behavioural aspects.

One or more of the following subjects will be addressed:

1. bio-mechanics with special attention to users' diversities (age, gender, size, disabilities) and numerical models to allow virtual testing procedures with a wider range of biometric and biomechanical criteria than those recorded on dummies;
2. interactions between innovative technologies and drivers and vessels pilots' actions in emergency situations, cognitive and behavioural differences based on needs and abilities of drivers, age, gender, culture, education and disabilities will be considered;
3. computer-based training systems for drivers, riders and vessels pilots (with special attention to young and recent ones) based on modular and computer-based platforms which integrate modelling and simulation systems.

Funding scheme: Collaborative projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.4.1.3 Crisis management and rescue operations

Methods, tools and technologies for fast and safe crisis management and rescue operations.

Proposals will cover one or more of the following subjects:

1. systems and tools (e.g. decision support systems, sensors and ergonomic signalling systems) to assist and support control centres, masters, crew, drivers and emergency services handle emergency situations (e.g. evacuation of derailed trains, capsizing vessels involving large numbers of passengers or major highway incidents, recovery systems for people in survival crafts);

2. autonomous and remotely-controlled mechanical systems including special tooling for rescue missions;

3. operational procedures for incidence identification, notification, rescue and rapid resumption of normal operations including the support to new standards.

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.4.1.4 Integral system solutions for safety

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

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

Funding scheme: Collaborative projects large scale integrating projects, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.4.1.5: Integrated safety and security for urban rail

The research aim will be to establish a common foundation for a common control/command system for urban rail transport and a common approval process at European level as regards safety and security. This will lead to the reduction of approval costs, implementation time of new technology and simplification of the present legislative framework at local, regional and national level. The work will comply with relevant CEN/CENELEC standards.

Activities will address the following subjects:

1. To develop a common list of hazards including the harmonising of hazards as derived from the different operational praxis.
2. To define risk mitigation mechanism which consider the total transport system with respect to identified hazards. The research will determine what should be mitigated trough the technical control/command system and what should be mitigated trough operational rules.
3. To determine the Safety Integrity Level (SIL) and the Tolerable Hazard Rate (THR) value for the relevant sub-systems of the total technical control/command system.

4. To develop a generic safety case model for urban rail transport able to take into account some local constrains.
5. To map the plans among operators concerning the introduction of security surveillance system and its level of sophistication.

The project outcome will include: a common hazard analyse derived form the different operational praxis among European Urban rail operators; characteristics of hazard mitigations means; guidelines for the design of a new innovative control/command system applicable to urban rail transport and for subsequent approval and cross-acceptance of these systems; mapping of security plans regarding security surveillance systems and their technological evolution.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.4.1.6 Intelligent Road Restraint System (RRS)

The research objective is the integration of the roadside infrastructure restraints in the road safety system, as a component respectful of all road users' needs and with increased capacity for both primary and secondary safety. Integration of communication systems aimed at increasing tertiary safety efficiency can be considered in the novel barrier design.

Activities will address the following subjects:

1. Development of an innovative RRS, including anchorage and installation systems, based on novel design and/or materials with enhanced performances for the safeguard of all road users, with particular attention to the protection of motorcyclists and other vulnerable road users;
2. Development of sensors and actuators that will increase the RRS's efficiency for primary, secondary and tertiary safety (advanced warning signalling, detection and communication of accidents and other safety related environmental situations);
3. Standardisation of RRS's design and optimal lay-out criteria, including related computer modelling.

Expected outcome is the design and development of an innovative road infrastructure restraint system based on new design and/or innovative materials as an integrated component of the road transport safety system.

Funding scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.4.1.7 Socio-economic research for the deployment of safety systems

The integration of available and to be developed technologies aimed at increasing transport safety (and in particular those aimed at the protection of the most vulnerable

road users, such as pedestrians and cyclists) requires an important investment both at manufacturing and operating level. The social benefit of such an investment is without doubts very high, but the costs will be supported only by individual purchasers, who not always are ready to bare such an extra charge to their budget.

Research will explore ways and means to be applied in an open market economy that will help reducing private costs and making all stakeholders benefit from a common good. Proposals focused on the road sector, should present economic measures to be introduced in order to deploy the technological development in a viable and efficient way.

Funding Scheme: Collaborative Projects small or medium-scale focussed research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

AREA: 7.2.4.2 Policy support

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

No topic is open in 2007.

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 and lead time. 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 to transport industries. Therefore, the involvement of SMEs in project partnerships is important.

Expected impact

1. 25% to 30% reduction of development lead time for all surface transport modes[31]
2. 30% to 40% reduction of manufacturing and construction cost for all surface transport modes[32]
3. 10% reduction in maintenance of transport infrastructures for all surface transport modes
4. Maintain the level of employment, create new skills and improve working conditions
5. Promote the start-up and emergence of new high-tech SMEs in activities specific to transport processes.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.5.1.1 Competitive product development

Advanced design tools and methodologies for modelling, simulation, prototyping and testing of surface transport products.

Activities will address one or more of the following subjects:

1. reduction of development time and associated cost;
2. increased product modularity;
3. product life cycle considerations and system optimisation;
4. goal based design (e.g. minimisation of life cycle costs such as manufacturing or maintenance costs, comfort, ease of operation).

Funding scheme: Collaborative Projects small or medium-scale focussed research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.5.1.2 Cost effective manufacturing and maintenance

Advanced and innovative industrial processes applicable and specific to surface transport products (vehicles, vessels and their components).

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

The processes will be low cost, high quality, reliable, intelligent, flexible and will concern at least one of the following items: manufacturing; assembly; inspection; maintenance; repair.

Consideration will be given to aspects of environmental impact and working conditions. Attention will be given to processes for advanced materials and new power trains.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.5.1.3 New production organisations and models

Innovative organisations and models for the production of high quality and cost effective surface transport products.

Consideration will be given to the management of the supply chain which may include new forms of co-operations involving system and component suppliers at different stages of the production or construction processes. To this aim, time and cost effective as well as harmonised homologation and cross-acceptance criteria along with increased inter-changeability of data, modules and sub-systems (hardware and software) will be addressed for the creation of economies of scale and rapid introduction of technical innovations. Co-operations between public and private entities may be also considered.

Funding scheme: Collaborative Projects small or medium-scale focused research, Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-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 to transport industries. Therefore, the involvement of SMEs in project partnerships is important.

Expected impact

1. Maintain European share of ultra large cruise ship world production
2. Develop new generations of transport products that are highly competitive and tailored to customers expectations
3. Create new niche markets for high technology added value products[33] and services

[33] Waterborne TP SRA

4. Improve the quality and competitiveness of surface transport services considering features such as price attractiveness, punctuality, frequency, real time information or leisure and work during travel time[34].
5. Drastically reduce maintenance and inspection costs[35].
6. Sustain economic development in Europe, create job opportunities and technology skills.
7. Promote the start-up and emergence of new high-tech SMEs, particularly in the advanced transport technologies and 'services-related' activities specific to Transport.

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.5.2.1 Meeting Customers' Expectations for Rail Travel

The research will determine the changes necessary to the railway system to meet future expectations by passengers of the quality of their journey from origin to destination. Various factors including affluence and ageing will change passenger expectations of journeys, and by 2020 it is anticipated that many aspects of today's journey will no longer be considered attractive to the user in the decade commencing 2020.

Activities will include:

1. Identification of physical factors such as ease of access at origin, interchanges and destination, importance of protection from climate and also assurance of personal security at points of interchange.
2. Information and ticketing processes including access to information on journey possibilities and timetable for the integrated system, journey purchase and reservation.
3. User-friendly way-finding, both traditional, such as signage and audio/visual announcements, and potential new technical opportunities such as personal GPS/Galileo applications.
4. Identification of gaps between future passenger requirements in the above areas and the characteristics of the current railway system (both physical and information aspects) and then identify the specific areas requiring technological research and development.

The research should lead to a documented, prioritised understanding of the factors influencing choice of rail as part of a multi modal journey from initial origin to ultimate destination, segmented by market and journey types will be achieved.

Funding scheme: Collaborative Projects small or medium-scale focused research
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

[34] ERRAC SRA
[35] ERRAC SRA

SST.2007.5.2.2: Dynamic Stability of Lightweight Trains

The objective of this research project is to establish the practical physical limits on the lightness of future trains and carry out research to determine specific developments required for vehicle and infrastructure design to optimise train performances.

The scope shall include:

1. Assessment of the economic and environmental impact benefits of lightweight mainline, metro & light rail vehicles in respect of reduced infrastructure maintenance needs and reduced traction energy consumption;
2. Determination of the factors affecting minimising of train mass followed by practical limit values for the above factors, initially singularly but also in combination;
3. Analysis of the dynamic stability of Mainline & Urban transit vehicles with particular attention to wheel/rail interaction, reduction of track forces and cross wind performance;
4. Optimisation of collision resistance and mass reduction;
5. Investigation of the potential benefit of mechatronics, active suspension and active control (for lightweight and flexible structures) solutions for good ride quality
6. New European Standards for safe minimum axle loads applied to medium and high speed vehicles

The project will result in a thorough analysis of the dynamic behaviour of lightweight trains, with validated results and a clear understanding of the impact and benefits of lightweight trains and the use of active suspension.

Funding scheme: Collaborative Projects large-scale integrating projects
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

7.2.6 CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme

In this chapter, no differentiated research areas are proposed.

THE FOLLOWING TOPICS ARE FOR *LEVEL 1*

SST.2007.6.1 Stimulating participation of Small and Medium Size Enterprises (SMEs)

Proposals will demonstrate making contributions to increase the participation of SMEs in the programme, so to enhance the capabilities of the European surface supply chains and to strengthen the competitiveness of the European surface transport industries.

Activities will aim at stimulate, encourage and facilitate the participation of SME and their clusters in the research activities of the programme, particularly in projects addressing activity 7.2.5 of Sustainable Surface Transport. Actions of stimulation will include information events, networking, studies and workshops.

Funding scheme: Coordination and Support actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.6.2 Stimulating Research with International Cooperation Partner Countries and EU neighbouring regions

Proposals will demonstrate making contributions to implementing the international cooperation two-fold strategy on sustainable surface transport (as indicated in Chapter 7.2 Context, International cooperation).

1. Enhancement of the participation of International Cooperation Partner Countries in European surface transport 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 surface transport.
2. Reduction of transport related pollution and traffic congestion and improved safety and mobility by means of efficient, economic and environment friendly transport systems (passengers and goods) adequately responding to identified needs for the EU neighbouring regions.

Actions will stimulate, encourage and facilitate the participation of organisations from International Cooperation Partner Countries and/or neighbouring regions in the activities of the programme. Actions of stimulation will include information events, networking, roadmaps, surveys, studies, debate forum, workshops and dissemination actions. 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-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.6.3 Raising Awareness of potential jobs opportunities in the Surface Transport sectors

This topic aims at raising awareness of opportunities offered by surface transport research in job creation and future prospects for young people.

The following activities are included:

1. Encourage young people to seek for high skilled jobs in sectors related to surface transport with special focus on science, research and innovation.
2. 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.
3. Extensive and broad communication and stimulation campaigns targeting young people of different ages (from early school to university). These could

be: travelling workshops, special and public events, competitions, animations and broad media directed to different type of publics etc.

Proposals will focus on all major research priority lines defined for surface transport: greening; mobility; safety and security, competitiveness of surface transport activities and involve all major research stake holders from industry, academia and society.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

THE FOLLOWING TOPICS ARE FOR *LEVEL 2*

SST.2007.6.4 Stimulating radical technological changes

The aim of this initiative will be to stimulate the development and capture of know-how and technologies which will enable surface transport systems of the second half of this century.

Activities will include:

1. Studies to define and implement a mechanism to foster the creative thinking.
2. Development and take-up of technology breakthroughs, aiming at introducing radical step changes in surface transport.
3. A 'technology incubator' to analyse and evaluate the potential impact of radical and novel ideas.
4. A 'technology watch' for spotting and monitoring progress in emerging technologies from other sectors with potential application to enhance solutions and concepts in surface transport.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.6.5 The "Future maritime policy" and surface transport research

The aim of this initiative will be to support the development of the "Future maritime policy Green Paper" through research and better use and dissemination of its results.

Activities will include:

1. Identification and evaluation of impacts on the "Future maritime policy" from research projects in the field of maritime transport systems supported under the 5th and 6th Framework Programmes;
2. Definition and promotion of future research priority lines in support to maritime policy global targets, including cross thematic activities;

3. Improved dissemination of research results by means of adequate communication an awareness campaigns.

The assessment of projects should evaluate how research results contribute to a responsible use of the full potential of oceans and seas in support of economy and employment. In particular, their impact on the related sectors such as ship building, fisheries and aqua culture, energy, tourism, new resources, coastal management, regional development, society and culture should be evaluated. At the same time the conservation and sustainable use of oceans and seas, promoting the progressive adoption of an eco-system based approach should be considered.

On the basis of such analysis, gaps and needs for the future should be identified.

Cross thematic stimulation and communication activities have to be planned in order to disseminate results and to raise awareness on future challenges.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.6.6 International Cooperation with developing countries on passenger public transport

The aim of this initiative will be to contribute to the EU External Relations with developing Countries through surface transport research, addressing the specific area of passenger public transport, and better dissemination of research results in this field.

Activities will include:

1. Identify and develop technological solutions for public passenger vehicle adapted to specific local needs (e.g. local economic constraints, rapid population growth and increasing urban pressure, climatic extreme conditions) of ACP countries;
2. Survey of areas, technologies and existing technical solutions for passengers' public transport that better respond to the identified regions needs.
3. Elaboration of a research road-map in support to those regions.
4. Establish a debate forum.
5. Improve the dissemination of research results by means of adequate communication an awareness campaigns, networks or studies.

Funding scheme: Coordination and Support Actions aiming at supporting research activities
Open in call: FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2007-RTD-1

SST.2007.6.7 ERA-NET Transport II[36]

[36] This topic is subject to a joint call for ERA-NETs across the themes. See Annex 4

The aim of this initiative will be to continue strengthening the foundation of the European Research Area in surface transport through coordination of national and regional research programmes and development of policies for research and innovation. Activities will include: exchange of information and knowledge, implementation of joint activities and trans-national research. The partnership will be composed of representatives from national authorities responsible for the national programming of transport research, implementing research on transport.

With respect to the previous ERA-NET Surface Transport project launched under the 6th Framework Programme, the new ERA-NET scheme will aim at:

1. Broadening its geographical scope by the inclusion of new members;
2. Intensification of cooperation and coordination activities through for example the preparation of a future ERA-NET+ in surface transport or the organisation of jointly implemented calls through Article 169;
3. Strengthening innovation by exploitation of research results at national and European levels;
4. Structuring of public funding through increased complementary effect and concentration of efforts towards common aims, this effort will be supported by the creation of a knowledge based system on national and regional transport research programmes;
5. Strengthening the effectiveness of research schemes through contributing to common regulation and measures for better market penetration of research outcomes;
6. Liaising with existing Technology Platforms from transport (ERRAC, ERTRAC, Waterborne^{TP} and ACARE where applicable) to increase cooperation and coordination with respect to the implementation of existing and future Strategic Research Agenda.

Funding scheme: Coordination and Support actions aiming at coordinating research activities
Open in call: FP7-ERANET-2007-RTD (call published on 22nd December 2006 with deadline for submission on 31st July 2007)

3. IMPLEMENTATION OF CALLS

SUSTAINABLE SURFACE TRANSPORT

- **Call title: FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007- RTD-1**
- Call identifier: FP7- SST – 2007- RTD-1
- Date of publication: **22 December 2006**
- Deadline: **5 June 2007 at 17.00h (Brussels local time)**
- **Revised Indicative budget[37] [38]: 195.68M€**

- Topics called:

Activity/ Area	Topics called	Funding Schemes **Collaborative Projects (CP), Coordination and Support actions (CSA)**
7. 2. 1. THE GREENING OF SURFACE TRANSPORT		
7.2.1.1 The greening of products and operations	SST.2007.1.1.1. Promoting the use of bio-fuels and alternative hydrocarbon fuels	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.1.1.2. Vehicle/vessel and infrastructure technologies for optimal use of energy	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.1.1.3. Integrating natural gas power-trains	CP (large-scale integrating projects)
	SST.2007.1.1.4. Electric ship technology	CP (large-scale integrating projects)
	SST.2007.1.1.5. Clean and energy efficient marine diesel power trains	CP (large-scale integrating projects)
7.2.1.2 Environment- friendly and efficient industrial processes	SST.2007.1.2.1. The greening of transport-specific industrial processes	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.1.2.2. End of life strategies for vehicles/vessels and infrastructures	CP (small or medium-scale focused research), CSA (coordinating)

[37] This amount includes 42.2 M€ from the 2008 budget, which is added under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority.

[38] This amount includes an indicative amount of up to €3M for the ERA-NET foreseen under this Theme – See Annex 4 (Table 2 - Overview of Activities and Topics mentioned in Cooperation Themes which are part of the FP7-ERANET-2007 –RTD joint call).

	SST.2007.1.2.3. ECO-SHIP	CP (large-scale integrating projects)
7.2.2 ENCOURAGING AND INCREASING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS		
7.2.2.1 Logistics and intermodal transport	SST.2007.2.1.1. Vehicle/vessels and infrastructure concepts for intermodal freight transport	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.2.1.3. Smart supply chain management in intermodal door-to-door container transport	CP (large-scale integrating projects)
	SST.2007.2.1.5. Future long-distance freight road transport	CP (large-scale integrating projects)
7.2.2.5. Interoperability and Safety	SST.2007.2.5.1. Interoperable rolling stock	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.2.5.2.Delivering ERTMS-compliant Interlocking Systems	CP (large-scale integrating projects)
7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY		
7.2.3.1 New transport and mobility concepts	SST.2007.3.1.1. New mobility concepts for passengers ensuring accessibility for all	CSA (coordinating)
	SST.2007.3.1.2. Intelligent mobility systems and multi-modal interfaces for transport of passengers	CSA (coordinating)
7.2.3.2 High quality public transport	SST.2007.3.2.1. European Bus Systems of the Future	CP (large-scale integrating projects)
7.2.4. IMPROVING SAFETY AND SECURITY		
7.2.4.1 Integrated safety and security for surface transport systems	SST.2007.4.1.1. Safety and security by design	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.4.1.2. Human physical and behavioural components	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.4.1.3. Crisis management and rescue operations	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.4.1.4. Integral system solutions for safety	CP (large-scale integrating projects), CSA (coordinating)
	SST.2007.4.1.5. Integrated safety and security for urban rail	CP (small or medium-scale focused research)
	SST.2007.4.1.6. Intelligent Road Restraint system (RSS)	CP (small or medium-scale focused research)
	SST.2007.4.1.7. Socio-economic research for the deployment of safety systems	CP (small or medium-scale focused research)
7.2.5. STRENGTHENING COMPETITIVENESS		

7.2.5.1 Competitive industrial processes	SST.2007.5.1.1. Competitive product development	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.5.1.2. Cost effective manufacturing and maintenance	CP (small or medium-scale focused research), CSA (coordinating)
	SST.2007.5.1.3. New production organisations and models	CP (small or medium-scale focused research), CSA (coordinating)
7.2.5.2 Competitive surface transport products and services	SST.2007.5.2.1. Meeting Customers' Expectations for Rail Travel	CP (small or medium-scale focused research)
	SST.2007.5.2.2. Dynamic Stability of Lightweight Trains	CP (large-scale integrating projects)
7.2.6 CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme		
	SST.2007.6.1. Stimulating participation of Small and Medium Size Enterprises (SMEs)	CSA (supporting)
	SST.2007.6.2. Stimulation Research with International Cooperation Partner Countries	CSA (supporting)
	SST.2007.6.3. Raising awareness of potential job opportunities in the surface transport sectors	CSA (supporting)
	SST.2007.6.4. Stimulating radical technological changes	CSA (supporting)
	SST.2007.6.5. The "Future maritime policy" and surface transport research	CSA (supporting)
	SST.2007.6.6. International cooperation with developing countries on passenger public transport	CSA (supporting)
Open in call FP7-ERANET-2007-RTD	SST.2007.6.7. ERA-NET Transport II[39]	CSA (coordinating)

- Evaluation procedure:

– The evaluation shall follow a single stage procedure
– Proposals may not be evaluated remotely
– The evaluation criteria and sub-criteria (including weights and thresholds), together with the egibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
– No hearings are foreseen.

- Indicative evaluation and contractual timetable:

– Intended period for on-site (BXL) evaluation / panel meetings: 10th September – 5th October

[39] Please refer to Annex 4.

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

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

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

SUSTAINABLE SURFACE TRANSPORT

- **Call title: FP7- SUSTAINABLE SURFACE TRANSPORT (SST) – 2007 – TREN–1**
- Call identifier: FP7- SST – 2007 – TREN–1
- Date of publication: **22 December 2006**
- Deadlines: **5 June 2007 at 17.00h (Brussels local time) for the topics SST.2007.2.1.2, SST.2007.2.1.4, SST.2007.2.2.1, SST.2007.2.2.2, SST.2007.2.2.3 and SST.2007.2.2.4**

  28 June 2007 at 17.00h (Brussels local time) for the topics SST.2007.3.4.1, SST.2007.3.4.2 and SST.2007.3.4.3
- Total Indicative budget**: 60 *M €***

- Topics called:

Activity/ Area	Topics called	Funding Schemes **Collaborative Projects (CP), Coordination and Support actions (CSA)**
7. 2. 2. ENCOURAGING MODAL SHIFT AND DECONGESTING TRANSPORT CORRIDORS		
7.2.2.1 Logistics and intermodal transport	SST.2007.2.1.2 Benchmarking Logistics	CP, CSA (coordinating)

	SST.2007.2.1.4 Preparatory Action on Innovative Transport Networks	CSA
7.2.2.2 Maritime and inland waterway transport	SST.2007.2.2.1 Promotion of inland waterway transport	CSA (coordinating)
	SST.2007.2.2.2 Advanced RIS-based transport management solutions for the IWT sector	CP
	SST.2007.2.2.3 Promotion of short sea shipping and intermodality	CP, CSA (coordinating)
	SST.2007.2.2.4 Maritime and logistics co-ordination platform	CP, CSA (coordinating)
7.2.3 ENSURING SUSTAINABLE URBAN MOBILITY		
7.2.3.4 Innovative strategies for clean urban transport	SST.2007.3.4.1 Testing innovative strategies for clean urban transport	CP (large-scale integrating project)
	SST.2007.3.4.2 Support action for evaluation and monitoring	CSA (supporting)
	SST.2007.3.4.3 Support action for coordination and dissemination	CSA (supporting)

- Evaluation procedure:

– The evaluation shall follow a single stage procedure.
– Proposals may not be evaluated remotely.
– The evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
– No hearings are foreseen.

- Indicative evaluation and contractual timetable:

– Intended period for on-site (BXL) evaluation / panel meetings: 10th -21st September

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

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

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

Research for the benefit of specific groups, such as SMEs	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.

4. INDICATIVE PRIORITIES FOR FUTURE SUSTAINABLE SURFACE TRANSPORT-RTD CALLS (2008)

For Collaborative Projects and Coordination and Support Actions, the following Level 1 topics are envisaged:

- Clean and energy efficient gasoline and diesel power trains
- Electric power-trains and hybrid technology
- Hydrogen and fuel cells for all surface transport modes
- Holistic noise and vibration abatement
- Preventive and emergency interventions to protect marine, coastal and land environments
- Efficient interfaces between transport modes
- Improved services in terminals
- Intelligent highways
- New vehicle concepts for the delivery of goods
- Efficient urban freight delivery systems
- Information based safety systems
- Advanced and cost effective infrastructure construction and monitoring concepts
- Innovative product and system concepts
- Competitive transport operations

Topics SST.2007.3.1.1 "Mobility concepts for passengers ensuring accessibility for all" and SST.2007.3.1.2 "Intelligent mobility systems an multi-modal interfaces for transport of passengers" will be reintroduced for both Collaborative Projects and Coordination and Support actions.

Concerning other "level 1" topics proposed for 2007, their re-introduction in 2008 will depend on the outcomes of 2007 evaluations.

A different set of "level 2" topics will be proposed for 2008. These will be developed during 2007 following consultation with the Technology Platforms and stakeholders.

7.3. HORIZONTAL ACTIVITIES for implementation of the TRANSPORT PROGRAMME

1. CONTEXT

The TRANSPORT 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 and responding to the societal challenges of the Transport system. Topics addressing co-modality for passenger transport, including tourism, and freight are proposed for 2007.

Further topics are foreseen for 2007 to evaluate the impact of previous research actions in the field of Transport, particularly for the user community, and ways to increase public awareness and understanding amongst citizens of the challenges facing the Transport system and the contribution that research and the development of new technologies can make to society.

Funding schemes

Collaborative projects in the call Horizontal activities for implementation of the transport programme (FP7- TRANSPORT (TPT) – 2007- RTD-1) are small or medium-scale focused research projects with a maximum requested Community contribution of up to 1.5 million Euros.

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 the one-step procedure in this call.

2. CONTENT OF CALL FOR 2007

TPT.2007.1. Optimisation and integration of R&D efforts for transport of passengers by "co-modality"

Expected Impact

Integration of the different transport systems – aeronautics, road, rail and waterborne - by an optimal and reliable infrastructure interfaces and combined operations. Proposals will contribute to an increased efficiency of R&D efforts by co-operation and sharing of technology between surface modes and aeronautics.

Scope

Study / actions should allow for:

1) The identification of needs and research for technical solutions addressing co-modality and door-to-door transport of passengers, integrating and optimising of combined operations and aircraft/vehicle/vessel and infrastructure interfaces.

2) The cross fertilisation of technical solutions between modes in selected areas such as passenger cabin comfort, sustainable materials, human factors, stimulation of radical technological changes.

The research will involve all the relevant stakeholders from aeronautics, rail, road and waterborne sectors. Global dimension should be considered, with actions also taking into account the mobility needs between Europe and the rest of the world, as well as transfer of technology and best practices between the modes.

Funding scheme: Collaborative Project small or medium-scale focused research, Coordination and Support action aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.2. Optimisation of an integrated chain for freight transport logistics by "co-modality"

Expected impact

Stimulating / creating standardized processes and interfaces of co-modal transport chain (aeronautics, road, rail and waterborne) for freight carriers and logistic companies in an international and European trade flow environment.

Scope

Actions should allow for:

1) Comparative analysis and benchmarking of the e-logistic applications in all transport sectors: road, rail, waterborne and air on company level and sector level, in the EU and globally.

2) Identify specific company transport needs and requirements, bounded by commercial and legal stipulations.

3) Identify operational, economic and legal issues which are impeding or constructive to an integrated e-logistic system Europe-wide.

4) Define a road-map of actions for innovation and change which are conditional to such a system.

Funding scheme: Collaborative project small or medium-scale focused research, Coordination and Support action aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.3. Transport contribution to improve competitiveness of European tourism

Expected Impact

Improve the competitiveness of the Europe in the different modes of transport for tourism such as low-cost airlines, charter flights, high-speed trains, cruise ferries and short sea

shipping. Address the emerging needs from a new typology of travellers (age, gender and cultures), congestion problems in airports and surface transport networks.

Scope

Actions should allow for:

Developing new concepts to reduce the adverse impact of the transport system on European tourism (e.g. waiting time for check-in, baggage handling, administrative checks, …) via an integrated and co-modal approach, taking in consideration the specific needs of travellers, individually or in groups, and tour operators, as well as the socio-economic and environmental input on regions and cities affected.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.4. The connected traveller in the city, region and world of tomorrow

Expected Impact

Development of innovative solutions for a platform linking to a vast range of mobility services that the traveller can easily query, at any place and time before and during the journey. The platform should allow users to receive personalised multi-modal travel information on portable, home and office terminals, using the most optimal communication channels such as radio broadcast, cellular telephony or mobile internet.

Scope

Integrating innovative systems for traffic and transport data collection, cross-modal journey planning and guidance, and displaying the real-time service status for road and transport networks will be key issues to secure a high quality of the mobility information. The integrated solutions and the information service platform will be validated in service trials and demonstrations.

The work plan will comprise:

1) creation of an integrated approach to innovative systems for traffic data collection, management and personalised delivery of dynamic language independent information;

2) design of an open platform with interfaces to a wide range of mobility services such as journey planning, dynamic route guidance, transport booking and payment, personal communication and safety;

3) large scale demonstration of integrated solutions for cities in Europe and in emerging markets like China, India, Russia, Brazil, and South Africa.

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

The project outcome will be the design and validation of an open integrated platform for traffic information collection, management, and broadcasting using European developed technologies, standards, and protocols. This platform will create a more efficient urban mobility environment and strengthen the development of intermodal mobility services. Demonstrating the platform on emerging markets will strengthen the European industry on the global market.

Funding scheme: Collaborative Projects small or medium-scale focused research

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.5. Raising Citizen Awareness of Transport Research in Europe

Expected Impact

Proposals should improve the awareness and appreciation among European citizens on a national, regional or local level of the importance of European research and the development of new technologies in the transport area and how advancements in this domain are helping - and will help in the future - transport to be safer, more secure, more efficient and better for the environment.

Scope

Actions to raise citizen awareness and appreciation of European Transport Research should take the form of a local event or activity that would be a part of a related series of similar events/activities across Europe in 2008. The action should target various publics and stakeholders, from local decision makers, related industries and public authorities, to students, families and local transport-relevant groups and organisations. The action could either focus on the problems and solutions associated with a particular transport mode (air, road, rail, urban, waterborne) or the entire transport system as it relates to the chosen event/activity location.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.6 Development of methodology and evaluation of the impact of FP5 and FP6 projects in the field of Transport

Expected impact

Use of the results and findings from FP5 and FP6 projects in Transport to contribute to the definition of new research policy objectives and intermediate performance targets for FP7.

Scope

Developing a methodology to assess and evaluate projects supported in FP5 and FP6 with particular focus on:

S*trengthening industrial competitiveness* of the European industry by identifying the potential user sector(s), the type of impact (new/ improved process technologies/ products/ services etc., environmental, cost, performance improvements etc.) and mechanisms for disseminating and promoting uptake of the research;

Contributing to sustainable development and addressing societal problems in terms of generating new knowledge relevant to social, environmental and economic issues;

Improving Community and public policies by disseminating knowledge generated and engaging the target users (policy makers at regional/ national/ EC/ international);

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.7. Development of methodology for evaluation of FP6 performance in the field of Transport Research (Aeronautics and Space and Sustainable Surface Transport)

Expected impact

Assessment of FP6 performance in the field of Transport Research with the aim of feeding outcomes back into the design of FP7 implementation, and will identify the drivers and barriers for performing uptake of research results in the innovation cycle.

Scope

Developing and applying methodologies to assess the performance of FP6 in the field of Transport Research (aeronautics and space and sustainable Surface Transport)

Developing indicators and indexes: developing reference framework of indicators and indexes at aggregated level allowing to measure performance in specific areas of interest cutting across several segments of transport research, such as safety and security, energy efficiency, noise reduction.

Ensuring coherence of approach via an analytical framework suitable to be applied to transport research project lots in FP6 and fed back as a measurement/assessment instrument in FP7.

Enhancing the understanding of instrument-outcomes relationship with an aim to improve efficiency of transport research funding and managing mechanisms.

Enhancing the understanding of barriers and drivers to the uptake of research results and defining solutions to enhance transport innovation.

Improving Community policies by disseminating the implemented evaluation methodology to managers of research programmes at national, EC and international level.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.8. Development of a methodology for monitoring the expected impacts of FP7 Transport projects

Expected impact

Generation of evidence to demonstrate the outputs, outcomes and impacts of Transport research activities in FP7.

Scope

The analysis should consider appropriate methodologies for monitoring the progress towards the outputs and outcomes of projects and broader impacts of research in the Transport work programme, including how the results will be disseminated and taken up by target users.

The following types of impacts should be considered:

S*trengthening industrial competitiveness* of the European industry by identifying the potential user sector(s), the type of impact (new/ improved process technologies/ products/ services etc., environmental, cost, performance improvements etc.) and mechanisms for disseminating and promoting uptake of the research;

Contributing to sustainable development and addressing societal problems in terms of generating new knowledge relevant to social, environmental and economic issues;

Improving Community and public policies by disseminating knowledge generated and engaging the target users (policy makers at regional/ national/ EC/ international);

The work should propose the appropriate evidence to be collected to validate impacts and the appropriate time-scale framework for collection of such data. Consideration should be given to the potential impacts of "technology" bottlenecks or rate-controlling steps (e.g. access to finance) in the process of technology exploitation and ways to assess the leverage effects of EU RTD funding.

Funding scheme: Coordination and Support Actions aiming at supporting research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

TPT.2007.9. Trans-national co-operation among NCPs

Expected impact

- An improved NCP service across Europe, therefore helping simplify access to FP7 calls, lowering the entry barriers for newcomers, and raising the average quality of submitted proposals.

- A more consistent level of NCP support services across Europe.

Scope

Reinforcing the network of National Contact Points (NCP) for the Seventh Framework Programme under Transport, by promoting trans-national co-operation. The action will focus on identifying and sharing good practices. This may entail various mechanisms such as benchmarking, joint workshops, training, and twinning schemes. Practical initiatives to benefit cross-border audiences may also be included, such as trans-national brokerage events. The specific approach should be adapted to the nature of the theme and to the capacities and priorities of the NCPs concerned.

Special attention will be given to helping less experienced NCPs rapidly acquire the know-how accumulated in other countries. Proposals are expected to include all NCPs who have been officially appointed by the relevant national authorities. Other participants from the EU and associated countries are ineligible. If certain NCPs wish to abstain from participating, this fact should be explicitly documented in the proposal.

Proposals are expected to include and enable the active participation of all NCPs and other organisations which have been officially appointed by the relevant national authorities in the EU and associated countries. In individual special cases the NCPs can decide to subcontract this activity to specialist agencies. Other participants from the EU and associated countries are ineligible. If certain NCPs wish to abstain from participating, this fact should be explicitly documented in the proposal

The action may also involve official FP7 contacts from third countries.

The Commission expects to receive a single proposal under this heading.

It is expected that the project should last for a maximum of 5 years, and should in any case finish before March 2013.

Funding scheme: Co-ordination and support action aiming at coordinating research activities

Open in call: FP7- TRANSPORT (TPT)-2007-RTD-1

3. IMPLEMENTATION OF CALLS

TRANSPORT – HORIZONTAL ACTIVITIES

- **Call title: FP7- TRANSPORT (TPT) – 2007- RTD-1**
- Call identifier: FP7- TPT – 2007- RTD-1
- Date of publication: **22 December 2006**
- Deadline: **3 May 2007 at 17.00h (Brussels local time)**
- Total Indicative budget**: 12 *M €***
- Topics called:

Activity/ Area	Topics called	Funding Schemes **Collaborative Projects (CP), Coordination and Support actions (CSA)**
Cross-cutting activities for PROGRAMME IMPLEMENTATION		
	TPT.2007.1. Optimisation and integration of R&D efforts for transport of passengers by "co-modality"	CP (small or medium-scale focused research),CSA (supporting)
	TPT.2007.2. Optimisation of an integrated chain for freight transport logistics by "co-modality"	CP (small or medium-scale focused research),CSA (supporting)
	TPT.2007.3. Transport contribution to improve competitiveness of European tourism	CSA (supporting)
	TPT.2007.4. The connected traveller in the city, region and world of tomorrow	CP (small or medium-scale focused research)
	TPT.2007.5. Raising Citizen Awareness of Transport Research in Europe	CSA (supporting)
	TPT.2007.6. Evaluation of the impact of FP5 and FP6 projects in the field of Transport	CSA (supporting)
	TPT.2007.7. Development of methodology for evaluation of FP6 performance in the field of Transport Research (Aeronautics and Space and Sustainable Surface Transport)	CSA (supporting)
	TPT 2007.8. Development of a methodology for monitoring the expected impacts of FP7 Transport projects	CSA (supporting)
	TPT.2007.9. Trans-national co-operation among	CSA (coordinating)

	NCPs	

- Evaluation procedure:

– The evaluation shall follow a single stage procedure
– Proposals may not be evaluated remotely
– The evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 2 to this work programme
– No hearings are foreseen.

- Indicative evaluation and contractual timetable:

– Intended period for on-site (BXL) evaluation / panel meetings: 28th May – 8th June

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

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

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

4. INDICATIVE PRIORITIES FOR FUTURE CALLS (2008)

A different set of topics will be proposed for 2008. These will be developed during 2007 following consultation with the Advisory Group, Technology Platforms and stakeholders.

7.4 GALILEO

Support to the European global satellite navigation system (Galileo) and EGNOS

The activities related to Galileo will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme, but are going to be available on the website[40] in due course. In accordance with the proposed Council Decisions, Galileo activities will be implemented by the GNSS Supervisory Authority.

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

New satellite navigation applications are being developed everyday, covering numerous sectors of the world economy. The expected global market in products and services will likely reach €400 billions in 2020. The activities will give European industries the right opportunities to acquire the knowledge and expertise required in a strong international competing environment. Small and Medium Enterprises are key players for innovation in this sector.

The European infrastructure is being implemented in an incremental way. The overall GNSS performances will gradually improve, allowing the smooth development of receiver technologies and applications. The set of activities will follow the incremental build up of the infrastructure, i.e. EGNOS in 2007, four satellites for in orbit validation in 2009, and the full 30-satellites constellation in 2011. The activities will build on existing infrastructure elements, including ground-based test and verification facilities.

The Galileo concessionaire will manage and exploit the infrastructure according to the contract signed with the European GNSS Supervisory Authority. In parallel, the "Evolution programme" of the European Space Agency will maintain the technology at the state-of-the-art level. The activities will be coordinated with these actors.

The European GNSS, as a global navigation system, has a strong international dimension. All activities will fully take into consideration the cooperation frame established with partner countries in order to promote the use of the European Navigation system worldwide.

Research activities will be managed by the European GNSS Supervisory Authority that has been established by Council Regulation.

For information, the following research areas will be implemented by the European GNSS Supervisory Authority, through calls with specific topics.

[40] http://ec.europa.eu/dgs/energy_transport/galileo/

For doing so, the amount of 40 M€ will be transferred to the European GNNS Supervisory Authority, for the year 2007.

For initial Galileo activities of the 7FP, priority is given to actions sustaining the preparation of the market of Galileo at "Final Operational Capability", by fostering and pushing the development of new services and applications and by creating the necessary enablers.

ACTIVITY: 7.4.1 EXPLOITING THE FULL POTENTIAL

Promoting growth in the use of the services ranging from open to commercial access, safety-of-life to "search and rescue" and public regulated service; freight transport management applications including freight and hazardous materials transportation; exploiting by-product services; demonstrating the benefits and efficiencies of satellite navigation.

AREA: 7.4.1.1 Mass market applications

The objective of this area is first to foster the use of positioning and navigation functions in the foreseen GNSS mass-market applications, e.g. Location Base Service (LBS), fleet management, road application, etc. and second to place EU industries at the forefront in order to capture part of the growing worldwide satellite navigation market (€60 billions in 2005).

R&D support will span the whole range of "free of charge" applications, mainly based on the signals provided by the open access services of Egnos and Galileo through a close coordination with Areas and Topics in sub-themes Aeronautics and Surface Transport to avoid duplications. The use of some Safety of Life service features will also be considered (e.g. authentication, simplified use of integrity information).

Furthermore, as the new mobile telephony concepts ("4G") are developing telecommunication techniques based on the knowledge of the position of the different users, synergies with Galileo will be exploited.

AREA: 7.4.1.2 Professional applications

The objective is to promote the use of the European GNSS navigation functions for all applications requiring high performances and quality of service guarantees.

The activities will encompass the whole transport chain e.g. for goods, freight, passengers, animals, hazardous materials, valuables and transport modes for which guaranteed positioning and navigation services are required, through a close coordination with Areas and Topics in sub-themes Aeronautics and Surface Transport to avoid duplications. Other domains will be explored e.g. agriculture, environment, justice and home affairs, etc.

AREA: 7.4.1.3 Scientific Applications

The objective is to promote the use of Galileo navigation functions in the scientific community.

The activities will address the use of all the European GNSS signals for specific purposes in the scientific domains: geodesy, meteorology, oceanography, ionosphere studies, fundamental physics, etc. All opportunities offered by the European satellite navigation signals to fundamental research applications will be explored.

AREA: 7.4.1.4 Safety-of-life applications

The objective is to put in place all necessary elements to allow the use of satellite navigation for safety-of-life applications not only in the aviation sector but also for railway, maritime and road modes.

The activities will address the technical requirements and demonstrate the feasibility of robust, reliable and safe applications based on the integrity message.

AREA: 7.4.1.5 Timing and Synchronisation applications

The objective is to promote the use of the European GNSS for Timing and Synchronisation applications worldwide.

The activities will address several domains of application ranging from scientific timing to synchronisation of telecommunication network.

AREA: 7.4.1.6 Governmental applications

The objective is to derive from the PRS policy of access a set of forerunner applications for governmental organisations.

The activities will address each potential application, verify their economies, design the functions and demonstrate the benefits through implementation of full scale experiments.

AREA: 7.4.1.7 New and innovative applications and services

The objective is to promote innovation in the domain of the new applications for the European GNSS.

The activities will focus on supporting innovative ideas for new applications. The development of new services based on these applications will also be covered. A specific emphasis will be given to support research & development activities in small and medium enterprises.

AREA: 7.4.1.8 Search and Rescue Applications

The objective is to integrate Galileo search and rescue functions into the international Cospas-Sarsat effort.

The activities will ensure full use of the incremental improvement of the search and rescue functions through satellite navigation systems. Demonstration of outstanding service performances to users will contribute to gradual development of rescue operations based on Galileo functions.

AREA: 7.4.1.9. Regulated applications

The objective is to support the use of EGNOS/Galileo as an option for new regulation and legislation.

The activities will encompass all activities linked to the development of the "GNSS Regulated Applications", for which the use of satellite navigation is either promoted either mandated through specific legislation (e.g. regulation on animal tracking, E-112, control of fishing vessels, road tolling, etc.).

AREA: 7.4.1.10 Liability Critical applications

The objective is to put in place all necessary elements to allow the use of satellite navigation for Liability Critical applications, i.e. those where the computed position is used as the basis for legal decisions or economical transactions.

The activities will address the technical requirements and demonstrate the feasibility of robust, reliable and liable applications based on the integrity message.

CONTENT OF CALL FOR 2007

Taking advantage of the availability of EGNOS in the short term allows raising awareness and inclusion of Galileo functions into existing and emerging applications. Actions that exploit EGNOS at best are therefore included in 2007 Calls.

To support the introduction of GNSS, priority is given to actions that emphasise the differentiators in Safety-of-Life, Mass Market, Professional and Scientific, Governmental and Regulated applications. Awareness actions for the same applications will also be addressed, involving education, training, scientific research and pilot projects to sustain transition of knowledge and innovation towards industry.

ACTIVITY: 7.4.2 PROVIDING THE TOOLS AND CREATING THE APPROPRIATE ENVIRONMENT

Ensuring safe and secure use of services mainly through certification in key application domains; preparing and confirming the adequacy of services to new policies and legislation, including their implementation; addressing public regulated services according to the approved policy of access; developing essential digital topology, cartography, geodesy data and systems for use in navigation applications; addressing safety and security needs and requirements.

AREA: 7.4.2.1 Tools

The objective is to ensure that all elements directly related to positioning and navigation are available for application developers.

Activities will list the required "side-technologies" which decuple the usefulness of satellite navigation functions. Specific focus will be placed on e.g. digital maps design and build up, design of dynamic information database for "on-the-move" applications, advanced man-machine interface for guidance, topology and geodesy adaptation and improvement to high sub-meter accuracy.

AREA: 7.4.2.2 Certification and Standardization

The objective is to ensure that the legal framework surrounding satellite navigation applications permits safe use of timing, positioning and navigation functions within defined boundaries.

The activities will pursue standardisation efforts within the appropriate bodies, at EU and global level for all modes of transport and in the telecommunication area. In particular, finalization of Safety of Life standards in the Aviation, Maritime and Rail communities will address system aspects, service levels as well as user receivers. Other standards developments will be launched consistently with on-going EU policies in the several domains, such as road transportation (e.g. road tolling, intelligent transport systems) or personal mobility (e.g. E112, Location Based Services).

The activities will also contribute to the gradual overall system certification, starting first with Egnos and preparing the required elements for Galileo certification. They will similarly ensure certification at sectorial level in all areas of satellite navigation use.

CONTENT OF CALL FOR 2007

As standardisation is a continuous process, main actions will be run in the location-based (mobile telephony Third Generation Partnership Project), maritime and aviation sectors. Others sectors will also be addressed such as rail and road.

A high priority for the success of the European GNSS implementation is the setting up of the appropriate environment for the precursor of Galileo, i.e. Egnos (which will undergo an Operation Qualification Review in 2007). In order to reach full compliance against the latest version of "Standard and Recommended Practices" of the International Civil Aviation Organisation, activities[41] will encompass improvement of continuity risk performance, provision of integrity throughout the broadcast area, software adaptation and consolidation of security baseline.

ACTIVITY: 7.4.3 ADAPTING RECEIVERS TO REQUIREMENTS AND UPGRADING CORE TECHNOLOGIES

Improving receiver performances, integrating low-power consumption and miniaturisation technologies, completing in-door navigation coverage, coupling with radio frequency

[41] For management efficiency, the implementation of these activities will be delegated by the Supervisory Authority to ESA, as technical developments were so far managed this entity.

identification devices, exploiting software receiver technology, combining with other functions as telecommunication, supporting key navigation ground-based infrastructure technology to ensure robustness and flexibility.

AREA: 7.4.3.1 Receivers

The objective is to integrate into receivers all new technologies that can contribute to the improvement of performances.

The activities will address first the improvement of hardware, with technologies allowing e.g. interference mitigation, decrease of power consumption, increase of processing power capabilities, miniaturisation, dynamic antenna patterns, etc. and second the use of new software techniques e.g. positioning algorithms, signal processing, "software-defined receivers", multi-GNSS constellation computation, etc.

AREA: 7.4.3.2 Customised user terminal

The objective is to take benefit of other means and functions available to determine locations.

Hybridisation with other positioning technologies (inertial sensors, magnetic sensors, network-enabled positioning, etc.) will be addressed in order to facilitate navigation in difficult environments (e.g. indoor, in urban canyon…) and ensure seamless positioning solutions. Synergies with telecommunication services for both positioning services and communication of the position related information will also be addressed.

AREA: 7.4.3.3 Local elements

The objective is to bring local element technologies to the maturity level required for provision of services at "final operational capability".

Activities will encompass the development of pseudolites for the five European GNSS services, improvement of "real time kinematics" techniques and differential GNSS, provision of local integrity. A support to the evolution of existing local elements will be provided.

CONTENT OF CALL FOR 2007

Concerning receiver technology, the research and development work will be directed towards pushing the current performance limits in receiver technology and driving hybridisations with other sensors, local monitoring and augmentation systems. Focus will be placed on building of confidence in GNSS and guaranteeing quality of service, in particular by development and validation of integrity and authentication concepts.

New attractive end-to-end services through improved performance based on competitive receiver technology for all Galileo services will be studied, as well as advancement of precise point positioning technologies with Galileo, improving Europe's academia and receiver industry position and fostering advanced technologies for user devices and segments.

ACTIVITY: 7.4.4 SUPPORTING INFRASTRUCTURE EVOLUTION

Preparing second generation system, adapting to evolving user demands and market forecasts, taking advantage of infrastructure internationalisation to address global markets and developing world-wide standards.

AREA: 7.4.4.1 User need and mission evolution

The objective is to collect the user feedback and translate new needs and requirements into new mission and service concepts.

Activities will first address new user needs and new functional parameters to be translated into mission concepts. The setting up of User Groups and User Fora will be promoted in order to organise proper user feedback and to plan corresponding system evolutions. These will take into account other evolving infrastructures and services e.g. earth observation and telecommunications.

AREA: 7.4.4.2 Space and ground segment evolution

In such complex space ventures, ten years are required from "design" to "full implementation". The objective is to prepare the elements ensuring that the second generation system will meet requirements.

Activities will address, in coordination with the evolution programme of the European Space Agency, the adaptation of existing space and ground assets to new mission requirements. They will equally address the development of new space and ground facilities.

AREA: 7.4.4.3 International co-operation and awareness

The objective is to ensure that the European GNSS services, applications and standards are known and can be used throughout the world.

The activities will contribute to the cooperation schemes which have been established with partner countries worldwide. Activities will provide guidance and support to non-EU countries to set up regional and local facilities to adapt services to local needs and ensure that no unnecessary restriction to the use of the European GNSS is applied.

CONTENT OF CALL FOR 2007

While effort on this activity line will increase later in the programme, initial actions implemented in the 1st call cover areas that are not dependent on IOV results and findings. The perimeter of activities will therefore encompass studies on performance and evolution of Galileo and EGNOS signals, e.g. for use in the E6 frequency band, establishment of a framework for liability and safety critical applications, assessment of space segment evolution, interoperability prospects, ground segment architecture and development of flexible indoor positioning systems.