



ECTRI POSITION on FP8

“Towards a Common Strategic Framework for EU Transport Research and Innovation Funding”

February 2011

The European Conference of Transport Research Institutes (ECTRI) is an international non-profit association that was officially founded in April 2003. It is the first attempt to unite the forces of the foremost multimodal transport research centres across Europe and to thereby promote the excellence of European transport research. Today, it includes 28 major transport research institutes or universities from 20 European countries. Together, they account for more than 4,000 European scientific and research staff in the field of transport. ECTRI is committed to provide the scientifically based competence, knowledge and advice to move towards its vision to have “an efficient, integral European transport system that provides completely safe, secure and sustainable mobility for people and goods”.

European Conference of Transport Research Institutes | ECTRI aisbl

Rue du Trône 98 | 1050 BRUSSELS | Belgium

Tel: + 32 (0)2 500 56 87/88 | Fax: + 32 (0)2 500 56 89

Number: 831 370 370

Website: www.ectri.org

TABLE OF CONTENT

Executive Summary.....	2
1. Background and context.....	4
1.1 Introduction.....	4
1.2 The need for transport research in FP8.....	4
1.3 Content of a Mobility and Transport sub-programme.....	6
1.4 The main areas where change is needed in FP8.....	7
2. Recommendations for FP8.....	7
2.1 Programme architecture and content.....	7
2.1.1 <i>General objectives and orientation</i>	7
2.1.2 <i>Suggested FP8 structure and content</i>	9
2.2 FP8 Programme instruments.....	11
2.3 Governance (and simplification of) procedures.....	12
2.4 Financing and accounting procedures and instruments.....	13
3. Content and principal characteristics of a Mobility and Transport sub-programme.....	13
3.1 The main themes.....	13
I. System operation	
II. Vehicles and energy sources	
III. Transport networks	
IV. Demand management and traveller information issues	
V. Environmental and societal impacts and challenges of the Transport system	
3.2 Detailed content.....	14
4. References.....	17

EXECUTIVE SUMMARY

The *European Conference of Transport Research Institutes (ECTRI)* would like to contribute to the emerging discussion on the future of the European Research Area in transport linked to the follow-up of FP7. We would like to do it based on our broad involvement and commitment to European transport research and our perception of the transport system.

ECTRI is a Brussels based Association of 28 major Transport Research providing Organisations based in 20 European countries. The central approach taken in ECTRI's activities, reflected in its membership criteria, is "multimodal", considering the interdependencies and interactions between Transport modes, and looking at the transport system in an integrated way.

ECTRI is convinced of the paramount importance the transport sector plays when addressing the major issues of our time¹: economic recovery that has to evolve into a sustainable growth in order to address the environmental challenges and provide in the welfare of a globalized and ageing society.

Transport research can be the catalyst of new developments and have major impacts:

1. A profound knowledge of the interdependence of the economic system and the transport system is needed: in an increasingly competitive globalized economy, an effective and efficient transport system that is able to address the needs of the European economy and society is an engine for economic recovery. At the *macroeconomic level*, i.e. the importance of transportation for a whole economy, transportation (and the mobility it confers) is linked to the level of output, employment and income within a national economy. In many developed countries, transportation accounts between 6% and 12% of the GDP,
2. The transport sector is a major field of application of Research & Development & Innovation (R&D&I), as it relates to a number of technological innovation fields and their integration, combination and application, such as Information and Communication Technologies (ICT), nano technologies, new materials, energy / propulsion systems, automotive technologies,...
3. Research, Development, and Innovation in mobility and transport will also make an important contribution to other potential research sub-programmes and topics such as the supply and use of energy, industrial competitiveness, environment and climate change, ICT and the digital agenda, in creating multiplier effects,
4. In terms of market potential, transport innovations represent today a percentage equivalent to that of computers and information technology. Thus the market uptake and exploitation of the R&D&I results, is much more feasible and relatively easily achieved,
5. Transport is strongly linked to the other Grand Societal Challenges mentioned in the Lund declaration (global warming, ageing, etc). Regarding environmental issues it is part of the problem but it is also part of the solution, with an innovative transport system being a major enabler to addressing the challenges,
6. Transport as a whole is an area where Europe can claim today a "comparative advantage" with respect to other regional economies and where it certainly has the potential to develop further, in competing with them.

¹ Page 3-5 (par. 1.2)

On the structure and configuration of a transport research programme, ECTRI is developing ideas that it is willing to share and discuss with other stakeholders. It would lead to a programme where the different themes to be defined would address the needs of the stakeholders involved, would be supported by most suitable instruments and therefore maximize the innovation impact.

ECTRI proposes 5 research themes (*system operation, vehicles and energy sources, transport networks, demand management and travel information, environmental and societal challenges and impacts of the transport system*) that would refer to both aeronautics and surface transport, passengers and freight. These themes are further developed in the paper², but are mainly meant as an initial “bid” for a discussion on an integrative approach to transport research.

ECTRI considers a sound programme architecture and lean and efficient instruments a fundamental element for the success of this endeavour. More than 25 years of FP research provide the research community with a wealth of ‘lessons learned’ and benchmark opportunities. ECTRI has drawn some lessons and recommendations from the experiences of its members.

The structure of the successor of FP7 should preferably safeguard continuity but take account of the new challenges and opportunities. Therefore ECTRI would suggest a 4 pillar structure³ : I - *Competitiveness* (aiming at focused and frontier research, development of key technologies and developing human capital and international competitiveness), II - *Policy support* (policy driven research supporting the EU2020 strategy and the Grand societal challenges), III - *Strengthening the ERA* (aiming at strengthening the “hard” research infrastructures, research institutions and networks and international cooperation), IV - *Convergence and complementarity of research activities* (optimizing the relation between Community, national and regional research, improving dissemination, implementation and market take up, harmonizing research funding and governance).

ECTRI is generally positive on the instruments currently deployed in FP⁴. The current set-up of the Framework Programme supports the whole innovation process covering frontier research (ERC), technology development (Level 1/STREPS), technology demonstration (Level 2/IP) and system demonstration (Level 3/JTI). For the Networks of Excellence (NoEs) instrument, we are of the opinion that it needs to be re-designed and re-named.

The issue of simplifying procedures and governance in FP⁵ is posed by many research stakeholders around Europe as well as the European Parliament, the European Council, the Committee of the Regions, etc. ECTRI is aware of all these various proposals and strongly supports the notion of greater simplification and speeding up of procedures in FP execution.

The financing and accounting procedures to be followed in FP⁶ are of particular importance as they impose the accounting framework under which EU funded research is to be pursued until 2020. These provisions have been commented by other research stakeholders. ECTRI will provide its opinion on these issues too, together with its ideas about the simplification of procedures and governance issues.

² Page 13 - 16 (ch. 3)

³ Page 9 - 11 (par. 2.1.2)

⁴ Page 11 - 13 (par. 2.2)

⁵ Page 12 (par. 2.3)

⁶ Page 13 (par. 2.4)

1 BACKGROUND AND CONTEXT

1.1 Introduction

The European Conference of Transport Research Institutes (ECTRI) is a Brussels based Association of 28 major Transport Research providing Organisations located in 20 European countries. ECTRI is representing primarily the research “supply” side in the field of transport in Europe.

ECTRI works with all transportation stakeholders from academia, industry, public agencies, and other areas. Its activities encompass a multidisciplinary, interdisciplinary, and systemic approach to transportation issues in Europe independently of any specific mode or vested interest (industrial or otherwise). The central approach taken in ECTRI’s activities, reflected in its membership criteria, is “multimodal”, considering the interdependencies and interactions between Transport modes, and looking at the transport system in an integrated way. ECTRI’s representatives participate in all major European transportation-related Technology Platforms, including rail, road, water, and air, logistics, and the e-Safety Forum and Intelligent Car Initiatives.

The scope of this document is to emphasise and elucidate the need for transport research in the new FP8, as well as for FP8’s organisation as a whole. We hope that this paper will provide the Commission services with a clear, relevant and, above all, objective position representing the transport research providers, in Europe today.

1.2 The need for Transport Research in FP8

The context in which research policy operates in Europe has undergone a number of significant changes since FP7 was developed. These changes are defined by the following developments:

1. The financial and economic crisis which started in 2008 and is likely to have an effect, one way or another, on European economies for the most part of the duration of FP8. The role of FP8 must be seen within the current economic and thus financial framework, providing opportunities to promote research and innovation as key parts of the driving forces for recovery.
2. Globalisation has continued, and emerging economies are fast starting to compete not only on cost but also on added value and quality of their products on the basis of their research, technology, and innovation improvements.
3. There is more urgency now to include in the EU funded research a more straightforward way to support the various EU policies such as for the “Grand Societal Challenges” and others.
4. The ERA (European Research Area) initiative, as an instrument to achieve the objectives of the Union’s research policy, is gaining momentum and is defining to a great extent the new research environment.
5. As expressed in the Europe 2020 strategy⁷ there is a stronger focus on an integrated approach between research and innovation⁸. The follow-up Communication on a European plan for Research and Innovation must be taken into account in the debate on the FP8.

⁷ The 2020 strategy for smart, sustainable and inclusive growth (European Communication Communication, COM(2010) 2020 final, March 3rd, 2010), sets 5 EU headline targets at European level:

1. 75 % of the population aged 20-64 should be employed.
2. 3% of the EU’s GDP should be invested in R&D.
3. The “20/20/20” climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right).
4. The share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree.
5. 20 million less people should be at risk of poverty.

⁸ “Europe 2020 Flagship Initiative: Innovation Union”, European Commission Communication COM (2010) 546, October 6th, 2010.

6. The desire of a simplification of procedures and a more lean and expedient environment for the evaluation, contracting, and execution of the research is gaining momentum.
7. There is now an increasing need to clearly demonstrate both the EU impact and added value of the various “Framework Programmes” to both the achievement of the ERA and the other Lisbon challenges, as well as to the economic and societal development of the Continent as a whole.

In relation to the above developments, the transport sector features prominently as one of immediate interest and priority. In fact it should be “Research on Mobility and Transport” in order to denote the necessary emphasis not only on the material aspects of Transport (infrastructure, networks, vehicles, etc) but also on the most important “mobility” aspects dealing with demand management, traveller information, logistics, and other such “soft” elements.

Transport research must continue to be a specific, separate stream of research in FP8 (as it was in FP7 and previous FPs) for the following reasons:

- A. In an increasingly competitive globalised economy, an effective and efficient transport system that is able to address the needs of the European economy and society is an engine for economic recovery. At the macroeconomic level, i.e. the importance of transportation for a whole economy, transportation (and the mobility it confers) is linked to the level of output, employment and income within a national economy. In many developed countries, transportation accounts between 6% and 12% of the GDP. In the EU, the Transport sector’s turnover represents an important proportion of economic output, 6.9% of EU GDP (even more when the sector’s indirect contribution to GDP by enabling efficient transport is considered)⁹. At the microeconomic level (the importance of transportation for specific parts of the economy) transportation is linked to producer, consumer and production costs to a greater or lesser degree according to each sector of the economy. Transportation accounts on average for between 10% and 15% of household expenditures while it accounts for around 4% of the costs of each unit of output in manufacturing, but this figure varies greatly according to each sub sector¹⁰.
- B. The transport sector is a major field of application of Innovation. Research & Development & Innovation (R&D&I) in the field of transport covers a number of technological innovation fields and their integration, combination and application, such as:
 - Information and Communication Technologies (ICT);
 - Nanotechnologies;
 - New materials;
 - Energy/propulsion systems (including electricity) and their delivery;
 - Automotive Technologies for the development of new vehicles, engines and transmission systems (including electric cars, fuel cells, etc);
 - Fuels and energy production for automotive purposes;
 - Transport infrastructures (development, maintenance, management, and resilience);
 - Transport systems operation and management;
 - Traffic management;
 - New business models and financing issues;
 - Societal Impacts and consequences;
 - Environmental impacts of transportation (including impacts on climate change).

There is consequently significant opportunity for the continuation and further development of major new systems and innovations in the future.

⁹ EU Project EAGAR Benchmarking Analysis Report, in (EUCAR, 2010)

¹⁰ EU Project EAGAR Benchmarking Analysis Report, idem.

- C. Research, Development, and Innovation in mobility and transport will also make an important contribution to other potential research programmes and sub-programmes and topics such as the supply and use of energy, industrial competitiveness, environment and climate change, ICT and the digital agenda, and so on. This contribution is most important in creating multiplier effects within FP8 although its full potential exploitation will require proper leveraging and an effective systemic cooperation between related R&D programmes.
- D. In terms of market potential, transport innovations represent today a percentage equivalent to that of computers and information technology. Thus the market uptake and exploitation of the R&D&I results is much more feasible and relatively easily achieved. This was amply demonstrated in the recent ITF Leipzig Conference on “Unleashing the potential of Transport & Innovation” (ITF, 2010).
- E. Transport is strongly linked to the other Grand Societal Challenges mentioned in the Lund declaration (global warming, ageing, globalisation etc). In the first case it may look as part of the problem but it is also part of the solution, with innovation in transportation being a major enabler to addressing the challenges.
- F. Finally, transport as a whole is an area where Europe can claim today a “comparative advantage” with respect to other regional economies and where it certainly has the potential to develop further in competing with them.

Therefore the existence of a “transport sub-programme” for the continuation of the R&D&I effort towards the further development and integration of the transport and mobility system in our continent, building on the achievements of the FP7 Sustainable Surface Transport and Aeronautics programmes, is well justified and even a prerequisite for the achievement of the aims and objectives of FP8 as a whole. Such an EU funded programme for Transport research is necessary and would create the necessary “convergence and complementarities” with the transport research funded at national, regional, or local level dealing with issues and problems of the corresponding scale.

1.3 Content of a Mobility & Transport sub-programme

The content of a potential Mobility & Transport research sub-programme in FP8 should be built around 5 main Themes that would refer to both aeronautics and surface transport modes, passenger and freight. They will necessarily also be cross-cutting with other programmes and sub-programmes of the FP8 research agenda. The suggested 5 Themes are the following:

- I. **System operation** (emphasis on multimodality, with sections on: planning, operation, management of transport systems and networks and mobility management, as well as issues such as international cooperation and globalisation, modelling and statistics, business models, etc. All sections should refer to: passenger and user as well as to freight and logistics, and be multimodal in nature).
- II. **Vehicles and energy sources** (with sections on: aircraft, trains, ships, and road vehicles, new energy sources and their delivery systems. A special section on the continuation of electrification and the “Green Cars initiative” of the FP7 is well justified here).
- III. **Transport networks** - maintenance and resilience.
- IV. **Demand management and traveller information issues** (with sections on: sustainable mobility, behavioural and socioeconomic issues, individual traveller information systems, integrated transport data collection, analysis, and dissemination, relevant policies and actions, etc).
- V. **Environmental and societal impacts and challenges of the transport system.**

These themes are further developed and more detail provided in chapter 3.

1.4 The main areas where change is needed in FP8

In view of past experience and the changing context for European research, the areas of FP8 where we believe that change is needed, can be grouped as follows:

- A. **Programme architecture and content:** This is the area that concerns the overall architecture, of the programme its thematic contents and priorities in order to operationalise Europe 2020's main priorities (e.g. the grand societal challenges, strengthening the innovation dimensions, etc). Also parallel considerations such as the role of the ERC in FP8, realising the ERA, and harmonisation with other Union policies;
- B. **Programme Instruments:** The instruments used for FP7 (e.g. JTI, collaborative projects, NoEs, IPs, etc) need to be reconsidered in the framework of the overall new priorities and simplified governance procedures of FP8.
- C. **Governance and (simplification of) procedures.** There is already a Commission Communication on this subject, called "Simplifying the implementation of the research framework programmes"¹¹, that needs to be commented upon. Furthermore this area includes the issues concerning the means of delivering the Framework Programme through a combination of direct and indirect management by the Commission or outside agencies, public-public and public-private partnerships.
- D. **Economic and accounting procedures and instruments.** The Commission has put forward for discussion the "Financial Regulation (FR) and Implementing Rules (IR)"¹² for the new framework programme. This document contains the options chosen for the next Framework Programme, as well as the procedures suggested for the ex-ante and ex-post impact assessment which is to accompany the FP8 proposals.

The current document deals mainly with the first two of the above areas (A and B) while ECTRI will present its positions for the last two (C and D above) in a different paper.

2 RECOMMENDATIONS FOR FP8

2.1 Programme architecture and content

2.1.1 General objectives and orientation

The FP8 as well as any next generation of European Research and Innovation programs must be based on a number of principles and existing texts and treaties that will inevitably define its basic orientation and objectives. These are in line with the general "context" of FP8, as it was mentioned above, and can be summarised as follows:

- Current treaties (starting with the Lisbon Treaty);
- Need to materialise and operate in practice the "Knowledge Triangle" (Figure 1 below);
- Innovation Union initiative (and no longer a linear value chain of innovation);
- EU 2020 strategy.

The current Treaties impose three particular objectives for research and development. These are:

- a. Completion of the European Research Area (ERA)
- b. Improvement of the international competitiveness of Europe (in all fields and levels)
- c. Production of scientific knowledge and support for other policies and chapters of the Treaties (e.g. the grand societal issues, cohesion, and other EU policies).

¹¹ European Commission Communication (COM(2010)187 final), April 29th, 2010

¹² European Commission Communication (COM(2010)260 final), May 28th, 2010

The “Knowledge Triangle” is shown in a diagrammatic way in Figure 1. It means that “Education”, Research” and “Innovation” are the three pillars that will define the degree to which the above objectives will be attained and the degree to which European know-how and “smart specialisation” will lead the European competitiveness and drive for economic recovery that are the paramount priorities in the coming decade, as has already been stated.

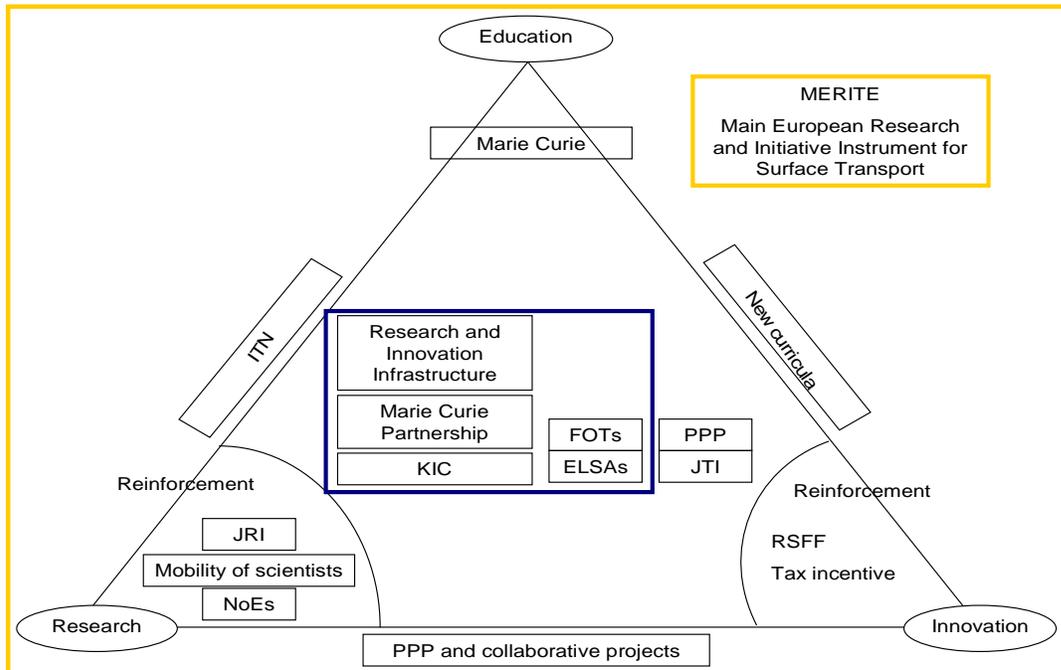


Figure 1: The “Knowledge Triangle”

The Innovation Union initiative and the non-linear “value chain” of innovation imposes the need to treat within the new FP8 a number of specialised but very important issues such as:

- “frontier” research (“breakthrough” research),
- focused research on specific areas and issues of interest to European policies,
- development of prototypes and pre-competitive products,
- demonstration and large scale experiments to help market up-take,
- investigating in particular:
 - societal impacts and acceptance,
 - user acceptance,
 - suitable business models,
 - transition paths from lead markets, to European and global markets.

The provisions of the EU 2020 strategy and its flagship initiatives¹³ should also be a cornerstone for deciding the new FP8 structure and content. ECTRI supports the idea that FP8 should be the funding instrument to realise the objectives of the Europe 2020’s Innovation Union and the other related Europe 2020 initiatives (EC, to be published February 2011) as strengthening a holistic approach linking research and innovation to development. We see the main benefit from this provision as broadening the FP8’s scope to cover the full innovation cycle and strengthen the partnership between European Innovation Organisations and “industrial” Organisations (especially the SMEs) as well as other development “agents” through novel financial instruments and standardisation activities with the ultimate goal of supporting the economic recovery of Europe.

¹³ Especially the: Innovation Union; Digital European Agenda; Youth on the Move; Industrial Policy; and Efficient Europe.

Strengthening the ERA and its international extensions and global outreach, is another most recommended objective for FP8. It is now a decade after the launch of the ERA and a couple of years into the implementation of the five ERA initiatives that were defined in 2008 (human resources, research programmes, research infrastructures, knowledge transfer, and international science & technology cooperation). There is therefore substantial material and data in order to analyse and refocus the effort as necessary and this could form a focused effort within the FP8. The work would also imply tackling the identified barriers to ERA, and promoting transnational and international cooperation in broadening the scope of European innovation.

2.1.2 Suggested FP8 structure and content

In order to safeguard continuity with previous FPs (the principle has been respected in past FPs and should be respected now too), the basic elements of the FP7 with the division into the basic three elements: “Cooperation”, “Ideas” and “People”, should be preserved but under a different structure that would take account of the new priorities, objectives and context of FP8.

ECTRI’s suggestion on the new FP8 architecture is that it consists of **4 Pillars**, each with several sub-themes, as follows:

- I. Competitiveness
- II. Policy support
- III. Strengthening the ERA
- IV. Research convergence and complimentary activities.

Each of these pillars is briefly explained below:

- I. **Competitiveness**: Under this pillar there will be research themes and activities that will aim at increasing European competitiveness. It will consist of a number of principal sub-programmes, which should include **Mobility and Transport** (see below), that we can indicate as follows (the list is indicative and non-exhaustive):
 - A. *Focused research*. This will be the main body of research work based on cooperative research projects and aiming at creating a European knowledge economy, based on innovation, smart specialisation and Joint Research Initiatives. It should be sub-divided into thematic areas, one of which should be *Mobility and Transport*.
 - B. *Frontier research*. This sub-programme will be for basic research (corresponding to the “Ideas” one of FP7) and it will also include funding for the ERC, ESFRI, and other similar bodies.
 - C. *Developing key technologies and systems*. This will consist of research in order to develop specific technologies and systems. Indicatively it could include research sub-themes such as: Galileo and its applications, the future internet, nanotechnologies research, Green energy (GreenTech), Green Transport vehicles (electric/hybrid/hydrogen/fuel cells/etc), and other similar.
 - D. *Developing the Human Capital of the 21st century*. In this sub-programme all the actions that refer to the development of the human capital (i.e. the “people” section of FP7 and more) will be included. Typical sub-themes will include: mobility of scientific personnel, training of young researchers (a new programme of major importance focused specifically in the training of research personnel), and similar.
 - E. *Research for international competitiveness*. This will include research that is focused on specific activities that aim to promote European competitiveness vis-à-vis other world regions and countries. It is particularly directed to large scale research projects or programmes led by the private sector (industry, service operators, infrastructures and network operators) through PPPs (Public Private Partnerships), JTIs (Joint Technology Initiatives), and EIPs (European Innovation Partnerships) for industry.

- II. Policy support. This pillar aims at producing policy driven research i.e. research for supporting the major EU 2020 strategy policies and its flagship initiatives (except perhaps the “youth on the move” which falls under I(D) above). Research on the Grand Societal Challenges would also fall under this “policy support” pillar.

A key area for policy support will be **Mobility and Transport**. The upcoming “White paper on Transport” and the “Strategic Transport Technology Plan” (STTP) will certainly call for a stronger alignment of R&D&I and the transport policy. Indeed, innovation in transport is an essential tool to achieve the policy goal of a more efficient, sustainable safe and user friendly transport system.

In more general terms the need to understand the drivers of the mobility needs of the economic actors in a globalized economy and of a an increasingly heterogeneous and open society on the one hand, and the necessity for the stakeholders of the transport system to respond to this demand continues to challenge the scientific world to provide much needed answers to those questions. ECTRI developed some of these issues in its reaction to the Communication of the European Commission on “The Future of Transport”¹⁴.

- III. Strengthening the ERA. Special attention is necessary in view of the need to strengthen the so called “fifth EU Freedom”, i.e. development of:

- *World-class European research infrastructures*: new hard research infrastructures addressing issues such as climate change adaptation but also new soft research infrastructures, for databases from demonstrations and FOTs, and scientifically adapted to the new challenges.
- *Reinforcement of research institutions* and their transnational, institutional or scientific networks. Scientific knowledge and the information society must be strengthened by increasing the attractiveness of EU for world-class R&D centres. The key aim in this respect is raising (scientific) excellence, relevance and governance and promoting good interaction between frontier and focused research.
- *International cooperation*, on the models prepared already through some FP7 European projects or independently by ECTRI and the US/TRB in their report on EU-US transport research collaboration (ECTRI/TRB, 2009). The aim will be to achieve greater international (world) research collaboration on key themes of international importance through harmonisation of IPR rules, data and knowledge for standardisation, research governance and policy making.
- *Further networking initiatives* could be supported here, aimed at strengthening and further organising the international excellence of European research operators as well as the strategic scientific knowledge of tomorrow and the future models in a synergetic way (e.g. cooperation of existing Associations, the previous NoEs, ITNs etc). The concepts to be promoted could be described as “research organisation consortia” with a strong platform of oversight exchange (from stakeholders, scientists, etc), dissemination with other stakeholders and a platform for creation of spin-offs.

- IV. Convergence and complementary research activities. This pillar will include activities to strengthen the convergence and complementarity between EU funded and nationally funded research, and has particular relevance for transport. ECTRI believes that an EU funded research programme focused on the Grand Challenges of EU policies is both necessary and well justified. This programme however, should be complementary and convergent to the national, regional and/or local research initiatives funded by Member States or their cooperation through Joint Programming. Such complementarity and convergence could be assisted by specific research activities – to be funded through FP funds. Respective activities have started to emerge in FP7 and should be continued in FP8.

Indicative sub-programmes here could be:

- Strengthening the complementarity between EU and National Research programmes
- Implementation/exploitation of research results
- Harmonising research funding and governance
- Other

¹⁴ [ECTRI position on the EC Communication on the “Future of Transport” \(COM \(2009\) 279 final of 17 June 2009\), September 2009](#)

Funding of each of the above Pillars and sub-Programmes must be fully studied in detail and re-evaluated in view of experience of such funding in FP7. An indicative suggestion, in view of the above description, would be that Pillar I should be funded by the highest percentage (e.g. 50%), followed by Pillar II (indicatively 30%), Pillar III (10%), and Pillar IV (10%).

Finally, further consideration (and proper answers) must be given to important questions regarding the structure and content of the FP8. We simply pose the relevant questions and will gladly contribute to a debate aimed at finding appropriate answers:

- The balance between large and smaller research projects (the project based approach of FP7 must be strengthened and not abandoned)
- Identifying and selecting the appropriate instruments for each pillar or sub-programme;
- Deciding how and by whom the agenda for the work programme should be set. For example, currently:
 - in JTI the industry sets the agenda
 - in Joint Programming / article 185 Member States set the agenda
 - in ERC researchers set the agenda.
- Is Research implementation via external agencies successful (ERC Executive Agency and Research Executive Agency¹⁵)?
- The appropriate total budget for the next FP8.

2.2 FP8 programme instruments

The impact analysis to be performed on instruments and governance practices will reveal the specific weaknesses and problem areas with the existing FP structures and its tools. These will have to be taken into account in structuring the new instruments for FP8. However, ECTRI can offer the following recommendations and positions on this issue based on the experience of its members, the FP7 mid-term review audit results and the general considerations for FP8 content and objectives mentioned previously.

The current set-up of the Framework programme supports the whole innovation process covering frontier research (ERC), technology development (Level 1/STREPS), technology demonstration (Level 2/IP) and system demonstration (Level 3/JTI).

In particular Level 1 and Level 2 collaborative research projects have contributed substantially to the accomplishment of European technology roadmaps. It is very important to see the continuation of these instruments in FP8 for maintaining the whole innovation process is the key for future innovation. Thus, the collaborative research project (independently of its size) should remain as the cornerstone of research execution in FP8. The right mixture between large or smaller scale collaborative research projects is a point to discuss and decide according to the type and content of the specific topic under consideration. The definition of clear guidelines and definitions of the type, nature, size, and central characteristics of the basic forms of cooperative research projects, that will apply across the whole FP8, is a necessity.

We are equally supportive of Cooperation and Support Actions (CSA), used quite extensively in FP7. They have provided a valuable horizontal element in the programme but they, too, have to be better defined as to their characteristics, nature, and applicability and – above all – be more flexible as to their upper budget limit. The CSAs could be incorporated into the proposed Focused Joint Research Initiatives described below.

¹⁵ All research-related policy remains within the relevant European Commission services. As an executive agency, it focuses on management tasks outsourced by the Commission and fosters efficiency when addressing the research community's needs.

For the Network of Excellence (NoEs) instrument, we are of the opinion that it needs to be re-designed and re-named. The Transport research community has already suggested the concept of Focused Joint Research Initiatives (FJRI) towards the reinforcement of focused research (DETRA, 2010)¹⁶. This new instrument, FJRI, will be aimed primarily at reinforcing networked research focusing on a specific theme where such research is particularly suited, e.g. on one or more Grand Challenges, and creating “smart specialisation” through a new generation of scientists, the reinforcement of the portfolio of test beds for demonstrating new technologies and systems, and in creating common hard and soft research infrastructures in line with the overall ERA concept. The FJRI should be considered as supplementary to the Competitiveness and Innovation Framework Programme (CIP) research and innovation partnerships between academia and industry or between industries.

As an indication of the nature and characteristics of the FJRIs the following contents and activities for such instruments can be suggested:

a. Integration and governance

- Integration around a new concept of focused research for the 21st century.
- Development of new adequate concepts of research governance.

b. Education and training

- Development of a new scientist’s generation through mobility of post-doctorates, PhDs and joint selection of PhD and post-doctorates, and immersion of their work in the network of seniors.
- Development of training materials for professionals from industry or policy makers, other users including society and scientific thematic activities.

c. Development of scientific activities based on a general theme such as:

- Grand Challenges.
- Transforming frontier research into focus research useful for industry and policy makers.
- State-of-the-art methodologies and measurement devices.
- Pan European research infrastructures definition needed for cross-cutting innovation (data bases, knowledge bases, simulator, test beds, Pan European harmonised equipment).
- Ethical and legal issues.

d. Dissemination and stakeholder interaction

- Publications policy and management
- Joint IPR policies and management
- Organisation of stakeholder forums
- Creation of a scientific advising groups, etc.

Related to the FJRIs but of different nature and scale, the European Innovation Partnerships (EIPs) between manufacturers, services operators or infrastructure operators, and researchers, is another new instrument that could well be exploited in FP8 as a sequel to the NoEs of FP7. The main scope and aim of the EIPs should be the convergence between research, innovation and cohesion fund programs in order to create critical mass for market-uptake of research results. This is an area where action is urgently needed in order to create full added value for European research and provide the missing link between research and market, development and uptake activities.

2.3 Governance (and simplification of) procedures

The issue of simplifying procedures and governance in FP8 is posed by many research stakeholders around Europe (e.g. EARTO, EUCAR, ERTICO) as well as by Institutions such as the European Parliament (European Parliament, 2010), the Council, the Committee of the Regions (Committee on Regional Development, 2010), etc.

¹⁶ Also following the Lyon (2009) and Lund (2010) Declarations of the European Transport community for creating a European Transport Research Alliance (ETRA) to reinforce networked (transport) research institutions and released in the MERITE report – “Main European Research Initiative” issued in December 2009.

The European Commission has produced in April 2010 a Communication on simplifying the implementation of the research framework programmes (EC, 2010) and is soon to present a proposal on the triennial review of the Financial Regulation, transforming some of the simplification ideas put forward in this Communication into legal proposals.

ECTRI is aware of all these various proposals and strongly supports the notion of greater simplification and speeding up of procedures in FP execution. It finds the current proposals for simplification as overwhelming evidence that the message for simplification has been broadly accepted and considerable improvement is therefore expected within the legal instruments and environment of EU organs.

We choose therefore to refer to the various proposals and the Communication on the simplification of research programme procedures in a position paper to be circulated separately.

2.4 Financing and accounting procedures and instruments

The financing and accounting procedures to be followed in FP8 are of particular importance as they impose the accounting framework under which EU funded research is to be pursued until 2020. Most of the intended changes in the financial and accounting procedures for Framework research are presented in the Financial Regulation drafted by the Commission services in cooperation with the European Parliament and the Council for the general budget (EC, 2010b). These provisions have been commented on by EUCAR (EUCAR, 2010b) and other research stakeholders.

ECTRI will provide its opinion on these issues too in its document mentioned in the previous sector about the simplification of procedures and governance issues.

3 CONTENT AND PRINCIPAL CHARACTERISTICS OF A MOBILITY & TRANSPORT SUB-PROGRAMME

3.1 The main themes

It is proposed that the FP8 *Mobility & Transport* sub-programme should be built around 5 main Themes which should refer to both aeronautics and surface transport modes in order to create conditions of integration, interoperability, and cross-sector interaction. Such “interaction” is considered as very important in achieving an integrated multimodal approach that should be the core focus of the new FP as a whole. The suggested 5 Themes are the following:

- I. **System operation** (with sections on: planning, operation, management of transport systems and networks and mobility management, as well as issues such as international cooperation and globalisation, modelling and statistics, business models, etc. All sections should refer to: passenger and user as well as to freight and logistics, and be multimodal in nature).
- II. **Vehicles and energy sources** (with sections on: aircraft, trains, ships, and road vehicles, new energy sources and their delivery systems. A special section on the continuation of electrification and the “Green Cars initiative” of the FP7 is well justified here).
- III. **Transport networks** - maintenance and resilience.
- IV. **Demand management and traveller information issues** (with sections on: sustainable mobility, behavioural and socioeconomic issues, individual traveller information systems, integrated transport data collection, analysis, and dissemination, relevant policies and actions, etc).
- V. **Environmental and societal impacts and challenges of the transport system.**

These Themes are presented in a more detailed way in the next section but a few main points of clarification are made here:

Transport research is relevant to many policies and provisions of the Lisbon Treaty and especially for creating the ERA, improving European competitiveness as well as the policies in chapters of the Treaty other than Research & Innovation. Thus Transport research will span the interests of a number of Directorates General (DGs) in the Commission who should all have a say in defining the Mobility & Transport research agenda besides the principal Transport DG (i.e. DG MOVE).

Transport is an area where “focused research” is of primary importance. Without also diminishing the need for “frontier research”, we would like to underline the importance of focused research and its priority especially in view of the prevailing current environment as described in section 1.2 (points 1-7).

In addition the field of transport has an underlining characteristic in that:

- a. It is multidisciplinary on the scientific side requiring the cooperation of many scientific disciplines.
- b. It has to be multimodal on the thematic side i.e. based on the cooperation between transport modes;
- c. It has significant impact on many policies, from climate change to societal changes and to business and industrial research ones.
- d. Innovation in transport systems (for which continued research on the whole innovation chain is a prerequisite) reaches immediately the society being of direct consequences to the Grand Societal Challenges mentioned earlier.
- e. It is directly relevant to other programme areas, such as ICT, ITS, climate change, environment, energy, the digital economy, etc.

3.2 Detailed content

The suggested five main Themes can be further delineated as to their contents as follows.

I. System operation

This Theme is concerned with the aspects of transport system operation (passenger and user as well as freight and logistics) that refer to:

- Passenger and user requirements and behavioural aspects at all levels;
- Planning and monitoring;
- Operation of the system as a whole (with emphasis on cross modal cooperation and synergies), and finally the
- Management of transport systems.

In researching passenger and user requirements and behavioural aspects, the programme will prompt research on establishing the passengers’ and users’ requirements as well as the aspects affecting their behaviour for a more efficient use of the transport system. Travel behaviour should be investigated vis-à-vis key issues such as: population ageing, tourism and leisure, tele-working and remote-working, acceptance of new technologies, pricing for the use of infrastructures, etc, and should aim at providing the inputs for more focused “demand management” policies to be analysed under Theme IV below.

For the planning and monitoring of the system, the programme should address the all-important issues of data collection (especially through use of advanced ICT tools, and issues such as data fusion and assessment of data quality), statistics, forecasting models, future needs analysis, and an advanced system of planning tools for transport infrastructures and services of the future. It furthermore should include research in economics and macro-economic developments and the role and impact of the transport system on economic development, the financing of transport infrastructures (e.g. cost effectiveness of PPPs), the impacts of new markets (opening of new member states – globalisation), policy evaluation, and so on.

The operation of the system is obviously the biggest item of the research to be done in the system operation domain. It refers to all aspects of (transport) system operation including:

- Intelligent Transport Systems for intelligent transport system operation;
- Efficiency and effectiveness through multimodal cooperation and integration;
- Terminals and nodes, operations;
- Promotion of sustainable mobility especially in urban areas;
- Safety of operation;
- Security and resilience issues;
- New business models for efficient (transport) systems operation; and finally
- Promoting issues of International cooperation and globalisation in transport research.

Finally, in the management of transport systems domain the research would address issues such as: tools and services for efficient management, organisational and business models for management, Management Information Systems, linking between private and public sector administrations in the transport chain, one-stop-shop arrangements, etc.

II. Vehicles and energy sources

This Theme addresses issues referring to the design, construction, and delivery of the vehicles used and their energy sources in all modes of transport (aircraft, trains, ships, and road vehicles). Critical issues to be addressed here include:

- New materials for vehicle construction;
- New methods of manufacturing;
- New energy sources and their delivery systems (alternative fuels and fuel cells).
- Electrification and the continuation of the “Green Cars initiative” ;
- Energy conversion transfer and storage issues; and
- Engines and related vehicle systems (power trains, transformation, etc).

III. Transport networks - maintenance and resilience.

All items of research referring to the construction and maintenance of transport networks are indented to be included in this Theme. In addition special emphasis is given to the need to develop resilience within our transport networks i.e. resistance in cases of sudden and major events that disrupt the normal operation of the system such as catastrophes of all sorts, or weather disruptions, etc.

The research content will include for example: new materials for transport infrastructure construction, use and re-usability of materials, new methods of efficient construction and maintenance, risk analysis and emergency contingency planning and operation, advanced systems for maintenance monitoring, planning and execution, etc.

IV. Demand management and traveller information

This Theme will concentrate on the all-important demand side of transport. This will involve the study of how transport demand is created, altered, and can be managed through time, in order to effect a more sustainable use of the transport system. It should include behavioural as well as socioeconomic research into: ways and tools to manage transport demand, provision of on-time and individualised traveller information, formulation and implementation of relevant policies and actions for sustainable mobility, and so on.

Items of research work in this Theme would include:

- Impact analysis of demand management systems and policies;
- Effective infomobility systems for traveller information based on personalised information;
- Systems for productive travel time utilisation (e.g. info-tainment, and remote or tele-working and tele-manipulating home or office equipment);

- Formulation of effective Demand management policies;
- Advanced systems of data gathering – analysis – and utilisation for traveller information.
- Organisational and management aspects of sustainable mobility schemes.

V. Environmental and societal impacts and challenges of the Transport system

Finally, the last Theme refers to all the environmental and societal impacts, aspects of the transport system which in the previous FPs have not been adequately researched. The environmental impacts of the transport system have to do with air and noise pollution, visual intrusion and severance of the space and function of our cities, and all the aspects of our daily environment especially in urban areas. On the other hand research must also be directed towards understanding better and adapting or mitigating the impacts of the transport system operation on the climate change phenomenon. The new challenge in this issue would be to try to link the urban and transport planning to the environmental impacts analysis. An example is the emerging research on soundscape where urban and transport planners work together with ecologists and physicians to understand how our cities could become more livable paying attention to the soundscape, considered as a principle in supporting the “planning” in its largest meaning.

Concerning the societal impacts and challenges of the transport system there is also a very important stream of research to be done namely on the impacts of transport vis-à-vis the Grand Societal Challenges, and the aspects of the society’s changing characteristics and demands on the transport system.

4 REFERENCES

Committee on Regional Development. (2010). Opinion on the simplifying of the implementation of the Research Framework Programmes. EU Parliament, Committee on Industry research and energy / Rapporteur Alain Cadec.

Council of the EU. (2010). Securing the knowledge ERA: Belgian Presidency on the realisation of ERA. Brussels : Council of the European Union, report no. 16191/15-11-2010.

DETRA. (2010). Memorandum on Focused Joint Research Initiatives Instrument: Needs for a new European Research Area Instrument (in Transport). Brussels: DETRA project - CSA - FP7 - 266051.

EC. (2010). Simplifying the implementation of the research framework programmes. Brussels : Communication of the Commission COM(2010)187 final, April 29th, 2010.

EC. (2010b). Regulation of the European Parliament and of the Council on the Financial Regulation applicable to the general budget of the EU". Brussels: European Commission, COM(2010)260 final, May 28th, 2010.

EC. (2011). Green Paper. From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding. Brussels: Communication of the Commission COM(2011)48 final, February 9th, 2011.

ECTRI/TRB. (2009). EU-US Transport research collaboration. ECTRI and US/TRB (freely downloadable through their sites).

EUCAR. (2010). "The European Automotive Industry outlines its Priorities for Sustainable Transport in the Eighth Framework Programme". Brussels: EUCAR position paper.

EUCAR. (2010b). Review of the financial regulation. Brussels : EUCAR, report of 28th July 2010.

European Parliament. (2010). Report on simplifying the implementation of the research framework programmes (2010/2079 INI). European Parliament / rapporteur Maria da Graca Carvalho.

ITF. (2010). Transport & Innovation: unleashing the potential. Leipzig 26-28 May 2010 : ITF secretariat paper in the Conference with the same name.

Rodrigue, J-P., Comptois, Cl., Slack, B.. (2009). The geography of Transport systems. London: Routledge, Taylor & Francis.

Vinnova. (2009). Priority-setting in the European Research Framework Programmes. Stockholm : Swedish Innovation agency, Vinnova (freely downloadable through their site).