COOPERATION
7FRDP Specific Programme

ECTRI INPUT

14 June 2005

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This paper is complementary to ECTRI's previous « ECTRI 7FRDP input » paper (dated 12 November 2004) and its statement of 29 June 2004 regarding EC COM (2004) 353 final.

It is aimed at providing additional inputs to the preparation of the following specific programmes as planned in the EC 7FRDP proposal COM (2005) 119 final (6 April 2005).

- COOPERATION around mainly the 3 themes:

    o TRANSPORT
    o ICTs
    o ENERGY

The structure of the paper follows that of the final bullets of COM (2005) 119.
Since ECTRI as a whole or invidual ECTRI members or senior researchers of ECTRI members are involved in various European technology platforms (ERTRAC, ERRAC, WATERBORNE…) and their Working Groups, e-Safety Forum and its Working Groups, Forum Européen pour l'Europe et les Transports (FEET) and its Working Groups, and since ECTRI members have partnerships with many various stakeholders of surface transport research, this report is considered by ECTRI as its input to the drafting of the Strategic Research Recommendations for the most surface- transport- relevant ETPs (such as ERTRAC, ERRAC, WATERBORNE and the so-called e-safety or FEET). It also provides some input to similar documents of enabling European technology platforms on hydrogen and fuel cells, embedded systems, nano sciences and technologies with regards their eventual applications to surface transport.

It is one of a series of inputs for the 4 following 7FRDP specific programmes
- COOPERATION – ECTRI report 2005-02
- PEOPLE – ECTRI report 2005-03
- CAPACITIES – ECTRI report 2005-04
- IDEAS – ECTRI report 2005-05

I – General and thematic issues

Objective:
In this part of the 7th Framework Programme, support will be provided to trans-national co-operation at every scale across the European Union and beyond, in a number of thematic areas corresponding to major fields of the progress of knowledge and technology, where research must be supported and strengthened to address European social, economic, environmental and industrial challenges.

The overarching aim is to contribute to sustainable development.

These have been identified on the basis of their contribution to EU objectives, including the transition to a knowledge society, the relevant European research potential and the added value of EU level intervention for these subjects.

Pluridisciplinarity will be encouraged by joint cross-thematic approaches to research and technology subjects relevant to more than one theme.

In the case of subjects of industrial relevance in particular, the topics have been identified relying, among other sources, on the work of different "European Technology Platforms" set up in fields where Europe's competitiveness, economic growth and welfare depend on important research and technological progress in the medium to long term. European Technology Platforms bring together stakeholders, under industrial leadership, to define and implement a Strategic Research Agenda. This Framework Programme will contribute to the realisation of these Strategic Research Agendas where these present true European added value.

The nine themes also include research needed to underpin the formulation, implementation and assessment of EU policies, such as in the areas of health, safety, consumer protection, energy, the environment, development aid, fisheries, maritime affairs, agriculture, animal welfare, transport, education and training, employment, social affairs, cohesion, and justice and home affairs, along with pre-normative research relevant to improving the quality of standards and their implementation.

Source EC document COM (2005) 119 final

Emerging needs and unforeseen policy needs

ECTRI believes that the world evolution creates requirements:
- To <u>deepen transport-relevant policy research agendas</u> (transport, health, environment, energy, competitiveness, competition, information society) in the context of the existing White and Green papers.
- To <u>keep open all transport-relevant policy research agendas</u> because of:
  - o international agendas (the next Kyoto round, new WTO rounds, international transatlantic business agendas, the emergence worldwide of at least 2 new very networked and capable knowledge societies – India and China, new international environmental agendas, court judgements, or new laws interfering with adequate, ad hoc or appropriate scientific knowledge…).
  - o introduction or emergence of new technologies (safety and nanotechnologies…).

Coordination of non community research programme (EUREKA, COST, ERANET)

ECTRI agrees that there is a need through the existing European treaties for coordination of non Community research programmes (EUREKA, COST, ERANET).

For <u>COST,</u> if for whatever reason the ECTRI suggestions on the IDEAS Specific Programme could not be retained there should be a strong desire to have COST transport activities in this field.
To retain specific COST transport activities is also in line with the ERANET transport project and the transport priority of this COOPERATION Specific Programme.

For EUREKA it appears to ECTRI that:
- The dimension of economics-led cooperative projects could be the same as of EUREKA cooperative projects.
- The coordination between EUREKA clusters and FRDP cooperative projects clusters could be made through the agendas or the stakeholders of the Technology Platforms and on a budget availability basis taking into account the real timetable of competitiveness agendas.

For national or bilateral programmes, exchange of information is very important, not only on the research demand side but also on the research supply side.

International cooperation

The transport industry and the European transport system are facing research needs to <u>cooperate</u> or <u>compete</u> at international level.

But international cooperation and interfacing <u>has to be directly linked to European policy governance or competitiveness</u>.

That requires relevant Science and Technology EU agreement with many countries such as USA, Canada, China, India, other OECD non-European countries, Brazil, South Africa with specific IPR rules protecting the European interests.

That requires relevant Science and Technology, or Science and Technology parts, of new global EU agreements for acceding or neighbouring countries including WBCs and Mediterranean countries. <u>The international cooperation chapter has to include explicitly transport-relevant research issues</u>.

II – Thematic issues related to transport research

The following chapters are dealing with thematic issues related to transport research as in COM(2005) 119 Final i.e.

- Transport including aeronautics
- Information and Communication Technologies
- Energy
- Other relevant thematic priorities :
  - o Environment
  - o Nano sciences and technologies
  - o Security and space

They are relevant for the ECTRI and ECTRI members research agendas.

III – Theme transport including aeronautics

REMINDER

<u>**Objective:**</u>
Based on technological advances, develop integrated, "greener" and "smarter" pan-European transport systems for the benefit of the citizen and society, respecting the environment and natural resources; and securing and further developing the leading role attained by the European industries in the global market.

<u>Rationale:</u>
Transport is one of Europe's strengths – the air transport sector contributes to 2.6% of the EU GDP (with 3.1 million jobs) and the surface transport field generates 11% of the EU GDP (employing some 16 million persons). However, transport is responsible for 25% of all the EU emissions of CO_2 hence the absolute need for a "greening" of the system to ensure more sustainable transport patterns and compatibility with growth rates, as developed in the White Paper on "European Transport Policy for 2010: time to decide'".

The enlargement (increasing land surface by 25% and population by 20%) and economic development of the EU present new challenges for transporting people and goods efficiently, cost effectively and in a sustainable manner. Transport also has direct relevance on other major policies such as trade, competition, employment, cohesion, energy, security and the internal market. Investment in RTD in EU transport industries is a prerequisite to ensure technological competitive advantage in global markets. Activities at European level will also stimulate the restructuring of the industry, including the integration of the supply chain and in particular SMEs.

The research agendas developed by European Technology Platforms support the need to take a new "transport systems" perspective that considers the interactions of vehicles, transport networks and the use of transport services, which can only be developed at European level. RTD costs in all these fields are rising substantially, and collaborative activity at EU-level is essential to enable a "critical mass" of diverse RTD providers to address the scale and multi-disciplinary challenges in a cost-effective way, as well as meeting the political, technological and socio-economic challenges on issues such as the "clean and safe vehicle" of the future, interoperability and intermodality with particular reference to rail transport, affordability, safety, capacity, security and environmental impacts in a enlarged Union. Also, developing technologies in support of the Galileo system and its applications will be essential in implementing European policies.

As well as the strong industry relevance of the themes and activities set out below, the needs of policy makers will be addressed in an integrated way covering economic, social and environmental aspects of transport policy. In addition, support will be provided to respond to existing as well as new policy needs, for example relating to developments in maritime policy.

Source EC document COM (2005) 119 final

Surface transport

- **Greening of surface transport**

This issue concerns all the <u>European added value research requirements</u> linked to the aspects of <u>energy and the environment</u> that are connected to the existence and operation of transport systems.

In the <u>environment</u> field, in any case and in any specific policy agenda, <u>noise research</u> on both a modal and multimodal basis is of key importance. Corridors or big transport facilities such as dry or wet ports or airports, or big logistical facilities have to be considered. This research has to address the source and propagation, and perceptions, and consider autonomous (intercity) and integrated (within urban areas) aspects.

<u>Societal IPs - as well as industry-led IPs additional to those of 6FRDP</u> - need to be created: the European added value comes from the fact that the cost and scope of a full research cannot any longer be handled at national level, even by the main members states.

The <u>impact of transport on land use</u> and <u>the landscape</u> needs additional research. The European added value of STREPs or societal IPs is linked to the necessity to have a harmonized approach through the <u>TEN networks</u>. It is the same for water, soil and wetlands.

In the domain of <u>air pollution</u>, the main priority should be around, besides other air pollutants, <u>GHG and climate change</u>; local climate changes or local regional impacts are undeniable, and there is a <u>scientific competition on transport research issues</u> in every consensual or controversial global climate change debate.

ECTRI believes that this is very relevant to <u>energy research</u> and energy policy especially on energy security issues, but the various scientific programs that are in worldwide competition need to address the "Renaissance Knight Dilemma called the sword and dagger strategy" ie to have a strategy with a main stream effort and a protecting stream effort if Europe will not buy "on-the-shelf technologies". For example, <u>hybrid technologies</u> and <u>energy management</u> are the "dagger priority". <u>Advanced treated internal combustion diesel</u> engine and <u>fuel cell technologies</u> in the perspective of a hydrogen economy are the "sword" priority with different dates of utilisation in the future. This is applicable with various time horizons to cars, light trucks, trucks, bus, coaches, locomotives, and even to maritime or inland ships.

The "dagger priority" meets a European added value supporting the second priority and is relevant to the IP instrument; the "sword" priority needs a funding volume in excess of the capacity of each main manufacturer or the main member states. It could be carried out through <u>IPs linked to EUREKA projects</u> that are following the strategies of industry; this could lead to various excellent consortia at the same time on the same task.

Additionally the <u>advanced diesel engine for rail</u> could be a task covered by an IP.

For <u>fuel cells</u>, there is an added value at European level, if, as the US, Europe wants to be a fuel cell provider in the world economy, or to participate in international partnerships focusing on other key components of the fuel cell industry.

- **Encouraging modal shift and decongesting transport corridors**

It is clear that there is a specific need for <u>updated databases or models as a research or policy infrastructure</u>:
- Creation of a research or policy infrastructure around updated or new databases and/or free access models
- Creation of a scientific knowledge corpus (multi disciplinary, systemic and holistic) aimed at a customer or user and industrial and governmental end users
- Creation of other soft transport research infrastructures (libraries, networks…)

It is very important to recognise that even if databases or models are in many legal respects covered by intellectual property rules, there <u>is a strong requirement that such databases or models should be freely accessible, as is the case in North America,</u> otherwise there will be <u>barriers to scientific research</u>.

This is especially relevant for:
- transport system planning at any geographical level, and specially TENs
- transport and traffic flow forecasts or databases for planning, evaluation, and impact assessment of transport systems
- freight transport flow databases

This, like safety and security, also seems to be a <u>core area of interest</u>. It includes topics such as <u>pricing</u> for the use of infrastructure, proper pricing of transport services, (econometric) modelling, methods for the evaluation of economic policies in the field of transport (where the money goes and what are the real choices), pricing policies, etc. As mentioned previously, a most important topic is also the <u>"economics" of productivity, employment, and interaction between land use and the transport system</u>, as well as the <u>"economics of multi-modality"</u>, i.e. the investigation of the costs and prices for making multi-modal transport more competitive.

ECTRI believes that <u>transport economics in itself has to be revisited</u> in line with the evolution of planning methods, charging, tolling, and transport operations, and also in relation to other transport related issues such as the environment, energy or land use trends, or because that is the locus of convergence of various sub disciplines of economic sciences such as service economics, industry and manufacturing economics, financial service economics as well as infrastructure economics and network economics.

This is true of deregulation or new organisation required by statute, that needs a <u>revisitation of concepts</u> of, for instance, natural industrial monopolies, essential infrastructures, and social marginal cost charging, to introduce transactional costs linked to the new organisational structures, and also to address economic barriers to market entrance, and to enable a fair system of access to the infrastructure network.

This is true because of <u>competitive supervision of services</u>, and also through <u>private-public or public-public partnerships</u> providing or funding universal or advanced services. It is true also that transport economics have to address not only <u>efficiency,</u> but also <u>accessibility to transport</u> services, and <u>charging</u> with an equitable distribution financial system. This is true because of the various stakeholders (and their roles) of the transport system or markets: regulatory authority, societal demand, service providers, and infrastructure service operators.

This leads ECTRI to propose the following package of issues, to enhance and revisit the international interfaced European excellence in transport economics.

First, there are requirements for a <u>European wide "soft transport research infrastructure"</u> even if some are addressing issues covered by subsidiarity, European transport research has to address the needs of all European governments (EU, State members, Acceding Countries, regional and local governments). First of all, a <u>large data base on transport economics projects and results is of relevance</u>.

A second regularly <u>updated database, freely accessible,</u> regarding the <u>flow of goods</u> within the European internal market, including international flows, should be created for data mining, econometrics,…, This should address all shipping allotments (from parcels to containers, full load and part load) to rail or vessel bulk load. The aim of this database should be, through a harmonized approach, to cover all logistic and transport related issues to be data mined through surveys or researches. In the domain of <u>person mobility</u>, there are requirements for of such a database for <u>intercity passengers, rural and urban mobility and intermodality</u>. Third, a European-level <u>virtual library on transport economics,</u> with physical access and an electronic

interactive environment dedicated to database access, is; Europe has to catch up with fill the <u>American concept of a network of transport libraries</u>.

Secondly, on the thematic side and because of the increasing importance of transport economics sciences and scientists, it would be efficient for STERA to create <u>networks of excellence</u> dealing with new transport economics based on state-of-the-art reports (ECMT, ECTRI). These could be:
- focused on a group of disciplines;
- focused on urban mobility economics, intercity mobility economics, goods transport and logistics economics;
- focussed on charging, tolling and financing transport services or transport infrastructure services.

• **Ensuring sustainable urban mobility**

ECTRI thinks that 5 main issues have to be treated and <u>concerning all urban transport modes for passenger or goods</u> with a <u>specific issue on public transport</u>.
- **Improving mobility in urban/periurban areas**
  - More comprehensive mode choice models
  - Impact evaluation of urban transport services and urban transport improvements on mobility
  - Transport Network optimization (all modes in a multimodal or intermodal manner
  - Optimization of the interchanges including parking
  - Impact of awareness campaigns and alternative marketing ways
- **Economics, regulatory and institutional aspects**
  - Land value capture: how to evaluate, capture and invest it in urban transport
  - Investigation of alternative funding financing schemes towards reducing urban congestion and enhancing more friendly urban transport
  - Opening up of public transport markets
  - Impact of parking policies on mobility systems
- **Land use**
  - Interactions between land use, traffic and urban transport networks
  - Analysis of the cost of urban sprawl and of external framework (traffic priority, city centre parking, road pricing…) in relation to urban transport.
- **Social aspects**
  - Safety and security of the mobility system
  - Impact of public transport on social equity
- **Design and technology of innovative urban public transport**
  - Energy and environmental issues
  - Bus system improvement
  - Urban rail improvement
- **Information and communication technologies**
  - Evaluation of existing information system technology and centres
  - Dynamic mobile information
  - Implementation of information and communication technologies inside interchanges

- **Improving safety and security**

Here, there is a core area of research in almost all ECTRI members since there is a common view that a lot more attention must be paid to <u>both technological, behavioural and societal issues</u>. These include <u>vehicle design and infrastructure safety</u> issues but also issues related to <u>user or driver</u> (pilot…) behaviour or fatigue and <u>complex societal questions</u> related to the <u>introduction of large socio-technical systems in societies</u> in different phases of economic and demographic development.
These research issues are relevant <u>for all modes and for multimodal systems.</u>
<u>Electromagnetic compatibility</u> is a key issue for all aspects of traffic transport safety and security. There is a need for multi-stakeholder IPs between industry and safety authorities.
Safety and security concepts need to be revisited to take account of the introduction of <u>advanced technologies</u> such as micro and nano technologies, satellite based technologies, and the embedding of NTIC in an integrated approach. This could be done through various IPs or STREPs or NoEs addressing various modal or multimodal transport systems or vehicles.
<u>Multimodality and Intermodality</u> is a key concern for transport safety and security; there are requirements for teams of excellence, networks of excellence and, obviously, IPs led by safety or security authorities.
On a modal basis there are some additional specific research needs to be addressed, in line with the following priorities.

Road safety research:
- New research linking <u>health</u> concerns and road safety is strategic at an international level; it could be done through teams of excellence or NoE.
- New <u>in-depth accident analysis</u> harmonised at European level (eventually internationally) points to a requirement that for a framework of new informative statistics. This could be achieved by a societal IP that ultimately involves industry.
- <u>Behavioural or fatigue and HMI research</u> needs to continue.
- The crucial issue of an <u>aging society</u> on the move (see OECD report) has to be addressed through societal IPs or STREPs as also vulnerable users.
- The whole <u>international agenda of IHRA</u> for the years 2006-2010 has to be solved through societal or industrial IPs. (Biomechanics, virtual testing, motorcycle, compatibility, roll over…)
- Post crash system
- Vehicle technology
- Fuel safety

Rail (and public transport) safety research:
- All <u>the needs linked to the implementation of National and European Safety Agencies</u>, directives or rules have to be addressed, preferably with open access to results. This could be an idea for a European Technological Initiative or large IPs involving industry, safety and regulatory authorities.
- The second main concern concerns the <u>stability of rail safety expertise</u>, linked to 2 significant trends:
  o Retirement of professional experts (mainly, but not only, belonging to historical operators) who have an excellent know-how of tests and trials.
  o The trend to have more and more scientific based knowledge rather than professional knowledge of safety rules or requirements; the need to train new scientists or professionals educated through the sciences (observation, experiment, theory)

o This requires a very strong <u>NoE in rail safety research</u>, and a <u>NoE in transit safety research</u>, to address the historic fragmentation of research arising from the trend to go from "national blocks" to a European or international market addressing a real European rail or transit system.

Waterway and maritime safety and security:
There are needs to cope with the building of European scientific knowledge as an input to new international (both multilateral and otherwise) rules arising for vessel design and construction, vessel operation, traffic management services including emergency services, and containers. This could be done through industry led IPs or STREPs.

- **Strengthening competitiveness**

ECTRI is very favourable to the governance of research for international economic competitiveness in the field of the surface transport through the development of <u>technology platforms</u>.
This instrument must have an objective of direct economic competitiveness of industries and/or linked services and of putting altogether all stakeholders.
Besides the <u>enabling Technology Platforms</u> such as HFC (Hydrogen and Fuel Cell Platform) embedded systems, nanotechnologies, there are three official ETP that are <u>relevant to surface transport research ERTRAC, ERRAC and WATERBORNE</u> <u>and</u> one pseudo platform that is <u>E-safety forum</u>.
ECTRI or ECTRI members or ECTRI seniors participate to these 4 organisations and support their SRAs. Nevertheless ECTRI is raising the question of having a sort of research governance umbrella to solve any common issues aiming at <u>surface transport systems</u> or <u>its interfacing to air transport</u>.
Research directly aimed at this sectorial competitiveness (policies of technical regulation, standardization, industrial policy, etc), like research relating to the general structure of transport governance (public policies relating to transport, energy, safety/security, environment, health, ...), like research addressing full economic competitiveness (transport relates to all economic and societal activities), and like research on transport-related societal development (ageing, handicap, environment...) require the <u>preservation of a governance</u> close to the last FRDPs through collaborative focussed research.
Even under the strongest hypothesis for modal transfer, road will remain the predominant mode for the transport of goods. There is a need for an initiative around the <u>truck of the future</u>.
In the same vein, there can be also an initiative <u>on innovative urban transport</u> (bus, coach and metro and tram).

- **Other main issues**

We can insist on the fact that some initiatives for research can be carried out and interacting the various above points:
  - <u>The impact of demographical trends</u>, including an ageing society, on the transport systems.
    However, the development of technology platforms does not address all the problems facing the international economic competitiveness of surface transport.

  - <u>Systems and organization of transport</u> (intermodality, safety, durability, reliability ...)
  - <u>Impact of new technologies</u> (NTIC, nanotechnologies, power electronics ...)
  - <u>Peri-normative or peri-regulatory,</u> with their systemic, multidisciplinary or interdisciplinary nature.

Support to the European global satellite navigation system (Galileo)

ECTRI believes that if we need to have a good successful Lisbon Agenda with regards the Galileo system, we have <u>to separate the research needs for the Galileo system itself from the research needs for the tools, devices, systems and services applicable to the transport sector</u> in determining the research agenda.

If this is not the case, there could be no possibilities for SMEs to enter the market, and few possibilities for research organisations spin-offs.

The success of GPS came from this splitting of responsibilities and involvement of SMEs or spin-offs (even big companies from the military industrial sector were involved in both sides).

Aeronautics and air-transport

Some ECTRI members are dealing with aeronautics and air transport, but the only issue raised by ECTRI as such on this sub thematic that should be covered by the ACARE idea of JTI is to have research about <u>interfacing with surface transport and the inclusion of all transport system.</u>

IV – Information and Communication Technologies (ICTs)

Objective:
To enable Europe to master and shape the future developments of Information and Communication Technologies (ICT) so that the demands of its society and economy are met. Activities will strengthen Europe's scientific and technology base in ICT, help drive and stimulate innovation through ICT use and ensure that ICT progress is rapidly transformed in benefits for Europe's citizens, businesses, industry and governments.

Rationale:
Information and Communication Technologies are critical to Europe's future and underpin the realisation of the Lisbon agenda. Half of the productivity gains in our economics are explained by the impact of ICT on products, services and business processes. ICT is the leading factor in boosting innovation and creativity and in mastering change in value chains across industry and service sectors. ICT is essential to meet the rise in demand for health and social care and to modernise services in domains of public interest such as education, learning, security, transport and the environment. And ICT is catalytic in the advance of other fields of science and technology as it transforms the way researchers conduct their research, co-operate and innovate.

The escalating economic and societal demands, together with the continued mainstreaming of ICT and the need to push further the technology limits set a growing agenda for research. To bring technology closer to people and organisational needs means: hiding technology complexity and revealing functionality on demand; making technology very simple to use, available and affordable; providing new ICT-based applications, solutions and services that are trusted, reliable, and adaptable to the users' context and preferences. Driven by the demand of more-for-less, ICT researchers are involved in a global race to achieve further miniaturisation, to master the convergence of computing, communications and media technologies, and the convergence with other relevant sciences and disciplines, and to build systems that are able to learn and evolve. From these diverse efforts a new wave of technologies is emerging. ICT research activities will also draw on a broader range of scientific and technological disciplines including bio- and life sciences, psychology, pedagogy, cognitive and social sciences.

ICT is one of the most research intensive sectors. The ICT research effort, public and private, represents a third of the total research effort in all major economies. Although Europe already enjoys industrial and technological leadership in key ICT fields it lags in investing in ICT research behind its major competitors. Only through a renewed and more intensive pooling of

the effort at European level will we be able to make the most of the opportunities that progress in ICT can offer.

The ICT research activities will be closely articulated with policy actions for ICT deployment and with regulatory measures within a comprehensive and holistic strategy. Priorities have been set following extensive consultations including input from a series of European Technology Platforms and industrial initiatives in areas such as nano-electronics, embedded systems, mobile communications, electronic media, robotics and software, services and Grid.

Source EC document COM (2005) 119 final

ICT technology pillars

Mainly of all the <u>ICT technology pillars could support surface transport issues or surface transport research issues</u>. As such:

- nano,

- embedded,

- ubiquitous networks,

- softwares,

- grids,

- security and dependability knowledge,

- cognitive and learning systems,

- simulation, visualisation and mixed realities

are of main interest as <u>new frontier technologies for transport research</u> and they are particularly relevant for <u>four types of applications</u> :

- new method of processing and designing transport products and transport services,
- embedded technologies within transport or transport vehicle subsystems or components,
- new governance way of presenting, handling or carrying out complex situations or systems as transport systems are,
- training and educating of drivers and pilots.

ECTRI particularly supports the <u>idea of JTIs on nano and embedded softwares.</u>

Integration of technologies

Transport by its very nature integrates technologies and particularly ICTs.

In this perspective around:
- Personal environments,
- Robotic systems,
- Intelligent infrastructure,

ECTRI is raising the question through architectural choice and HMI design of the need to structure (NoE) the research supply side of:
- o Human Machine Interaction (H.M.I.)
- o Electro-magnetic compatibility (E.M.C.)
- o Risk assessment

both in case of existing ICTs and of the next generation of ICTs.

Application research

There are many issues that could be of relevance to transport field: health, environment, government, new media, learning, digital, cultural resources and assets, cooperative business, manufacturing, trust and confidence. The purpose of ECTRI is to point out specifically the 2 issues: mobility and inclusion.

- **Mobility**

There is a need to deepen the e-safety initiative research agenda for road through both cooperative projects and NoEs on:
- cooperative vehicle infrastructure systems
- new algorithms and concepts for advanced control strategies
- accident analysis
- H.M.I., E.M.C.
- intelligent heavy goods vehicles
- frequency allocation research

There is a need to expand research to cover all ITS issues (all modes and intermodal including positioning technologies) both by cooperation projects and/or NoEs on:
- advanced control strategies
- travel information services
- traffic management services
- new low cost ERTMS
- intelligent innovative public transport
- new low cost UGTMS
- cost benefit analysis of their systems and services
- Human Machine Interaction
- Electromagnetic Compatibility
- Transport tailored services using satellite technologies (positioning and communication)
- Frequency allocation research

- **Inclusion**

ECTRI supports the planned activities because of their particular relevance for transport related research:

Study of inclusion issues is a necessary horizontal activity in all research actions (as currently are ethical and gender issues), to avoid the creation of new barriers to elderly and disabled people as well as other groups (ethnic minorities, illiterate, PC illiterate, etc.) from emerging technologies and organisations.

ECTRI is also interested by the subject of Ambient Assisted Living.

Future and emerging technologies

The future and emerging technologies could be relevant as frontier technology to transport issues and can support also the embedment of such ICT transport research issues addressed previously.

ECTRI is raising the 3 following points:

- In this case, because of the novelty of the future and emerging technologies and their potential impact on safety, there is a requirement for a restructuring of the research supply side (NoE):
  - o E.M.C. and/or risk assessment
  - o H.M.I.
- There is a need to prepare through the next generation of ICT-based intelligent transport services research relating to new safety, control and command strategies.
- There is a need also in any case for a research agenda and infrastructure to deal with conformity to standards and rules or best practices or principles for products or services and their testing or certification, both from the producer side and from the public governance side if required.

V – ENERGY

REMINDER

<u>Objective:</u>
Transforming the current fossil-fuel based energy system into a more sustainable one based on a diverse portfolio of energy sources and carriers combined with enhanced energy efficiency, to address the pressing challenges of security of supply and climate change, whilst increasing the competitiveness of Europe's energy industries.

<u>Rationale:</u>
Energy systems are confronted with major challenges. The urgency to develop adequate and timely solutions is justified by the alarming trends in global energy demand (predicted to rise by 60% in the next 30 years), the need to curb dramatically emissions of greenhouse gases to mitigate the devastating consequences of climate change, the damaging volatility of oil prices (in particular for the transport sector which is heavily oil dependant) and geopolitical instability in suppliers regions. Research and demonstration are needed to provide the most environmentally and cost-effective technologies and measures enabling the EU to meet its targets under the Kyoto Protocol and beyond and to implement its energy policy commitments, as described in the 2000 Green Paper on the security of energy supply.

Europe has developed world leadership in a number of energy technologies. It is the pioneer in modern renewable energy technologies, such as bio-energy and wind energy. The EU is also a global competitor in power generation and distribution technologies and has a strong research capability in the area of carbon capture and sequestration. These positions, however, are under severe threat from competition (in particular fro the US and Japan).

Radically transforming the energy system requires new technologies with risks that are too high and the benefits too uncertain for private firms to provide all the investment needed for research, development, demonstration and deployment. Public support should therefore play a key role in mobilising private investment and European efforts and resources should be combined in a coherent and more effective manner, to compete with economies that are investing heavily and consistently in similar technologies. European Technology Platforms play a vital role in this regard, by mobilising the necessary research effort in a coordinated manner. The activities to meet the objective are set out below. A specific activity on knowledge for energy policy making is included which may also provide support to new policy need that emerge, for example relating to the role of European energy policy in the developments of international climate change actions, and instabilities or disruptions in energy supply and price.

Source EC document COM (2005) 119 final

ECTRI will focus only on 3 issues: Hydrogen and Fuel cells, Energy efficiency and savings Knowledge for energy policy making but does not forget that there are other issues: renewal electricity generation, renewal fuel production, renewal for heating and cooling, CO_2 capture and storage technologies for zero emission power generation, clean coal technologies, smart energy networks.

Hydrogen and fuel cells

ECTRI supports the transport application aspects of the HFC European Technology Platform research agenda, as preparation of an eventual alternative in the next Kyoto round.

Energy efficiency and savings

In this area, transport has to be concerned about optimisation and management of energy systems of vehicles, transport components and transport systems (modal, multimodal and intermodal).

There are needs for cooperation projects both industry and/or society led.

Knowledge for energy policy making

The international preparation of the next Kyoto round needs to develop a European research agenda on CO2 emissions, and/or CO2 alternatives within transport systems and the economy.

A first suggestion is to have a NoE on indicators on the real sustainability of transport in the perspective of Kyoto II.

VI – Other relevant thematic priorities

Here are the other thematic priorities that are also related to transport research.

Environment

Transport is a significant contributor to the environment agenda, but for the last FRDP environmental research did not figure greatly, even in the case of former priority 8.1 (policy relevant research) in the area of transport.

There are needs for:
- noise control and exposure at modal and multimodal levels (see 'Greening of surface transport' above)
- establishment of an established life cycle approach
- international pollutants agenda
- international preparation for the next Kyoto round (see Energy)

Nanosciences and technologies

ECTRI recommends that there should be a NoE dealing with safety and technologies within transport area at least by modes.

ECTRI also support the idea of a JTI and wish that there is an application part concerning transports.

The actions on manufacturing systems should also be developed.

ECTRI recommends that there should be a NoE dealing with safety and technologies within transport area at least by modes.

Security and space

Except for the case of transport applications of navigation on telecommunication satellites (Galileo), ECTRI is not dealing with this specific thematic of security but some ECTRI members are involved in and there is an interest to interface with surface transport research.