Transport research priorities setting up and funding in Europe

A governance change

Jean Pierre MEDEVIELLE

Some historical reminding for surface transport research

After second World War II

- 1944/1955 - Rebuilding infrastructure and Iron Curtain
- 1960/1970 - Role of Intergovernmental cooperation OECD, ECMT, COST, NATO civilian research programs for the West, and role of COMECOM for the East
- 1980/1985 - Setting up through the European Treaties of European transport policy and research policy
- 1989 - Berlin Wall Fall, Maastricht Treaties and beginning of European reunification and appearance of transport research at EC/EU level

1944/1955 - Rebuilding infrastructure and Iron Curtain

- Road research laboratories
- Integrated rail research to historical operators
- National waterways and harbors technical centers

1960/1970 - Role of Intergovernmental cooperation OECD, ECMT, COST, NATO civilian research programs for the West, and role of COMECOM for the East

- Road and road transport research program OECD
- Road safety vehicle
- Transport economics research ECMT
- Road vehicle technical research requirements COMECOM
- Road research COMECOM
- Creation of transport research lab
- COST transport domain

1980/1985 - Setting up through the European Treaties of transport policy and research policy

- Appearance of transport related research EC level 1988
- Setting up of transport related research at national level 1982 – 1992
- Universities enter the field of transport research

1989 - Berlin Wall Fall, Maastricht Treaties and beginning of European reunification and appearance of transport research at EC/EU level

- Involvement of all Europe in FRDPs on transport related research (transport policy, all related policies ENV, ENE, …) industry relevance, safety authorities, … academic)
- Creation of national clusters in academia and RTO
- Development in all countries of transport research programs

New drivers for surface transport related research

- The so called Lisbon Agenda
- The European Research Area and STERA
- The Barcelona Agenda
- The role of stakeholders
- The new public budgets processes (EU, MS, Regional authorities)

The so called Lisbon Agenda

- Europe knowledge society through a European Research and innovation Area

The European Research Area and STERA

European Research Area

3 concepts

- the creation of an "internal market" in research (free movement of knowledge, researchers and technology)
- the restructuring of the European research fabric (improved coordination of national research activities and policies)
- the development of a European research policy (taking into account other EU and national policies)

STERA = Surface Transport European Research Area – See ECTRI Strategic Paper as example of contribution by a European Trade Association positioning ECTRI and its members in STERA

The Barcelona Agenda

EU target of 3 % GDP

The two main problems are :

- For the smaller countries with less than 2 % GDP
- For the biggest countries with less than 3 % GDP
- => need for strong national policies besides EC policy

The role of stakeholders

- Academia and RTOs
- Industry (OEMs, suppliers, operators, infra operators)
- Public bodies and agencies (safety, regulatory, ..)
- Society
- Funders

The new public budgets processes (EU, MS, Regional authorities)

- Mission oriented
- Project oriented

Two methods

- The EC “coordination”
- The OMC method

The EC “coordination”

- ERANET and ERANET +
- European Technology Platforms
- Networks of Excellence (NoE)
- Articles 169 - 171

ERANET and ERANET +

- Coordination of research programs through coordination of public funders
- ERANET transport, ERANET road, …

European Technology Platforms

- ERTRAC, ERRAC, WATERBORNE, ARTEMIS, NANIAC, H2FC, BIOFUELS, MANUFACTURING…
- Interaction between all stakeholders around strategic research agenda setting up

Networks of Excellence (NoE)

- Coordination integration of supply side of research HUMANIST, APSN, EURNEX, …
- Trial and test of new governance and management concept relevant to institutions, scientists and young scientists
- Trial and test of efficiency and productivity of knowledge production through process oriented activities
- Preparation of the next generation of scientists (for academia but other stakeholders also)

The OMC method

Concept created by OECD and used by EU

- Reconsidering national and European research and innovation systems
- Reconsidering governance of the demand and supply side
- Reconsidering 2007 the ERA content

Reconsidering national and European research and innovation systems

- => EU (EC + MS) transport related research and innovation is one of the domain but integrated to all the S & T domains (no more separation)
- One triangle : Research Innovation Education

Reconsidering governance of the demand and supply side

- Creation of national funding agencies
- Stimulation of funding by foundations
- Stimulation of private funding by industry and banking and VC industry
- Capture the excellence and the relevance for every type of stakeholders putting economy and sustainability as key concepts
- Stimulation of the interaction between stakeholders

Reconsidering governance of the demand and supply side

- Stimulation of the excellence and relevance of the supply side (education, research)
- Appearance of two new concepts ad hoc for the KS focused and frontier research
- Another triangle
  - Regional and local anchorage
  - National and European integration
  - International excellence and relevance

Reconsidering 2007 the ERA content

EC Green paper – 4 April 2007 – COM(2007)161 final

New ERA vision

ERA being reality

- Scientific staff Common Market
- World class research infrastructure
- Research entities (incl. Universities) strengthening
- Knowledge sharing and transfer
- Research programs and priorities optimization
- ERA global openness and international cooperation

The new How

- New research funding agencies
- The technological platforms and JTIs
- The creation of clusters
- The structuration of research supplying side

New research funding agencies

- All domain, no specific domain
- Aimed at stakeholders, industry, academia, …

The technological platforms

- EU, National platforms (Predit, Möbilität, ...)
- JTIs

The creation of clusters

(even in Eastern countries and smaller European countries)

- Scientific clusters

  Supply side of education and research (Universities, Higher Education and RTOs)

  - *Poles of excellence, scientific research and education pole (FR), …*
  - *NoE, advanced thematic research networks (FR)*
  - *Engineering research national network (UK)*
  - *Elite universities (UK, DE, …), EIT (EC)*

The creation of clusters

(even in Eastern countries and smaller European countries)

- Competitiveness clusters

  Aimed at the interaction between academia (and RTOs) and industry

  - *Pôles de compétitivité (FR, BE, NL, PL, …)*
  - *Competitiveness clusters (SE, …)*
  - *Excellenz Net (DE, AT, …)*

- Scientific parks, technical poles

  FR, DE, UK, SE, ES, …

The structuration of research supplying side

- Scientific clusters aimed at excellence
- Incentives for focused research (FHG and VTT models… Carnot, …
- Incentives for frontier research (ERC, ad hoc scheme from national agencies)
- Incentives for SMEs and spin offs

Coming back to surface transport

Here are some examples concerning surface transport related research

- Research priorities
- Funding
- How to deal with for an academia (Universities or RTO – National transport research institutes

Research priorities

- Transport and surface transport are newly recognized as a scientific domain in OECD Frascati revised Manual (02 2007)
- FRDP transport related research (see detail after)
- COST transport and urban development domains
- National and bilateral or ERANET calls (see detail after)
- Regional (or Länder) calls or programs or clusters for transport research

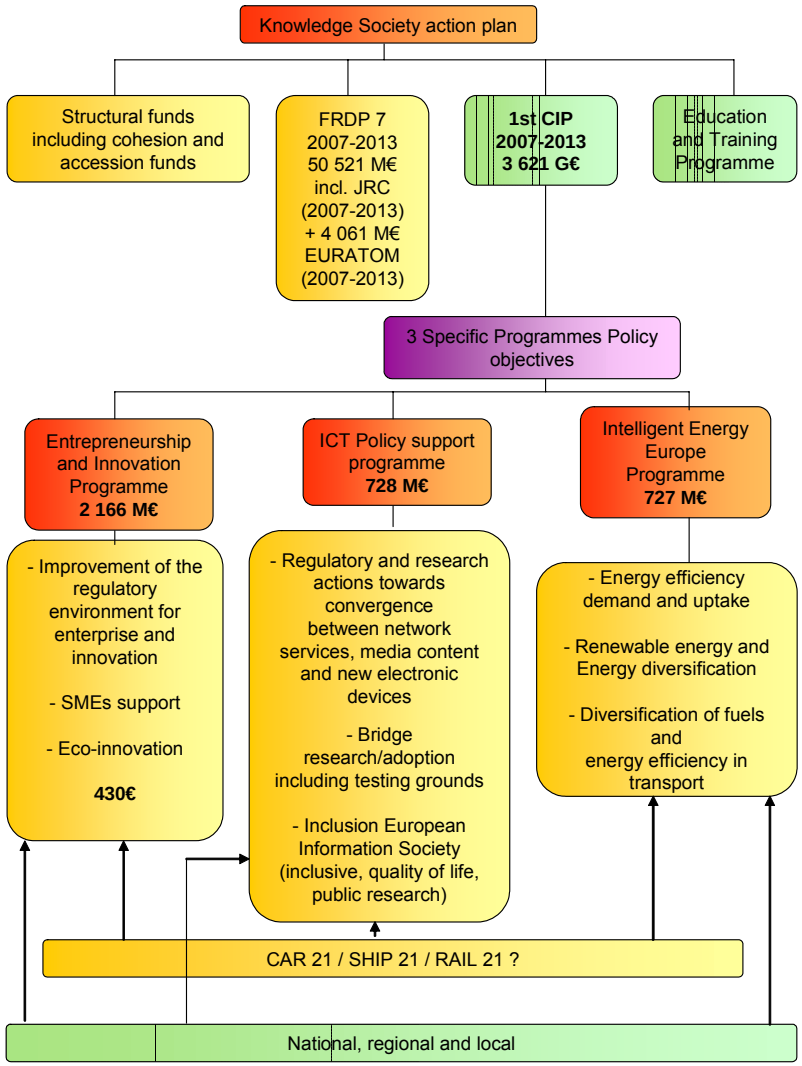
Funding

- FRDP
- COST + OECD-ECMT-ITF
- EUREKA
- ERANET and ERANET +
- Bilateral programs
- National programs and new funding agencies
- Regional or local programs and new funding agencies
  (except for the smallest countries when NUTS1 = NUTS2)
- Private foundations

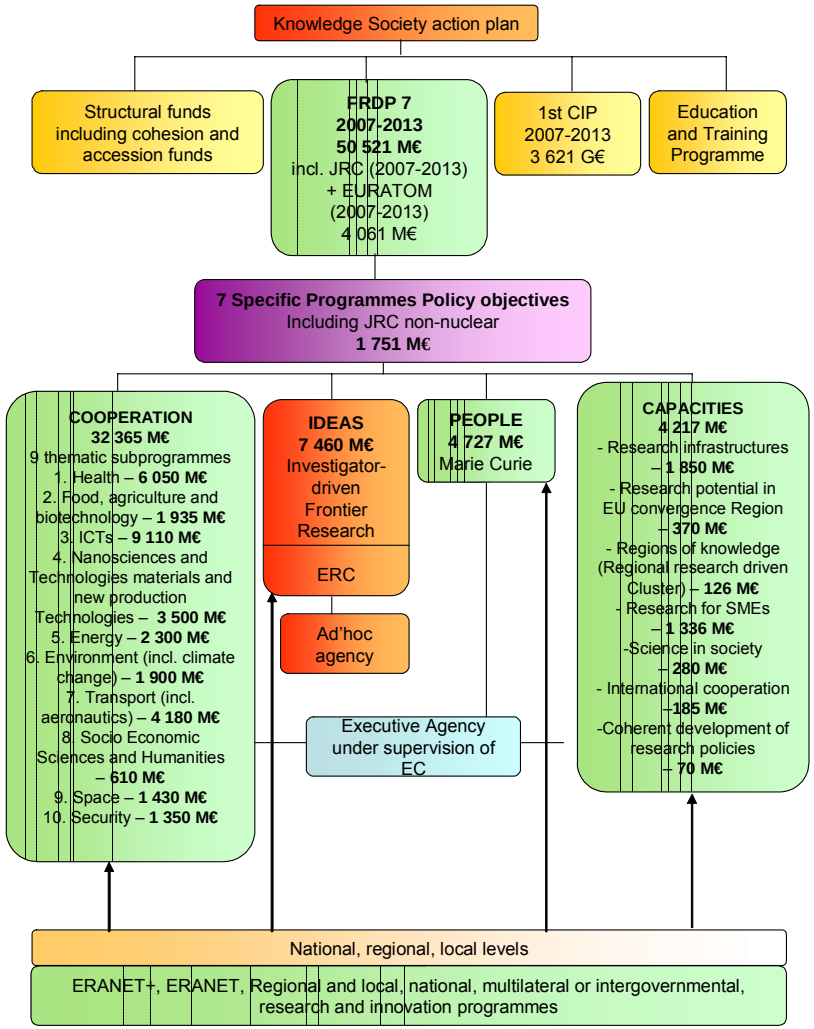
How to deal with for an academia (Universities or RTO – transport research institutes

- Project culture development
- Development of scientific excellence ("focused" and "frontier – pre focused" research)
- Creation of tools and instruments to cope with advanced research governance and management to support scientists in their projects (and contracts)

Research and Innovation



7 FRDP


Knowledge Society action plan
Structural funds including cohesion and accession funds
FRDP 7 2007-2013 50 521 M€ incl. JRC (2007-2013) + EURATOM (2007-2013) 4 061 M€
1st CIP 2007-2013 3 621 G€
Education and Training Programme
7 Specific Programmes Policy objectives Including JRC non-nuclear 1 751 M€
COOPERATION 32 365 M€ 9 thematic subprogrammes 1. Health – 6 050 M€ 2. Food, agriculture and biotechnology – 1 935 M€ 3. ICTs – 9 110 M€ 4. Nanosciences and Technologies materials and new production Technologies – 3 500 M€ 5. Energy – 2 300 M€ 6. Environment (incl. climate change) – 1 900 M€ 7. Transport (incl. aeronautics) – 4 180 M€ 8. Socio Economic Sciences and Humanities – 610 M€ 9. Space – 1 430 M€ 10. Security – 1 350 M€
IDEAS 7 460 M€ Investigator-driven Frontier Research
ERC
Ad'hoc agency
PEOPLE 4 727 M€ Marie Curie
CAPACITIES 4 217 M€ - Research infrastructures – 1 850 M€ - Research potential in EU convergence Region – 370 M€ - Regions of knowledge (Regional research driven Cluster) – 126 M€ - Research for SMEs – 1 336 M€ -Science in society – 280 M€ - International cooperation –185 M€ -Coherent development of research policies – 70 M€
Executive Agency under supervision of EC
National, regional, local levels
ERANET+, ERANET, Regional and local, national, multilateral or intergovernmental, research and innovation programmes

ERC

Ideas Specific Program

- **Two streams of activity:**
  1. **ERC Starting Independent Researcher Grant scheme (ERC Starting Grant)**
     → Call for proposals to be published in early 2007
  2. **ERC Advanced Investigator Researcher Grant scheme (ERC Advanced Grant)**
     → Call for proposals at a later stage

ERC

ERC Grants Strategic principles

- **All fields of science and scholarship are eligible**
  - investigator-driven, bottom-up
- **Excellence is the only valid criterion**
  - individual team + research project
- **Independent individual teams in Europe**
  - nationality of researchers is not relevant
  - host organization to be located in MS or AS
- **Investment in research talent**
  - Attractive, flexible grants, up to five years
  - under control of the Principal Investigator (PI)

Marie Curie Actions

- **Initial training**
- **Initial Training Networks**
- **Life-long training and career development**

  Intra-European Fellowships / European Reintegration Grants

  Co-funding of regional/national/international programs
- **Industry dimension**

  Industry-Academia Partnerships and Pathways
- **International dimension**

  Outgoing & Incoming International Fellowships; International Cooperation Scheme; International Reintegration grants; Support to researcher ‘diasporas’
- **Specific actions**

  Mobility and career enhancement actions; Excellence awards
- **Specific actions**

  Mobility and career enhancement actions; Excellence awards

Marie Curie Actions

Objectives

- Strengthen and structure Initial Training of Researchers at European level
- Attract students to scientific careers
- Improve career perspectives by broad skills development (including private sector needs)
- Directed at early-stage researchers

Marie Curie Actions

Main features

- International network of participants
- Industry involvement
- Joint Training Program:
  - (i) training through research
  - (ii) complementary competences modules
- Mutual recognition of training/diplomas
- Four years contracts

Capacities

Research Infrastructures	***1 715 M€***
Research for the benefit of SMEs	***1 336 M€***
Regions of Knowledge	***126 M€***
Research Potential	***340 M€***
Science in Society	***330 M€***
Coherent Development of Policies	***70 M€***
International Cooperation	***180 M€***

Capacities

Research Infrastructures

- Optimizing the use and development of the best **existing** research infrastructures in Europe
- Helping to create in all fields of S & T **new** research infrastructures of pan-European interest needed by the European scientific community
- Supporting program implementation and policy development (e.g. international cooperation)

Capacities

Two lines of action…

… but NO funding of research

- **"Regions of Knowledge"** 8 M€ in 2007
  - for ALL European regions
  - to encourage and support the development of « regional research driven clusters »
- **"Research Potential"** 25 + 8 M€ (Balkans) in 2007
  - for Convergence & Outermost regions
  - to unlock and develop their research potential
  - to help researchers to successfully participate in research activities at EU level
  - specific actions for WBC

Cooperation

The Cooperation specific program – 10 themes and budget

		M€
1.	Health	6 100
2.	Biotechnology, food and agriculture	1 935
3.	Information and communication technologies	9 050
4.	Nanotechnologies, materials and production	3 475
5.	Energy	2 350
6.	Environment (incl. climate change)	1 890
7.	Transport (incl. aeronautics)	4 160
8.	Socio-economic sciences and the humanities	623
9.	Security	1 430
10.	Space	1 400
	Total	**32 413**

Cooperation

Information and Communication Technologies

- ICT Technology Pillars
- Integration of Technologies
- Applications Research
- Future and Emerging Technologies

1019 M€

(ICT-1)

8 May

Cooperation

Information and Communication Technologies

- ICT Technology Pillars
- Integration of Technologies
- Applications Research
- Future and Emerging Technologies

1019 M€

(ICT-1)

8 May

Cooperation

Energy

- Renewables, clean energy, C02 emissions, efficiency, etc.
- Nuclear fission and radiation protection (under Euratom FP)
- Fusion energy research (under Euratom FP)

109 M€

RTD

3 May

Cooperation

Environment (inc. climate change)

- Climate change, pollution and risks
- Sustainable management of resources
- Environmental technologies
- Earth observation and assessment tools

200 M€

2 May

Cooperation

Transport (inc. aeronautics)

- Aeronautics and air transport
- Surface transport (rail, road and waterborne)
- Support to the European global satellite navigation system (Galileo)

Various budgets

Total: 229 M€

3 May

Cooperation

Socio-Economic Sciences and the Humanities

- Growth, employment and competitiveness in a knowledge society
- Combining economic, social and environmental objectives in a European perspective
- Major trends in society and their implications
- Europe in the world
- The citizen in the European Union
- Socio-economic and scientific indicators
- Foresight activities

58.5 M€

10 May, 29 November

Cooperation

Space

- Space-based applications at the service of the European society
- Exploration of space
- RTD for strengthening space foundations

34.5 M€

19 June

Cooperation

Security

- Protection against terrorism and crime
- Security of infrastructures and utilities
- Border security
- Restoring security in case of crisis
- Security systems integration and interoperability
- Security and society
- Security research Coordination and structuring

80.3 M€

31 May

TRANSPORT RESEARCH (with strong elements of policy/applied research)
FP7 AND OTHER EUROPEAN PROGRAMMES
CALL ROADMAP 2007

SEVENTH	FRAMEWORK	PROGRAMME													
Priority	**Area**	**Call** **Indicative budget**	**Dec 2006**	**Jan 2007**	**Feb 2007**	**March 2007**	**April 2007**	**May 2007**	**June 2007**	**July 2007**	**Aug 2007**	**Sept 2007**	**Oct 2007**	**Nov 2007**	**Dec 2007**
Transport	**Surface Transport (policy)** 1. Greening of surface transport 2. Modal shift & decongesting 3. Safety & Security 4. Competitiveness 5. Sustainable urban mobility 6. Cross-cutting	**FP7-SST-2007-TREN-1** Budget **€M 60** **All except CIVITAS**: **CIVITAS**	Open: 22 Dec Open: 22 Dec	Open Open	Open Open	Open Open	Open Open	Closes: **3 May** Open	Closes: **28 June**						
Transport	**Surface Transport (technology)** 1. Greening of Surface Transport 2. Modal shift & decongesting 3. Sustainable urban mobility 4. Safety & security 5. Competitiveness 6. Cross-cutting	**FP7-SST-2007-RTD-1** Budget **€M 153.48** 22 December 2006 to 3 May 2007	Open: 22 Dec	Open	Open	Open	Open	Closes: **3 May**							
Transport	**Air Transport (policy)** 1. Greening of air transport 2. Time efficiency 3. Customer satisfaction & safety 4. Cost efficiency 5. Protection of aircraft/passengers 6. Air transport system of the future 7. Cross cutting	**FP7-AAT-2007-TREN-1** Budget **€M 4**	Open: 22 Dec	Open	Open	Open	Open	Closes: **3 May**							
Transport	**Air Transport (technology)** 1. Greening of air transport 2. Time efficiency 3. Customer satisfaction & safety 4. Cost efficiency 5. Protection of aircraft/passengers 6. Air transport system of the future 7. Cross-cutting	**FP7-AAT-2007-RTD-1** Budget **€M 153.48**	Open: 22 Dec	Open	Open	Open	Open	Closes: **3 May**							
Transport	**Co-Modality**	**FP7-TPT-2007-RTD-1** Budget **€M 12**	Open: 22 Dec	Open	Open	Open	Open	Closes: **3 May**							
Energy	**Energy & Transport** 3. Renewable Fuel Production 8. Energy efficiency & savings 9. Knowledge for energy policy making	**FP7-ENERGY-2007-TREN-1** Budget **€M 12**	Open: 22 Dec	Open	Open	Open	Open	Open	Closes: **28 June**						
Energy	**Energy & Transport** 3. Renewable Fuel Production	**FP7-ENERGY-2007-1-RTD** Budget **€M 109.30**	Open: 22 Dec	Open	Open	Open	Open	Closes: **3 May**							
ICT	**ICT & Transport** 6. Mobility, Sustainability & Energy Efficiency	**FP7-ICT -2007-1** Budget **€M 1019**	Open: 22 Dec	Open	Open	Open	Open	Closes **8 May**							
ICT	**ICT & Transport** 6. Mobility, Sustainability & Energy Efficiency	**FP7-ICT -2007-2** Budget provisional **€M 477**						**TBC**	**TBC**	**TBC**	**TBC**	**TBC**	**TBC**		

TRANSPORT RESEARCH (with strong elements of policy/applied research)
FP7 AND OTHER EUROPEAN PROGRAMMES
CALL ROADMAP 2007

SEVENTH	FRAMEWORK	PROGRAMME													
Priority	**Area**	**Call Indicative budget**	**Dec 2006**	**Jan 2007**	**Feb 2007**	**March 2007**	**April 2007**	**May 2007**	**June 2007**	**July 2007**	**Aug 2007**	**Sept 2007**	**Oct 2007**	**Nov 2007**	**Dec 2007**
Security	**Security & Transport** 1. Security of citizens 2. Security of infrastructures 3. Intelligent surveillance/border security 6. Security & society 7. Security research	**FP7-SEC-2007-1** Budget **€M 80.30**	Opens: 22 Dec	Open	Open	Open	Open	**Closes 31 May**							
Security & ICT	**Security, ICT & Transport** 1. Pervasive & trusted network & service infrastructure	**FP7-ICT-SEC-2007-1** Budget **€M 58.50**									Opens: 30 Aug	Open	Open	Closes: 29 Nov	
Socio-Economic Sciences & Humanities	**Socio-Economics & Transport** 2. Combining economic, social & environmental objectives 6. Socio-economic & scientific indicators	**FP7-SSH-2007-1** Budget **€M 80.30**	Opens: 22 Dec	Open	Open	Open	Open	**Closes 10 May**							
Nanotechnologies & Materials	**Nanotechnologies for transport** 4. Integration of technologies for industrial applications	**FP7-NMP-2007-LARGE-1** Budget **€M 200**	Opens: 22 Dec	Open	Open	Open	Open	**Closes 4 May**							
Environment	**Environment & Transport** 1. Pressures on environment & climate 2. European cohort & health	**FP7-NMP-2007-LARGE-1** Budget **€M 200**	Opens: 22 Dec	Open	Open	Open	Open	**Closes 4 May**							
GALILEO	**GALILEO & Transport Applications** 1. Exploiting the full potential 2. Providing the tools & creating the appropriate environment 3. Adapting receivers to requirements & upgrading core technologies 4.Supporting infrastructure evolution	**FP7-GALILEO** Budget: **€M 40** Call dates not yet known. To be published on GALILEO Website													
Space	**Space & Transport** 1. Space based applications at the service of European society	**FP7-SPACE-2007-1** Budget **€M 34.5** from 2007	Opens: 22 Dec	Open	Open	Open	Open	Open	**Closes 19 June**						
OTHER	**EUROPEAN**	**PROGRAMMES**													
Programme	**Area**	**Call Indicative budget**	**Dec 2006**	**Jan 2007**	**Feb 2007**	**March 2007**	**April 2007**	**May 2007**	**June 2007**	**July 2007**	**Aug 2007**	**Sept 2007**	**Oct 2007**	**Nov 2007**	**Dec 2007**
Intelligent Energy Europe	**Energy & Transport** 1. STEER 2. ALTENAR/STEER	**Call not yet open** Budget estimated for 2007-1023 **€M 730**				**Launch Spring 2007 TBC**									
MARCO POLO	**Freight Transport Services**	**Call not yet open** Budget estimated for 2007-2013 **€M 400**				**Launch Spring 2007 TBC**									
	LIFE + Environment	**Call not yet open** Budget estimated for 2007-2013 **€M 2,190**									**Launch Autumn 2007 TBC**				

Coordination between National research programs

- **The ERA-NET scheme in FP7**
- **ERA-NET actions in FP7**
- **ERA-NET Plus actions**
- **EUREKA and COST**
- **Additional Information**

Coordination between National research programs

Coordination of national programs Overview FP7

- **ERA-NET**

  Like in FP6: Coordination of programs

  - **MS agree and fund joint calls/programs**
  - **EU funding only for coordination**

- **ERA-NET *Plus***

  New in FP7: To up of a single joint call

  - **MS contribute to a joint trans-national call 2/3**
  - **EU funding for research: 1/3 of the joint call**

- **Art. 169**

  Full integration of national programs

  - **Scientific and financial: strong EU funding**
  - **Single implementing structure**

Coordination between National research programs

COST

bottom-up, intergovernmental mechanism – facilitates coordination and exchanges between nationally funded scientists and research teams

- Enhanced complementarity and synergy sought between FP7 and COST
- Support "…at least 210 M€ and up to 250 M€, subject to the midterm evaluation" from Cooperation SP
- 210 M€: +50% compared to FP6 (250 M€: ~+80%)
- Grant agreement between the Commission and the ESF, the legal entity designated by COST (as under FP6)
- Partnership between the Commission and COST further developed

Coordination between National research programs

EUREKA

- The inter-governmental initiative aims to strengthen European competitiveness by promoting cross-border, market-oriented, collaborative R&D
- 38 members, including the European Community

Implement and reinforce co-operation and coordination aimed at increasing complementarities and synergy between EUREKA and FP7 in areas of common interest to further structure the ERA

- Enhance links between EUREKA and FP7, in particular in the process of the development of initiatives based on Articles 169 and 171 of the EU Treaty
  - preparation of the launch of the Eurostars §169 initiative, aimed at R&D performing SMEs
  - preparation of the launch of the ARTEMIS (embedded systems) and ENIAC (nanoelectronics) JTIs, based on § 171
- As member of EUREKA, participate in its governance structures (HLG, NPC, Executive Group)

Thank you

for your attention