



## **FP7 for the Rail Sector**

### **What is FP7?**

FP7 is the short name for the Seventh Framework Programme for Research and Technological Development. This is the EU's main instrument for funding research in Europe and it will run from 2007 to 2013 with a budget of €50.5 billion.

FP7 supports research in selected priority areas - the aim being to make, or keep, the EU as a world leader in those sectors. It is made up of 4 main blocks of activities forming 4 specific programmes plus a fifth specific programme on nuclear research. The main block of relevance to companies operating in the rail sector is Cooperation (Collaborative research), split into the following ten themes:

- Health
- Food, Agriculture and Fisheries, Biotechnology
- Information and Communication Technologies
- Nanosciences, Nanotechnologies, Materials and new Production Technologies
- Energy
- Environment (including climate change)
- Transport (including aeronautics)
- Socio-economic sciences and humanities
- Security
- Space

### **An FP7 project will**

- Carry out innovative Research & Development
- Address a specific Call within a Theme's Work Programme
- Have an impact that aligns with the aims of the Work Programme
- Involve at least 3 countries from Member States, Associated States and even third countries.
- Normally contain 4 (very small) to 20 (very large) partners
- Last approximately 2 to 4 years
- Receive 50% funding (*SMEs, Academics & Research Institutes will get 75%*)

### **But is it right for you?**

- Will it address your business needs?
- What are your chances of success?
- How are you going to participate?
- How much time will you need to commit?
- Who is going to do the work?
- How close are you to the market?

**What are the benefits?**

- The partners will be among the best in the field, but you also need to be one of the best in your own particular field.
- Responsibilities and deliverables will be tightly specified and managed
- Commercial relationships with partners often follow
- Partial funding
- Spreading of technical risks amongst partners
- Access to new and different technologies
- Access to new business markets
- Raised profile within the sector
- Partnership with organisations with complementary skills
- Supply chain development and security
- Staff development & interest

However:

- It is not appropriate for short term product development
- Although there is an advance payment, it may take over a year for a project to start after submission of proposal
- It will require significant unpaid preparatory work and travel costs before the proposal is submitted, with the risk that it is unsuccessful.

**What are the opportunities for the rail sector in FP7?**

There are a number of themes relevant to the rail sector in FP7. The most important is Sustainable Surface Transport. The research scope will consider the surface transport system embracing all its constituents: products (vehicles, vessels and infrastructures), services, operations and users integrating organisation, legal and policy frameworks. Five Activities are addressed, as follows:

| Activity                                    | Scope  |
|---|--|
| <p><b>Greening of Surface Transport</b></p> | <p>Developing technologies and knowledge for reduced pollution (air including greenhouse gases, water and soil) and environmental impact on such areas as climate change, health, biodiversity and noise.</p> <p>Research will improve the cleanliness and energy-efficiency of powertrains (e.g. hybrid solutions) and promote the use of alternative fuels, including hydrogen and fuel cells as mid- and long-term options, taking into account cost-efficiency and energy efficiency considerations.</p> <p>Activities will cover infrastructure, vehicles, vessels and component technologies, including overall system optimisation. Research in developments specific to transport will include manufacturing, construction, operations, maintenance, diagnostics, repair, inspection, dismantling, disposal, recycling, end of life strategies and interventions at sea in case of accident.</p> |

|   |  |
|---|--|
| <p><b>Encouraging and increasing modal shift and decongesting transport corridors</b></p> | <p>Developing and demonstrating seamless door-to-door transport for people and goods as well as technologies and systems to ensure effective intermodality, including in the context of rail and waterborne transport competitiveness.</p> <p>This includes activities addressing the interoperability and operational optimisation of local, regional, national and European transport networks, systems and services and their intermodal integration in an integrated approach.</p> <p>The activities will aim at European-wide strategies, optimised use of infrastructure including terminals and specialised networks, improved transport, traffic and information management, enhanced freight logistics, passenger intermodality and modal shift strategies to encourage energy efficient means of transport. Intelligent systems, new vehicle/vessel concepts and technologies including loading and unloading operations as well as user interfaces will be developed. Knowledge for policy-making will include infrastructure pricing and charging, assessments of Community transport policy measures and trans-European networks policy and projects.</p> |
| <p><b>Ensuring sustainable urban mobility</b></p>   | <p>Focusing on the mobility of people and goods by research on the ‘next generation vehicle’ and its market take-up, bringing together all elements of a clean, energy efficient, safe and intelligent road transport system.</p> <p>Research on new transport and mobility concepts, innovative organisational and mobility management schemes and high quality public transport will aim at ensuring access for all and high levels of intermodal integration. Innovative strategies for clean urban transport will be developed and tested.</p> <p>Particular attention will be paid to non-polluting modes of transport, demand management, rationalisation of private transport, and information and communication strategies, services and infrastructures. Tools and models supporting policy development and implementation will cover transport and land use planning including the relationship with growth and employment.</p>  |

|   |   |
|---|---|
| <p><b>Improving safety and security</b></p> | <p>Developing technologies and intelligent systems to protect vulnerable persons such as drivers, riders, passengers, crew, and pedestrians.</p> <p>Advanced engineering systems and risk analysis methodologies will be developed for the design and operation of vehicles, vessels and infrastructures.</p> <p>Emphasis will be placed on integrative approaches linking human elements, structural integrity, preventive, passive and active safety including monitoring systems, rescue and crisis management. Safety will be considered as an inherent component of the total transport system embracing infrastructures, freight (goods and containers), transport users and operators, vehicles and vessels and measures at policy and legislative levels, including decision support and validation tools; security will be addressed wherever it is an inherent requirement to the transport system.</p> |
| <p><b>Strengthening competitiveness</b></p> | <p>Improving the competitiveness of transport industries, ensuring sustainable, efficient and affordable transport services and creating new skills and job opportunities by research and developments.</p> <p>Technologies for advanced industrial processes will include design, manufacturing, assembly, construction and maintenance and will aim at decreasing life cycle costs and development lead-times.</p> <p>Emphasis will be placed on innovative and improved product and system concepts and improved transport services ensuring higher customer satisfaction. New production organisation including the supply chain management and distribution systems will be developed.</p>   |

In addition there are opportunities available in other FP7 themes, including:

| Theme   | Opportunities   |
|---|---|
| Information & communication technologies                                  | <ul style="list-style-type: none"> <li>• Co-operative systems, Robotics, Intelligent Vehicle Systems</li> </ul>   |
| Nanosciences, Nanotechnologies, Materials and New Production Technologies | <ul style="list-style-type: none"> <li>• Multifunctional, complex and knowledge-based materials for future vehicles</li> <li>• Flexible production and manufacturing</li> </ul>                           |
| Energy  | <ul style="list-style-type: none"> <li>• Hydrogen &amp; Fuel Cells</li> <li>• Bio Fuels</li> </ul>  |
| Security  | <ul style="list-style-type: none"> <li>• Security systems for transport applications</li> </ul>   |
| Research for the benefit of SMEs  | <ul style="list-style-type: none"> <li>• Support is aimed at SMEs or SME associations in outsourcing R&amp;D to universities, research centres or research performing SMEs ("RTD performers").</li> </ul> |

## How can I get involved?

Many companies are put off applying for FP7 funding because they believe they have to co-ordinate proposals, with all the costs and resource implications; but this is rarely the case. For companies new to FP7 there are opportunities to join proposals co-ordinated by others with a track record or appropriate expertise.

Fortunately, there are organisations at the national and European scale that are prepared to help, given that your idea and interests are sound and relevant and that your company is robust. Many experienced project partners also use these organisations and they might be a valuable way to make contact and present your ideas. The following is not a complete list and some require a membership fee.

### *UK organisations and their roles and interests*

The **Railway Industry Association (RIA)** is the Trade Association for UK-based suppliers of equipment and services to the worldwide industry. It has around 140 member companies, active across the whole range of railway supply.

**Association of Train Operating Companies (ATOC)** is an association of passenger train operating companies, which represents its members interests with government, regulatory bodies and other opinion formers. It coordinates joint projects between its members and others; and influences standards for rolling stock engineering within the UK and Europe. It is an active player in the European Framework Programmes – involved in projects such as the intelligent integration of the railway system and the development of a passive safety framework.

**Railways Forum** acts as a lobby group and think tank for the railway industry. Its members include the train operating companies, network rail, rolling stock leasing companies, infrastructure providers and maintenance companies, equipment and service suppliers, the Passenger Transport Executives and London Underground. From time to time it sponsors seminars on rail research with Rail Research UK; and with *Modern Railways* holds an annual Innovation Award to celebrate innovation in the railway industry.

**Network Rail** owns and operates the UK's rail infrastructure. Its members are drawn from the rail industry and the public. It undertakes stakeholder research and has initiated additional research to provide a comprehensive picture of its stakeholders' needs. It is an active player in the European Framework Programmes and is a partner in projects addressing areas such as reduction of whole-life cost of track infrastructure, bridges, signalling control and electric power. It also influences the direction of research on the future design of trains. It is a member of the European Rail Research Advisory Council.

The **Advisory Group for Rail Research and Innovation (AGRRI)** is a Stakeholder group composed of senior members of the railway industry, academia and Government. Its main objectives are to facilitate co-ordination of research activity across the UK rail industry and to maintain an overview of what research is taking place in the UK and elsewhere. AGRRI is facilitating a coherent approach from across the railway industry to the development of proposals for FP7.

**Rail Research UK (RRUK)** initiated by the Engineering and Physical Sciences Research Council (EPSRC) provides an engineering science base for railway systems research in the UK, located in a number of universities. It also seeks to bring together researchers, representatives from industry and policymakers to help define, prioritise and guide research, and use the results to challenge policy, inform policy development and improve industry practice.

**Rail Safety and Standards Board (RSSB)** is an industry organisation which facilitates decision-making at industry level with the involvement of government and the regulator. Research and development provide essential input and support to its functions; and it has a central role in encouraging collaboration within the industry and between government and industry. It manages a programme of research and development focusing on industry-wide and strategic research that no individual company or sector of the industry can address on its own on behalf of government and the railway industry. It also provides a focus for coordination of UK rail involvement in cross-industry and multi-national research projects. It is instrumental in supporting the development of a future vision for the railways and its delivery.

**Office of Rail Regulation (ORR)** is an independent statutory body led by a Board appointed by the Secretary of State. It is responsible for regulating Network Rail, for encouraging improvements in health and safety performance, and for licensing operators of railway assets. It contributes to forums involved in developing and overseeing the RSSB's research programme for the rail industry and has its own internal forum for identifying safety research needs across all rail sectors.

**Passenger Demand Forecasting Council (PDFC)** brings together the train operating companies, the Scottish Executive, Network Rail, the ORR, Transport for London and the Passenger Transport Executives Group. Its aims include procuring research into factors influencing demand for rail travel and the development of models and procedures for forecasting rail travel.

### *European organisations and their roles and interests and other European Initiatives*

**ERRAC** (the **European Rail Research Advisory Council**) has developed and maintains a Strategic Rail Research Agenda (SRRRA) for rail technology, which is a primary reference source for the Commission in assembling its work programme. **ERRAC** brings together railway undertakings and infrastructure companies, public transport operators, manufacturing industry, and representatives of the EU Member States, European Commission, customer groups, consultants and academic institutions.

**ERRAC** partners are the Community of European Railway and Infrastructure Companies (CER), the European Rail Infrastructure Managers (EIM), the International Association of Public Transport (UITP), the International Union of Railways (UIC) and the Union of European Railway Industries (UNIFE).

**UNIFE**, the **Union of European Railway Industries**, is the European association representing the railway supply industry involved in the design, manufacturer, maintenance and refurbishment of guided land transport systems, subsystems and related equipment, including railway rolling stock, components, signalling and infrastructure equipment. It represents around 100 large and medium sized companies; and includes 16 national organisations (representing around 1000 or so supply companies) as Associate Members. Its members manufacture 60% of the world's production of rail equipment. It supports the development and leadership of the European railway supply industry through joint research & innovation. It is active in the Framework Programme; and is part of the Support Action providing the Secretariat to the **ERRAC** Technology Platform, undertaking activities to implement **ERRAC's** Strategic Research Agenda.

**UIC**, the **International Union of Railways**, promotes cooperation between rail enterprises and infrastructure managers to undertake activities to develop international transport by rail. It promotes technical cooperation between its members to improve operating conditions and the quality of services offered to customers; and maintains and develops the overall coherence

of the railway system - including achieving interoperability to increase competitiveness. It puts forward specifications and standards to standardisation bodies, acts as a technical platform to support the work of railway associations, and spearheads international rail cooperation projects that complement its core technical tasks. The UIC brings together 171 members (railways, rail operators, infrastructure managers, railway service providers, public transport companies, etc.) across five continents. It is an active participant in FP projects, and is also part of the Support Action providing the Secretariat to the **ERRAC** Technology Platform and undertaking activities to implement **ERRAC's** Strategic Research Agenda

The **European Intermodal Research Advisory Council (EIRAC)**, is a peer group of high level industrial players who are developing a Strategic Research Agenda (SRA) for Intermodal Transport, in conjunction with a business scenario. The EIRAC has a membership spanning intermodal operators, terminal handling, freight villages, modal transport operators, forwarders, ports, equipment suppliers, and authorities. Members share their personal visions of intermodal transport in 2020, identifying mainstreams of innovation, organising and prioritising needs for research that will be translated into the Intermodal SRA, and into the relevant implementation plan. This will then be used as the instrument to direct EU and national resources to targeted research. The work of EIRAC Members is facilitated by CAESAR, a Coordination Action funded for the purpose by the EU.

**HFC TP** is the **Hydrogen and Fuel Cell Technology Platform** set up by the Commission to bring hydrogen and fuel cells to market - exploiting their environmental and economic potential in a range of applications including transport. Its strategic research agenda is the primary reference source for the Commission in developing the content of hydrogen and fuel cell research and demonstrations in FP7.

**HFC JTI** is the **Hydrogen and Fuel Cell Joint Technology Initiative** that is expected to become a legal entity at the end of 2007. It is a public private partnership comprising a critical mass of national, EU and private resources within one body to implement a single European industrially driven research and development programme. Calls are open to industry members and others. The HFC JTI's research agenda will be heavily influenced by the research agenda and deployment plan developed by the HFC TP.

The European Commission sponsors other initiatives complementary to the Transport Priority in FP7 Cooperation Programme, for which calls are likely to be published annually, including the:

- Intelligent Energy Europe Programme (2007-2013 €M730): part of the FP7 Competitiveness and Innovation Programme, it addresses policy and implementation issues associated with the energy aspects of transport - in particular, barriers to the uptake of new technologies. It includes two areas with transport relevance:
  - STEER: policy measures for the efficient use of energy in transport
  - STEER & ALTENAR: alternative fuels production and the processing supply side.
- LIFE + Environment Programme (2007-2013 ~ €M 2,190): funds demonstration projects on land use and reducing the negative impacts of economic activity (energy in transport, urban transport, ports and climate change).
- MARCO POLO Programme (2007-2013 ~ €M 400): supports services, ancillary infrastructure and moveable assets (not research, studies or core infrastructure) which transfer freight from roads to other modes in five action areas:
  - modal shift actions: for existing or enhanced non-road freight transport services
  - catalyst actions: to overcome structural market barriers
  - common learning actions: cooperation and sharing of know-how in freight logistics
  - motorways of the sea
  - traffic avoidance actions

## How should I progress our ideas

Whether you are leading a proposal or part of a consortium co-ordinated elsewhere, it is crucial that your company is committed to the proposal, as follows::

### *Internally to your company*

- The staff allocated to the task must believe that it matters to the company. So:
  - The CEO should be totally committed
  - Their manager's objectives should include winning the bid and delivering the project
  - The Finance Director should put in place processes for holding the initial payment, valuing work in progress positively, making periodic claims, providing audits etc
  - The Contracts Department should consider the standard contract and consortium agreement
- Have clear and realistic objectives
  - Think about what kind of partners you can and can't live with
  - Understand how you will exploit the results and bake that in to the project
- Prepare as though for an exam, so
  - Study the background material about FP7 available on CORDIS and read the rules; they are strictly applied
  - Keep up with the news
  - Read the work programmes and calls for proposals carefully and check that they mean what you think
- Write a 2-pager for each topic that you want to pursue describing the sector challenge it addresses, the type of technology that will provide the answer, the special knowledge (keep it brief) that makes you impossible to ignore, the type of partners you would like to work with.
- Check very carefully that it hasn't been done already, including whether a reasonably well-informed non-expert might think it has been done. FP7 will not pay you to catch up. So if you want to do in your way what a global vehicle manufacturer has already done in its way, choose your words carefully and be aware of the risk of proceeding.
- Check out sources of information about industry sponsored research in your area as well as wholly or partly publicly funded research at the national and European level. For information on publicly funded research see the Commission's CORDIS database of funded projects, the Framework Programme funded Transport Research Knowledge Centre (TRKC) and the websites of Government Departments sponsoring transport related research (most are accessible through the TRKC).

### *External to the Company*

- Engage with appropriate national and European sector organisations
  - The Commission doesn't usually issue a call for proposals without knowing that there are organisations eager to respond and/or without knowing that there are member states that have a strong interest
  - That means that there will be at least one consortium at an advanced stage of preparation before the call is published
  - You need to know about that in order to position your bid or identify if you can join their consortium or amalgamate proposals

- These sector organisations have privileged information because they have built a reputation based upon its responsible use.
- Be prepared to communicate. Collaborative research is pre-competitive so you don't need a Non-Disclosure Agreement before you hand over your 2-pager. But neither will you be handing them out indiscriminately.
- If you retain Consultants, specify precisely what they are to deliver in order to receive your payment.
- Attend/participate in "information days" and web-events wisely. Don't rely entirely on the information obtained because you need the extra knowledge that is available to trusted professionals. They will share their information with you when you have built a relationship of trust with them. So follow up the contacts that you make.

### **What is FP7UK?**

FP7UK is a service provided by UK Government to help prospective applicants access funding under FP7. Its aim is to provide a single, centralised, one-stop-shop for information and advice, covering all aspects of FP7.

The FP7UK team can provide telephone support, send you information, direct you to a large number of web-based information sources and advise you of Calls, events, news and best practice.

This specialist team can guide you to the most relevant information for your particular situation, saving you time and money. The team includes the UK National Contact Points (NCPs) who specialise in individual areas of FP7 and can offer dedicated expert advice and support throughout the life of an FP7 project.

If you are interested in receiving regular updates on FP7 news, initiatives, calls and events, register your details at <http://www.fp7uk.org>.

The FP7UK service is here to help you. Call our Helpline 0870 600 6080 (Calls will be charged at the National Rate) or email us at [help@fp7uk.co.uk](mailto:help@fp7uk.co.uk)

**Cliff Funnell**  
**UK FP7 Surface Transport NCP**