

International & Knowledge Unit (EU)
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Dear

We write in response to the balance of competencies review on research and the respective value of the EU instruments to support research and innovation. We do this on behalf of NewRail, the Newcastle University Centre for Railway Research. NewRail is part of the wider transportNewcastle group, which is one of the leading, maybe top, recipients of transport research funding from the EU. We are part of Newcastle University, part of the Russell Group that represents. Please note that our evidence is based on the experiences and opinions of NewRail alone, and with respect to our research activities in transport alone.

First we wish to state that we shall focus on a few exemplar cases of objective factual information. As such we shall begin by briefly stating our view of the overall effect of EU funding for research, largely with the Framework Programmes (we have experience of FP4 through to FP7), but also Marie Curie, INTERREG, ERASMUS and the Lifelong Learning Programme, all of which we have led or been participants in research funded by such instruments.

General statements:

- In our experience and from the statistics produced by the European Commission, the United Kingdom does disproportionally well in terms of funding from the Framework Programmes. In our experience this is a combination of the advantage of being English speakers, since English has become the de facto EU research

language, and also our perceived management skills. Notably Germany also does very well, and one might question if a reduced UK presence in EU research would increase the bias towards German led research.

- Whilst researchers in the United Kingdom are successful and pro active in EU funded research, British businesses are less forthcoming. We often have trouble recruiting British partners whilst having no issues recruiting partners from the Nordic countries, Iberia, Balkans, Central and Eastern Europe, Germany and such associates as, for example, Turkey or Ukraine.
- EU research, at least for us, has been much more focused on applied science, and multidisciplinary combinations. This focus on innovation through application suits the logistical and physical nature of transportation. There is a gap, even with this focus, between the development of pre-competitive innovation and actual market take up, and we are pleased to see this move closer to the market in Horizon 2020.
- On the other hand there can be a tendency, and it is growing in Horizon 2020, for this focus on market take-up to conflate research and what is almost 'product development'. We are not averse to engaging in either, both have value, but it would be helpful if the EU were to clearly label and separate their aspirations between longer-term research and medium term innovation.
- The EU funding for pan-European research and the insistence on synergy across the states is necessary. We work with partners in nearly all member states and of our 30 odd staff; at least 50% were born in other nations across Europe. However we find that many researchers, even within an EU project need help in lifting their vision above and past the national borders of their country, or perhaps the linguistic borders of their language group.
- Rail is a growing industry worldwide, and the development of EU standards and strong groupings of researchers and industry at a pan European scale means that the UK can participate in the export industry that is growing as China, Latin America, India and the USA start to redevelop their railways or build entire new ones, usually using European standards and technology.

Exemplars:

ALJOIN

Developed to address the aluminium welding problems associated with the Ladbroke Grove accident, led to new international standards. This was not possible in the UK alone; it needed full EU support, expertise and facilities that didn't exist in the UK. This was then followed up by a UK funded project to implement the results in the UK, ALJOIN+

This project highlights where a problem in one country, e.g. the UK, leveraged full EU synergy to achieve a benefit both singular and mutual.

<http://www.ncl.ac.uk/newrail/research/aljoin.htm>

http://www.errac.org/IMG/pdf/errac_wp06_aljoin_project_evaluation.pdf

ERRAC and HERMES

The European Railway Research Advisory Council (ERRAC) was a funded technology platform under FP7, and performed many roles in developing a co-ordinated rail research agenda for Europe. In addition it started the process of collecting and analysing all rail research, EU and national, a task that no body, national or international, had done before. The HERMES project went one further and has developed international links between transport research databases in the USA, Japan, EU and elsewhere. The project has established a common portal for accessing information from databases of past and on-going research projects worldwide.

This project highlights where the combined nature of the EU allows all nation states to benefit from a joint action that would have been more costly and perhaps impossible if done at a member state level.

<http://www.hermes-project.net/>

<http://www.transport-research-portal.net/search/index.php>

TRANSNEW

With the new member states joining the EU in 2004, there was a need for transport research and associated policy to be developed, having been neglected since the change from the previous administrations. The TransNEW project mapped the transport research potential in all the New Member and Associated States: This means that the national transport research capability for were defined and this information is now available to all through the downloading of country, regional and mode reports and the use of a publicly accessible user-friendly database.

This an example of the type of project which develops the British role in European states far from us, states that might naturally be part of the German speaking or Mediterranean sphere of influence. Through these networking and support roles British researchers and Britain gains an influence and role that pays dividend in developing future research, commerce and has political and diplomatic effects.

SAFE INTERIORS

This project researched interior design and validation of different crash scenarios for occupant survivability with various key rail system builders across Europe and from this initiative the first standard for vehicle crashworthiness in rail was developed.

This is an example of a truly pan European industry working with British researchers to solve a common problem, both between nations and industrial competitors that will enable European products to be built consistently across Europe and, as importantly, be exported globally.

<http://www.eurailsafe.net/>

Yours, on behalf of NewRail,



About NewRail.

NewRail is the Newcastle railway research centre based in the School of Mechanical and Systems Engineering at Newcastle University. The centre delivers quality research and education to meet the complex technological and managerial challenges and needs of the rail and transport industry, regulators, operators and customers. We have a wide experience in coordinating and participating in collaborative research within FP4, FP5, FP6 and FP7, including Marie Curie Networks, Erasmus curriculum development projects and transatlantic co-operations. More specifically, our extensive work includes:

- D-RAIL is an on-going EU funded project which aims are to identify root causes of derailment of particular significance to freight vehicles, which have a wider range of operating parameters than passenger vehicles, as a result of the huge range in loads, speeds and maintenance quality. Independent minor faults such as a slight track twist and a failing bearing will be studied to understand the causes of derailment. Rail freight system behaviour for 2050, such as heavier axle loads, faster freight vehicle speeds for time-sensitive – low volume high value high speed services (LVHVHS) – goods, radically new vehicle designs, or longer train consists will also be forecasted;
- Performance-based design, use of lightweight and high performance materials, as well as use of structural health monitoring technologies and condition-based maintenance of rail infrastructure and rolling stock (SUSTRAIL);
- Development of effective low density, high value, time sensitive rail freight services to match seamlessly with customers' supply chains and existing passenger services without detriment to either service type taking into consideration operational, technological and logistics requirements (SPECTRUM);
- Rail freight and logistics curriculum development (RiFLE), including modules on International Logistics for postgraduate students;
- Development of a "transatlantic" function within the context of railway higher education that enhances the knowledge exchange between EU and US and secures a robust collaboration on areas with transatlantic synergies (TUNRail);
- Design, development and implementation of a new and innovative trans-European rail freight service concept, starting with the rail corridor Rotterdam to Constanza (Romania) and on to the Black Sea area and Turkey (RETRACK);

- Design of a lightweight crashworthy rail vehicle driver's cab based on sandwich material technology (DE-LIGHT Transport);
- Supporting EU's freight Transport Logistics Action Plan on Green Corridors Issues (SUPERGREEN);
- Development of cleaner urban freight (CITYFREIGHT, BESTUFS I and II, CLEANER-D, BESTFACT)
- Benchmarking in logistics and co-modality (Be-LOGIC);
- Development, improvement and integration of emissions reduction technologies for diesel locomotives and rail vehicles (CleanER-D);
- Improvement of safety and security of metro vehicles and protection against terrorist attacks by explosives and firebombs through materials choices and design, and hence increasing resilience and reducing impacts of attacks on passengers, staff, infrastructure and property (SECUREMETRO);
- Reducing the occurrences and impacts of freight train derailments;
- Analysis and Evaluation of terminal and rail yard performances as well as design of rail freight operational systems and networks;
- Development and demonstration of suitable intermodal transport solutions in a range of business cases (Freightwise), surveys and gap analysis of the e-logistics sector with a view to identifying strengths, weaknesses, threats and opportunities (KOMODA), Development of interoperable ICT technologies for freight management (eFreight).