Technology Strategy Board
Driving Innovation

Modelling and simulation in rail

TARGETED CALL FOR KNOWLEDGE TRANSFER PARTNERSHIPS APRIL 2013

RSSB

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Summary

The Technology Strategy Board and the RSSB, the rail industry body for research and development, are to invest up to £1m to establish new Knowledge Transfer Partnerships (KTPs) in the area of modelling and simulation, as it is applied to the rail transport sector. We are looking to support up to 12 KTPs across the UK, to raise the profile of KTP in the rail industry (where it is currently under-represented), and to help the UK gain a greater share of the expanding global rail market, by translating the UK's academic strengths in this area into commercial success.

By supporting high-quality KTPs that meet challenges in the rail sector through the use of modelling, simulation and synthetic environments, we aim to help reduce the cost and risk involved in developing innovative products and services. As a result, we aim to help the rail industry and UK businesses realise tangible benefits, both in the UK and globally.

This targeted call is being run in parallel with a £5m collaborative R&D competition, *Enabling the digital railway*, which was launched in March 2013, and which encourages the use of innovative digital, ICT and satellite application technologies to address challenges faced by leading rail organisations. There is an opportunity for KTP applicants to link their proposals to collaborative R&D projects in this parallel competition where appropriate, although it is not a requirement to do so. We welcome complementary applications, but organisations applying both under this targeted call for KTPs and for collaborative R&D funding should ensure that their proposals can stand alone, and are not dependent on both applications being successful. For *Enabling the digital railway*, see **www.innovateuk.org**, under Competitions.

We will support businesses that are looking to apply innovative capabilities in modelling and simulation to any product or service relevant to the rail industry.

This targeted call will establish a group of KTPs that will operate together as a cohort, supported by a programme of networking between the partners and rail industry organisations. The cohort approach will encourage knowledge-sharing across projects, and across supply chains and sectors, and will help to engage wider industry support for innovation and knowledge exchange.

We will part-fund KTPs. This targeted call opens on **15 April 2013** and the final deadline for applications is **noon on 2 October 2013**. A briefing webinar for potential applicants will be held on **25 April 2013**.

Background

Introducing new technologies, products, services or operational concepts and processes in the rail industry can be challenging. Among other factors, the long lifetime of assets, operating constraints imposed by safety requirements, and the high cost of infrastructure and vehicles all mean that innovation is frequently expensive and commercially risky. This high barrier to innovation hampers the rail industry in meeting customer needs.

Computer-enabled modelling and simulation are used increasingly in other sectors to address similar issues. Appropriately applied, these techniques can accelerate innovation by supporting technical and commercial decisions regarding new concepts and developments, including economic impact assessments, at significantly reduced cost and risk compared to real-world testing and trials.

In the context of this targeted call, we take 'modelling' to be the development of abstract conceptions of reality that can be implemented in computer programs. 'Simulation' is then the application of a model to produce meaningful outputs to inform decision-making, and if simulations extend into producing a visualisation or representation of reality, these can become 'synthetic environments'.

A number of UK universities with expertise in the rail sector have developed strong capabilities in modelling and simulation in their rail-related research. These capabilities can be applied to a range of areas, such as maintenance regimes for rolling stock and infrastructure, noise monitoring and mitigation, the design of overhead electrification systems, and operational concepts for increasing rail network capacity. Many of these universities are members of the Rail Research UK Association (RRUKA), and a directory of their capabilities and areas of expertise is available through the RRUKA website: http://rruka.org.uk/

This accumulation of capability represents a significant resource for the UK rail industry, and the aim of this targeted KTP call is to help businesses to make use of it, increasing their modelling and simulation capabilities, and so reducing the cost and risk of developing new products and services in the rail sector. In addition, we aim to increase awareness of KTP in the rail industry, and increase the number of applications to the KTP scheme as a whole, from this and other technology areas.

Scope

We want to support high-quality KTPs that will promote knowledge transfer, to help the rail industry and UK businesses to:

- realise tangible benefits, both in the UK and globally, and
- help solve challenges in the rail sector.

They will achieve this by using modelling, simulation and synthetic environments to reduce the cost and risk of innovation in products and services.

These KTPs will involve:

- rail companies that have existing capability, but that have a new or emerging need for enhanced modelling and simulation

- businesses that are already engaged in the rail industry, but that need further support to grow faster and increase their capacity for innovation

- businesses that are already engaged in the rail industry, but that are looking to strengthen their modelling and simulation capabilities, to provide innovative solutions for rail customers

- business that are interested in engaging with the rail industry, but that currently lack the knowledge or capacity to address the needs of the rail sector.

We will support businesses that are looking to bring forward innovative projects, using modelling and simulation, that apply to any product or service relevant to the rail industry.

KTP projects can last between six and 36 months. We expect KTP projects funded under this targeted call to last typically for 24 months, although we will consider shorter or longer projects on their merit.

Looking for partners to work on your project? Go to **_connect** (**https://connect.innovateuk.org/web/ accelerating-innovation-in-rail1**) to find collaborators and networks.

We will support knowledge-sharing between the KTPs that result from this targeted call, by:

- organising knowledge-sharing events while the KTP projects are running, enabling the KTP cohort to meet and discuss matters of wider interest, such as generic challenges and breakthroughs

- setting-up a dedicated group on the **_connect** site (**www.innovateuk. org/_connect**) for KTP partners to communicate and share information – see box above

- working to promote the success of the individual KTPs and of the whole cohort

- bringing the KTP cohort together with rail industry organisations and participants in other relevant Technology Strategy Board-funded projects

- engaging wider industry support for innovation and knowledge exchange.

Funding allocation and project details

We will fund part of the cost of running the KTPs. The level of grant that the KTPs can receive depends upon the size of the companies involved. The grant is paid through the academic partner, and the level also depends on whether the academic partner uses a full economic cost model. KTPs are open to all UK companies and UK higher education institutions, colleges and research organisations.

As an example, a small or medium-sized enterprise might contribute around a third of the project costs, with the remainder of the costs being paid as grant. Currently average annual project costs are around £60,000. Larger companies generally receive a lower level of funding. For this targeted call, previous involvement of the company in KTP will not be taken into account in determining the grant level.

Your regional KTP Adviser will be able to provide more details on funding levels (see below).

Application process

To apply through this targeted call, businesses should contact one of our KTP Advisers. KTP Advisers provide advice on eligibility and timescales, and work with all potential KTP partners to develop joint proposals.

The application process involves:

Stage 1: Expression of interest (EOI)

Stage 2: Approved EOIs are followed-up with invitations to submit a grant proposal and application form

Stage 3: Our Partnership Approvals Group (PAG) makes a funding recommendation

Stage 4: For this competition there is also a further assessment involving the Technology Strategy Board and rail industry representatives.

What is KTP?

KTP helps businesses improve their competitiveness, productivity and performance through better use of the knowledge, technology and skills available within the UK knowledge base. The programme is UK-wide, headed by the Technology Strategy Board, and supported by 12 other public sector funding organisations.

A KTP involves the formation of a partnership between a business, an academic institution (or other knowledge base partner) and a recently qualified graduate, who is known as the Associate. The aim of the partnership is to facilitate the transfer of knowledge, and embed new capability within the business.

Through collaboration, these partnerships can:

- involve highly qualified people in spearheading new projects
- engage experts to help take organisations forward
- develop innovative solutions to help organisations grow
- develop the capacity and capability to innovate more effectively.

KTP projects may be independent of, or complementary to, applications for the *Enabling the digital railway* competition for funding, which is running in parallel with this targeted call. However, organisations applying for both KTP and for collaborative R&D funding should ensure that their proposals can stand alone and are not dependent on both applications being successful. For details of the *Enabling the digital railway* competition, see **www. innovateuk.org** under Competitions.

See **www.ktponline.org.uk**, under 'contact us,' to locate your local KTP Office and/or KTP Adviser.

High-quality KTP proposals that are not selected as part of the cohort may be funded as part of the wider KTP programme.

If you have a proposal that is not within the scope of this targeted call, you may still be eligible for a KTP grant. The scheme runs throughout the year and supports projects in many fields. You should contact your local KTP Adviser in the first instance (**www.ktponline.org.uk**).

This targeted call opens on **15 April 2013**. The deadline for applications is **noon on 2 October 2013**.

A briefing webinar will be held at **11am on 25 April 2013** to highlight the main features of this targeted call and explain the application process.

NB under this targeted call, applications will be assessed for funding and cohort membership on an ongoing basis, ie as they are submitted.

More information

For more information about KTP or about eligibility or suitability of projects under this targeted call, please contact your regional KTP Adviser. Adviser contact details are available on the KTP website – **www.ktponline.org.uk** – under 'contact us'.

Competition Helpline:
0300 321 4357

Email:
ktp_companies@tsb.gov.uk

Publicity

As part of the application process all applicants are asked to submit a public description of the project. This should adequately describe the project but not disclose any information that may impact on intellectual property, is confidential or commercially sensitive. The titles of successful projects, names of organisations, amounts awarded and the public description will be published once the award is confirmed as final. Information about unsuccessful project applications will remain confidential and will not be made public. E-mail pressoffice@tsb.gov. uk with any queries.

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

The Knowledge Transfer Partnerships Programme is part of the Government's Solutions for Business portfolio.

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Key dates

Targeted call opens	**15 April 2013**
Optional briefing webinar	**11am, 25 April 2013**
Deadline for applications	**Noon, 2 October 2013**
Partnership Approvals Group (PAG) meeting	**24 October 2013**
Final funding outcomes/ cohort membership announced	**November 2013**