



A guide to
**Cross-industry research
and development**

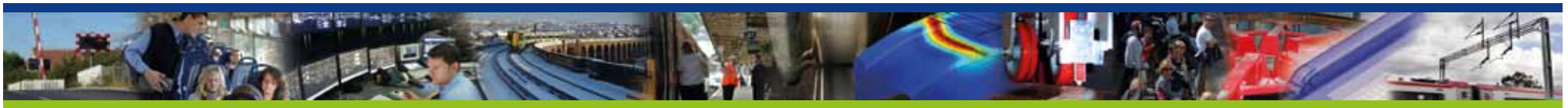
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Introduction to the programme

To address today's and tomorrow's challenges, the rail industry shares a research and development capability at RSSB, the industry's own body.

Research to support industry needs and goals

The railway is a vital part of Britain's transport system. Rail's popularity has grown substantially over the last 20 years and demand is predicted to grow even further.

To satisfy this growth and to remain a viable and sustainable mode of transport, the railway needs to reduce its own costs, increase capacity, performance, customer satisfaction and its environmental credentials, while maintaining a positive safety record.

Research and innovation supports the industry to achieve its short and long term goals.

Shared R&D capability

Delivery of railway services is done by many organisations, and all share the common purpose of improving performance and reducing cost. Through RSSB, the industry works together to address issues which no individual company or sector of the industry can solve on their own.

Industry and government benefit from investing in a shared research programme. Managed by RSSB, the programme supports rail companies working together and addresses issues as a whole. Since 2001, and continuing since RSSB was created in 2003, this R&D capability has been largely funded by the government, with funding also coming from RSSB members and the European Union.

The programme represents an efficient and cost-effective means for the industry to come together to research, develop and problem-solve, whilst retaining complete ownership and direction of the outputs through the ownership of RSSB.

A changing programme for a changing world

The industry's R&D programme has delivered a wide range of solutions and knowledge to improve the operation and engineering of the railway system, and supporting the people that make it work. The programme has evolved from being solely about safety to a broad portfolio of issues where industry wants to collaborate. The focus is on providing a solution to a problem or opportunity, and increasingly this does not always involve a conventional approach to R&D.

Over the years, RSSB has improved the management of the programme, doing more to maximise the return on investment for stakeholders.

More recent changes will:

- Provide wider industry access to research and development support
- Give greater industry oversight across the whole programme and RSSB's management of it
- Apply good governance principles and robust decision making, by separating the roles of project sponsor and authoriser
- Further demonstrate industry commitment to the implementation of research outcomes and establishing the initial case for it

Recognising the value that continues to be delivered, the Department for Transport has confirmed its intent to provide funding for the R&D programme at the level of £9 million per annum until 2015.

This guide is designed to help you better understand what the research programme is and how to get involved.



The scope of the programme

Research and development can help the industry address any problem or opportunity it faces.

R&D supports industry's needs in a wide range of areas, from tactical incremental innovations, to long-term step changes in technology. It includes strategic research aimed at helping achieve the industry and government's long term goals for the railway.

The programme addresses:

- **Interface issues:** engineering and operational interfaces within the railway, and interfaces with other parts of the community and society
- **System issues:** improving understanding of how the whole railway behaves and the interactions of its constituent parts
- **Strategic issues:** to support cross-industry planning and the development of the future vision and technical strategy of the railways and assess how that can and should be delivered
- **Many other issues** that individual companies cannot address on their own, eg identifying good practice





Overview of the programme

The rail industry can exploit the programme in different ways, depending on the issue or idea.



Cross-industry research

Much of the programme is delivered through cross-industry research and development, where the idea and path to implementation is driven and owned by industry as a whole.



Co-funding schemes

There are additional opportunities for co-funding research and development. These include partnerships with other research funders and a grant scheme for research co-funded with industry.



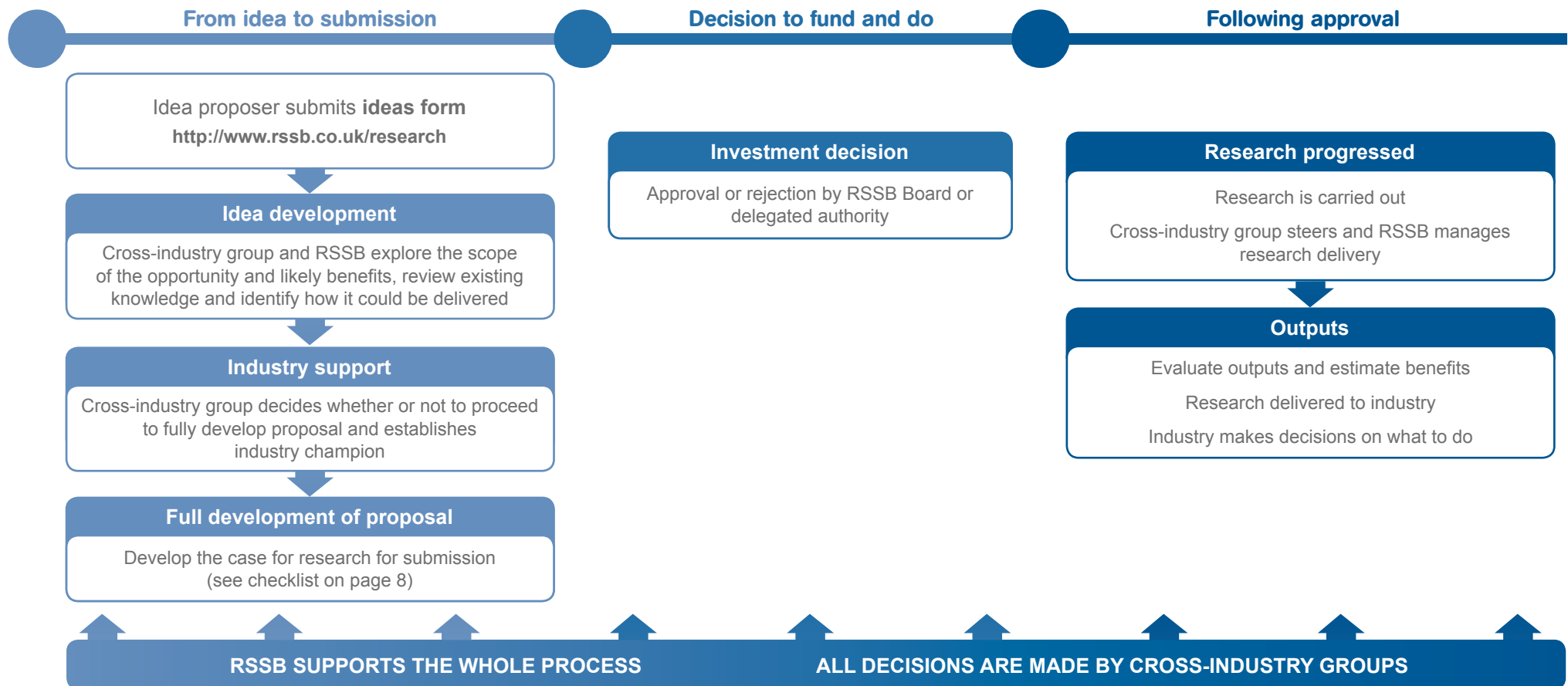
Knowledge services and partnerships

Knowledge services and partnerships with others give access to a wider body of existing knowledge. These services support research in the other areas and will often provide the solutions without a more conventional approach to research and development.



Cross-industry research - Process at a glance

From an initial idea, through its development, decision to fund and its delivery, RSSB supports industry decisions through the research lifecycle.





Cross-industry research - From idea to submission

Research proposals need strong industry support and a clear understanding of the intended benefits and path to implementation.

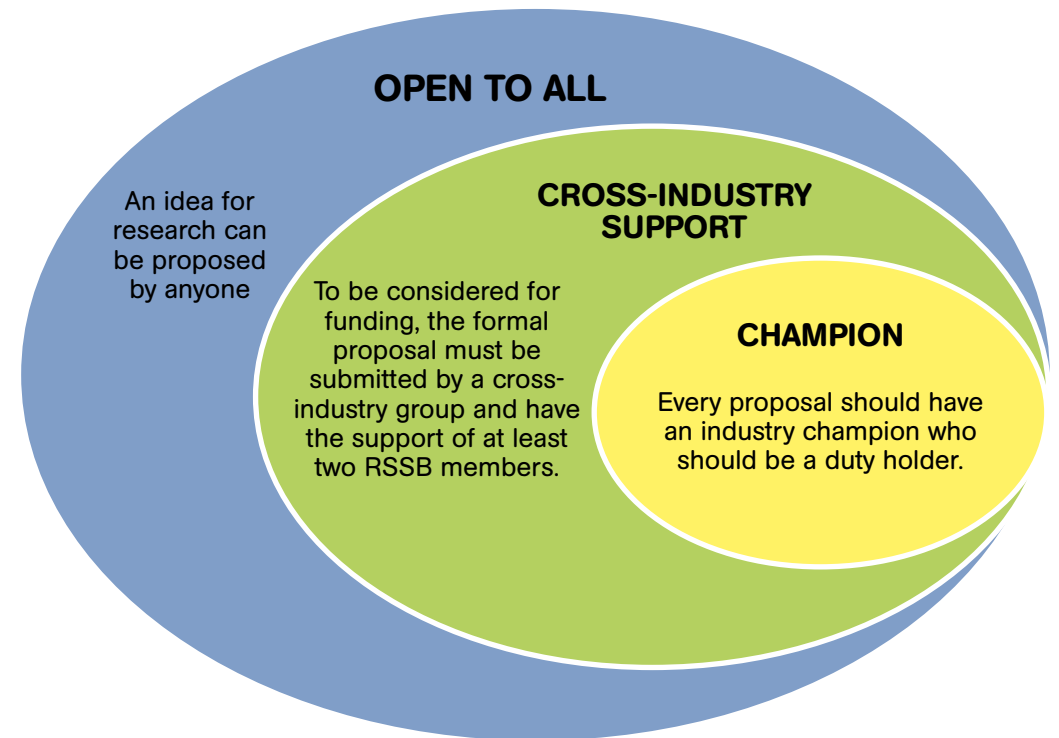


Ideas for research can come from anywhere. Wherever an idea originates, a cross-industry group will need to build consensus for the 'case for research': the need for the research; its content and how it should be delivered ('do or buy'); likelihood of successful delivery and implementation; and its likely rewards.

Industry needs to establish firm and visible support for all proposals. This includes early identification of an industry champion for the proposal (see page 9) and clear support from the parts of the industry most likely to benefit, in the form of RSSB members (who are likely to be part of the cross-industry group supporting the R&D).

RSSB can offer as much support to industry as is required in the preparation of proposals. From putting individuals in touch with the right cross-industry groups, through to comprehensive help with putting together a business case, searching for existing knowledge and preparing a project specification.

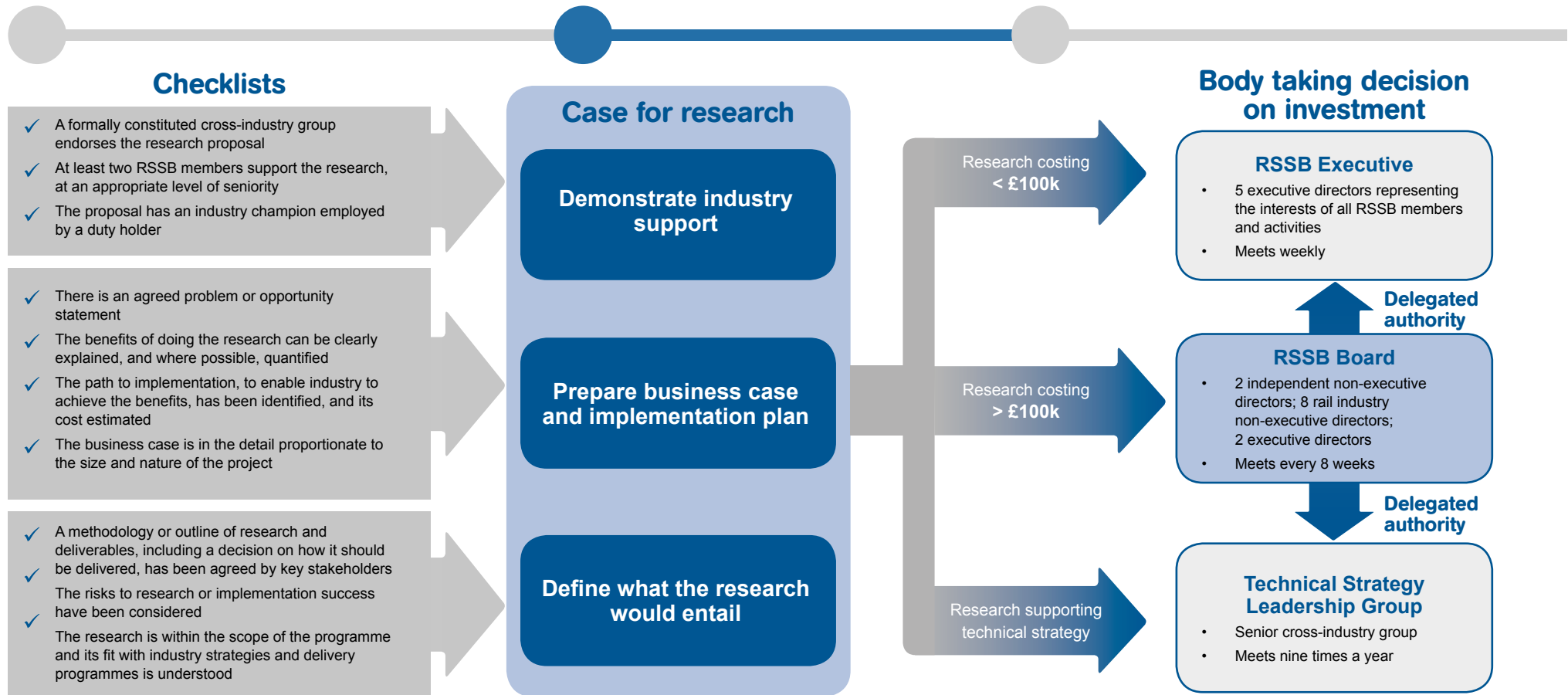
Whatever level and nature of support is needed, if you have an idea for research, get in touch as early as possible (see contact page) and submit an **ideas form** <http://www.rssb.co.uk/research> to describe your idea.





Cross-industry research - Decision to fund and do

The RSSB Board and its delegated authorities make decisions as to whether or not to fund research projects, based on the submission of a case for research.





Cross-industry research - Following approval

The champion, cross-industry group and RSSB all have parts to play in the successful delivery of a research and development project.

Once research is approved, projects are delivered through RSSB but everyone has a vital part to play in ensuring successful delivery.

The cross-industry group and champion work with RSSB so all can fulfil their roles, and ensure the research is delivered in line with expectations. The roles will vary depending on the nature of the project (each one is unique), and the following is a guide:

Role of industry champion

The industry champion is the figurehead for the research: promoting it and recognised as champion, including at key events

Role of cross-industry group

- Steer project
- Review and approve outputs
- Facilitate access to necessary data, people and equipment
- Lead path to implementation

RSSB's role

- Programme and project management
- Support to industry champion and cross-industry group
- Stakeholder engagement and facilitation
- Technical input, support and review
- Business case and economic evaluation
- Knowledge and technology search and analysis
- Undertake research using in-house resources and expertise or procure and manage the supply chain
- Financial control
- Communication, publication and management of intellectual property for industry's benefit



Co-funding schemes

To provide more value for money, and get the most out of available funds, RSSB also co-funds research with others.

Co-funding enables the industry to gear its research by adding millions of pounds of additional investment. Partnerships with the Engineering and Physical Sciences Research Council (EPSRC) and the Technology Strategy Board (TSB) extend the focus of research to both ends of the spectrum as part of delivering innovation.

RSSB is always interested in developing new co-funding partnerships

The grant scheme

In addition to these strategic partnerships, RSSB offers a grant scheme which provides an alternative way for research to be managed and funded.

Primarily aimed at projects with a more direct route to industry application, the grant is intended to help individual RSSB members overcome potential financial

obstacles to the development and implementation of R&D.

Key features

- ✓ The project is managed by the member or consortium, rather than RSSB.
- ✓ The project does not need to be endorsed by a formal cross-industry group.
- ✓ Intellectual property rights are flexible, recognising the consortium's contribution; however the industry must retain some benefit, to justify RSSB funding.

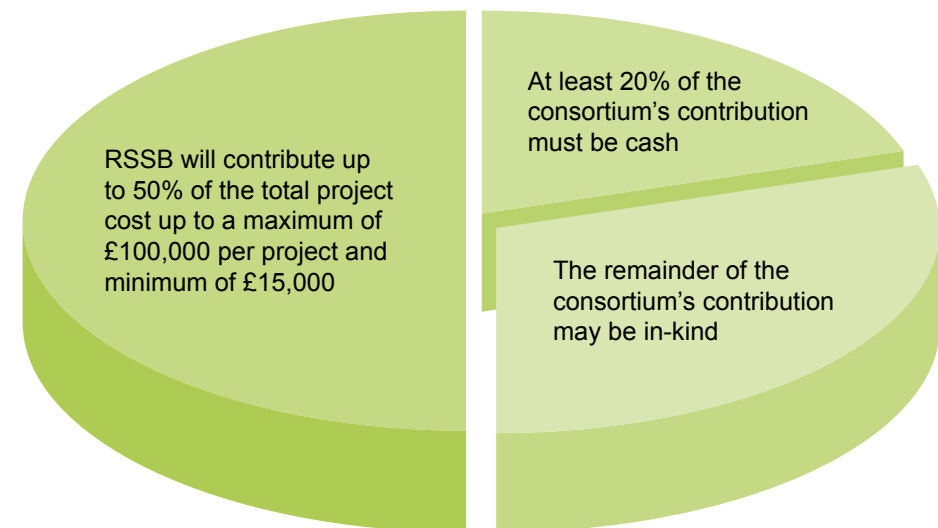
Who can apply?

Applicants for the grant scheme are open to a consortium of generally at least two potential users of the research outputs, and must include one RSSB member. The RSSB member should lead the application.

See website

www.rssb.co.uk/research for the details of calls for research under the EPSRC and TSB partnerships and for full submission criteria and details of the grant scheme mechanism.

Potential contribution by RSSB and your consortium





Knowledge services and partnerships

A better understanding of existing knowledge and research undertaken by others can lead to alternative ways of delivering solutions, saving time and cost.

Saving time and reducing cost

A solution may not always need a project. RSSB has a range of knowledge searching and sharing services so that the time and effort involved in a dedicated research project might be saved.

Knowledge and technology transfer services

These aim to maximise the opportunities for the GB railway industry to benefit from technology developments in other industries and countries.

The services:

- Identify what is known on a given subject
- Analyse applicability and opportunity for transfer of existing knowledge to GB rail
- Actively monitor technological developments
- Match knowledge with issues and opportunities identified by industry

Knowledge management and dissemination: SPARK

To support all these activities, RSSB is developing SPARK: a web tool for the rail industry to share and find key information and help innovation.

SPARK helps us to understand what we know and who knows it and creates opportunities for networking and cooperation.

Register and login at:
<http://spark.rssb.co.uk>



Rail Research UK Association (RRUK-A)

Recognising the potential contribution that the academic community can make to rail innovation, the industry actively engages with the university sector. RSSB and Network Rail co-fund RRUK-A as a bridge between industry and academia which brings together those who do research with those who can use and fund it.

Find out more at
www.rruka.co.uk



Knowledge sharing partnerships

To minimise duplication and increase cooperation, RSSB seeks knowledge sharing partnerships with other organisations which run programmes of research. This gives us access to knowledge about what has been done or is being planned elsewhere, that is not always publicly available, and can lead to collaborative research.



How to get in touch

Key contacts



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If you have any enquiry about the research and development programme, this guide or RSSB as a whole, email any of us or telephone us on 020 3142 5300 or write to us at:

RSSB

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More information

More detail about the research and development programme is available, including answers to frequently asked questions and details of existing and published projects, on the RSSB website: www.rssb.co.uk/research

From here you can also find relevant documentation to engage with the programme such as:

- Ideas form -for initial ideas registration
- Proposal pack for formal submission
 - Business case templates
 - Specification template
- Grant scheme application forms
- Knowledge and technology transfer services information
- Calls for co-funded research with TSB and EPSRC
- Forming a knowledge sharing partnership with RSSB



More about RSSB

About RSSB

RSSB is a not-for-profit company owned and funded by major stakeholders in the railway industry, but is independent of any one party. RSSB has around 230 staff, including in-house expertise in the engineering and operation of the railway. These include track and structures, control, command, and signalling, rolling stock, and energy as well as human factors, workforce development, risk analysis, decision support, safety management systems, and sustainable development.

Research is one of the core capabilities RSSB provides the industry alongside:

- Risk modelling
- Managing safety information
- Reporting systems (including confidential reporting)
- Shared standards
- Technical expertise

In addition, RSSB brings the industry together as part of co-operative programmes. RSSB's consensus building role has developed, as industry has exploited its functions, and the benefits from cooperation have increased. The unique mix of people, capabilities and stakeholder engagement provides the industry with an efficient way of addressing issues, and taking decisions collectively - and having a research capability to support this.

Membership of RSSB provides greater access to these products and services. For information about RSSB membership, email enquirydesk@rssb.co.uk, or telephone 020 3142 5400.

Some Images courtesy of:

- > Network Rail
- > University of Birmingham

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