

# KEYWORD

## INDUSTRIAL COLLABORATION PROGRAMME

ROUND 3 - 2023  
Competition Guidance

# Section 1:

## Overview

### SUMMARY

The Henry Royce Institute for Advanced Materials is offering grant funding for research, development, and innovation sprint projects. Universities, research and technology organisations and companies can apply for funding up to total project costs of £125,000 for exploring innovative ideas with a focus on technology translation. These awards are not intended to support fundamental research projects.

### SCOPE OF ELIGIBLE TOPICS

#### Hydrogen

- Materials-led solutions to improve performance radically, reduce cost, and extend operational lifetimes of green electrolysis routes.
- Cost-effective materials solutions for hydrogen storage, distribution, and end-use over a wide range of temperatures and pressures.
- Smart materials for real-time monitoring of critical hydrogen infrastructure.

#### Biomaterials, bioprinting and bioelectronics

- Bio-inspired materials and structures with novel properties and functionalities for tissue engineering and regenerative medicine.
- Innovative bioprinting technologies for the fabrication of complex biological structures with high precision and reproducibility.
- Advanced biosensors with high sensitivity, selectivity, and specificity for medical diagnosis and environmental monitoring.

#### Low-loss electronics

- New dielectric materials with low loss and high energy density for power electronics applications.
- Semiconductors with improved performance and reliability for high-frequency and/or high-power applications.
- Organic and inorganic semiconductors for emerging applications.
- Materials for quantum technology.
- Materials and devices underpinning the development of new, energy-efficient computing architectures (e.g. spintronics, memristors).
- New materials solutions that enable circular and sustainable electronics.

## Materials 4.0

- New digital materials design tools and techniques for faster and more accurate materials discovery and optimisation, including high-throughput approaches to modelling, making, characterisation and testing and data-driven approaches.
- Smart materials with adaptive, responsive, and self-healing properties for applications in sensors, actuators, and energy harvesting.
- Additive manufacturing technologies with high throughput, precision, and scalability for mass production of complex parts and structures.
- Digital models of materials to simulate their behaviour under different conditions, enabling the prediction of the performance of the material before it is produce

## Foundation industries

- Sustainable materials with reduced environmental impact and improved resource efficiency for construction, transportation, and consumer goods.
- Circular economy strategies and technologies for recycling and reuse of materials and products, reducing waste and pollution.
- Innovative approaches for waste reduction and materials recovery in mining, minerals processing, and other foundation industries.

## FUNDING AVAILABLE

It is anticipated that a minimum of £2m of funding will be awarded.



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## Section 2:

# Eligibility

### PROJECT SIZE

Total project costs must be between £75,000 and £125,000

### PROJECT DETAILS

**Your project is expected to:**

- Include at least one business and at least one university or RTO
- Start from the 1st of October 2023
- Complete all Royce-funded activity by 29th February 2024
- Carry out its project work in the UK
- Intend to exploit the results from or in the UK
- Incur costs within the project's duration
- Be a new project or activity that has not already started

**Participation of either Royce partners or facilities in projects is optional but is strongly encouraged and looked upon favourably.**

### WHO CAN PARTICIPATE?

**To collaborate or lead, you must be one of the following:**

- Academic institution
- Research and technology organisation (RTO),
- Charity or not for profit organisation
- Business of any size

**UK registered companies may participate and claim funding. International companies are eligible for participation but cannot claim funding.**

## WHO CAN LEAD?

### Project leads can be:

- An appropriate senior manager from industry
- A researcher holding an academic position (e.g. lecturer or equivalent)
- Holders of early career fellowships whereby the university grants you the same stature as a permanent academic staff member.
- University or research and technology organisation technical professional services staff (e.g. Technical facility experimental leads and technical specialists or equivalent)

**Postdoctoral fellowships are ineligible.**

**Principal Investigators can lead one proposal and collaborate on one additional proposal.**

## ROYCE SUPPORT

Dedicated Royce scientists, called application scientists, have been recruited by Royce to support short-term industry-led project delivery. The application scientist team is available as a shared resource and can be costed into proposals where dedicated support does not exist. Application scientists are available in the following thematic areas and locations:

### Manchester

- Biomaterials, fibre technologies and additive manufacturing.
- Evaluation of materials for demanding environments
- Sustainable polymer synthesis and end-of-life
- Materials chemistry/foundation industries
- Textile engineering

### Oxford

- Electrochemical systems

### Sheffield

- Advanced metals processing
- Functional films and ceramics

### Liverpool

- Materials design, high throughput robotics

Where projects request access to application scientists, applicants are asked to seek prior approval from the Royce Chief Technology Officer by writing to [info@royce.ac.uk](mailto:info@royce.ac.uk) to ensure sufficient time allocation for project delivery.

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## Section 3:

# Funding model & eligible costs

## GRANT TYPE

These funds flow through a UKRI institute and will therefore follow [UKRI terms and conditions](#).

## FUNDING MODEL

The grant awarded to successful projects covers a proportion of the project partners' eligible costs. The grant amount is determined by the type of recipient (University, RTO, or business). If a recipient is a company, the grant aid intensity is affected by the company's size (Small, Medium, or Large), and the project's research, development and innovation classification (feasibility study, industrial research, or experimental development).

Companies can claim a grant equal to a percentage of their total project costs. The percentage can be found according to the following table:

	Feasibility Study	Industrial Research	Experimental Development
Small Enterprise	70%	70%	45%
Medium Enterprise	60%	60%	35%
Large Enterprise	25%	25%	25%

Definitions for company sizes and project classifications are found in appendices B and C. The Royce will, at its discretion, determine and change the classification of the research project if it finds them unsuitable.

Academic organisations and research and technology organisations undertaking non-economic activity can obtain funding:

- Up to 80% of full economic costs (FEC) for UK Je-S registered institutions, or
- 100% of project costs for RTO, charity and not-for-profit organisations

Access to Royce facilities will be funded at 100% for academic institutions and RTOs and should be included in their project costs.

Fundamental research projects are ineligible for funding.

## ELIGIBLE COSTS

### For academia (Je-S registered organisations):

Academic leads must contact their research support teams and start their usual costing process. Please use an EPSRC costing template to ensure costing according to full economic costs.

Item	Eligible cost	Notes
Directly incurred:	PDRA costs	Should be an existing staff member
	Consumables and minor equipment	The maximum <b>individual</b> consumable cost is £10k
	Equipment usage	<b>For Royce facilities, costings should be obtained from the appropriate facilities manager</b> Contact <a href="mailto:info@royce.ac.uk">info@royce.ac.uk</a> Royce facilities are funded at 100% FEC.
	Capex	<20% of total project costs can be allocated to buy or enhance a Royce facility
	Travel and subsistence	Max £5k
	Training and development	Max £5k
	Events and outreach	Max £2k
	Subcontractor	With prior agreement from <a href="mailto:info@royce.ac.uk">info@royce.ac.uk</a>
Directly allocated:	Investigator time	
	Technicians, Technical specialists, Industry fellows	
	Application scientists	
Indirect costs:	Estates, technician, IS and other costs	

**Academic leads require explicit consent from all staff named on a project**, including confirmation from relevant facilities managers that there is a sufficient allocation of time for both named staff and relevant facilities, to ensure the work can be completed on time.

### For industry / RTOs / not-for-profits:

The project follows [UKRI's costs guidance for non-academic organisations](#).

Item	Note
Labour	PAYE costs only
Overhead	Royce funds a flat 15% rate for labour for overheads only
Materials and minor equipment	The maximum <b>individual</b> consumable cost is £10k All items procured under this category must be used solely for research and not for commercial purposes
Capital expenditure (>£10k)	Ineligible
Capital usage/equipment usage	Allowed as per UKRI guidance
Subcontractor costs	With prior agreement
Travel and Subsistence	Max £5k

All amounts are inclusive of VAT. All eligible costs must be incurred directly due to the project and for research, development and innovation purposes only. The use of grant resources for commercial purposes is not allowed. All eligible costs should be limited to those strictly necessary for the project or activity, and in respect of projects, limited to the time of the project.

If a project partner does not wish to claim grant funding or wishes to provide in-kind or cash contribution towards the total project costs, it should outline this on a company letterhead document signed by a senior company official. These additional in-kind or cash costs do not count towards the total £125,000 project costs limit and will be required to be included in the contractual collaboration agreement, which must be signed between project partners.

Worked examples of project costs are provided in Appendix C.

## SUBSIDY CONTROL FRAMEWORK

The competition awards funding to businesses under the Subsidy Control Act 2022 under the [Research, Development and Innovation Streamlined subsidy scheme](#).

Companies will be asked to declare the total amount of state aid received in their current and previous two financial years. This should include aid received by linked enterprises as defined by [HMRC](#).

Royce is unable to fund high risk organisations and applications will be subject to financial and due diligence checks.



# Key Dates

02 May 2023	Pre-announcement
15 May 2023	Competition opens
22 May 2023	Briefing event
30 June 2023	Competition closes
31 July 2023	Applicants notified
01 October 2023	Projects can start
29 February 2024	Project funding ends

## Section 4:

# Completing & submitting your application

## APPLICATION QUESTIONS

### Public Project Description

Provide between 200 and 400 words describing your project. Use only information you are happy to publish in the public domain. Information in this answer may be used to develop case studies.

#### The idea

What problem do you wish to solve, and why is your proposed approach an innovative solution?

**You should consider the following in your answer:**

- The specific innovation you propose to develop and how this is different and better than alternative solution
- Alignment with the scope of the call
- Any barriers to adoption and how they could be overcome
- Why your solution is novel, important and timely

Your answer can be up to 600 words long.

#### Impact and added value

What will be the impact of receiving the grant to your project?

**You should consider the following in your answer:**

- A list of outputs of the project in terms of specific deliverables and how will the UK benefit
- Why public funding is necessary and value for money, for example, is there currently a lack of investment, or market failure
- The impact on your project idea
- What are the expected impacts on society, the economy and the environment? If they are not immediately available describe how these may look like
- An outline of how the project will progress and capture follow-on and under what timescales

Your answer can be up to 600 words long.

## Project resources and capabilities

Explain why your partners are capable of delivering this project.

**You should consider the following in your answer:**

- What resources you can access, including the main people involved, relevant track records, and any external resources
- Your capability to deliver in the required timeframe given your existing business activities or constraints
- How you will deliver outcomes and impact beyond the life of the project, what is your route to market

Your answer can be up to 600 words long.

## Workplan and costs

What will you do with the grant funding? How will you manage the project and risks effectively?

**You should consider the following in your answer:**

- The TRL of the project before and after the funding
- What the funding will be spent on, referring to costs for main work packages
- Project risks and how you will mitigate them.
- Your freedom to operate, for example, patents, IP

## Section 5:

# Next steps

Your application will be confidentially shared with, and assessed by an independent panel made up of experts in the field from industry and academia against the following criteria:

- The idea and potential for a substantive step-forward
- Impact and added value
- Appropriate project resources and capabilities
- Appropriate workplan and ability to complete by 29th February 2024
- Justification of costs and value for money
- Ability to deliver a high impact project
- Overall fit to Royce funding objectives

Any applications deemed out of scope will be rejected.

Royce will provide unsuccessful applicants with feedback.

If your application is successful, you will be issued a grant offer letter outlining the requirements for funding. You will be asked to provide:

- Name and contact details for the partners' financial and contract leads for the lead partner. If the project is industry-led, we will require the finance details of all parties.
- A collaboration agreement between the project partners which could be based on a [Lambert](#) template for university and company collaborations, or a [Brunswick](#) template for university-to-university collaborations. The project partners are responsible for negotiating this after the award, preferably to be agreed before a project commences (NB no project funds will be released until a collaboration agreement is in place).

### Contact details:

Please email any queries to: [info@royce.ac.uk](mailto:info@royce.ac.uk)

To apply please visit <https://www.royce.ac.uk/industrial-collaboration-programme/>





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## Appendix A

# Company sizes definitions

Definitions as per Companies Act 2006.

### COMPANY SIZES

<b>Micro entity</b>	A micro-entity must meet at least 2 of the following conditions: <ul style="list-style-type: none"><li>• turnover must be not more than £632,000</li><li>• the balance sheet total must be not more than £316,000</li><li>• the average number of employees must be not more than 10</li></ul>
<b>Small company</b>	For accounting periods beginning on or after 1 January 2016, a small company must meet at least 2 of the following conditions: <ul style="list-style-type: none"><li>• annual turnover must be not more than £10.2 million</li><li>• the balance sheet total must be not more than £5.1 million</li><li>• the average number of employees must be not more than 50</li></ul>
<b>Medium company</b>	To be a medium-sized company, you must meet at least 2 of the following conditions: <ul style="list-style-type: none"><li>• the annual turnover must be no more than £36 million</li><li>• the balance sheet total must be no more than £18 million</li><li>• the average number of employees must be no more than 250</li></ul>
<b>Large</b>	Any companies that do not meet the criteria for micro-entities, small or medium companies are large.

Note that only organisations registered with the Companies House are eligible for funding.

You are also unable to claim funding if:

- you are an overseas organisation (company number beginning with FC)
- your organisation is setup as a branch (company number beginning with BR)
- you are a collaboration with no formal structure of ownership or control (company number begins with ML)
- you are a crown dependency based in Jersey, Guernsey and Isle of Man
- your company is based in any of the British Overseas Territories

The programme is unable to fund enterprises that are in financial difficulty.

# Project classification definitions

The funding intensity table is established from the UK's new Subsidy Control Act under the streamlined RD&I route. In determining project classification businesses need to determine which of the following definitions reflects the work conducted in the majority of their work packages.

**“Feasibility study”** means the evaluation and analysis of the potential of a project, which aims at supporting the process of decision-making by objectively and rationally uncovering its strengths and weaknesses, opportunities and threats, as well as identifying the resources required to carry it through and ultimately its prospects for success.

**“Industrial research”** means the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services.

**“Experimental development”** means acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services.



## Appendix C

# Worked Examples

### EXAMPLE 1

University AB partners with company YZ Ltd, based in Manchester, UK, and are keen to collaborate on a project to explore a feasibility study for the computational design of new anti-corrosive materials.

University AB initiates its internal costing processes to determine its costs and determines that the full economic costs of the work are £60,000. Company XY Ltd, a small company, determines that the cost of labour and materials is £40,000. If the grant application is successful, the grant will pay:

Project partner	Project cost	Funding Intensity	Grant payable
University of AB	£60,000	80%	£48,000
XY Ltd	£40,000	70%	£28,000

### EXAMPLE 2

A research and technology organisation (RTO) partners with company VY Inc, based in the USA. They are keen to conduct an industrial research project to explore the thin-film deposition of new materials.

The RTO initiates its internal costing process and determines total project costs of £80,000. Company VY determines total costs of £40,000.

As the company is based abroad, it is ineligible to receive grant funding. The company prepares a letter outlining its £40,000 in-kind contribution to the project, submitted as part of the proposal submission. They are not required to include costs within the costing document. If the grant application is successful, the grant will pay:

Project partner	Project cost	Funding Intensity	Grant payable
RTO	£80,000	100%	£80,000
VY Ltd	0	-	£0



### EXAMPLE 3

The University of BC partners with company KR Ltd, based in Leeds, UK to explore the feasibility of a technology to prolong the lifetime of green electrolysis.

The University of BC has project costs of £100,000. KR Ltd does not wish to claim a grant and further contributes £30,000 of in-kind costs, which includes access to staff time, consumables, and its facilities.

As part of the application, KR Ltd is not required to complete the costing document but is required to prepare and upload a letterhead outlining the in-kind support towards the project costs.

If the grant application is successful, the grant will pay:

Project partner	Project cost	Funding Intensity	Grant payable
University of BC	£100,000	80%	£80,000
KR Ltd	£0	-	£0

