Innovate UK

Driving the Electric Revolution

PEMD Scale-up competition

Opening 21 September 2022
Application Briefing

Contents

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Aims of this briefing:

- To bring the scope and guidance to life, so you fully understand the competition and the relevant rules and processes for applying for and undertaking a project
- To give you the opportunity to think of questions on competition scope and how to apply, and get appropriate guidance from support@iuk.ukri.org
- To highlight where you can find help at Innovate UK KTN, including networking opportunities and application advice

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PEMD Scale-up competition

Strand 1: adopting manufacturing best practice

Strand 2: manufacturing process development

Applicant briefing

Introduction to Innovate UK and UKRI

UKRI Innovate UK

UK Research and Innovation

We work with the government to invest over £7 billion a year in research and innovation by partnering with academia and industry to make the impossible, possible. Through the UK's nine leading academic and industrial funding councils, we create **knowledge with impact**.

UKRI Innovate UK

Innovate UK

- We are the UK's innovation agency
- We support business-led innovation in all sectors, technologies and UK regions
- A key delivery body of the Government's Innovation Strategy

Our Mission

To help UK businesses grow through the development and commercialisation of new products, processes, and services, supported by an outstanding innovation ecosystem that is agile, inclusive, and easy to navigate.

UKRI Innovate UK

UK ranks 4th in Global Innovation Index

- Innovation accounts for up to 50% of labour productivity growth
- Firms that persistently invest in R&D have higher productivity
- Innovating companies are more likely to export and generate growth

PEMD Scale-up:

Strand 1: adopting manufacturing best practice
Strand 2: manufacturing process development

Competition briefing

Mark Urbanowski: Innovation Lead

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UK Research and Innovation

Challenge update

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Driving the Electric Revolution: Summary

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Power Electronics, Electric Machines and Drives (PEMD)

Identify key gaps in the UK PEMD supply chain and **help industry** fill them enabling delivery of n**et zero**

Funding for industry

Investing **£80 million of ISCF funding** for R&D projects, **accelerating and de-risking** business innovation

Networking and collaboration

Connecting industry, academia, RTOs & the government to ensure **cooperation & collaboration** to efficiently use solutions across the UK

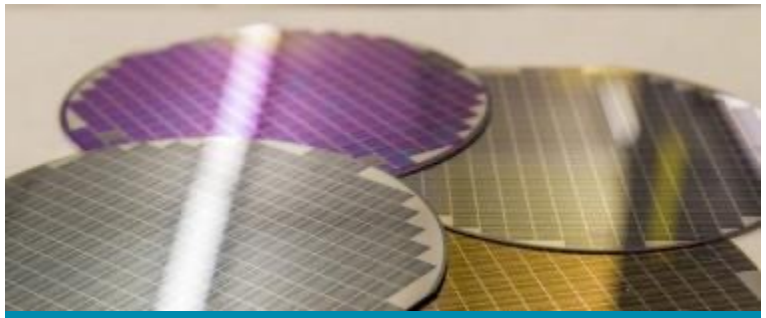
Industrialisation and manufacturing

Leverage the **UK's world leading research** capability in PEMD to **create the supply chains necessary to manufacture PEMD** products

Talent growth

Define & **fill the PEMD skills gap** by **training, upskilling & reskilling** to **grow an evolving diverse & inclusive PEMD workforce** across all levels

Driving the Electric Revolution: Supply chain



Power Electronics

Development of semiconductors (Si, SiC, GaN) and their packaging to enable switching of high power (voltage and/or current) whilst minimising loss

Electric Machines

Conversion between electrical energy and kinetic energy through electromagnetic, mechanical & thermal design optimised for each application

Drives

Intelligent digital control systems embracing power electronics, passive components, thermal management, mechanical design and the overall system

Manufacturing supply chain

Materials processing

Component manufacture

System integration

Re-use and recycling

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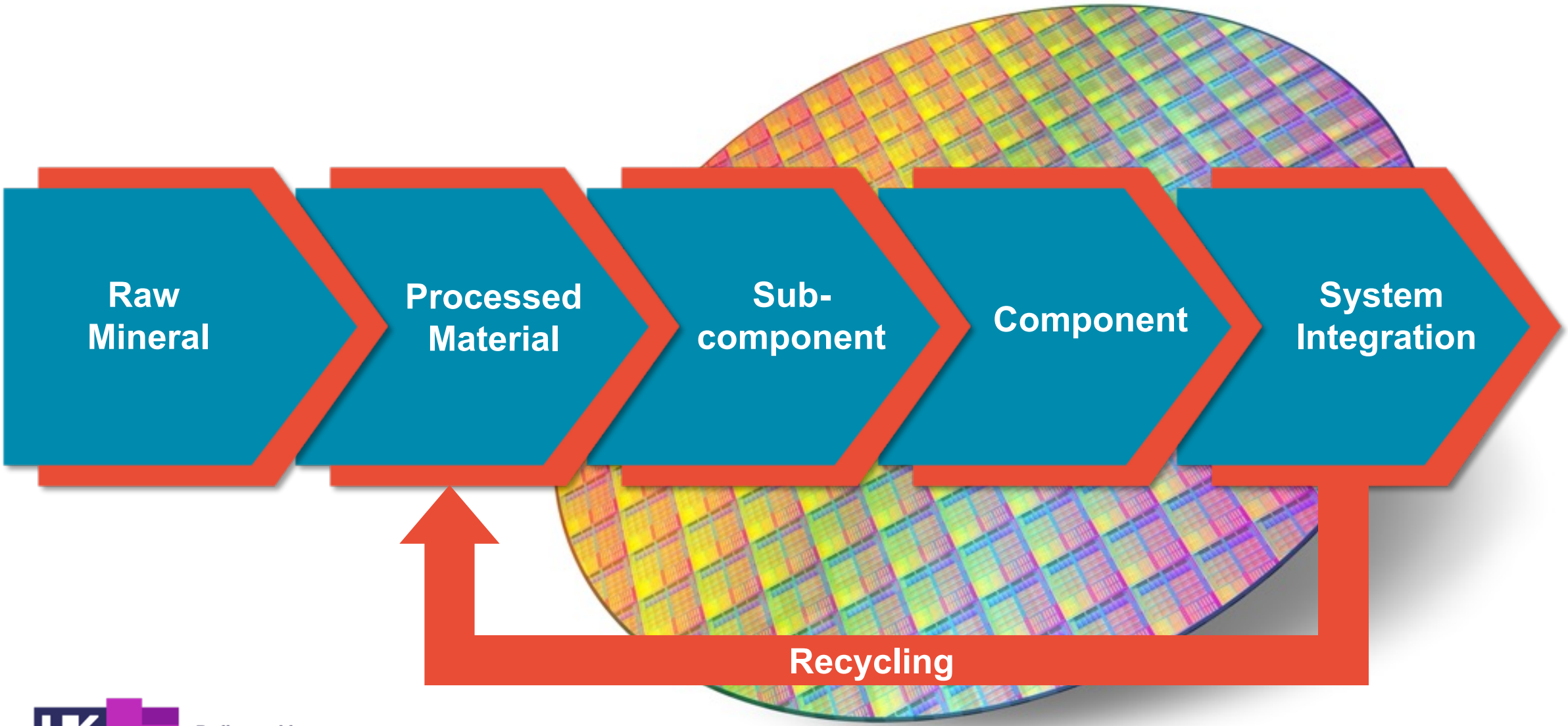
Supporting whole process, materials to product



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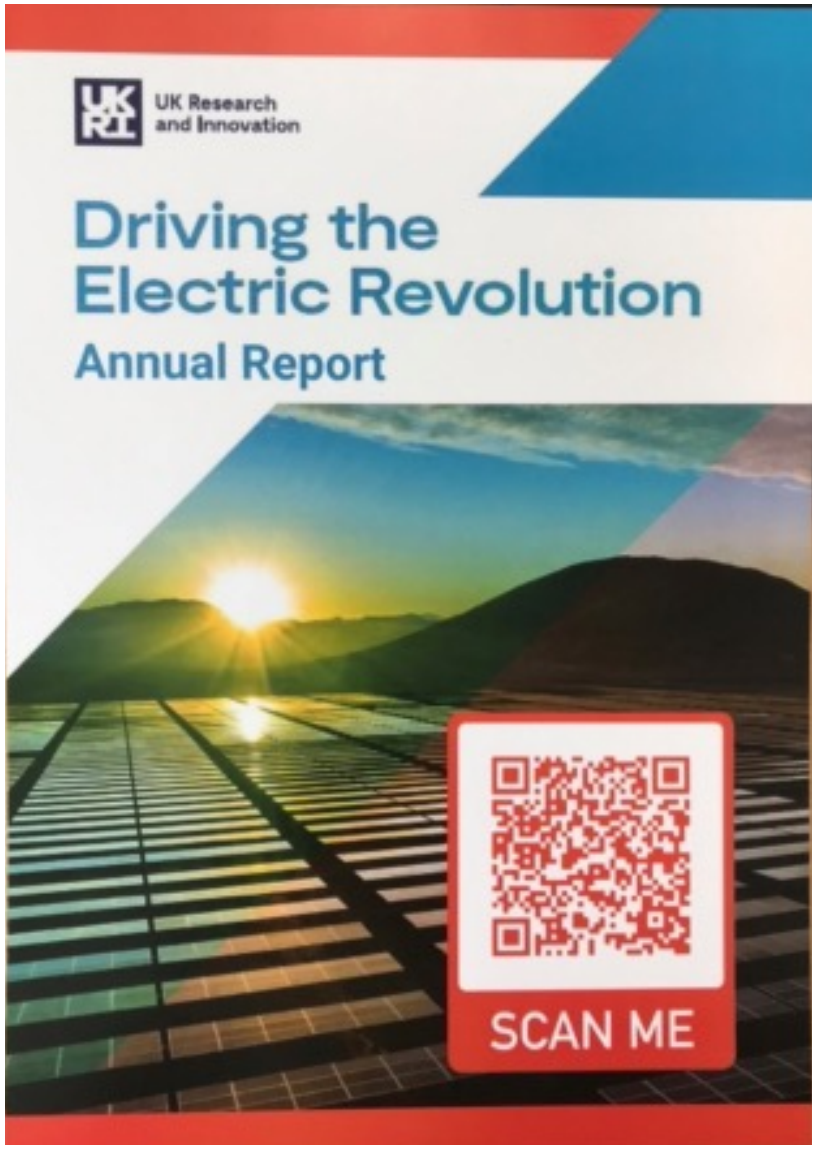
Driving the Electric Revolution: what we've achieved

Contains details of all Driving the Electric Revolution funded projects and partners from across the UK PEMD community

- Over 60 funded projects across CR&D and skills initiatives
- Over 100 funded project partners



For details of funded projects please see our annual report:

https://www.ukri.org/wp-content/uploads/2022/05/UKRI-03052022-DER_Annual_Report_21.pdf/

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Competition aims and scope

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PEMD Scale-up: competition overview

- Drivers such as climate change, supply chain resilience and the cost of energy mean that there is a growing need to invest in UK manufacturing, particularly across the Power Electronics Machines and Drives (PEMD) value chain.

- Innovate UK's Driving the Electric Revolution, part of UK Research and Innovation, will invest up to £5 million in projects that enable the scale-up of PEMD manufacturing to develop a resilient, cross-sectoral, UK supply chain for these enabling technologies critical for net zero.

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PEMD Scale-up: competition aims

For our previous competitions we said:

- *“It’s not what you make, it’s how you make it”*

For this competition:

- *“It’s not how you make it, it’s how you get better at making it”*

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PEMD Scale-up: competition strands

Strand 1: Adopting manufacturing best practice

- which aims to fund feasibility studies that facilitate the transfer of knowledge, solutions, technologies and best practice from other manufacturing sectors and demonstrate the impact of these innovations on the PEMD supply chain.
  - Feasibility studies, lower MRL for the PEMD supply chain, higher risk
  - Look beyond existing PEMD manufacturing industry – what can be brought in new to PEMD
  - Credible exploitation plan and potential for return on investment

Strand 2: Manufacturing process development

- which aims to fund innovative process development projects that impact manufacturing cost, capability and efficiency to grow resilient manufacturing PEMD supply chains.
  - Industrial Research and Experimental Development, higher TRL/MRL, some risk
  - Existing PEMD manufacturing processes to be improved, industrialised or scaled-up
  - Credible return on investment within three years

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Driving the Electric Revolution: challenge portfolio

- We will be funding a portfolio of projects across both strands that will be exploitable across multiple areas of the PEMD supply chain.
- These include markets, locations, strands, themes, technologies and technology maturities.
- We call this a portfolio approach.

The Challenge Director reserves the right to make sure that the portfolio of successful projects, across all Driving the Electric Revolution programmes, will have the greatest positive impact to the UK's PEMD supply chain.

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PEMD Scale-up: Strand 1

Adopting manufacturing best practice

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Strand 1: scope & aims

In this strand we are looking to fund collaborative feasibility projects that will facilitate and de-risk the transfer of knowledge, solutions and technologies from other manufacturing sectors into the UK PEMD community.

- Improve PEMD manufacturing by adopting these solutions, technologies and expertise
- Engaging new organisations adding to the UK's PEMD supply chain

To improve manufacturing:

- capability
- productivity
- efficiency
- quality
- environmental, societal and governance performance

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Strand 1: manufacturing processes

Elements of the manufacturing supply chain in scope include:

- materials processing
- sub-component and component manufacturing
- sub-system integration and assembly
- final assembly of PEMD specific modules
- remanufacturing
- end of life disassembly and recycling

This list is not intended to be exhaustive. Other manufacturing process innovations may be in scope

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Strand 1: projects benefits and impact

Projects **must** be able to demonstrate that:

- the innovation is new to and will positively impact the PEMD supply chain
- there are potential cost and energy savings, productivity and quality benefits to their business
- they will have a positive impact on the environmental, societal and governance (ESG) performance of the PEMD supply chain
- they are exploitable through future activities
- there is the potential to deliver a return on investment should the project be successful

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Strand 1: ideas on what we're looking for

Where innovations for the PEMD manufacturing industry **could** come from:

- Adjacent manufacturing sectors
  - Pharmaceutical and food
  - Consumer electronics and digital technologies
  - Batteries
  - Precision tooling
  - F1/motorsport
  - Printing
- Quality assurance processes from
  - Aerospace
  - Nuclear power
  - Space

This list is not intended to be exhaustive. All manufacturing industries are in scope

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Strand 1: ideas on what we're looking for:

What innovations **could** be brought in:

- Industrial Digital Technologies (IDTs)
  - artificial intelligence, machine learning and data analytics
  - additive manufacturing, robotics and automation
  - virtual reality and augmented reality
  - the Industrial Internet of Things (IIoT) and connectivity
- Low energy processes
  - Materials processing (including copper, steel, aluminium, Rare Earth Elements (REEs), composites)

This list is not intended to be exhaustive

- Must be new manufacturing innovation for the PEMD industry
- Not afraid to fail fast – the funding is to help de-risk and accelerate innovation
- New collaborations across the value chain and supply chain

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Strand 1: project size and duration

Project size: Total grant claim between £50,000 and £400,000

(no limit on total project costs)

Duration: 6 to 12 months

Start date: Projects must aim to start by 1 May 2023

If you are thinking about submitting a project outside of these cost ranges, please contact us at least 10 days before the closing date – support@iuk.ukri.org

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Strand 1: eligibility

- Projects must be led by a UK-registered business
  - any organisation can be a partner
- All projects must be collaborative
- Business can be involved in up to three applications across both strands
  - leading on a maximum of one per strand
- We are only funding feasibility study projects using standard funding rates
- We are funding lower maturity projects or feasibility studies in this strand
- Projects must demonstrate good value for money and possible return on investment

PEMD Scale-up: Strand 2

Manufacturing process development

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Strand 2: scope & aims

In this strand we are looking to fund collaborative, innovative projects that positively impact manufacturing cost, capability and efficiency to grow resilient manufacturing supply chains for UK PEMD.

- Scale-up and industrialise manufacturing processes across the PEMD industry
- Fill key gaps in the UK's PEMD supply chain

To improve manufacturing:

- capability
- productivity
- efficiency
- quality
- environmental, societal and governance performance

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Strand 2: manufacturing processes

Elements of the manufacturing supply chain in scope include:

- materials processing
- sub-component and component manufacturing
- sub-system integration and assembly
- final assembly of PEMD specific modules
- remanufacturing
- end of life disassembly and recycling

This list is not intended to be exhaustive. Other manufacturing process innovations may be in scope

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Strand 2: projects benefits and impact

Projects **must** be able to demonstrate that:

- the innovation will improve efficiency, productivity or flexibility of PEMD manufacturing processes
- there are potential cost and energy savings and quality benefits to their business
- they will have a positive impact on the environmental, societal and governance (ESG) performance of the PEMD supply chain
- they are exploitable through future activities
- there is a credible return on investment

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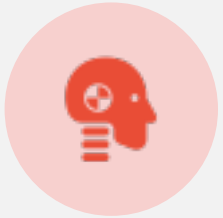
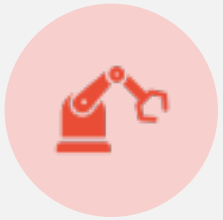
Strand 2: what makes a good project / examples



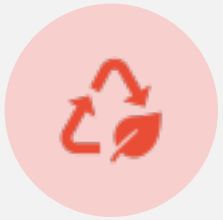
Innovative testing and validation processes example

- Reduced time to test, validate and certify motor controllers (hours to minutes)
- Enabled scale up – optimising the production line



Manufacturing process development example

- End to end process development of high voltage SiC MOSFET wafer fabrication, through packaging manufacturing, to converter system assembly



Circular economy example

- Automated sorting line and process scale up of short loop rare earth extraction with application validation and testing

- Not afraid to fail fast – the funding is to help de-risk and accelerate innovation
- New collaborations across the value chain and supply chain

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For details of funded projects please see our annual report:

https://www.ukri.org/wp-content/uploads/2022/05/UKRI-03052022-DER_Annual_Report_21.pdf/

Strand 2: project size & duration

Project size: Total grant claim between £50,000 and £800,000

(no limit on total project costs)

Duration: 6 to 18 months

Start date: Projects must aim to start by 1 May 2023

If you are thinking about submitting a project outside of these cost ranges, please contact us at least 10 days before the closing date – support@iuk.ukri.org

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Strand 2: eligibility

- Projects must be led by a UK-registered business
  - Any organisation can be a partner
- All projects must be collaborative
- Business can be involved in up to three applications across both strands
  - leading on a maximum of one per strand
- We are only funding industrial research and experimental development projects using standard funding rates
- We are not funding low maturity projects or feasibility studies (see Strand 1)
- Projects must demonstrate good value for money and credible return on investment

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PEMD Scale-up competition: summary

	Strand 1	Strand 2
Title	Adopting manufacturing best practice	Manufacturing process development
Apply here	https://apply-for-innovation-funding.service.gov.uk/competition/1300/overview/cb4556a9-3db9-4ee7-b6e6-30a1128a5380	https://apply-for-innovation-funding.service.gov.uk/competition/1301/overview/f64a4bcf-9007-43cf-a8f1-5e6c0a5c90c9
What	▪ Feasibility studies, lower MRL for the PEMD supply chain, higher risk ▪ Look beyond existing PEMD manufacturing industry – new innovations to PEMD ▪ Credible exploitation plan and potential for return on investment	▪ Industrial Research and Experimental Development, higher TRL/MRL, some risk ▪ Existing PEMD manufacturing processes to be improved, industrialised or scaled-up ▪ Credible return on investment within 3 years
Grant	£50k - £400k (no limit on project costs)	£50k - £800k (no limit on project costs)
Duration	6 to 12 months	6 to 18 months
Team	Must be business-led and collaborative	
Open date	21 September 2022	
Close date	7 December 2022	
Project start	1 May 2023	
Support	support@iuk.ukri.org	

Contact

Customer Support Services

0300 321 4357 (Monday - Friday 9-5pm)

support@iuk.ukri.org

Innovate UK

ukri.org/councils/innovate-uk

Innovate UK KTN

www.ktn-uk.org

Innovate UK EDGE

innovateukedge.ukri.org

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Eligibility criteria

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Previously submitted applications

This competition **does not** allow you to submit a previously submitted application.

Previously submitted application	Not a Previously submitted application
A previously submitted application is an application Innovate UK judges as not materially different from one you have submitted before (but it can be updated based on the assessors' feedback)	A brand-new application, project or idea that you have not previously submitted into an Innovate UK competition OR A previously submitted or ineligible application which: ✓has been updated based on assessor feedback ✓and is materially different from the application submitted before ✓and fits with the scope of this competition

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Eligibility criteria

Project eligibility	• collaborative projects only • lead must be a UK registered business of any size • collaborate with other UK registered organisations • carry out all of its project work in the UK • intend to exploit the results from or in the UK
Grant funding request	for strand 1 (adopting manufacturing best practice): **between £50,000 and £400,000** for strand 2 (manufacturing process development): **between £50,000 and £800,000**
Project duration	for strand 1: **last between 6 and 12 months** for strand 2: **last between 6 and 18 months**
Project start	by **1 May 2023 (both strands)**

Types of organisations we fund

- Business – Small or Micro, Medium or Large registered in the UK
- Research Organisation (RO):
  - Universities (HEIs)
  - Not for profit distributing Research & Technology Organisation (RTO) including Catapults
  - Public Sector Research Establishments (PSRE)
  - Research Council Institutes (RCI)
- Public sector organisations and charities doing research activity

If you are 100% owned by a large parent company as a small subsidiary this means you are classed as a large company and will only be entitled to the relevant grant. For more information on company sizes, please refer to the company accounts guidance.

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Compliance with the UK Subsidy Control Regime

On 1 January 2021, the UK left the EU and is no longer subject to EU laws on State aid. We draw your attention to the guidance issued by BEIS: Complying with the UK's international obligations on subsidy control: guidance for public authorities. Please be aware this is a living document and may be updated by BEIS as time progresses.

The set rules (typically GBER) which we previously relied on for the limits of what we could award, have now been replaced by internal decisions based on the new BEIS Subsidy Control Regime, and on policy, which will in turn set out bespoke eligibility requirements for each funding opportunity.

Innovate UK is offering funding for this competition in line with the UK's obligations and commitments to Subsidy Control. To ensure that Innovate UK remains compliant with the UK's international Subsidy Control duties in respect of:

- the EU-UK Trade and Cooperation Agreement;
- Article 10 of the Northern Ireland Protocol (successful applicants which are affected by the Northern Ireland Protocol will be funded in line with EU State aid regulations)
- Article 138 of the Withdrawal Agreement (some Union law applicable after 31 December 2020 in relation to the UK's participation in Union programmes and activities)
- the Subsidies and Countervailing measures within the WTO (ASCM)
- any other Free Trade Agreements active at the time of award

All awards will be conditional on compliance at all times with the UK's International obligations on Subsidy Control - this will be reflected in the terms and conditions of any award.

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Due diligence for UK Subsidy Control Regime

Under the Subsidy Control Regime, we will carry out financial health checks and ongoing concern assurances on your organisation.

Certify you are eligible

When submitting an application, you must certify that you are eligible for funding. If you are unsure, please take independent legal advice before applying. Should you be successful, we will complete these financial checks and assurances before confirming the grant offer.

- For more information on company sizes, please refer to the Company accounts guidance.
- Further information is available on our website in the general guidance.

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Eligibility Criteria - EU State Aid Regulations – Northern Ireland Protocol

If you are an applicant who is conducting activities that will affect trade of goods and/or electricity between Northern Ireland and the EU as envisaged by Article 10 of the Northern Ireland protocol, then you must apply under European Commission State aid rules.

Undertaking in Difficulty

For applicants subject to the European Commission State aid rules, you will be required to prove that they were not an “Undertaking in Difficulty” (UiD). We will ask for evidence of this.

This test applies to:

- companies that are more than 3 years old
- companies where more than half of its subscribed share capital has disappeared as a result of accumulated losses.
- your parent or holding company

Certify you are eligible

When submitting an application, you must certify that you are eligible for State aid. If you are unsure, please take legal advice before applying. Should you be successful, we will apply this test as part of our viability checks before confirming the grant offer.

Further information is available on our website in the general guidance under state aid.

If you are applying for an award funded under State aid Regulations, the definitions for company size are set out in the European Commission Recommendation of 6 May 2003.

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Eligibility Criteria: Funding Opportunities (1/2)

Funding for R&D projects split in to **3** categories:
feasibility studies, industrial research and experimental development.

- Strand 1 is for **feasibility studies** only
- Strand 2 is for **industrial research** or **experimental development** projects

STRAND 1: adopting manufacturing best practice

For feasibility studies, you could get funding for your eligible project costs of:

- up to 70% if you are a micro or small organisation
- up to 60% if you are a medium-sized organisation
- up to 50% if you are a large organisation

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Eligibility Criteria: Funding Opportunities (2/2)

STRAND 2: manufacturing process development

For industrial research, you could get funding for your eligible project costs of:

- up to 70% if you are a micro or small organisation
- up to 60% if you are a medium-sized organisation
- up to 50% if you are a large organisation

For experimental development projects which are nearer to market, you could get funding for your eligible project costs of:

- up to 45% if you are a micro or small organisation
- up to 35% if you are a medium-sized organisation
- up to 25% if you are a large organisation

BOTH STRANDS: For research organisations conducting fundamental research you could get funding for your eligible project costs of up to 100%.

*Research organisation participation is limited to no more than **30%** of the project's total costs.

For general guidance on what our research categories are please visit:
https://www.ukri.org/councils/innovate-uk/guidance-for-applicants/general-guidance/categories-of-research-and-development/#contents-list

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Participation Rules

The aim of this funding opportunity is to:

- optimise the level of funding to business and
- recognise the importance of research base to project

At least **70%** of total eligible project costs must be incurred by business.

The maximum level (**30%** of total eligible project costs) is shared by all research organisations collaborating on the project.

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What is collaboration?

In collaborative projects there must be:

- at least two organisations claiming grant within the application (including the lead)
- a **business-led** consortium, which may involve both business and the research base
- evidence of effective collaboration

We would expect to see the structure and rationale of the collaboration described in the application.

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Making more than one application

A business can be involved in up to three applications across both strands of the competition. They can lead on a maximum of one application in each strand.

An academic institution, research and technology organisation (RTO), charity, not for profit or public sector organisation cannot lead on any applications but can collaborate on any number of applications across the two strands.

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Other Innovate UK projects

If you have an outstanding final claim or Independent Accountant Report (IAR) on a live Innovate UK project, you will not be eligible to apply to this competition, as a lead or a partner organisation.

We will not award you any further funding if you:

- applied to a previous competition as the lead or sole company and were awarded funding by Innovate UK, but did not make a substantial effort to exploit that award
- applied to a previous competition as the lead or sole company and failed to comply with grant terms and conditions.

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Key Dates

Timeline	Dates
Competition Opens	**21 September 2022**
Live Briefing Events https://ktn-uk.org/news/driving-electric-revolution-scale-up-pemd-competition-briefing-event-series/	• **Scotland on 21 September 2022** • **North East on 22 September 2022** • **The Midlands on 29 September 2022** • **South Wales on 27 September 2022**
Submission Deadline	**7 December 2022, 11:00am prompt**
Applicants informed	**27 January 2023**

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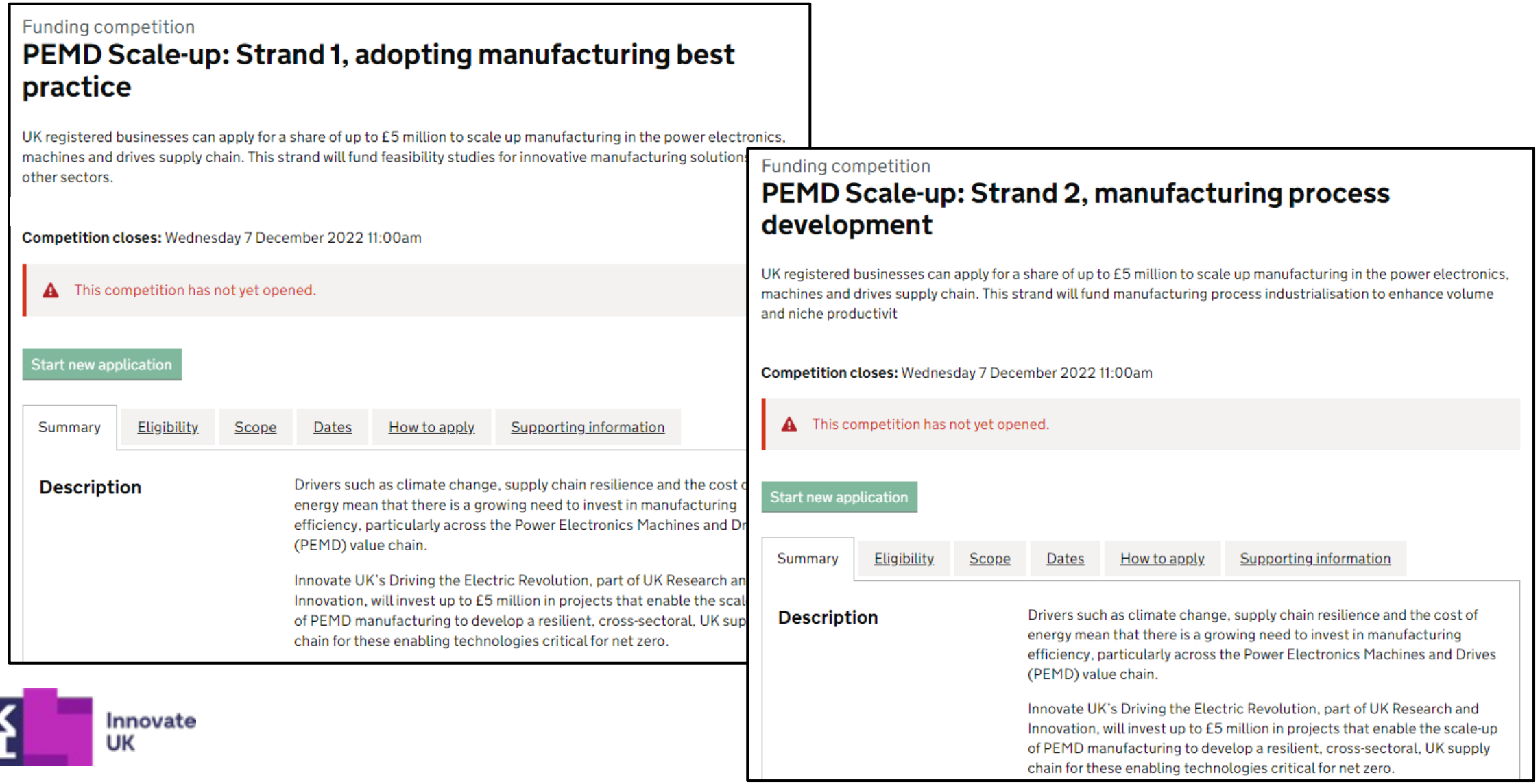
Innovation Funding Service (IFS)

Search for a funding competition and review criteria



Funding competition

PEMD Scale-up: Strand 1, adopting manufacturing best practice

UK registered businesses can apply for a share of up to £5 million to scale up manufacturing in the power electronics, machines and drives supply chain. This strand will fund feasibility studies for innovative manufacturing solution other sectors.

Competition closes: Wednesday 7 December 2022 11:00am

This competition has not yet opened.

Start new application

Summary | Eligibility | Scope | Dates | How to apply | Supporting information

Description

Drivers such as climate change, supply chain resilience and the cost c energy mean that there is a growing need to invest in manufacturing efficiency, particularly across the Power Electronics Machines and Dr (PEMD) value chain.

Innovate UK's Driving the Electric Revolution, part of UK Research an Innovation, will invest up to £5 million in projects that enable the scal of PEMD manufacturing to develop a resilient, cross-sectoral, UK sup chain for these enabling technologies critical for net zero.

Funding competition

PEMD Scale-up: Strand 2, manufacturing process development

UK registered businesses can apply for a share of up to £5 million to scale up manufacturing in the power electronics, machines and drives supply chain. This strand will fund manufacturing process industrialisation to enhance volume and niche productivit

Competition closes: Wednesday 7 December 2022 11:00am

This competition has not yet opened.

Start new application

Summary | Eligibility | Scope | Dates | How to apply | Supporting information

Description

Drivers such as climate change, supply chain resilience and the cost of energy mean that there is a growing need to invest in manufacturing efficiency, particularly across the Power Electronics Machines and Drives (PEMD) value chain.

Innovate UK's Driving the Electric Revolution, part of UK Research and Innovation, will invest up to £5 million in projects that enable the scale-up of PEMD manufacturing to develop a resilient, cross-sectoral, UK supply chain for these enabling technologies critical for net zero.

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Lead Applicant: create an account

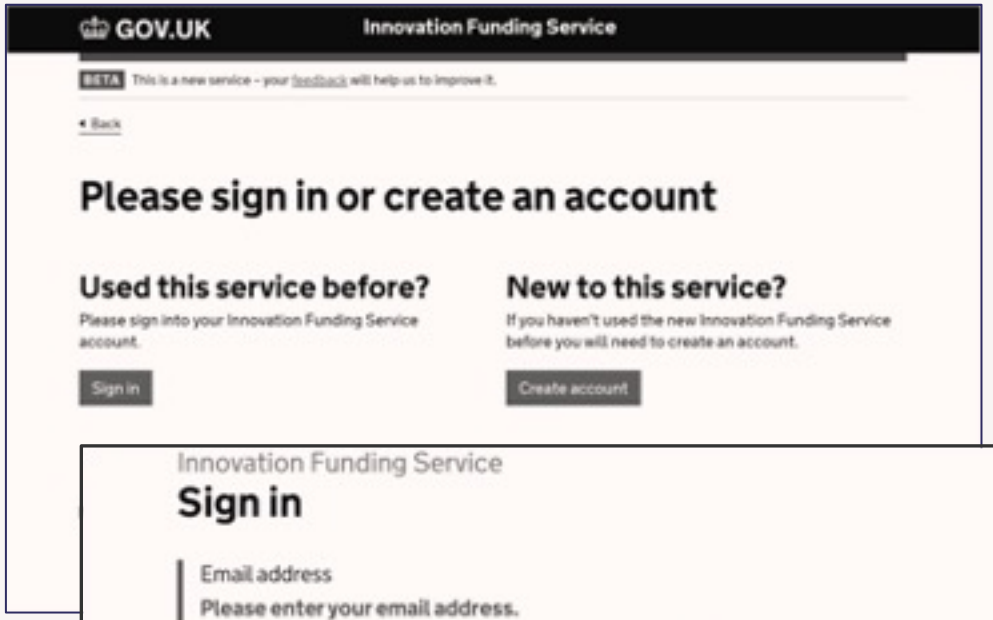
The lead applicant must create an account:

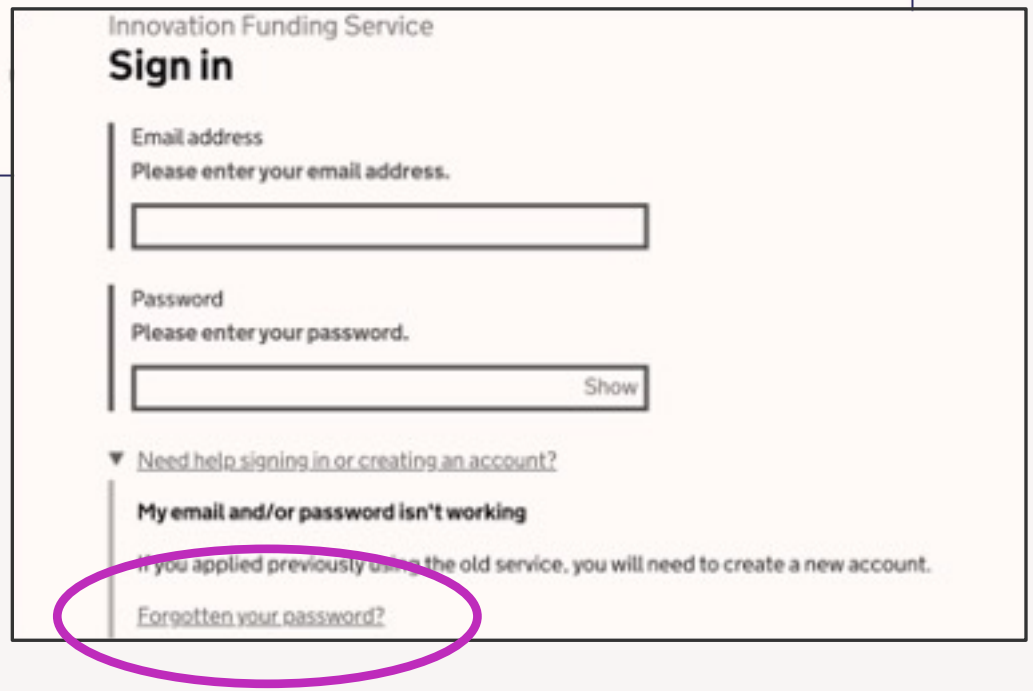
UK registered businesses

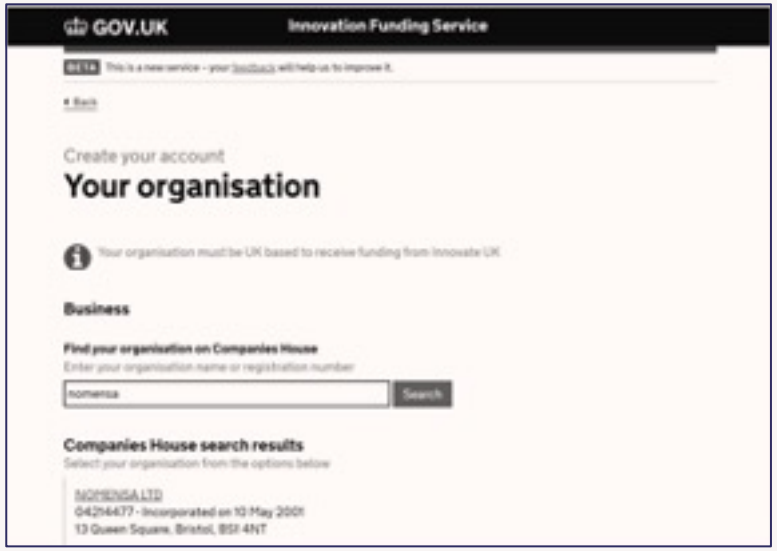
Use Companies House lookup as it speeds up our checks by providing your company number. You are unable to enter this at a later date.

Research organisations, academics and universities

Enter your information manually so you are not listed as a business on IFS and ensure you receive the correct funding.







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Project Details

- **Application Team** - Collaborators can invite organisations who you are working with on the project. Contributors can invite colleagues from your own organisation to help you complete your application.
- **Application Details** - Title, timescales, research category
- **Subsidy basis** - Will the project, including any related activities, you want Innovate UK to fund, affect trade between Northern Ireland and the EU? All participants must complete this section.
- **Project Summary** - Short summary and objectives of the project including what is innovative about it
- **Public Description** - Description of your project which will be published if you are successful
- **Scope - How does your project align with the scope of this competition?** - If your project is not in scope, it will not be sent for assessment. We will tell you the reason why.

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Application Questions (both strands)

Detailed guidance available on IFS

Application Form		Appendix?
Question 1	Applicant location (not scored)	No
Question 2	Need or challenge	No
Question 3	Approach and innovation	Yes - optional
Question 4	Team and resources	Yes - optional
Question 5	Supply chain awareness	No
Question 6	Outcomes and route to market	No
Question 7	Impact on supply chain	No
Question 8	Project management	Yes - mandatory
Question 9	Risks	Yes - mandatory
Question 10	Added value	No
Question 11	Costs and value for money	No

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Application finances

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To claim funding

Your business does not have to be UK registered with Companies House when you apply but it must be registered before you can receive funding.

Your project can include partners that do not receive any of this competition's funding, for example non-UK businesses. Their costs will count towards the total project costs.

You are unable to claim funding if:

- you are an overseas organisation, so your company number begins with FC
- your organisation is setup as a branch, so your company number begins with BR
- you are a collaboration with no formal structure of ownership or control, so your company number begins with ML
- you are a Crown Dependency:
  - if your company is based in Jersey, your company number begins with JE
  - if your company is based in Guernsey
  - if your company is based in the Isle of Man

UKRI Innovate UK

British Overseas Territories

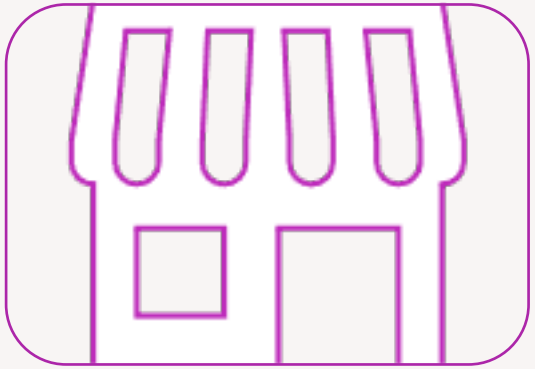
You are also unable to claim funding if your company is based in any of the British Overseas Territories (BOTs):

- Anguilla
- Bermuda
- British Antarctic Territory
- British Indian Ocean Territory
- British Virgin Islands
- Cayman Islands
- Falkland Islands
- Gibraltar
- Montserrat
- Pitcairn Islands
- Saint Helena, Ascension and Tristan da Cunha
- South Georgia and the South Sandwich Islands
- Turks and Caicos Islands

UKRI Innovate UK

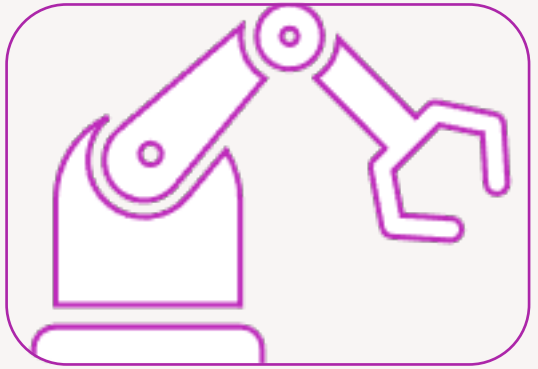
Project cost categories

Labour



Overheads

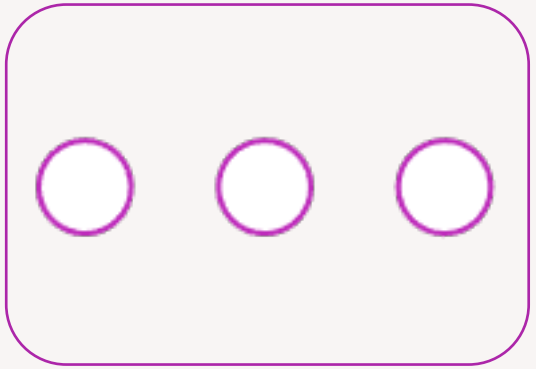
Materials



Equipment Usage

Subcontractors

Travel & Subsistence



Other

Innovate UK

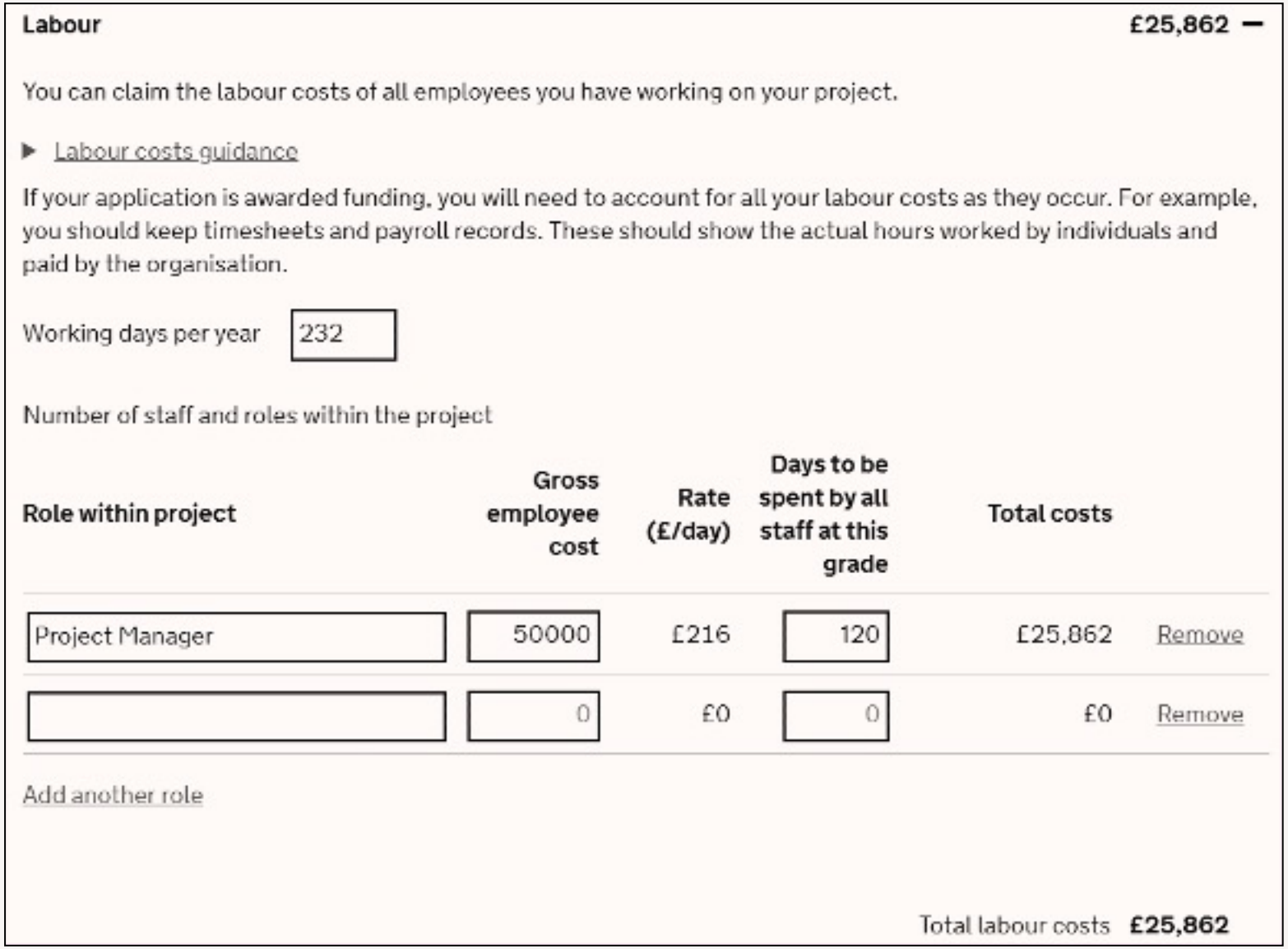
Labour

Eligible:

- staff working directly on project
- paid by PAYE
- NI, pension, non-discretionary costs

Ineligible:

- dividends
- bonuses
- non productive time
- overtime



Labour £25,862 —

You can claim the labour costs of all employees you have working on your project.

▶ Labour costs guidance

If your application is awarded funding, you will need to account for all your labour costs as they occur. For example, you should keep timesheets and payroll records. These should show the actual hours worked by individuals and paid by the organisation.

Working days per year 232

Number of staff and roles within the project

Role within project	Gross employee cost	Rate (£/day)	Days to be spent by all staff at this grade	Total costs	
Project Manager	50000	£216	120	£25,862	Remove
	0	£0	0	£0	Remove

Add another role

Total labour costs **£25,862**

UKRI Innovate UK

Overheads

Innovate UK's definition

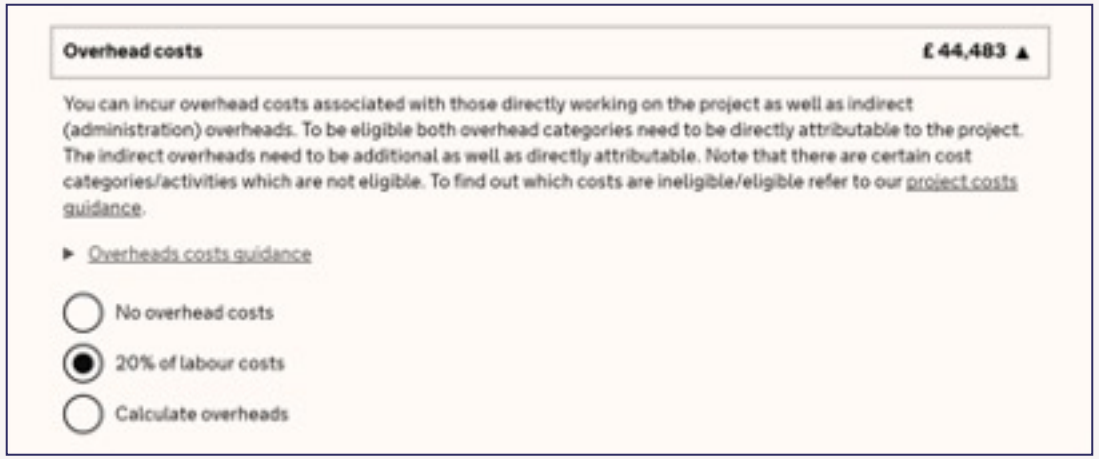
Additional costs and operational expenses incurred directly as a result of the project. These could include additional costs for administrative staff, general IT, rent and utilities

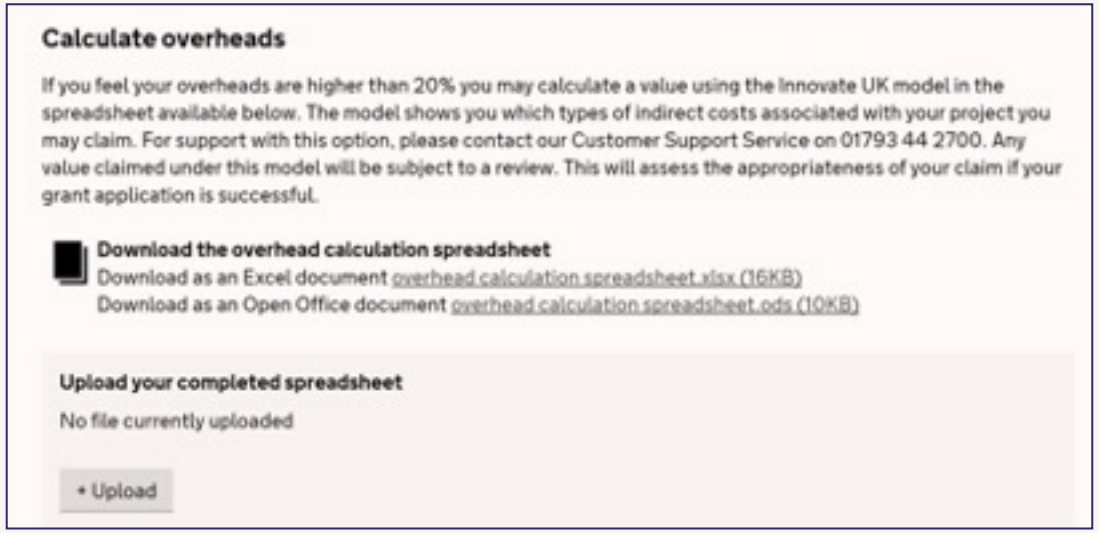
Indirect (administration) overheads

Please ensure they are additional and directly attributable to the delivery of the project

Direct overheads

- e.g. office utilities, IT infrastructure, laptop provision not covered by capital usage
- must be directly attributable to the project
- provide detailed breakdown together with methodology/basis of apportionment



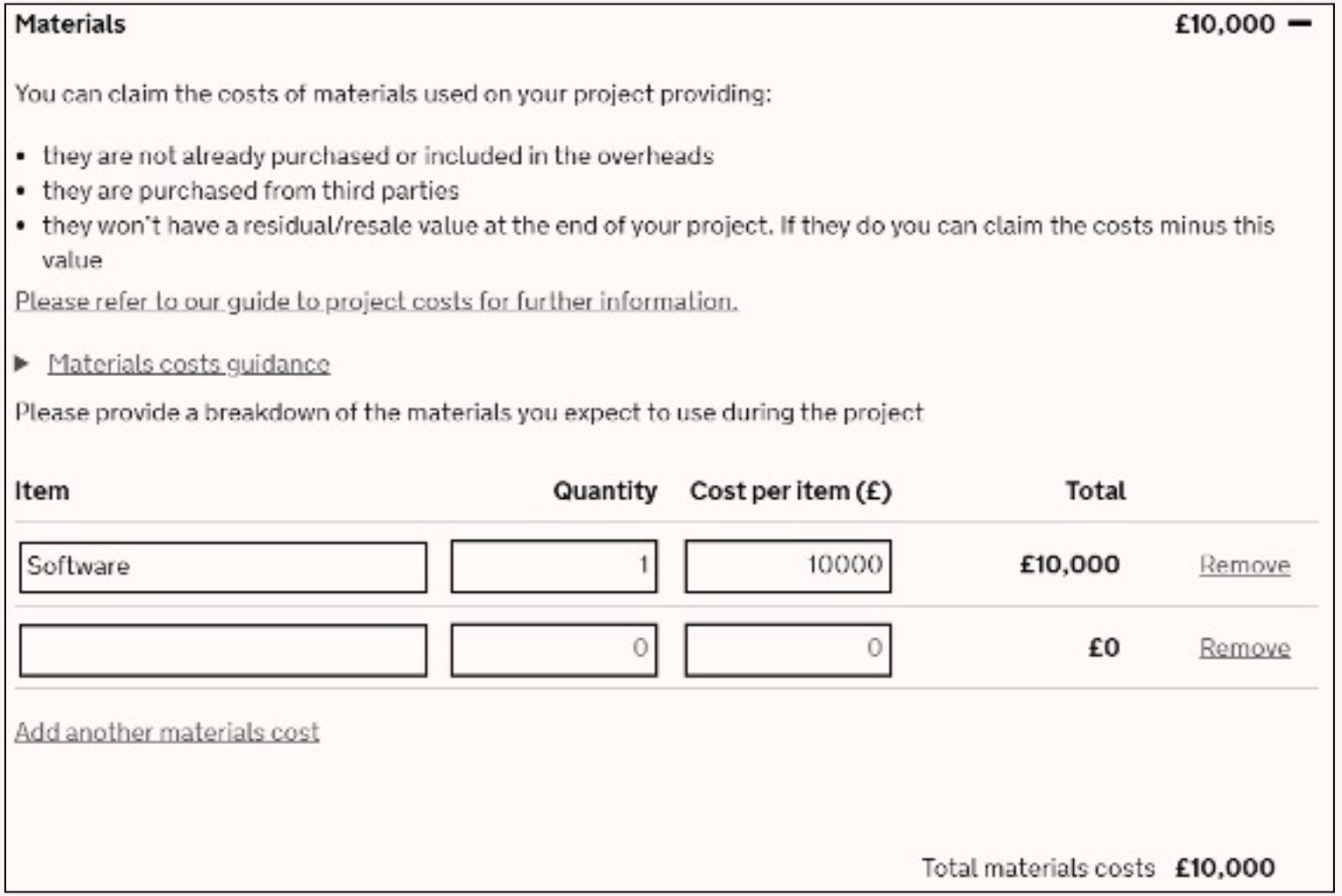


UKRI Innovate UK

Material costs

Please be clear on what the materials are - just putting consumables does not provide enough detail.

If insufficient information is provided, we will request more information should you be successful which may delay your project start date.



Materials £10,000 −

You can claim the costs of materials used on your project providing:

- they are not already purchased or included in the overheads
- they are purchased from third parties
- they won't have a residual/resale value at the end of your project. If they do you can claim the costs minus this value

Please refer to our guide to project costs for further information.

▶ Materials costs guidance

Please provide a breakdown of the materials you expect to use during the project

Item	Quantity	Cost per item (£)	Total	
Software	1	10000	£10,000	Remove
	0	0	£0	Remove

Add another materials cost

Total materials costs £10,000

Innovate UK

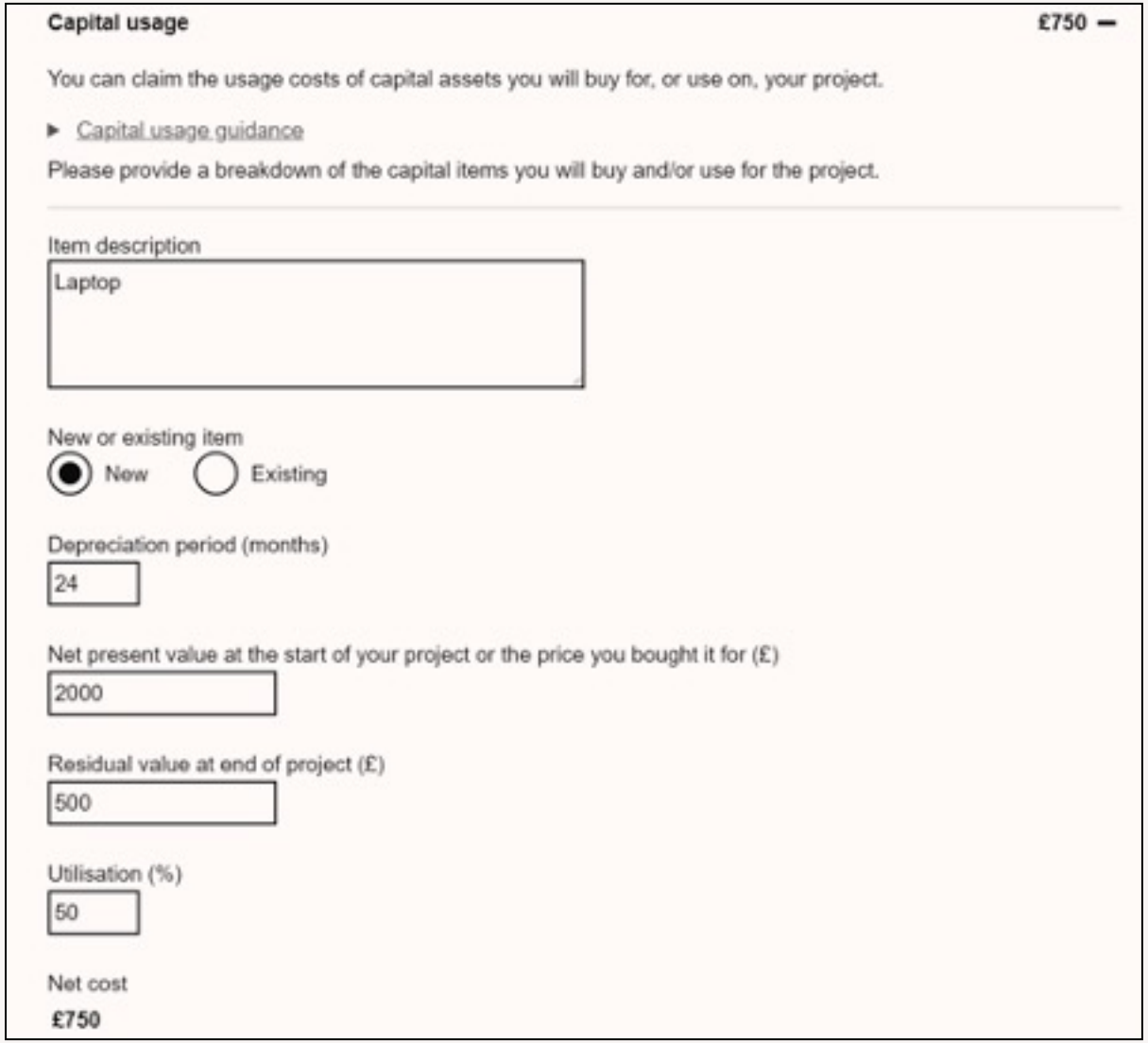
Capital equipment usage

Eligible:

Used in the project or shared with day-to-day production.

Calculations will need to be in line with your accounting practices.

Even if the equipment is depreciated fully over the life of the project this must be added under capital equipment.



Innovate UK

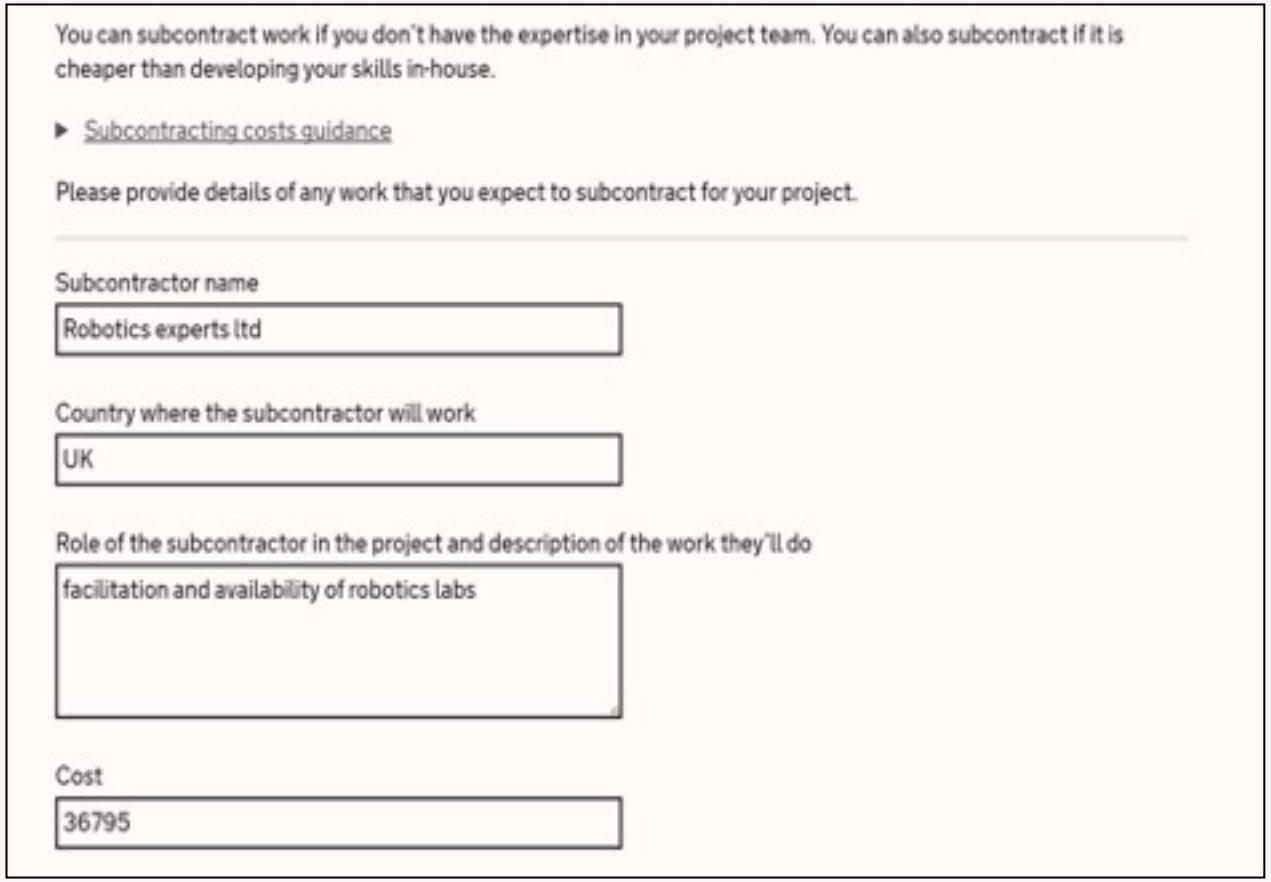
Subcontractors

Justified and quantified.

If non-UK subcontractors are being used, you will need to provide strong justification on why a UK-based subcontractor is not being used.

If you are subcontracting to a parent or sister company, please ensure you list at cost and do not include profit.

Subcontractor costs are limited to **20%** of your organisation's total project costs



Innovate UK

Travel and subsistence

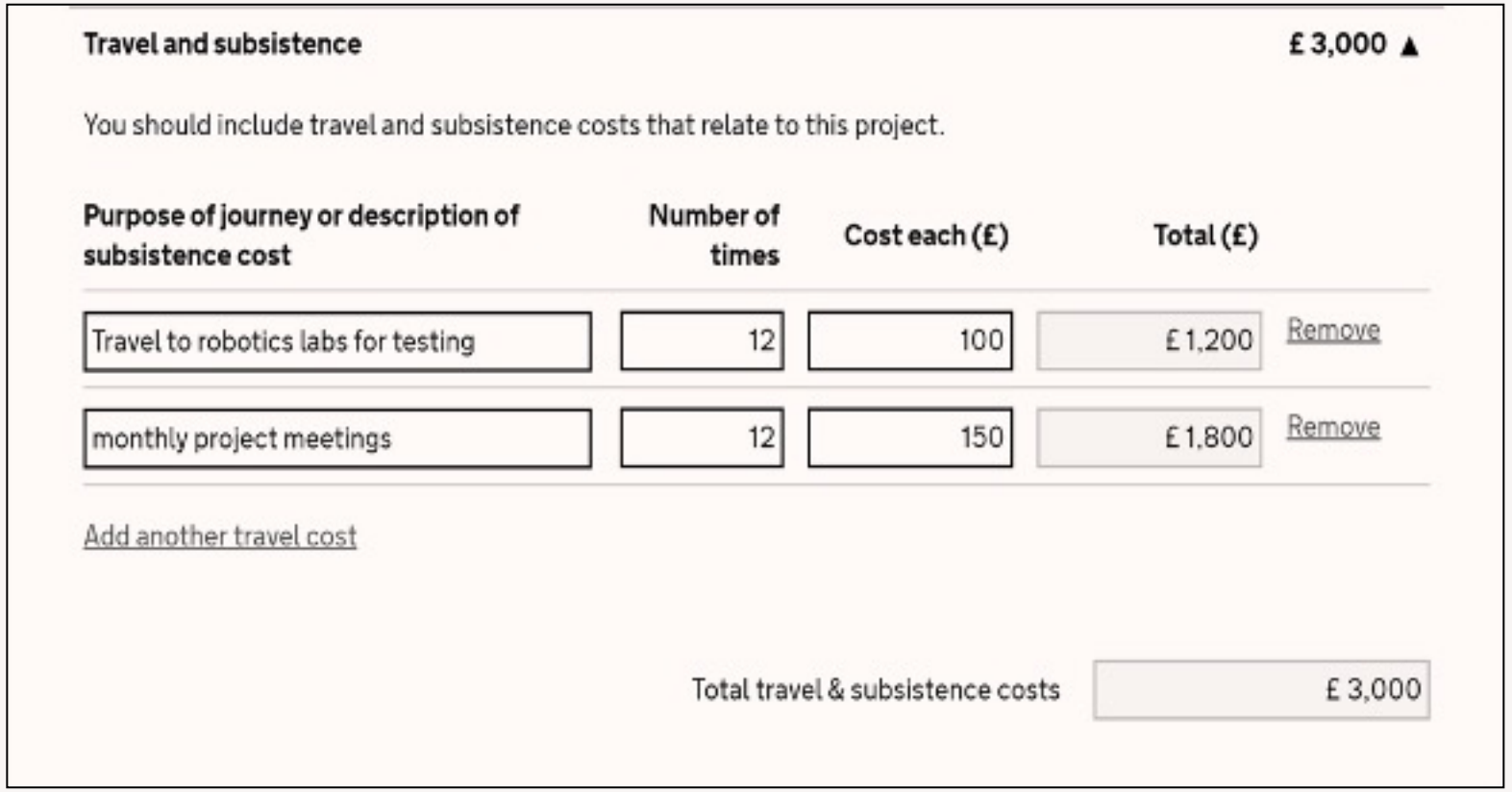
Eligible:

Costs must be directly linked to the project.

Please break down your costs as follows:

- Travel
- Accommodation
- Subsistence

If you have an annual trip to visit the parent company this is not an eligible cost.



Travel and subsistence £ 3,000 ▲

You should include travel and subsistence costs that relate to this project.

Purpose of journey or description of subsistence cost	Number of times	Cost each (£)	Total (£)	
Travel to robotics labs for testing	12	100	£1,200	Remove
monthly project meetings	12	150	£1,800	Remove

Add another travel cost

Total travel & subsistence costs £ 3,000

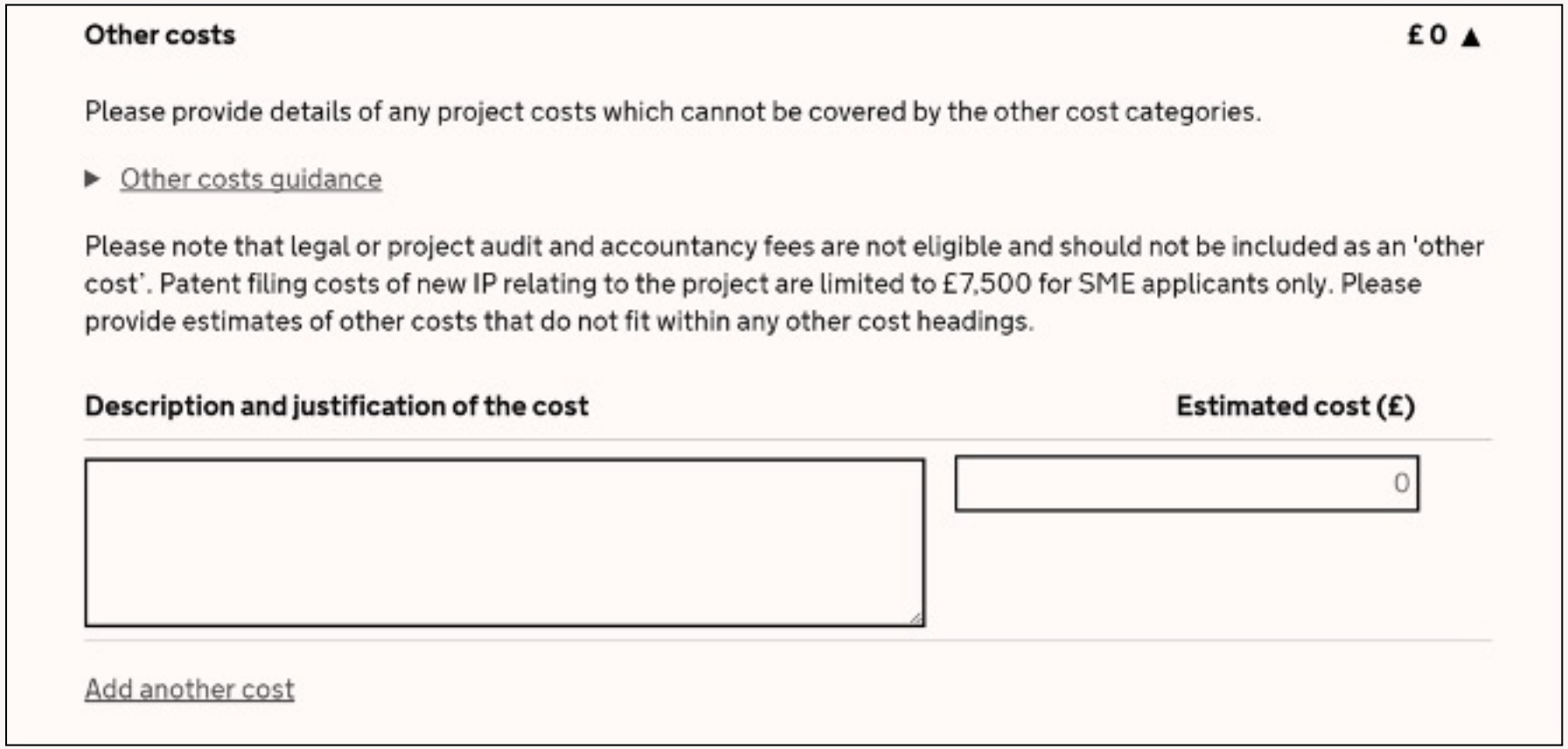
UKRI Innovate UK

Other costs

Costs that could not be added under previous headings

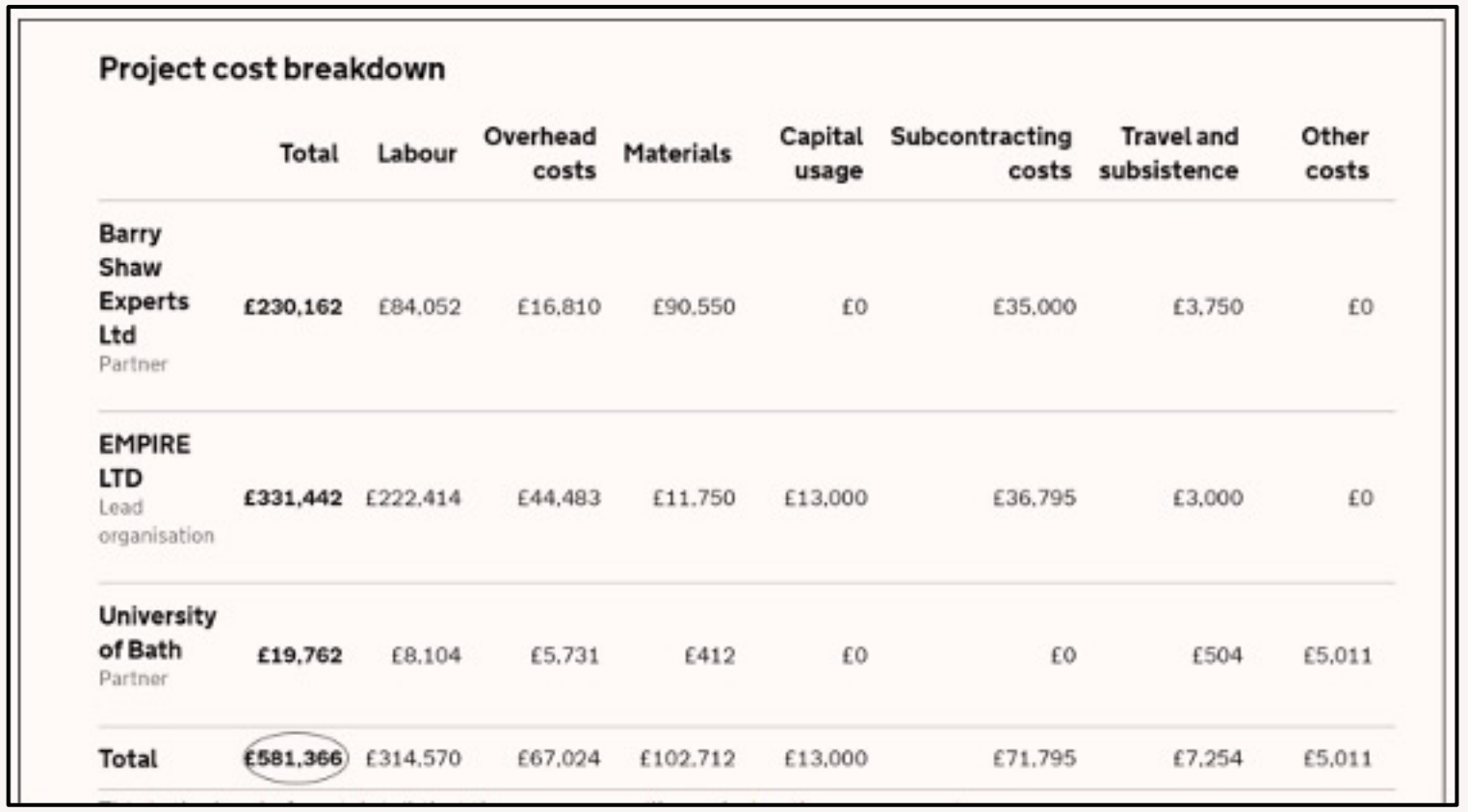
Do not double count

Patent filing costs for new IP – SMEs **up to £7,500**



Innovate UK

Project cost summary



Project cost breakdown

	Total	Labour	Overhead costs	Materials	Capital usage	Subcontracting costs	Travel and subsistence	Other costs
Barry Shaw Experts Ltd Partner	**£230,162**	£84,052	£16,810	£90,550	£0	£35,000	£3,750	£0
EMPIRE LTD Lead organisation	**£331,442**	£222,414	£44,483	£11,750	£13,000	£36,795	£3,000	£0
University of Bath Partner	**£19,762**	£8,104	£5,731	£412	£0	£0	£504	£5,011
Total	**£581,366**	£314,570	£67,024	£102,712	£13,000	£71,795	£7,254	£5,011

Ensure the grant funding request fits the criteria for this competition:

- **Strand 1: between £50,000 and £400,000**
- **Strand 2: between £50,000 and £800,000**

Research organisation participation is no greater than **30**% of the total project costs.

All organisations can see a summary of project costs.

Innovate UK

Funding

Funding rules

The level of funding awarded will depend upon the type of organisation and the type of research being undertaken in the project

Funding is calculated by project participant

IFS will advise the maximum grant % you can request based upon your answers to:

- type and size of organisation
- research category defined by the lead applicant in the Application Details section of the application

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Organisation or type of activity	Technical feasibility studies (strand 1) and industrial research (Strand 2)	Experimental development (Strand 2)
Business (economic activity)	Micro or Small – 70% Medium – 60% Large – 50%	Micro or Small – 45% Medium – 35% Large – 25%
Research organisation (non-economic activity)	Universities – 100% (80% of Full Economic Costs) Other research organisations can claim 100% of their project costs	Other research organisations must: • be non-profit distributing and • disseminate the project results and • explain in the application form how this will be done
Public Sector Organisation or Charity (non-economic activity)	100% of eligible costs	Must: • be performing research activity and • disseminate project results and explain in the application form how this will be done • ensure that the eligible costs do not include work / costs already funded from other public sector bodies
Research organisations (undertaking economic activities) Organisations receive funding related to the size of their organisation	Micro or Small – 70% Medium – 60% Large – 50%	Micro or Small – 45% Medium – 35% Large – 25%

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Consortium

Worked example – For applications who can apply for a grant between £50,000 and £800,000 (Strand 2)

Project costs for 5 partners (2 SME, 1 University, a Catapult and 1 large), doing **industrial research**.

Organisation type	Organisation size	Total eligible project costs	Maximum % of project costs which may be claimed as a grant	Requested grant amount	Adjusted grant %	Maximum grant allowed	Required match funding contribution
Business	Small	£150,000	70%	£105,000	70%	£105,000	£45,000
Business	Medium	£300,000	60%	£180,000	55%	£165,000	£120,000
Business	Large	£600,000	50%	£300,000	46%	£276,000	£300,000
University	HEI (80% FEC)	£100,000	100%	£100,000	100%	£100,000	nil**
Catapult	RTO	£150,000	100%	£150,000	100%	£150,000	nil
Total		**£1,300,000**		**£835,000**		**£796,000**	**£465,000**
** 20% FEC not to be shown as a contribution							

Research base costs	£250,000
Research participation rate of total eligible projects costs (cannot exceed **30%**)	**19%**

Innovate UK

Academic partners

UKRI Innovate UK

Why Je-S?

We use the Research Councils' Joint Electronic Submission System (Je-S) to collect academic finances.

The Je-S system automates the collection of Full Economic Costs (FEC) based costs from academic partners and tells them exactly what numbers should be used in the application form for their costs.

Also to collect project finance details from non-HEIs (e.g. RTOs) that are claiming they are carrying out academic quality work and want to be funded on an FEC basis.

Using Je-S means that Innovate UK follows standard Research Council guidelines on funding universities and enables Research Councils to easily co-fund Innovate UK projects.

The Je-S system is completely separate from Innovate UK and we cannot advise on its usage.

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Project costs – academic partners

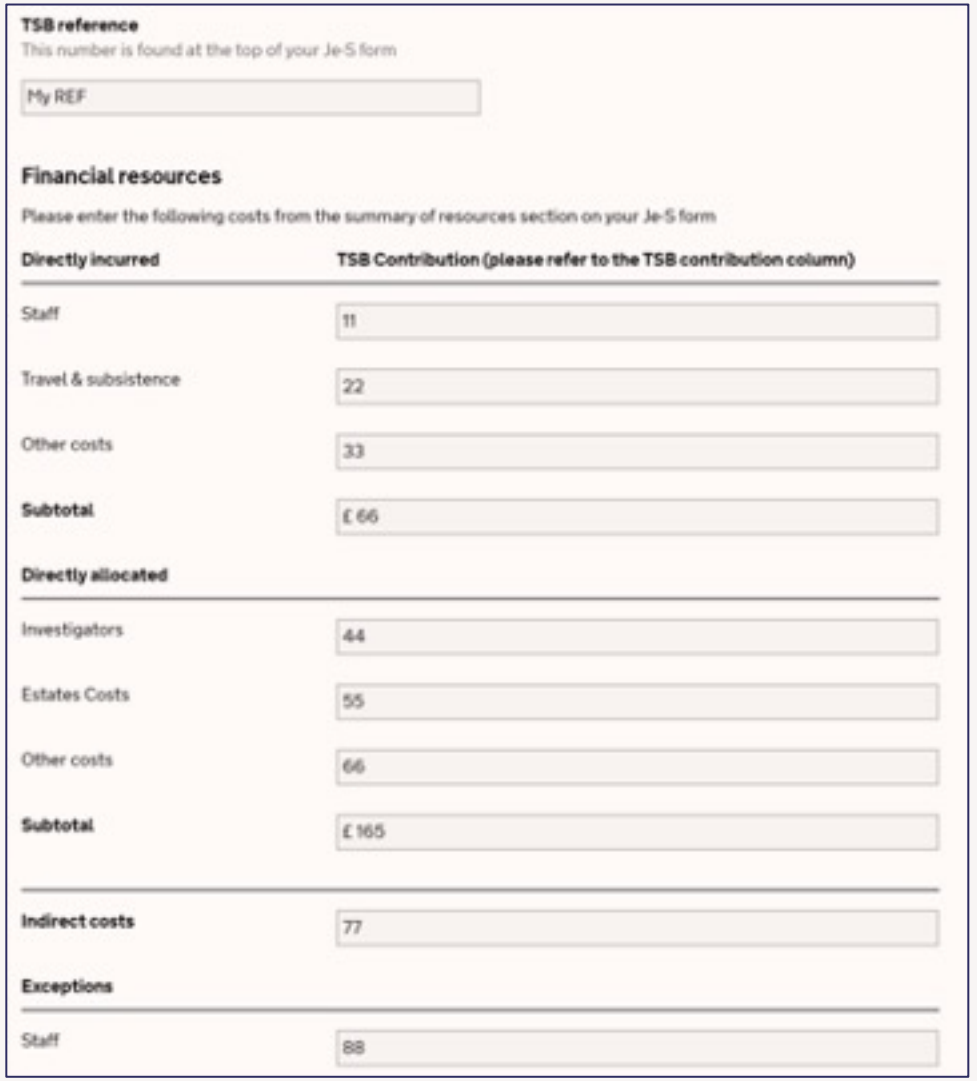
Enter the TSB reference number here

Enter the TSB Contribution column figures from *your* J-eS output document into the project costs section of the application.

Upload the Je-S with council status form as a PDF at the bottom of the screen.

Any queries, contact Je-S Helpdesk (not Innovate UK)

- jeshelp@je-s.ukri.org
- 01793 444164



TSB reference

This number is found at the top of your Je-S form

My REF

Financial resources

Please enter the following costs from the summary of resources section on your Je-S form

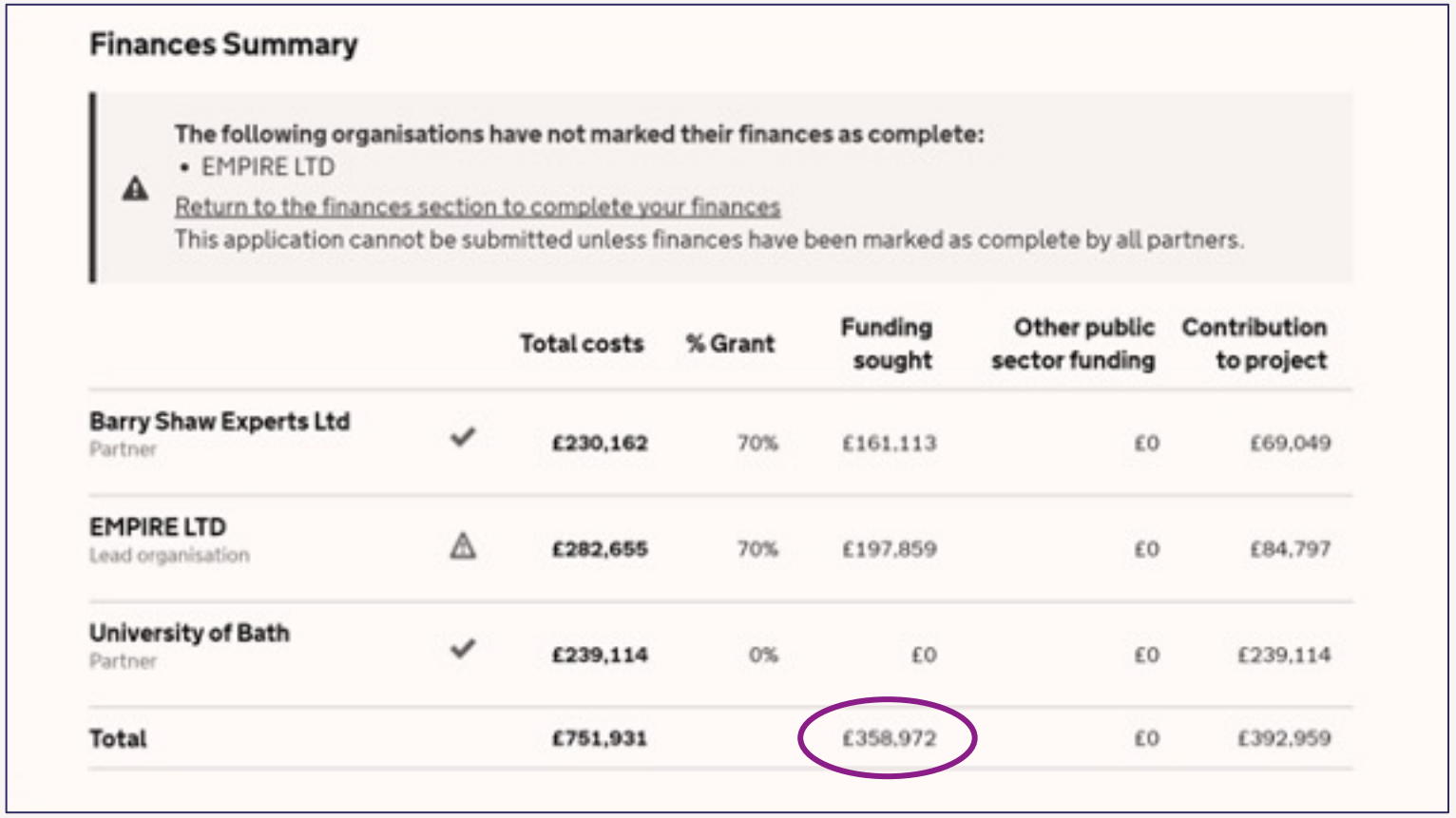
Directly incurred	**TSB Contribution (please refer to the TSB contribution column)**
Staff	11
Travel & subsistence	22
Other costs	33
Subtotal	£ 66
Directly allocated	
Investigators	44
Estates Costs	55
Other costs	66
Subtotal	£ 165
Indirect costs	77
Exceptions	
Staff	88

Innovate UK

Submitting your application

UKRI Innovate UK

Checking your finances are complete



Finances Summary

The following organisations have not marked their finances as complete:
- EMPIRE LTD

Return to the finances section to complete your finances
This application cannot be submitted unless finances have been marked as complete by all partners.

		Total costs	% Grant	Funding sought	Other public sector funding	Contribution to project
Barry Shaw Experts Ltd Partner	✓	**£230,162**	70%	£161,113	£0	£69,049
EMPIRE LTD Lead organisation	⚠	**£282,655**	70%	£197,859	£0	£84,797
University of Bath Partner	✓	**£239,114**	0%	£0	£0	£239,114
Total		**£751,931**		£358,972	£0	£392,959

All organisations have marked their finances as complete.

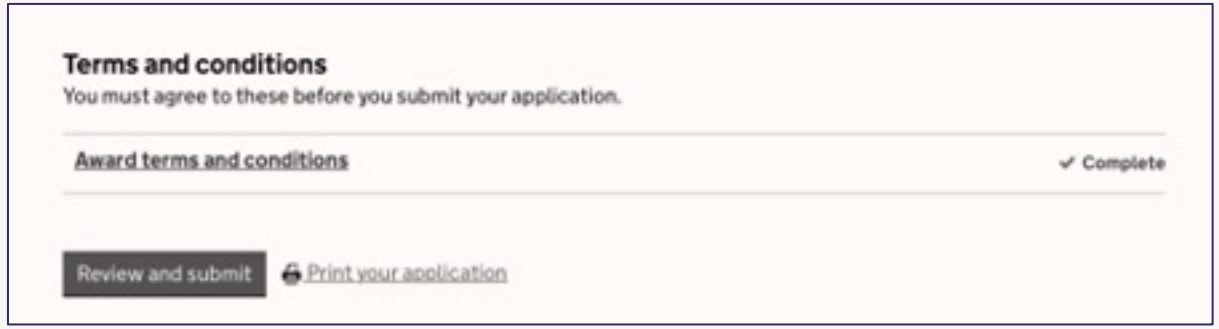
Research organisation participation is no greater than **30**% of the total project costs.

IFS DOES NOT VALIDATE THE TOTAL GRANT REQUEST

Innovate UK

Editing a submitted application

Reopen by clicking here

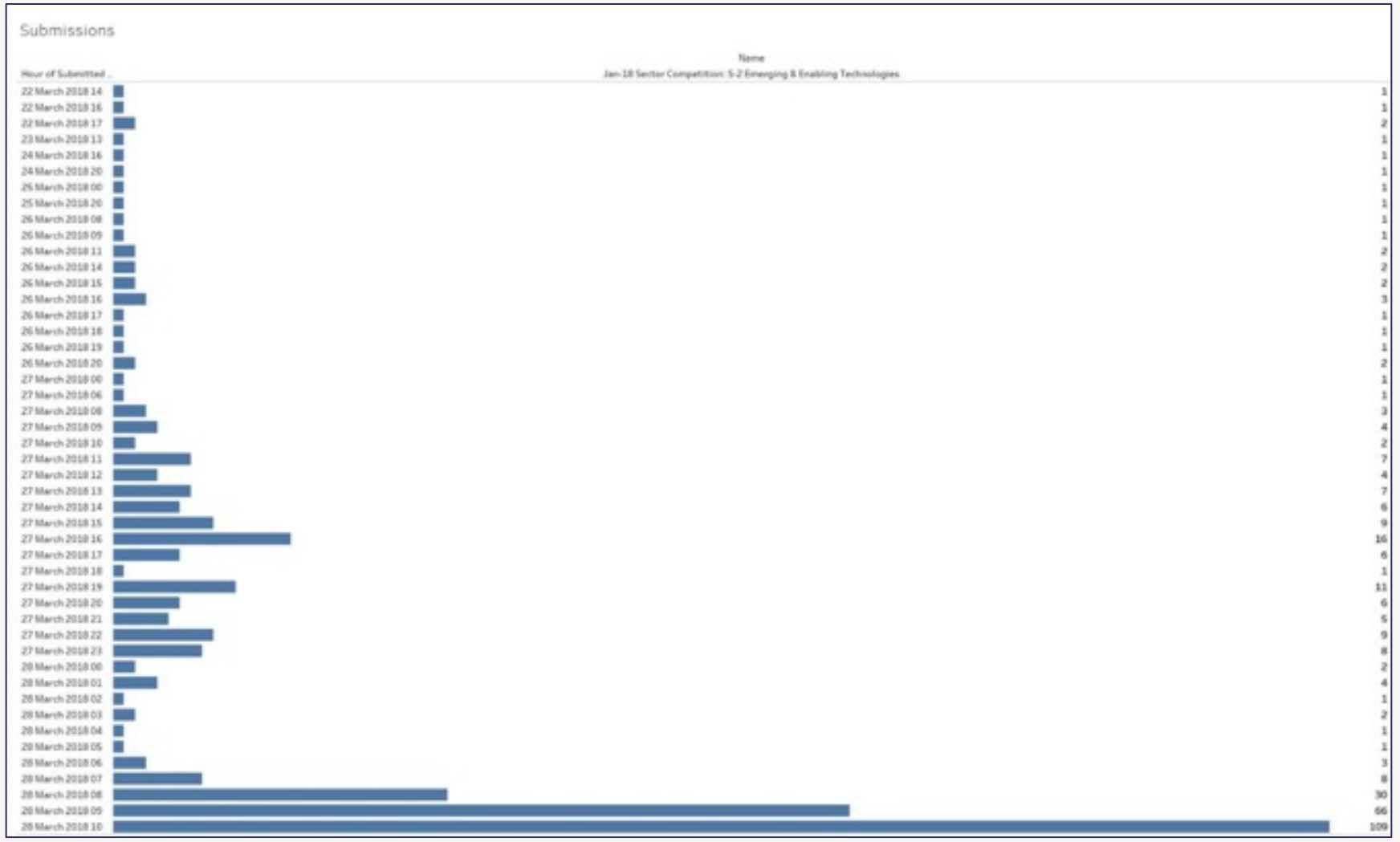


Remember to press ‘Submit application’

Innovate UK

Submit your application in good time!

Customer Support can help resolve any issues you might have when submitting, but only if they are contacted before the deadline. Once the deadline has passed, your application cannot be submitted.



Innovate UK

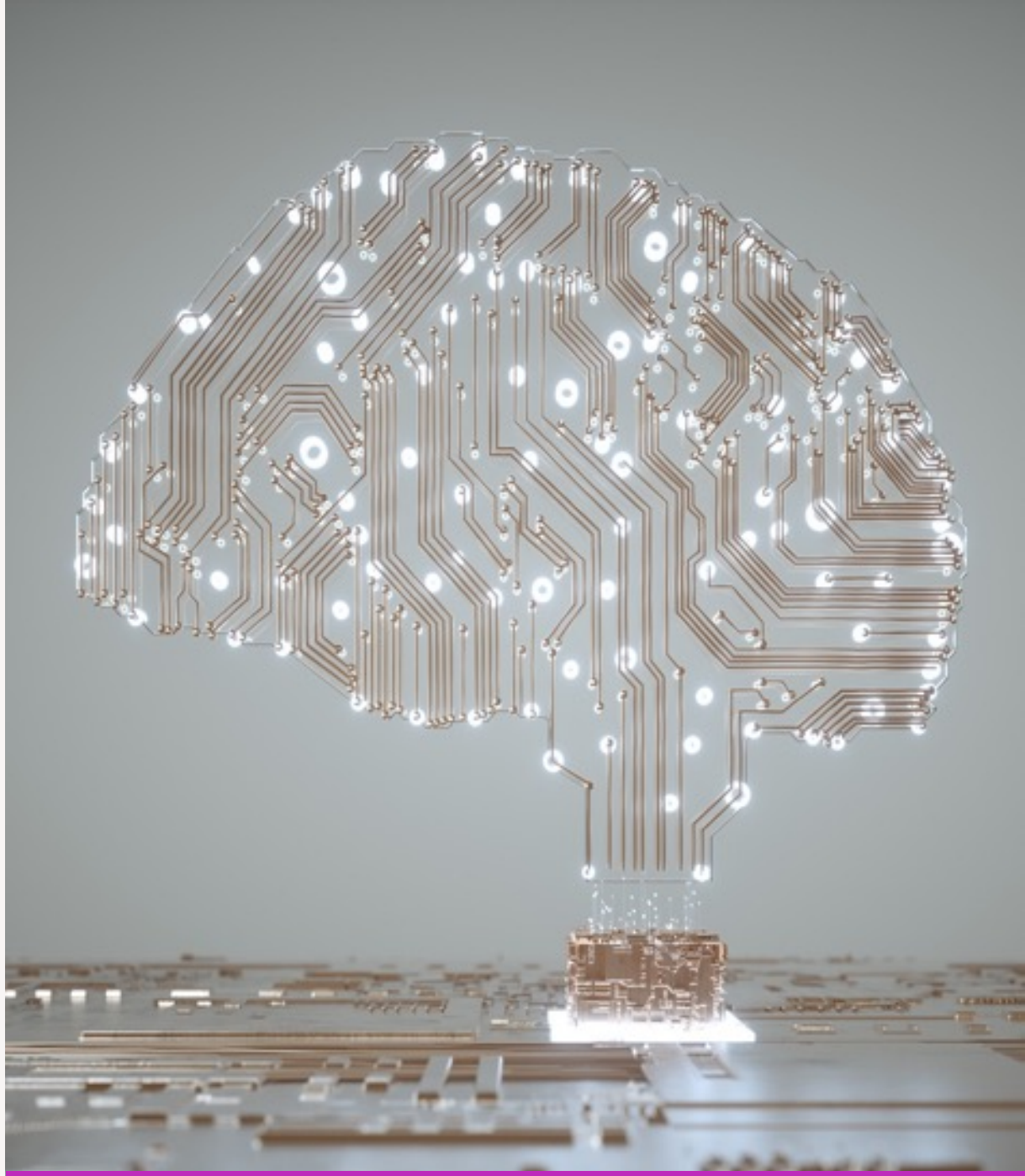
Assessment

Innovate UK

How do our assessors assess?

How are successful applications selected for funding?

Project setup for successful applicants



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Notification

If you are unsuccessful in this competition

You can use the feedback from the assessors to develop your idea and apply into another competition that allows previously submitted applications

If you are successful in this competition

- you will be assigned a Delivery Executive who will guide you through the Project Set Up process
- you will have **7** days to complete the project team, project details and bank details
- you will then have a further **86** days to complete project set up – funding may be withdrawn if this is not completed within this timeframe

Please ensure all your contact details in the IFS portal are correct and up to date and that you regularly monitor it.

UKRI Innovate UK

Project set up

- All communication will be through IFS.
- Lead applicant must provide collaboration agreements and exploitation plans if applicable.
- Any partners with individual total project costs of **up to** £50,000 must provide evidence with a Statement of Expenditure (SoE).
- Any partners with individual total project costs **above** £50,000 must provide evidence with an Independent Accountants Report (IAR).

Project delivery

- All grants are paid **quarterly** in arrears and are only paid following **quarterly** reporting and necessary audits.
- Claims can only be made for costs incurred and paid between the project start and end dates.
- Monitoring of the project includes a visit from the appointed Monitoring Officer.

UKRI Innovate UK

Additional Support

Innovate UK

Innovate UK EDGE

Bespoke growth and scaling support at the business end of innovation

- Intensive growth and scaling support tailored to the needs of each of our ambitious innovation-driven clients
- Offered alongside project funding to Innovate UK award winners, most of whom engage us. We are also available to all high growth potential innovative small or medium-sized businesses*
- Engagement at early, growth and scaling stages, with our core high growth service and enhanced Scaleup Programme
- Delivered by 290 innovation and growth specialists embedded in regional ecosystems across the UK, including a board of expert scaleup directors

**subject to eligibility and currently in all nations and regions outside Scotland*

UKRI Innovate UK

Innovate UK EDGE

An innovation and growth specialist, or scaleup directors, work with a company's leadership to hone its commercial strategy and help it take targeted action to, for example:

- Build investment readiness
- Manage innovation effectively
- Enter global markets
- Providing local to national to international growth and scaling support

Innovate UK EDGE

Innovate UK EDGE

Contact us via:
innovateukedge.ukri.org

A great idea can come from anyone

- Diversity in businesses contributes to enhanced performance and commercial success
- We welcome and encourage applications from people of all backgrounds and are committed to making innovation support more visible, accessible, and inclusive.
- We can provide support for people who have a disability or long-term condition and face barriers applying to us
- If you would like any support or advice, please contact Customer Support Service on 0300 321 4357 or support@iuk.ukri.org

Introduction to
Innovate UK KTN

Dr Sven Knowles
sven.knowles@ktn-uk.org

PEMD Scale-up competition

www.ktn-uk.org

Innovate UK
KTN

Innovate UK Group

Innovate UK

Innovate UK is the UK's innovation agency: a non-departmental public body operating at arm's length from the Government as part of UKRI.

KTN

Innovate UK KTN exists to connect innovators with new partners and new opportunities beyond their existing thinking - accelerating ambitious ideas into real-world solutions.

EDGE

Innovate UK EDGE empowers innovation-driven businesses to grow at pace and achieve their industry- and society-transforming ambitions.

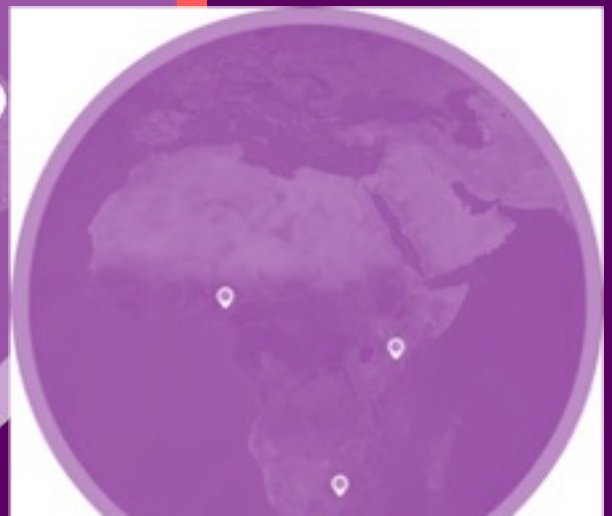
About Us

Innovate UK KTN exists to connect innovators with new partners and new opportunities beyond their existing thinking – accelerating ambitious ideas into real-world solutions.

Our Purpose & Vision

We create diverse connections to drive positive change.

To establish a network of innovators so powerful its ideas will change the world.



UKRI Innovate UK KTN

Our Strategy

Positive Change

We create diverse connections to drive positive change

Deep Expertise

We have wide-ranging expertise and convene the expertise of others

Powerful Connections

We drive powerful connections with business at the heart of what we do

Future Shaping

We shape the innovation communities of the future

Our People

We provide an exceptional place of work for our exceptional people

Our Network

46,229
Unique Organisations

72%
Small

15%
Medium

13%
Large

234,478
innovators

Every
university in the UK

Innovate UK
KTN

We connect…

Diverse communities | Innovation Networks

Regional, national and global | Global Alliance

Research and business | Knowledge Transfer Partnerships

Innovators, funders & collaborators | Innovation Exchange

Insight to impact | Insight reports

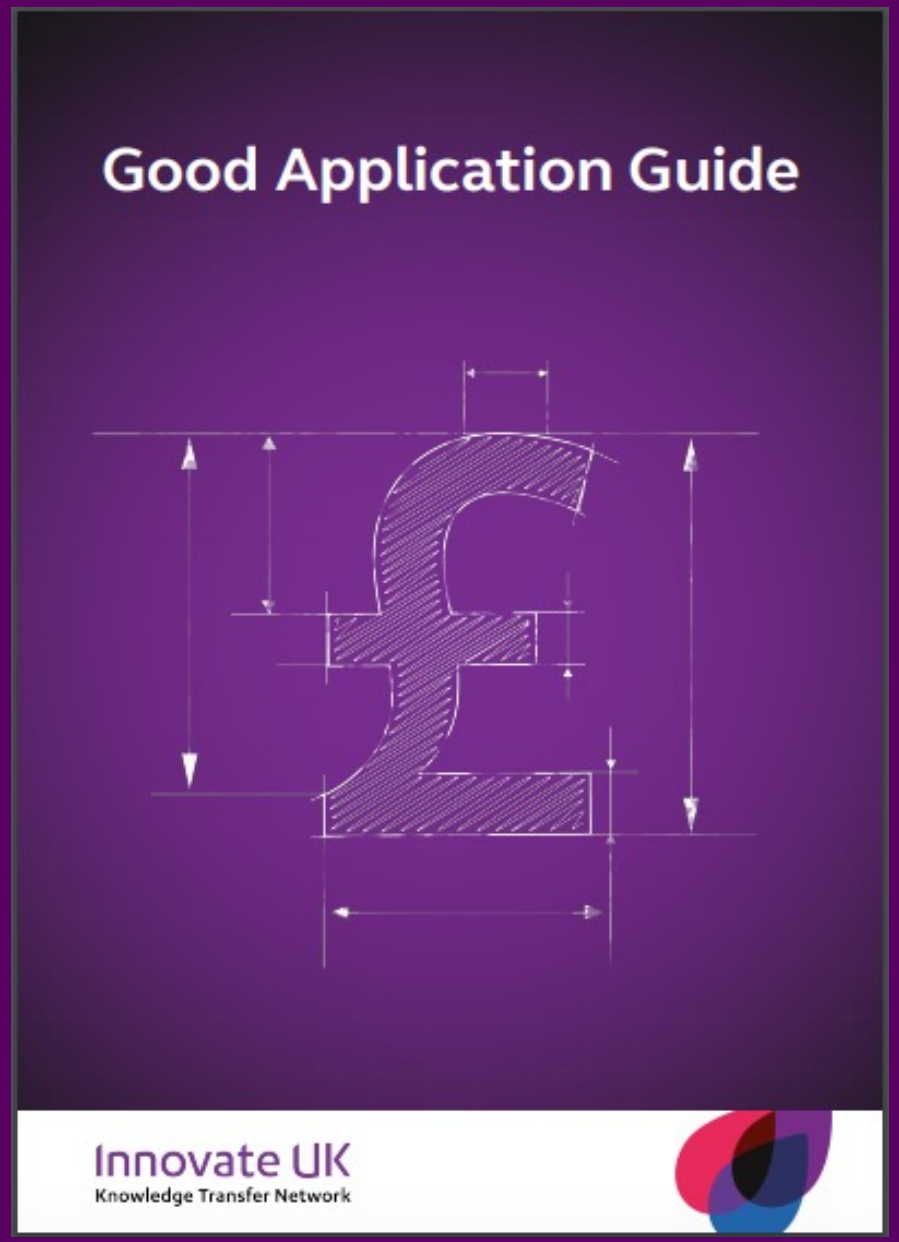
…for positive change

UKRI Innovate UK KTN

Innovate UK KTN and you

- Signpost companies to identify and address funding
- Provide deep expertise to make Connections & Networks
- Drive powerful connections with businesses
- Assist companies in forming partnerships/collaborations/projects
- Advise companies in their submission
- Light touch reviews
- Guidance documents, eg Good Application Guide
- Highlight key features of a good proposal
- Provide recommendations, eg proposals that excites and inspires
- Invite you to collaboration mechanisms & events,

UKRI Innovate UK KTN



Innovate UK KTN and you

- Guidance documents, eg Good Application Guide
- https://ktn-uk.org/news/the-good-application-guide-and-more-grant-application-advice-from-ktn/

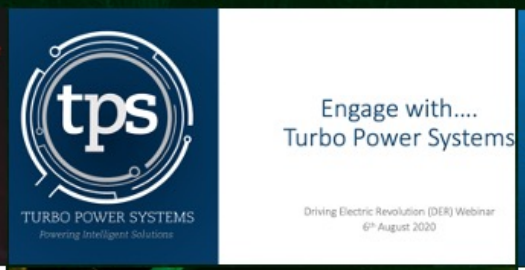
- Investor Readiness Programmes

- Sector Newsletters:
  eg Driving the Electric Revolution Challenge newsletter
- https://info.ktn-uk.org/p/2VFU-7JI/driving-the-electric-revolution-sign-up/

UKRI Innovate UK KTN

Engage With...


Paragraf
Developing and delivering graphene electronic devices at commercial quality and scale, starting with a graphene Hall effect sensor
Dr. Ellie Galanis – Product Owner, Graphene Hall Sensors
Dr. Ivor Guiney – Technical Director
Thursday 4th February 2021, 15:00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TURBO POWER SYSTEMS
Powering Intelligent Solutions

Engage with....
Turbo Power Systems
Driving Electric Revolution (DER) Webinar
6th August 2020

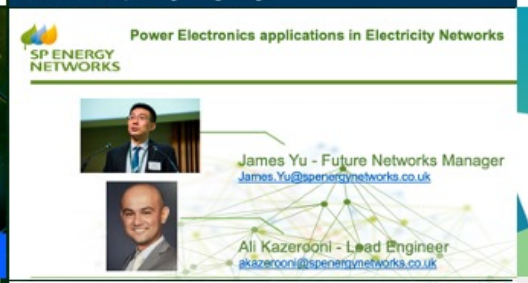

ZF
Engage with .... ZF
25th June 2020
Dr David Moule, Technical Specialist – Electric Drives
Phil Langley, Strategic and Business Development
Dr Connel Williams, Snr Engineering Manager


ktn
INDUSTRIAL STRATEGY
UK Research and Innovation
Engaging a Diverse Workforce for the Future
27th of August, 3PM
Join the discussion on how our community can reverse the decline in engineers, with the Driving the Electric Revolution team and guest host Jacqui Murray, Deputy Director of the Faraday Battery Challenge.
Be part of the conversation to help us all harness the power of future engineers.
stem


SIEMENS
Siemens | DER Webinar
Digital Industries | Motion Control
Imran Agha & Ian Donald


Department for International Trade
UK and Mining's Critical Role in achieving Net Zero
05 November 2020


UKRI
Science and Technology Facilities Council
Welcome
Ric Allott – Director of Business Development, Space, Technology and Facilities
Luke Mason – High-Performance Software Engineering Group Leader, Hartree Centre
Graham Appleby – Business Development Manager, ISIS Neutron and Muon Source

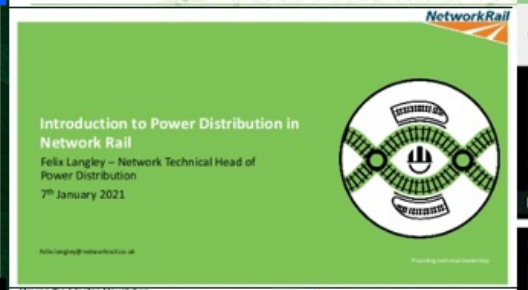

SP ENERGY NETWORKS
Power Electronics applications in Electricity Networks
James Yu - Future Networks Manager
James.Yu@spenergynetworks.co.uk
Ali Kazerooni - Lead Engineer
akazerooni@spenergynetworks.co.uk


HEXAGON
Romax TECHNOLOGY
Driving the Electric Revolution
Engage with Romax Technology
23 July 2020


nexperia
Power GaN FETs
Michael LeGoff, GM GaN Product Group
Dr. Jim Honea, Direct GaN Applications
Dr. Dilder Chowdhury, Director GaN Strategy


Rolls-Royce
KTN Engage with...
PEMD and the Aerospace Gas Turbine


ZEROAVIA
The First Practical Zero Emission Aviation Powertrain
KTN ENGAGE
Julian Renz - Head of Programmes - julian.r@zeroavia.com
12 November 2020
www.zeroavia.com


NetworkRail
Introduction to Power Distribution in Network Rail
Felix Langley – Network Technical Head of Power Distribution
7th January 2021


Collaboration TV


McLaren
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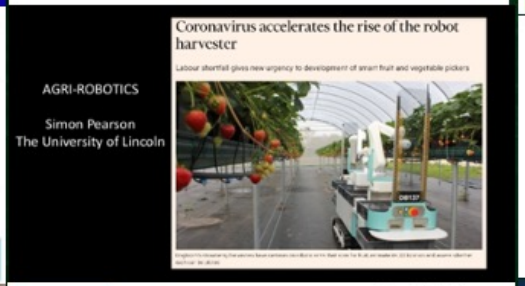
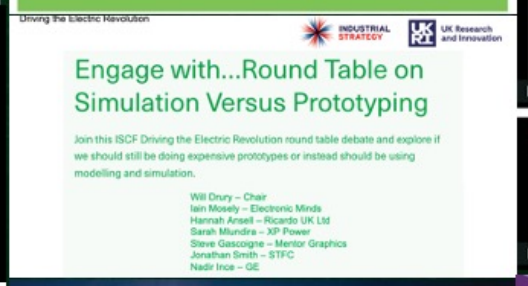
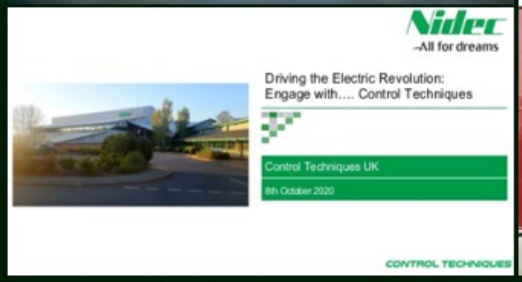
British Glass
Engage with British Glass
Dave Dalton, Chief Executive
www.britglass.co.uk


AGRI-ROBOTICS
Simon Pearson
The University of Lincoln
Coronavirus accelerates the rise of the robot harvester


Driving the Electric Revolution
INDUSTRIAL STRATEGY
UK Research and Innovation
Engage with...Round Table on Simulation Versus Prototyping
Join this ISCF Driving the Electric Revolution round table debate and explore if we should still be doing expensive prototypes or instead should be using modelling and simulation.
Will Drury – Chair
Iain Mosely – Electronic Minds
Hannah Ansell – Ricardo UK Ltd
Sarah Mundra – XP Power
Steve Gascoigne – Mentor Graphics
Jonathan Smith – STFC
Nadir Ince – GE


Our Platforms & Facilities
Introduction
Hylomar Ltd
SME
Global customer base


Nidec
All for dreams
Driving the Electric Revolution:
Engage with.... Control Techniques
Control Techniques UK
8th October 2020
CONTROL TECHNIQUES


PURE ELECTRIC
Micro-Mobility Innovation
Pure Electric
CREATING UK DESIGN, DEVELOPMENT AND MANUFACTURING OPPORTUNITIES
IMPROVING AIR QUALITY IN UK TOWNS AND CITIES
BOOSTING UK EXPORTS


Belcan
Engineering Better Outcomes
Introduction to Belcan
A Global Network of Experts Delivering Supply Chain Solutions
Dr Steve Simplay (Director – Automotive)
Dave Parkinson (Head of Electrification)
Date: 30.07.20


Engage with Ricardo
Overview of Ricardo developments in electrification and PEMD for UKRI
4th June 2020


COMPOUND SEMICONDUCTOR APPLICATIONS CATAPULT
CATAPULT
Compound Semiconductor Applications
Virtual Product Development for Power Electronics
11th June 2020
Dr Alastair McGibbon
Head of Collaborative R&D
Dr Ingo Lüdtke
Head of Power Electronics

Find out more

@KTNUK

Dr Sven Knowles
sven.knowles@ktn-uk.org

www.ktn-uk.org

PEMD Scale-up competition: summary

	Strand 1	Strand 2
Title	Adopting manufacturing best practice	Manufacturing process development
Apply here	https://apply-for-innovation-funding.service.gov.uk/competition/1300/overview/cb4556a9-3db9-4ee7-b6e6-30a1128a5380	https://apply-for-innovation-funding.service.gov.uk/competition/1301/overview/f64a4bcf-9007-43cf-a8f1-5e6c0a5c90c9
What	▪ Feasibility studies, lower MRL for the PEMD supply chain, higher risk ▪ Look beyond existing PEMD manufacturing industry – new innovations to PEMD ▪ Credible exploitation plan and potential for return on investment	▪ Industrial Research and Experimental Development, higher TRL/MRL, some risk ▪ Existing PEMD manufacturing processes to be improved, industrialised or scaled-up ▪ Credible return on investment within 3 years
Grant	£50k - £400k (no limit on project costs)	£50k - £800k (no limit on project costs)
Duration	6 to 12 months	6 to 18 months
Team	Must be business-led and collaborative	
Open date	21 September 2022	
Close date	7 December 2022	
Project start	1 May 2023	
Support	support@iuk.ukri.org	

Contact

Customer Support Services

0300 321 4357 (Monday - Friday 9-5pm)

support@iuk.ukri.org

Innovate UK

ukri.org/councils/innovate-uk

Innovate UK KTN

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Innovate UK EDGE

innovateukedge.ukri.org

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