



Innovate
UK

SBRI: Quantum Catalyst Fund, phase 1 and phase 2

Applicant briefing

Date: **31 May 2023**

The webinar will start at 10:00.

- We are currently on mute, whilst waiting for more people to join
- The briefing will be recorded and available to refer to through the IFS date page
- PDFs of the presentation will also be available on request
- For more information on the competition process, please go to: [Competition briefing: applicant information - YouTube](#)

Welcome and Introductions

Yvette Willis - Portfolio Manager

Rhianne Lucas - SBRI Lead

Roger McKinlay - Quantum Challenge

Marco Palumbo - Innovation Lead

Ben Christy, Will Lawson - DSIT



Introduction to Innovate UK and 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.**



**UK Research
and Innovation**

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.





About SBRI



SBRI: the small business research initiative

Helping government, helping businesses

Helping government:

SBRI helps government organisations solve tough challenges by connecting them with innovative businesses.

Helping businesses:

SBRI offers innovators the chance to win a government contract to help demonstrate and develop their new technologies.

- over 100 public sector organisations participated
- average annual sales grow 30%



Jenny Griffiths, founder,
Snap Fashion



What is SBRI?

Small business research initiative

- Pre-commercial procurement
- Requires a lead customer
- Outcome-driven solutions
- Well-defined challenges
- 100% funded R&D services procurement contracts

SBRI Key Features

Development Contracts

- 100% funded R&D (procurement contract for R&D Services)
- UK implementation of EU pre commercial procurement

Contract with Lead Applicant

- Who may choose to sub-contract but remains accountable

IP rests with Supplier

- Certain usage rights for the Public Sector (licenses etc)
- Companies are encouraged to exploit IP and will be assessed on this basis

Eligibility

- Open to all organisations. There is no limit on the size or type of company.
- Open to companies not currently engaged in the sector
- Research organisations may also apply
- All organisations must demonstrate a route to market





Applying to an SBRI competition

- In addition to the technical criteria, you will be assessed on your plans to commercialise your technology; value for money; potential benefits.
- This is a contract to deliver a specific outcome, be sure you can deliver what's in your application.
- You must include **VAT** (if registered), as this is a contract for R&D services and the award is classed as trading income.
- You **must not** include profit within your application
- Explain the problem your project is looking to solve and who your target customers will be.
- We cannot increase your costs once you've been awarded a contract
- Familiarise yourself with the contract, our terms and conditions are non-negotiable.



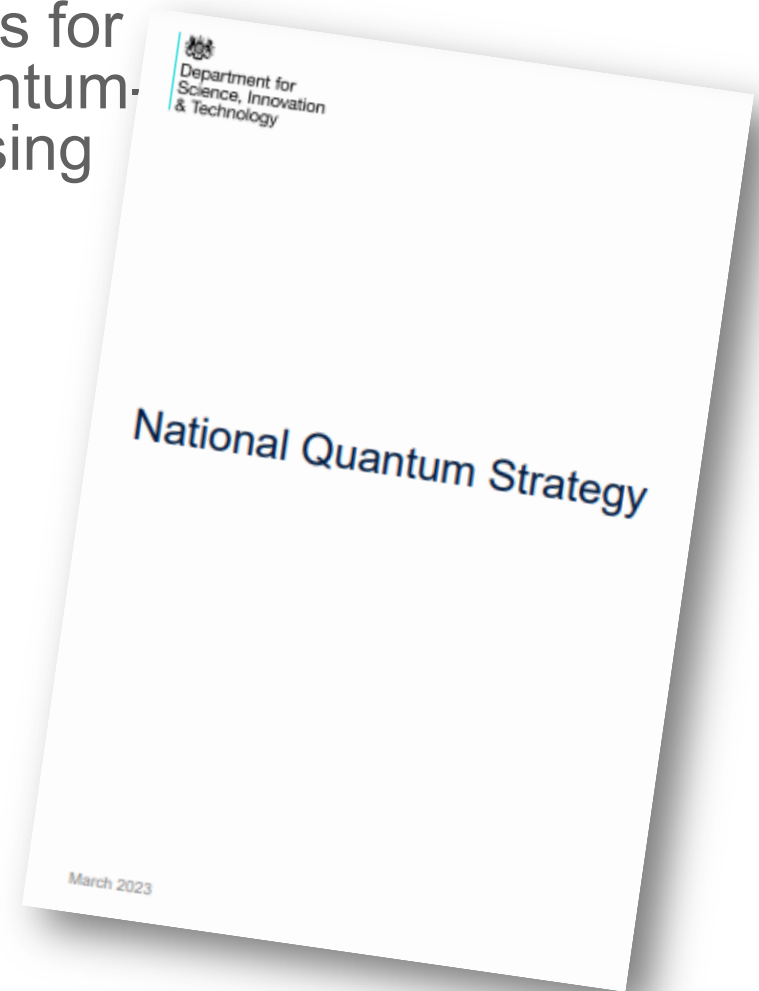
IUK, UKRI, the Challenge, the NQTP and the Strategy

Roger McKinlay

Quantum Technologies Challenge Director UKRI

The £2.5B Ten Year UK National Quantum Strategy

- Building on UK's strengths in quantum research, talent, companies and supply chain.
- A 10-year vision and actions for the UK to be a leading quantum-enabled economy, recognising the importance of quantum technologies for the UK's prosperity and security.



Goals and Objectives from the UK Quantum Strategy

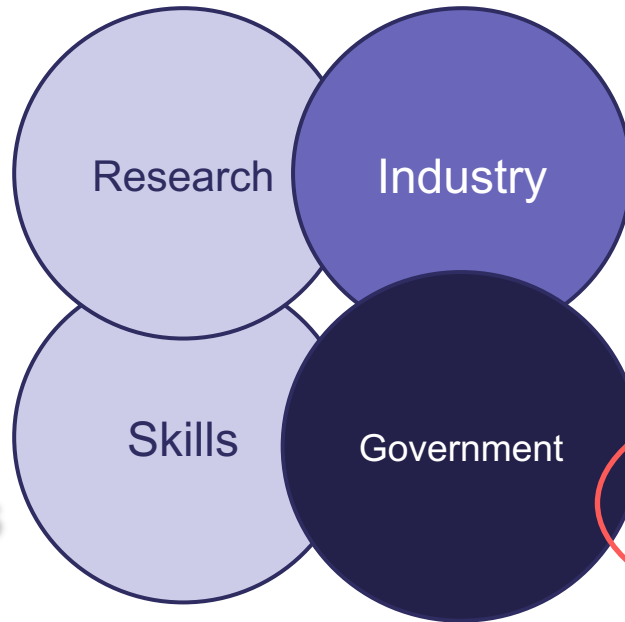
Infrastructure Review

→ including networks infrastructure

World Leading Science and Engineering

Attract Global Companies to the UK

£2.5B over 10 years for R&D



Quantum Network Accelerator

Increased funding for Missions

Support Business

£100M new research hubs

Increased funding for skills
Doctoral Training
Fellowships

Accelerate Government
Procurement

Drive use to deliver societal benefits

Global Partnerships

Create National and International Regulatory Framework

UK NATIONAL QUANTUM PROGRAMME

A Brief Timeline

Launch The UK National Quantum Technologies Programme (NQTP)



PHASE 0:

Workshop at Chicheley Hall

PHASE 1:

Focus on converting research and excellence into technology prototypes and plugging the skills deficit

£380m investment over 5 years.

PHASE 2:

Focus on driving commercialisation and economic impact (investment, supply chain growth, international collaboration)

Additional £350m over 5 years plus £153m for industry-led activities.

National Quantum Computing Centre (NQCC) launched Sept 2020

PHASE 3

Publication of UK Quantum Strategy affirms UK continued commitment to quantum technologies for the next 10 years. Strategy provides an additional investment of £2.5 billion, starting in 2024

So far, NQTP has provided awards to over 123 businesses and 38 universities and RTOs collaborating in over 95 projects

THE UK NATIONAL QUANTUM TECHNOLOGIES PROGRAMME (NQTP): PARTNERS AND GOVERNANCE



Department for Science, Innovation & Technology



UK Quantum Strategy lead department

Parent department of UKRI and sponsor for NPL

Funds research and training in quantum, including:
 (1) a national network of research hubs;
 (2) centres for doctoral training;
 (3)-domestic and international research grants;
 (4)-fellowships.

Delivering a national challenge programme to develop new commercial quantum products involving academia, industry and Government

Delivering the Quantum Technologies for Fundamental Physics programme;
 Home of the National Quantum Computing Centre

Home of the Quantum Metrology Institute (QMI)
 Leads activities to test, validate and commercialise new quantum R&D

Government lead for defence applications of quantum technologies

Responsible for delivering MOD R&D programme in quantum technologies
 Provides specialist technical support to national quantum programme partners

One of the UK's Intelligence and Security Agencies
 Home of the National Cyber Security Centre (NCSC): conducts research and provides advice on 'post-quantum' security

COORDINATING BODIES

Programme Board
 Provides coordination and strategic direction for the programme with representation from each of the partner agencies.. Chaired by Dame Lynn Gladden, Executive Chair, EPSRC.



Strategic Advisory Board
 Provides independent advice to help steer the strategic direction of the programme and policy on quantum technologies, and is made up of eminent figures from across industry, academia and Government. Chaired by Sir Peter Knight.

What we need to know/find out.

- ... the benefit of using quantum technologies in areas of interest to the UK Government.

What we need to do.

- ... accelerate the adoption of quantum solutions by the public sector and for the public benefit. .





SBRI: Quantum Catalyst Fund

Marco Palumbo, Innovate UK

SCOPE

The aim of this competition is to explore the benefit of using quantum technologies in various areas of interest for the UK Government. We want to accelerate the adoption of quantum solutions by the public sector and for the public benefit.

This competition is divided in two contracted phases:

- Phase 1 has a total budget of up to £2 million and will last 3 months.
- Phase 2 is up to £13 million and will last up to 15 months.

At the end of phase 1, the UK Government will assess the proposals developed, based on the end of phase 1 reports. Only successful projects will be invited to continue with a new contract to phase 2.

SCOPE

Phase 1 projects can range in size up to total costs of £120,000, inclusive of VAT for up to 3 months.

Phase 2 projects can range between £1 million and £2.5 million, for up to 15 months.

Your phase 1 project must:

- start by 1 September 2023
- end by 30 November 2023
 - last up to 3 months

Your phase 2 project must:

- start by 1 January 2024
- end by 31 March 2025
- last up to 15 months

SCOPE

The aim of this competition is to explore the benefit of using quantum technologies in various areas of interest for the UK Government.

The UK Government has already identified some challenge areas of initial interest, but this is not a list of mandatory topics.

In phase 1 you must conduct a desk study with detailed planning for a specific application of quantum technologies in the public sector. Phase 1 is an opportunity to engage with a government department or organisation on the challenge you propose to develop further in phase 2.

In a Phase 2 demonstrator, your project will be tested to assure and prove that the developed proposal is suitable and feasible in meeting a specific need or problem for the Government.

You must demonstrate a credible and practical route to market, so your application must include a plan to commercialise your results.

SCOPE

We will not fund projects that*:

- do not use second generation quantum technologies, defined as those involving the generation and coherent control of quantum states, resulting in phenomena such as superposition or entanglement.
- would directly duplicate other UK government or EU funded initiatives which you have been funded to deliver a technical feasibility study.
- do not cover areas of interest or challenges for the UK Government.

Contracts will be awarded to a single legal entity only. However, if you can justify subcontracting components of the work, you can engage specialists or advisers.

This work will still be the responsibility of the main contractor.

The main contractor is accountable for the outcome of the project. SBRI is not a Collaborative R&D!



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(*not an exhaustive list. Check full criteria on IFS.)

HGM Challenge Areas

Ben Christy and Will Lawson



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Some specific challenges areas have been determined already. You can respond directly to these challenges or use them as inspiration for you proposal.

However, these challenge areas are not exclusive. Part of the purpose of the competition is to find and explore new ideas about HMG could benefit from quantum technologies, so we welcome proposals outside of these themes, as long as they are relevant to public sector uses (such as improving defence, or helping to tackle net zero etc.)

Transport



Department
for Transport

NetworkRail



1. How could quantum technologies improve our ability to survey underground to improve infrastructure project delivery and maintenance?
2. How could quantum technologies provide more precise positioning and timing of trains in real time?

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Space



Department for
Science, Innovation
& Technology



3. How might quantum technologies be integrated into space-based platforms to provide insights into the Earth's climate and its environment? (For example, tracking greenhouse gas emissions, monitoring land and ocean temperature fluctuations, and assessing the health of ecosystems, as well as other aspects of monitoring climate change monitoring and environmental degradation).

4. How might quantum technologies be utilised for space-based applications including:

- a. Secure communications between satellites and ground stations
- b. Develop accurate Inertial Navigation Systems for spacecrafts
- c. Quantum computing to solve complex optimisation tasks, such as efficient mission planning, trajectory calculations, and resource allocation, or help analyse the vast amounts of data collected by Earth observation satellites in real-time.
- d. Advanced measurement techniques for space-based experiments in fundamental physics.

Health



Department
of Health &
Social Care

5. How might quantum technologies provide new or enhanced capabilities in healthcare?

Borders



6. How might we use quantum technologies to enhance our ability to detect anomalies in cargo and parcels, such as contraband or people smuggling?



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Defence



Ministry
of Defence



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7. How can we use quantum technology to enable agile automatous systems that can undertake collision avoidance and navigate safety in cluttered environments and in the dark?

8. How can the detection of underwater ordinance be improved through the use of quantum technology?

9. Beyond QKD, how could quantum technology enable lower power, more efficient future telecommunications?

10. How could quantum technology provide emergency services with an enhanced search capability and improved situational awareness?

11. How can quantum computing solve data analytics challenges in defence? For example:

- a) Hydro-dynamic simulation e.g. design of platforms and vehicles through fluids and modelling the effects of shock waves from munitions (computational fluid dynamics/Navier-Stokes Equations)
- b) Modelling systems under extreme or hazardous conditions including 'fast' reactions at high temperatures and pressures
- c) Large scale distributed science problems such as environmental monitoring and weather prediction



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Net Zero



Department for
Energy Security
& Net Zero

12. How could quantum technologies help to reach net zero? For example:

- a. Quantum computing for optimising electricity grids
- b. Simulations for reducing emissions in hard-to-decarbonise sectors (e.g., industrial)
- c. Quantum tech for innovation (e.g., increasing solar efficiency, battery design etc)
- d. Support foundational research into storage and nuclear fusion
- e. Better (real time) monitoring of climate impacts and the effect of individual actions/sites/processes on the system
- f. Assessments of optimal usage of industrial processes

Position, Navigation, Timing (PNT)



Department for
Science, Innovation
& Technology

13. How might we use quantum enabling technologies to advance time and frequency dissemination infrastructure (including for, but not limited to, building a National Timing Centre)?

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If you have queries about a particular challenge area, or wish to discuss an original idea, the DSIT Quantum Team will help to connect you with the relevant department or public body.

During the application phase	During Phase 1 feasibility studies
<p>Companies can ask to discuss new ideas with relevant departments. For example, “Would HMT be interested in modelling _____?”</p> <p>Companies can also ask questions about the challenges to help them structure their applications. For example, for challenge 1:</p> <ul style="list-style-type: none"> • What are the current limitations in surveying underground? • What specific features do you need to detect? • What environment will the technology need to operate in? 	<p>Companies will be paired with the relevant department or public body to explore the use-case in more detail and develop the technology concept.</p> <p>This is when the details and specifications needed to meet the use-case will be defined.</p>



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Thanks for your attention and remember, Innovate UK is here to help.



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ben.christy@beis.gov.uk



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Eligibility criteria



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Eligibility criteria

Project eligibility	<ul style="list-style-type: none">▪ Applicant can be an organisation of any size▪ Can work alone or with others organisations as subcontractors only▪ Contracts will be awarded to a single legal entity▪ Main contractor can subcontract components of work with justification to specialist consultants or advisers
Phase 1	Up to £120k inclusive of VAT for each project, last for up to 3 months
Phase 2	Between £1m and £2.5m inclusive of VAT for each project, last for up to 15 months

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 of any size
- The lead applicant can use subcontractors from any type of organisation where needed.

If you are 100% owned by a large parent company as a small subsidiary this means you are classed as a large company. For more information on company sizes, please refer to the [company accounts guidance](#).

Conditions of Award

Under the Subsidy Control Regime, we will conduct a financial review and seek assurances on your organisation, leadership team, and persons of significant control.

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. You must pass our financial review and assurances before being offered a conditional award.

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.

Previously submitted applications

Previously submitted application	Not a previously submitted application
Not materially different from one you have submitted before (but it can be updated based on the assessors' feedback)	<p>A brand-new application, project or idea that you have not previously submitted into an Innovate UK competition</p> <p>OR</p> <p>A previously submitted or ineligible application which:</p> <ul style="list-style-type: none">• has been updated based on assessor feedback• <u>and</u> is materially different from the application submitted before• <u>and</u> fits with the scope of this competition

Key Dates

Timeline	Dates
Competition Opens	29 May 2023
Briefing Event	31 May 2023
Submission Deadline	27 June 2023, 11:00
Applicants informed	21 July 2023
Contracts signed and returned no later than	1 September 2023

Application Questions

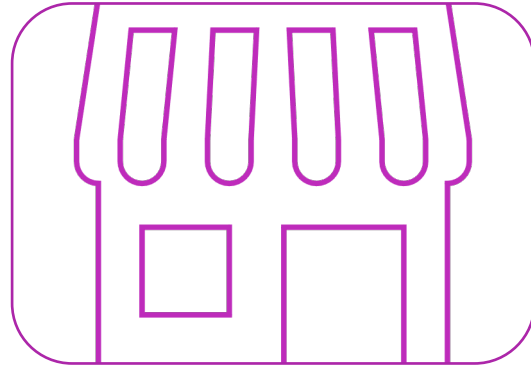
Detailed guidance available on IFS

Application Form		Appendix?
Question 1	Themes (not scored)	No
Question 2	Proposed idea or technology	Yes
Question 3	Technical project summary	No
Question 4	Current state of the art and intellectual property	No
Question 5	Project plan and methodology	Yes
Question 6	Technical team and expertise	No
Question 7	Costs and value for money	Yes
Question 8	Commercial potential	No

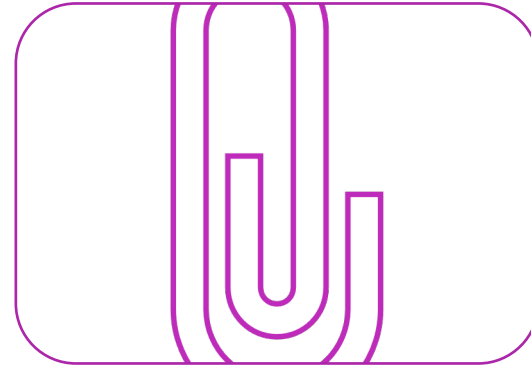
Your Project Cost Categories



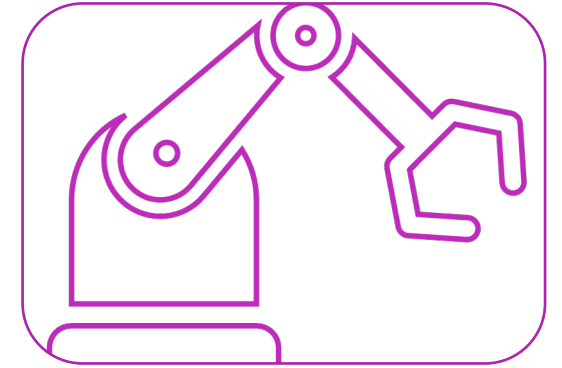
Labour



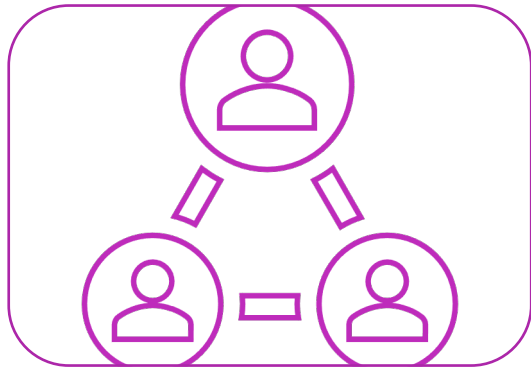
Overheads



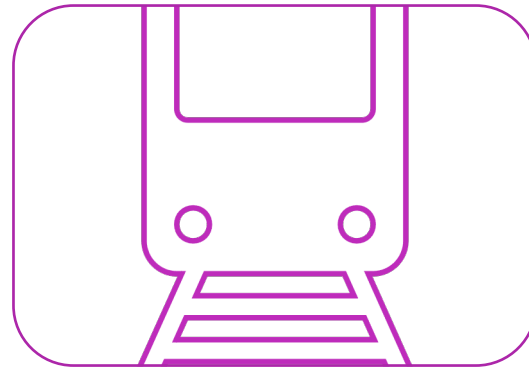
Materials



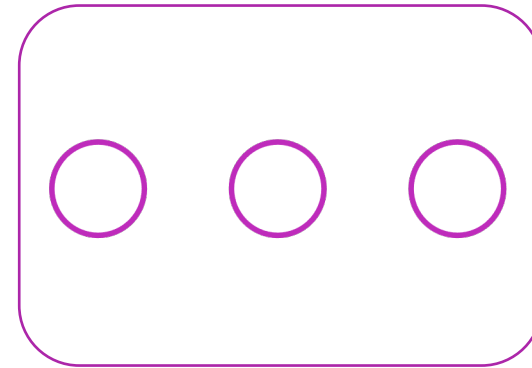
Equipment Usage



Subcontractors



Travel & Subsistence



Other

VAT

Once you have completed your costs you will be asked to confirm if you're VAT registered. If you select 'yes' IFS will automatically add on VAT calculated at 20%.

If you are a VAT registered organisation you will not need to enter your project costs inclusive of VAT as the application form will calculate the VAT for you.

If you are not VAT registered then you can quote without VAT, but you will not be able to increase invoice values to cover VAT later on

Make sure not to double count this as it may increase your project costs over the limit

'Thomas Ltd. ' Total project costs

£113,799

Are you VAT registered?

If you are VAT registered, VAT will be calculated at 20%

Yes

No

By ticking this box you are accepting that the project costs for your organisation are eligible as defined in the [project costs guidance \(opens in a new window\)](#).

Payment milestones

Month completed	Milestone	% of project costs	Payment request	Close all
1	Milestone 1	0%	£0	-

Month completed	Milestone	Payment requested (£)
1	Milestone 1	0

Task or activity

Words remaining: 200

Deliverable

Words remaining: 200

Success criteria

Enter each milestone and any associated payments

Month completed	Milestone	% of project costs	Payment request	Open all
1	Milestone 1	33.33%	£50,000	+
2	Milestone 2	33.33%	£50,000	+
3	Milestone 3	33.33%	£50,000	+

[Add another project milestone](#)

Total payment requested 100% £150,000

[Mark as complete](#)

[Save and return to project finances](#)

Once all milestones have been entered, mark the section as complete

Information to include in your milestone template

- Details of work packages with clear description of the activities taking place in each milestone.
- The month the milestone will be completed, which will help form your quarterly payment schedule.
- Clear and distinct deliverable(s) from each milestone that you'll be able to evidence to confirm you've completed the milestone in full.
- Success criteria for each milestone, noting that it must be clearly relatable to the work packages, deliverable(s) and must be measurable within reason
- Costs for each milestone – check that the total costs on the milestones match the total project costs page within the finance section
- Do not cluster your milestones together, even if they occur in the same period. We need separate deliverables and costs for each milestone.




Terms and Conditions

Before you can submit your application you must agree to the draft terms and conditions for this procurement competition. They may differ from any you have agreed to before. These terms are set and are non-negotiable


Terms and conditions

You must agree to these before you submit your application.

[Award terms and conditions](#)

 Incomplete

Review and submit

 [Print your application](#)

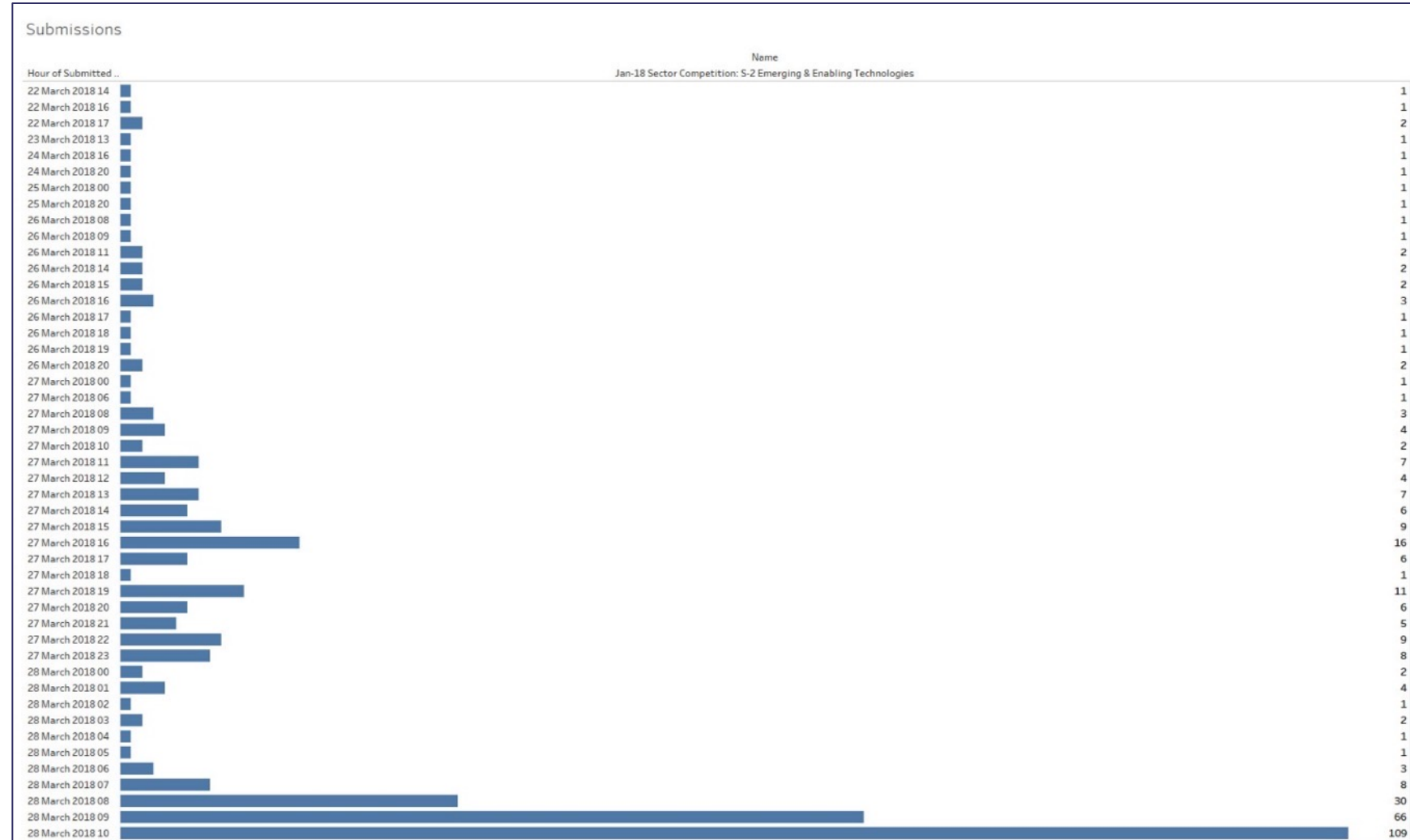


I agree to the [full terms and conditions](#) set out by the funding authority. I understand I need to agree to the final contract if my application is successful.

Agree and continue

Submit your application early!

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.



Conditional offer of awarding

If you receive a notification saying you have been successful at the assessment stage, you will have some further steps to complete in Project Setup.

These are:

- Project details
- Project team
- Monitoring Officer allocation
- Bank details
- Finance checks
- Contract

Work can only commence on the project once you have signed and returned the Grant Offer Letter.

Timelines if successful in award

Timeline	Dates
Applicants Notified	21 July 2023
Project Set Up Team contact Successful Applicants	24 July 2023
Within 7 days of contact from Project Set Up, Successful Applicants must send in Project Details: <ul style="list-style-type: none">• Bank Details• Project Location• Project Manager• Finance Contact	28 July 2023
Reminder from Project Set Up (15 day warning)	7 August 2023
Contracts must be signed within 30 days from successful notification and not later than	21 August 2023

Equality, Diversity & Inclusion

- We are on a mission to embed Equality, Diversity, and Inclusion in everything we do, internally and externally.
- We believe that great ideas can, and do, come from anyone and everyone.
- We know that diversity and inclusion in businesses contributes to enhanced innovation, satisfaction, performance, and ultimately, commercial success.



Available Support

- We welcome and encourage applications from people of all backgrounds and are committed to making our application process accessible to everyone.
- This includes providing support for people who have a disability or long-term condition and face barriers applying to us.
- So, if you would like any support, please contact our Customer Support Service Team on support@iuk.ukri.org or at **0300 321 4357**.



What to Expect

1.

Contact our Customer Support Services team by email or phone as early as possible.

We suggest at least 15 working days before the deadline.

2.

Our Customer Support Service team will refer you to our partner Diversity & Ability (D&A).

3.

D&A will conduct a Discovery Conversation with you and make recommendations for additional support.

4.

D&A will organise and deliver bespoke additional support for and with you.

5.

Submit your application!
Please do so well ahead of the deadline as extensions cannot be provided.

Q&A



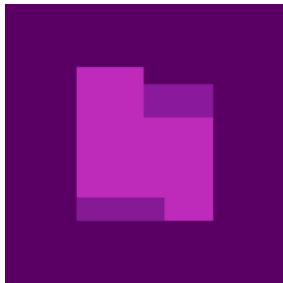
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Contact

Customer Support Services

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

support@iuk.ukri.org



Innovate UK

ukri.org/councils/innovate-uk



Innovate UK KTN

ktn-uk.co.uk



Innovate UK EDGE

innovateukedge.ukri.org

Thank You

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