Contracts for Innovation: Quantum Sensors and PNT Missions Primer

Applicant Briefing

Date: 4 June 2025

- This briefing will be recorded. A copy of the slides and the recording link will be made available on IFS.
- For more information on the competition process, please click here to access our YouTube channel.

Agenda

- 10:30 – Arrival
- 11:00 – Welcome & Introduction
- 11:15 – Briefing
- 12:00 – Q&A
- 12:30 – Discussion
- 13:00 – Lunch
- 14:00 – Applicant surgery
- 15:00 – End

UKRI Innovate UK

Contracts for Innovation: Quantum Sensors and PNT Missions Primer

Welcome

Roger McKinlay

Challenge Director, Quantum Technologies

UKRI Innovate UK

Contracts for Innovation: Quantum Sensors and PNT Missions Primer

Introduction

Tom Scott

Quantum Policy Lead: Missions, Readiness & Adoption

Office for Quantum, DSIT

UKRI Innovate UK

Recap: 2014 - 2024
the story so far (£1.1bn National Programme)

Department for Science, Innovation & Technology

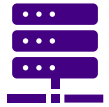
Research

- **Centres of excellence:** building regional strengths through the hubs network
- **Unlocking new applications:** targeted research programmes

Innovation

- **Accelerating commercialisation:** Challenge programme involving 180+ UK companies
- **Driving public sector solutions:** through the Catalyst Fund

Infrastructure



- **National Quantum Computing Centre:** to accelerate scaling and readiness
- **Testing and assurance:** through the National Physical Laboratory

Skills

- **Developing, attracting and retaining talent:** through PhDs, fellowships and apprenticeships

Engineering and Physical Sciences Research Council · Innovate UK · Science and Technology Facilities Council · National Quantum Computing Centre · NPL · Ministry of Defence · dstl · GCHQ

The result: a world-leading ecosystem...

Department for Science, Innovation & Technology

World leading research and skills: 1st in Europe and 3rd in the world for the quality and impact of quantum research.

Thriving business community: 2nd for the number of quantum companies (11% of the world's quantum companies)

High-levels of private investment: 2nd in attracting private equity investment (12% of global private investment)

Broad capabilities: Quantum companies spanning computing, communications, sensing, timing, imaging, and the supply chain

What next? The next 10 years

Department for Science, Innovation & Technology

The National Quantum Strategy sets out our vision for the UK to be a leading quantum-enabled economy over the next 10 years

This vision will be delivered through the 5 Quantum Missions, and via investments in enabling areas

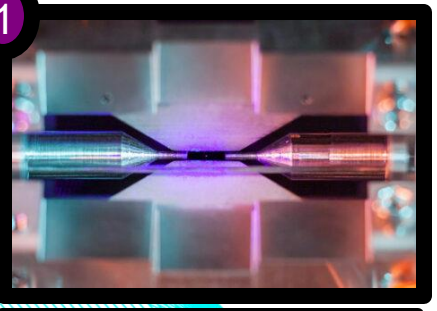
The Missions will represent a step change in how HMG is supports the sector with a focus on stimulating procurement and adoption

We are currently in a spending review process that will dictate the level of funding for the next few years of the programme.

The Quantum Missions

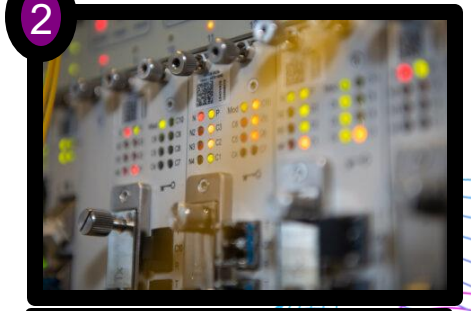
Department for Science, Innovation & Technology

1



Mission 1: By 2035, there will be accessible, UK-based quantum computers capable of running 1 trillion operations and supporting applications that provide benefits across key sectors of the economy.

2

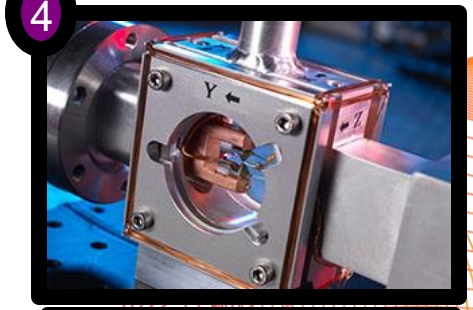


Mission 2: By 2035, the UK will have deployed the world's most advanced quantum network at scale, pioneering the future quantum internet.

3

Mission 3: By 2030, NHS Trusts will benefit from quantum sensing-enabled solutions, helping those with chronic illness live healthier, longer lives through early diagnosis and treatment.

4



Mission 4: By 2030, quantum navigation systems, including clocks, will be deployed on aircraft, providing next-generation accuracy for resilience that is independent of satellite signals.

5

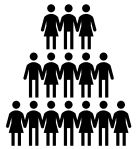
Mission 5: By 2030, networked quantum sensors will have unlocked new situational awareness capabilities, exploited across critical infrastructure in the transport, telecoms, energy, and defence sectors.

QUANTUM MISSION 3: QUANTUM SENSING FOR HEALTHCARE

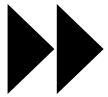
Department for Science, Innovation & Technology

"By 2030, NHS Trusts will benefit from quantum sensing-enabled solutions, helping those with chronic illness live healthier, longer lives through early diagnosis and treatment."

MISSION OBJECTIVES



Growing the UK quantum sensing for healthcare community, research base and technology pipeline around areas of pressing clinical need



Accelerating commercialisation and regulatory approval of near-to-market use cases

Stimulating near-term NHS procurement and adoption of quantum sensors

Driving economic growth and supporting the scaling of quantum sensing businesses developing healthcare solutions

PRIORITY COMMERCIALISATION THEMES

- Quantum-enhanced medical imaging
- Quantum-enhanced laboratory analysis of patient samples
- Quantum enhanced point-of-care diagnostics.

QUANTUM MISSION 4: PNT

Department for Science, Innovation & Technology

By 2030, quantum navigation systems, including clocks, will be deployed on aircraft, providing next-generation accuracy for resilience that is independent of satellite signals.

Key objectives and outcomes

- **Accelerate research and development and talent supply** around quantum navigation and next generation of optical clocks for a wide range of mobile platforms
- **Stimulate industry sector activity**: integration of quantum technologies into existing architectures and design and manufacture of entirely new systems
- **Adoption of quantum PNT systems** by the public sector, supporting core elements of the HMG PNT Framework
- **A strengthened UK supply chain** for materials, components, and sub-systems through sovereign capability and international partnership

QUANTUM MISSION 5: CNI

Department for Science, Innovation & Technology

By 2030, networked quantum sensors will have unlocked new situational awareness capabilities, exploited across critical infrastructure in the transport, telecoms, energy, and defence sectors.

KEY OBJECTIVES AND OUTCOMES

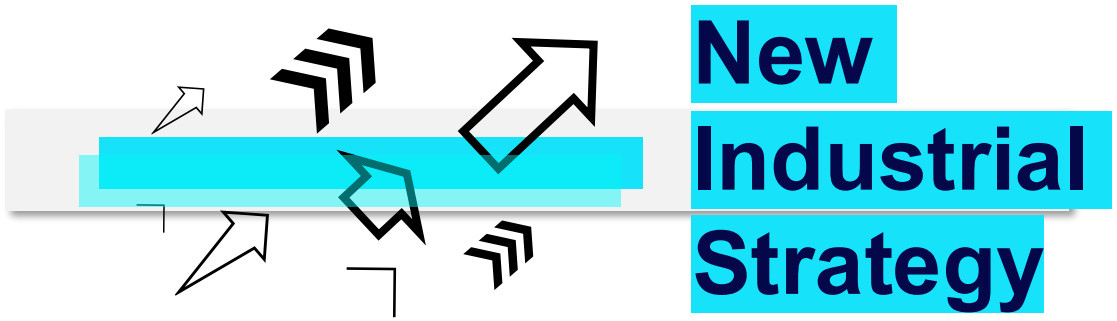
- Stimulate private sector activity and public sector adoption.
- Improve access to testing facilities and infrastructure.
- A strengthened UK supply chain for materials, components, and sub-systems.

PRIORITY COMMERCIALISATION THEMES

- **Surveying.**
- **Stand-off gas sensing.**
- **Distributed sensing in challenging environments.**

Alignment with wider government priorities

Department for Science, Innovation & Technology



New Industrial Strategy

- **Growth is the number one mission of the new government** – new industrial strategy central to this.
- **A 10-year plan focusing on key growth driving sectors including digital and technologies**– to be published very soon.

Quantum technologies are:

- key drivers of growth within the 'Digital and Technologies' sector
- productivity enablers in other priority sectors within the Industrial Strategy sectors (e.g., defence, life sciences, advanced manufacturing)

Spending review forward look

Department for Science, Innovation & Technology

June: Spending Review

Headline Departmental budgets anticipated (FY26/27 - 29/30)

Allocations process

Macro-scale decisions made on the allocation of funding across DSIT policy areas (inc. Quantum)

Autumn 2025: Allocations outcome

Confirmation of level of funding for specific quantum programmes between 2026 - 2030

Programme planning

Prioritisation and finalisation of Mission activities and delivery planning
Preparation of programmatic activity with UKRI and other Departments

Spring 2026 onwards: Phase 3 rollout

Commencement of core Mission activities*

Mission delivery

Roll out of phase 3 of the NQTP

The scale of programmatic activity will be subject to the outcome of the SR process

Innovate UK FY25/26 Mission 'priming' activities

Roll out of core Missions programmes

Introductions

Stephanie Armitage

Competition Manager

Ellie Foden

Competition Manager

Callum Stirling

Innovation Lead – Quantum Technologies

Rhianne Lucas

Contracts for Innovation Portfolio Manager

UKRI Innovate UK

Briefing Overview

- Key Dates
- Competition Summary & Scope
- Eligibility Criteria
- Innovation Funding Service (IFS)
- Funding Rules
- Assessment
- Use of AI
- Additional Support
- Q&A

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Key Dates

Timeline	Dates
Competition Opens	**Monday 19 May**
Submission Deadline	**Wednesday 2 July** at **11am**
Applicants informed	**Monday 4 August** by **5pm**
Project start and end dates	Start by **1 September 2025** End by **31 March 2026**

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Competition Summary & Scope

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Summary

- Contracts for Innovation project (formerly SBRI)
- £14M total: projects up to £1.5M (incl. VAT) and up to 7 months
- To prime Missions 3 – 5 of National Quantum Strategy
  - Mission 3: Quantum sensing for healthcare
  - Mission 4: Quantum-enabled position, navigation, and timing
  - Mission 5: Quantum sensing for critical infrastructure
- Phase 1: a maturity study for a product or service essential for delivering one or more of Missions 3 – 5 of the National Quantum Strategy
- Phase 2: depends on completion of Phase 1 and budget availability

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Scope

Phase 1 – Maturity Study

- An innovative product or service using quantum sensing or quantum PNT
- Current status of the technology
- Plans for developing the maturity
- Credible and practical route to market
- Technical, commercial, and regulatory barriers to adoption
- Two main deliverables: *Product Maturity Report* and *Product Performance Report*

Product or service

- For the delivery of Missions 3 – 5 of National Quantum Strategy
- Must use second generation quantum technologies, or have a plan to include them
- Software and hardware are both in scope, but software for specific hardware

We don’t want

- Immature technologies
- Only paper or desk-based studies
- A lack of product or service plans

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Scope

Deliverable 1: *Product Maturity Plan*

- Mature product concept based on market knowledge
- Plans and/or roadmaps for future product development, including for Phase 2
- Outline investment needs to develop the maturity of the product

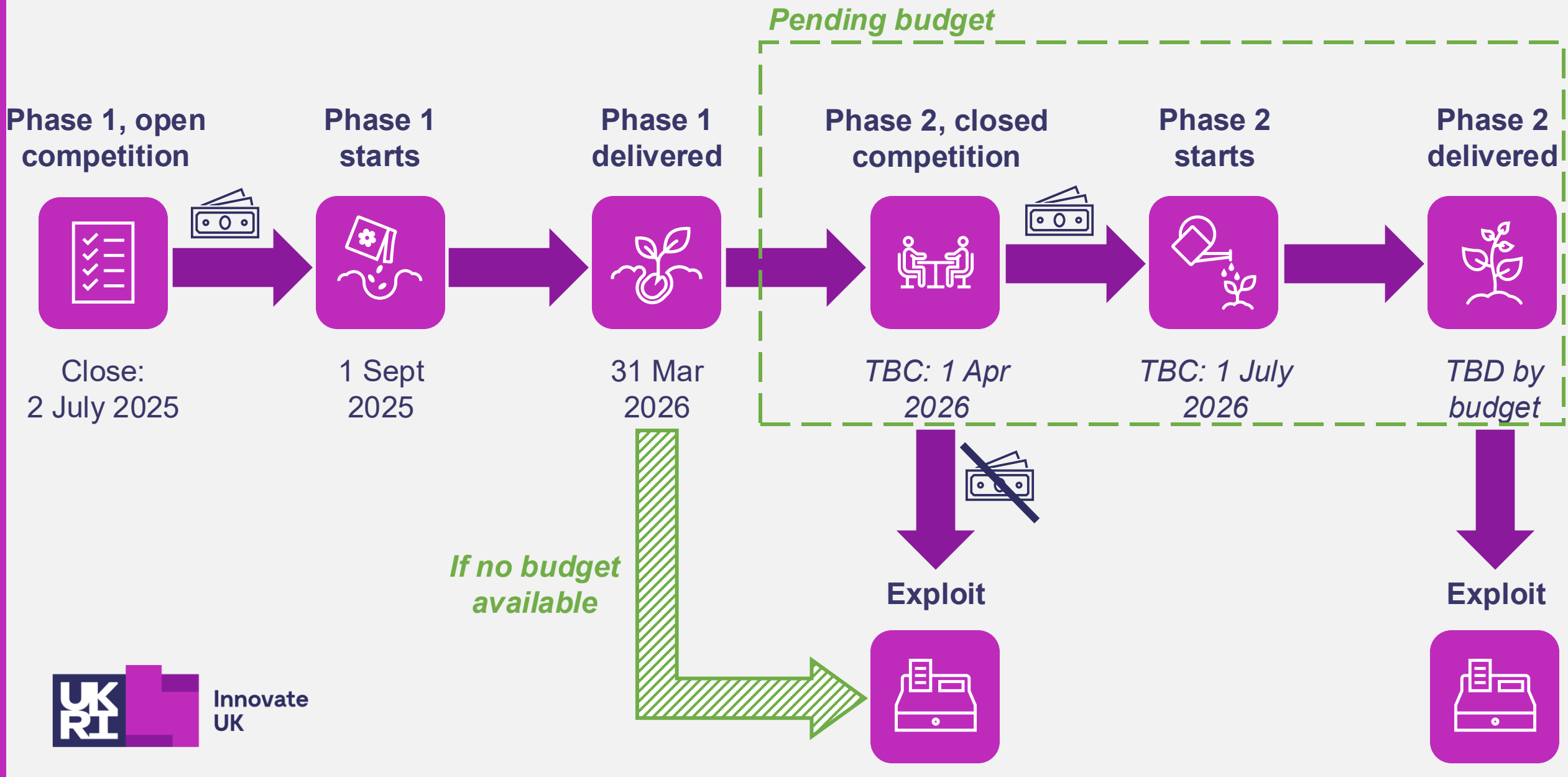
Deliverable 2: *Product Performance Report*

- Results of test, demonstration, modelling, or trial
- Demonstrate confidence to meet technical requirements of your market

Phase 2

- Will depend on budget availability
- Requires successful completion of Phase 1
- Competitive application, based on Phase 1 deliverables
- Develop product/service, including delivering *Product Maturity Plan* activities

Phases 1 & 2



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About Contracts for Innovation

Innovate UK

Innovate UK | Contracts for Innovation

Innovate UK Contracts for Innovation

Helping government, helping businesses

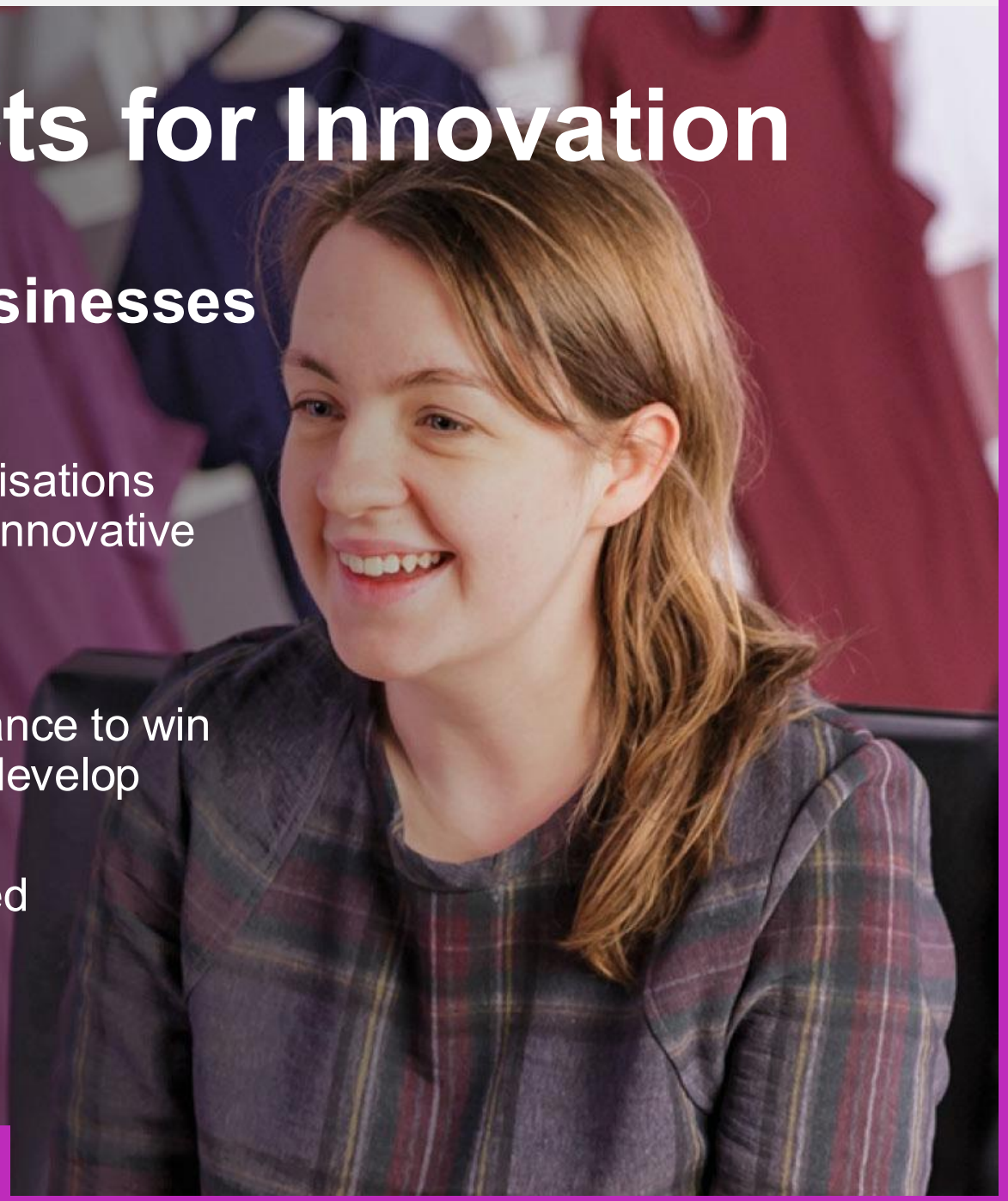
Helping government:

Contracts for Innovation helps government organisations solve tough challenges by connecting them with innovative organisations.

Helping businesses:

Contracts for Innovation 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

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What are Contracts for Innovation?

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

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Contracts for Innovation: Key Features

Development Contracts

- 100% funded R&D (procurement contract for R&D Services)
- UK implementation of EU pre-commercial procurement
- Payment made on completion of milestones

Contract with Lead Applicant

- Any subcontractors remain accountable to the lead

IP rests with Supplier

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

Eligibility

- Open to all organisations. 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

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Applying to a Contracts for Innovation 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.

Eligibility criteria

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Eligibility Criteria – Your Project

Your project must:

- have total costs of between £500,000 and £1.5 million
- last up to 7 months
- start by 1 September 2025
- end by 31 March 2026

Projects must always start on the first of the month, even if this is a non-working day. You must not start your project until your Contract has been approved by Innovate UK.

You must only include eligible project costs in your application. See our overview of eligible project costs. For specific guidance, see the eligibility section in this competition.

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Eligibility Criteria – Lead Organisation

Applicant:
To lead a project your organisation must:

- be an organisation of any size, including those based in the EU, EEA or internationally
- work alone or with the subcontracted skills and expertise of others from business, research organisations, research and technology organisations, or the third sector (charities, social enterprises and voluntary groups)

Contracts will be awarded to a single legal entity only. The majority of the project work and key deliverables must be completed by the applicant and be carried out in the UK. Subcontractors can be used, but only for specialist skills.

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Innovation Funding Service (IFS)

How to apply

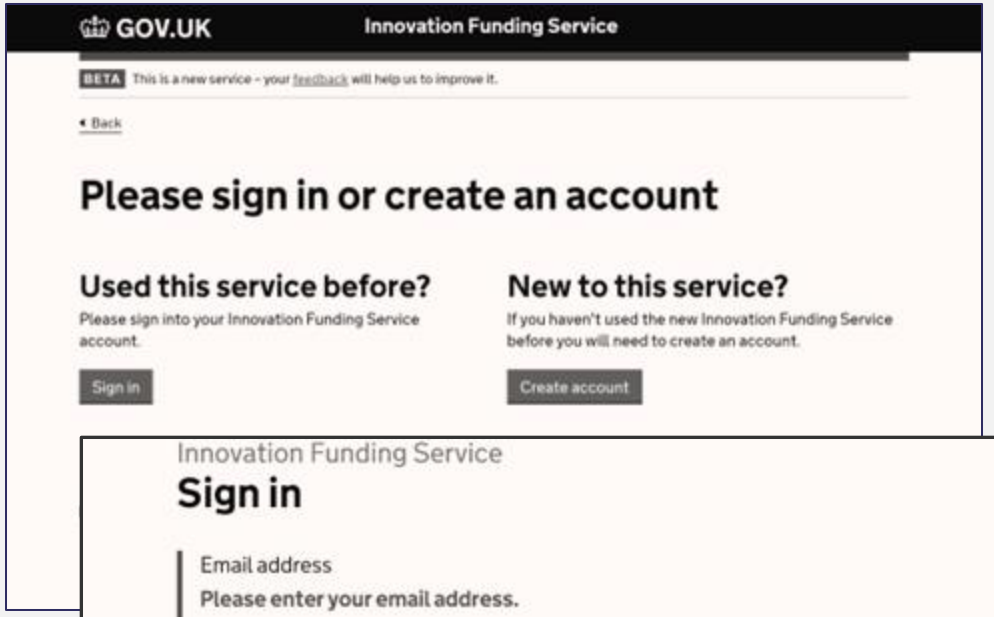
The lead applicant must create an account:

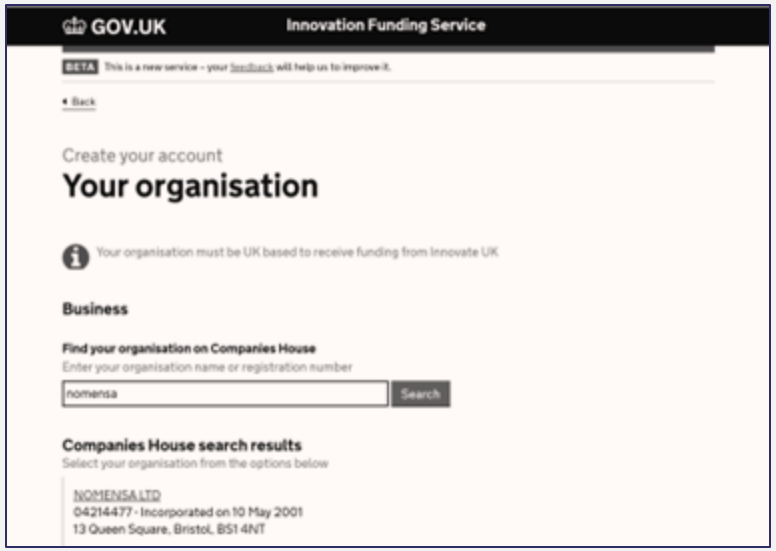
UK registered businesses

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

To avoid being listed as a business and to ensure you receive the correct funding, enter your information manually on IFS





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Application Questions

Detailed guidance available on IFS

Application Form		Word Count	Appendix inc. no. pages
Question 1	Themes (not scored)	Multiple choice	No
Question 2	Animal testing (not scored)	Multiple choice	No
Question 3	Permits and licences (not scored)	Multiple choice	No
Question 4	International Collaboration (not scored)	400 words	No
Question 5	Trusted Research and Innovation (not scored)	400 words	No
Question 6	Proposed idea or technology	400 words	Yes – optional, 2 pages
Question 7	Technical project summary	400 words	No
Question 8	Current state of the art and intellectual property	400 words	No
Question 9	Project plan and methodology	400 words	Yes – mandatory, 2 pages
Question 10	Technical team and expertise	400 words	No
Question 11	Costs and value for money	400 words	Yes – optional, 2 pages
Question 12	Commercial potential	400 words	No

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Export Controls - overview

Subject to certain criteria, UK applicants are legally required to tell the government about acquisitions of certain entities in 17 sensitive areas of the economy (called 'notifiable acquisitions').
https://www.gov.uk/government/publications/national-security-and-investment-act-guidance-on-notifiable-acquisitions/national-security-and-investment-act-guidance-on-notifiable-acquisitions

These 17 areas are:

- Advanced Materials
- Advanced Robotics
- Artificial Intelligence
- Civil Nuclear
- Communications
- Computing Hardware
- Critical Suppliers to Government
- Cryptographic Authentication
- Data Infrastructure
- Defence
- Energy
- Military and Dual-Use
- Quantum Technologies
- Satellite and Space Technologies
- Suppliers to the Emergency Services
- Synthetic Biology
- Transport

If there is significant uncertainty about whether an acquisition is notifiable, you may contact the government on **investment.screening@cabinetoffice.gov.uk** to seek a view or get legal advice from your own sources.

Q4 International Collaboration (not scored)

Does your proposed work involve any international collaboration or engagement?

You must provide details of any expected international collaboration or engagement. You must include a list of the names and the countries any international project co-leads, project partners, visiting researchers, or other collaborators are based in. You must also include details of any subcontractors or service providers.

If your proposed work does not involve international collaboration or engagement, your answer must confirm this.

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Q5 Trusted Research and Innovation (not scored)

You must explain if your proposed project work relates to UKRI's Trusted Research and Innovation Principles, including:

- a list of any dual-use (both military and non-military) applications to your research
- a list of the areas where your project is relevant to one or more of the 17 areas of the UK National Security and Investment (NSI) Act)
- whether an export control license is required for this project under the *academic export control guidance* and the status of any applications
- a list of any items or substances on the UK Strategic Export Control List

We may ask you to provide additional TR&I information at a later date, in line with UKRI TR&I Principles and funding terms and conditions

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Project Impact questions

- Each organisation in your application will complete the Project Impact questions within the ‘Supporting information’ section
- The Project Impact questions ask for data about your business and innovation and its contribution to the UK economy, society, and the environment
- Visit the Project Impact guidance page for more information, the types of questions you will be asked and how to get further support
- By providing this data, you are enabling us to better understand the impact of our support. It will help us identify success stories and provide evidence to government and the public of the value of supporting innovative businesses

For more information:

- Watch Our Impact Management Framework video
- How is the Project Impact data collected? video

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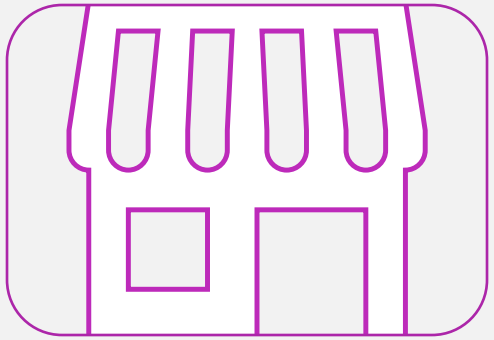
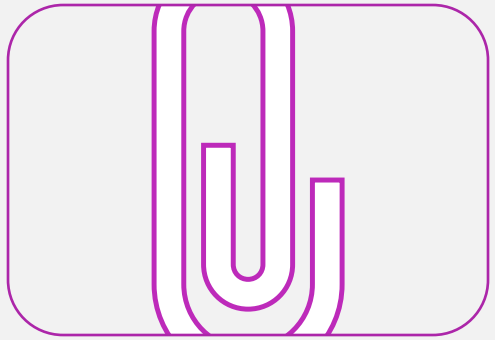
Your Project Cost Categories

View our Application Finances Instructional Video

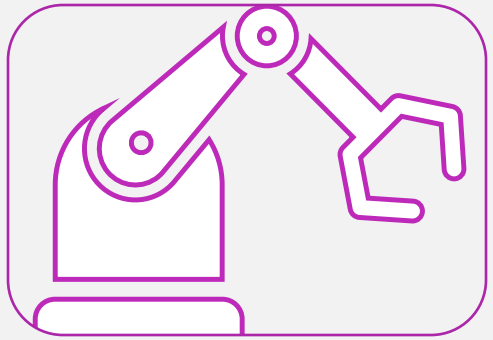
Labour



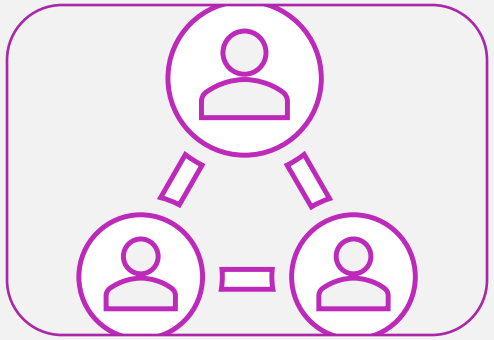
Overheads



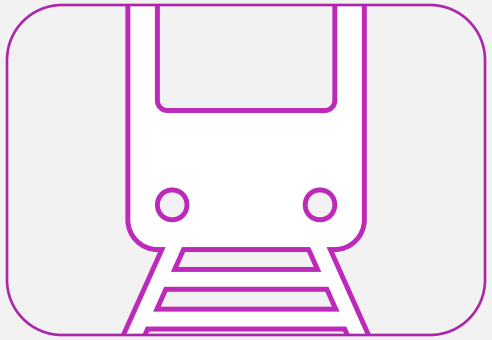
Materials



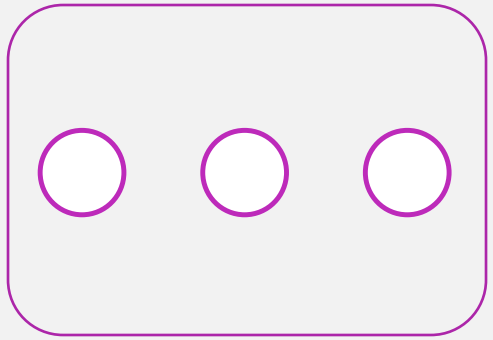
Capital Usage



Subcontractors



Travel & Subsistence



Other

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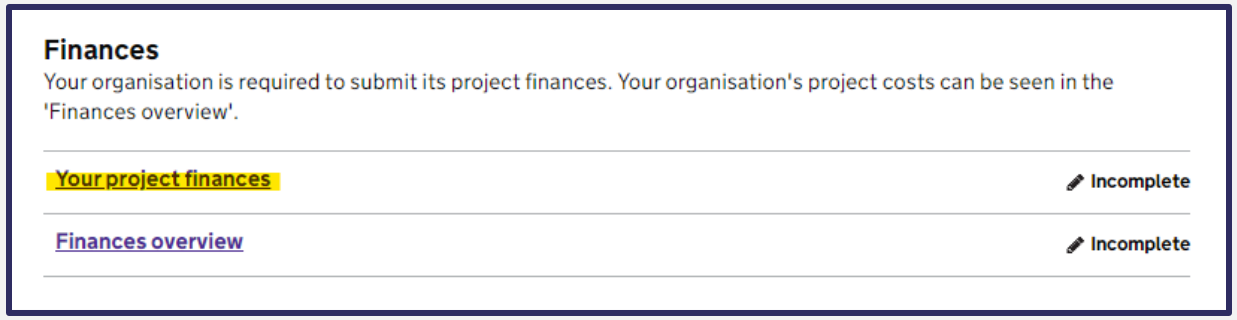
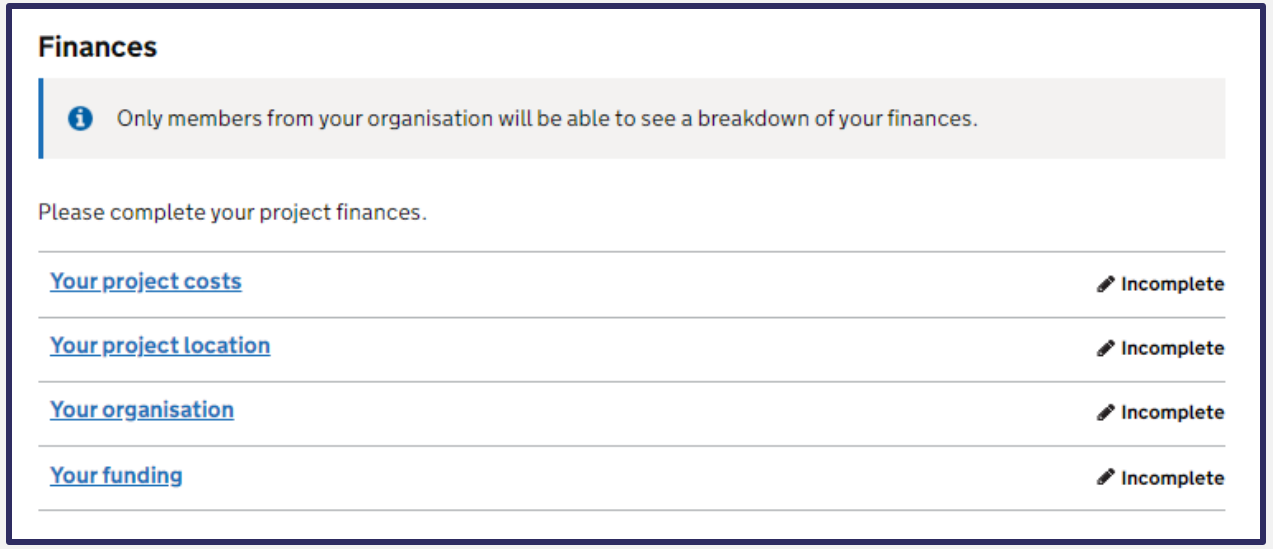
Your project finances





Your project costs
Add your project costs by category – refer to previous slide for link to instructional video

Your project location
Enter postcode for where most of the project work will take place.

Your organisation
Add details of your organisation including size, turnover and number of employees

You can declare Other Public Sector Funding here if you have previously received public money for **exactly** the same activities

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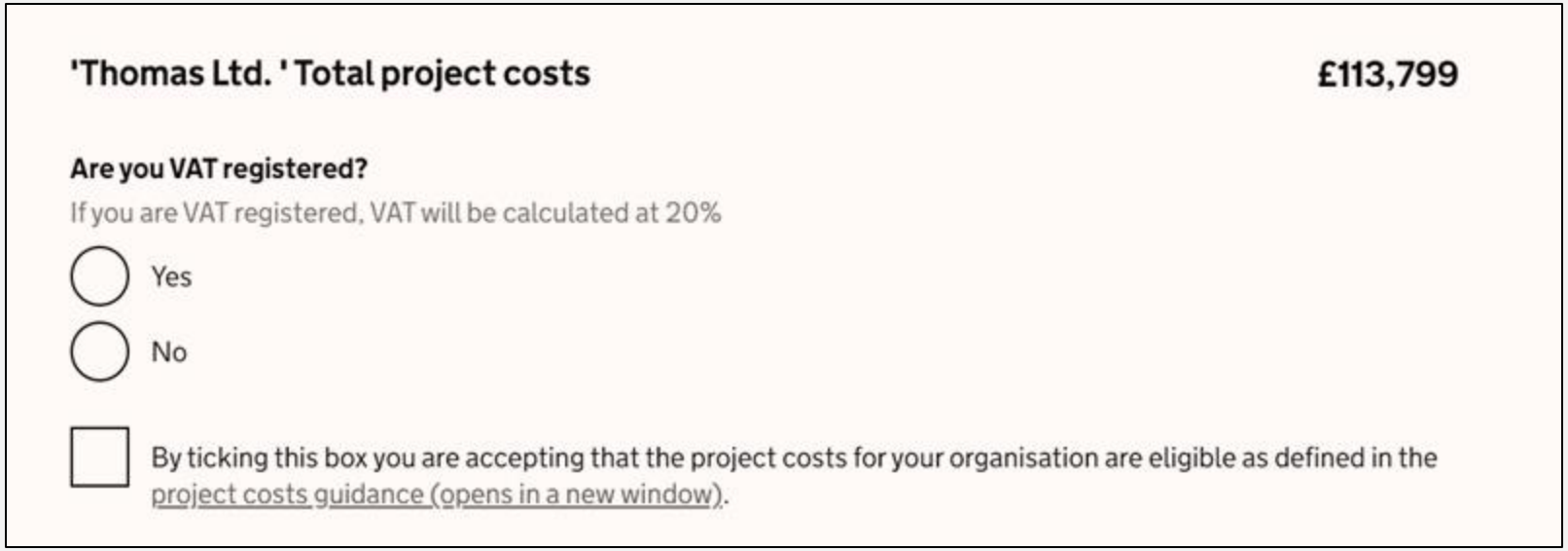
VAT

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 your VAT as it may increase your project costs and make you ineligible.



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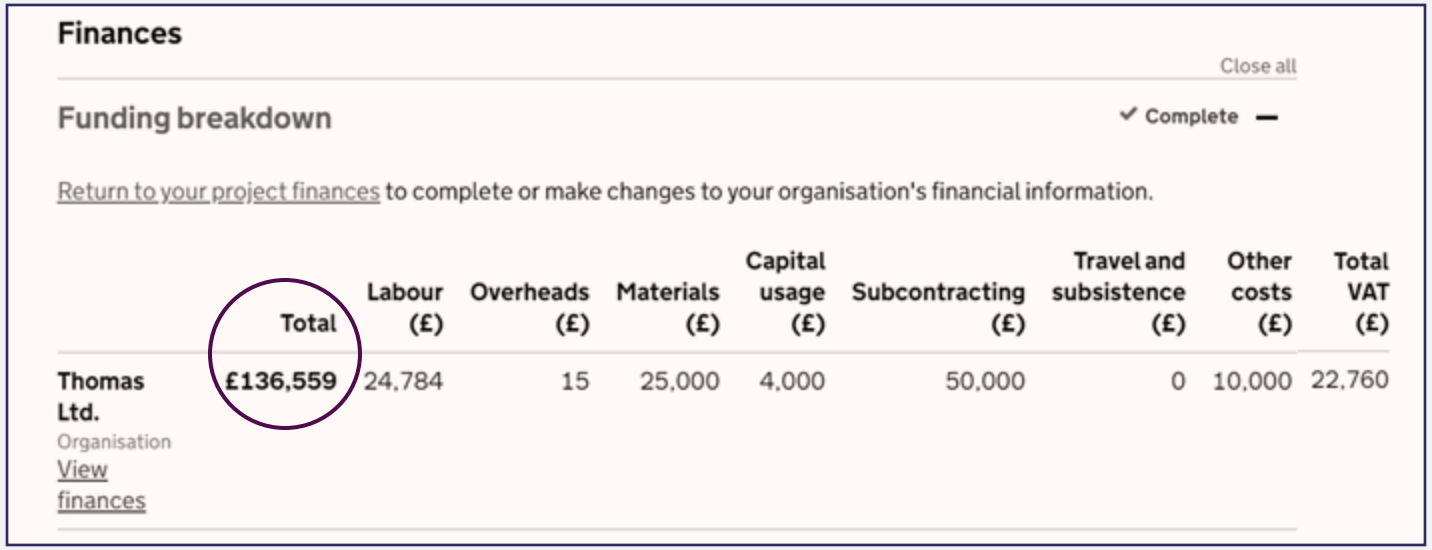
Project cost summary



Finances

Close all

Funding breakdown ✓ Complete —

Return to your project finances to complete or make changes to your organisation's financial information.

	Total	Labour (£)	Overheads (£)	Materials (£)	Capital usage (£)	Subcontracting (£)	Travel and subsistence (£)	Other costs (£)	Total VAT (£)
Thomas Ltd. Organisation View finances	**£136,559**	24,784	15	25,000	4,000	50,000	0	10,000	22,760

Ensure the highlighted costs fit the criteria for this competition.

The maximum project costs for this competition are £1.5 million.

The lead organisation can see a summary of project costs calculated inclusive of VAT (if VAT registered)

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Subcontractors

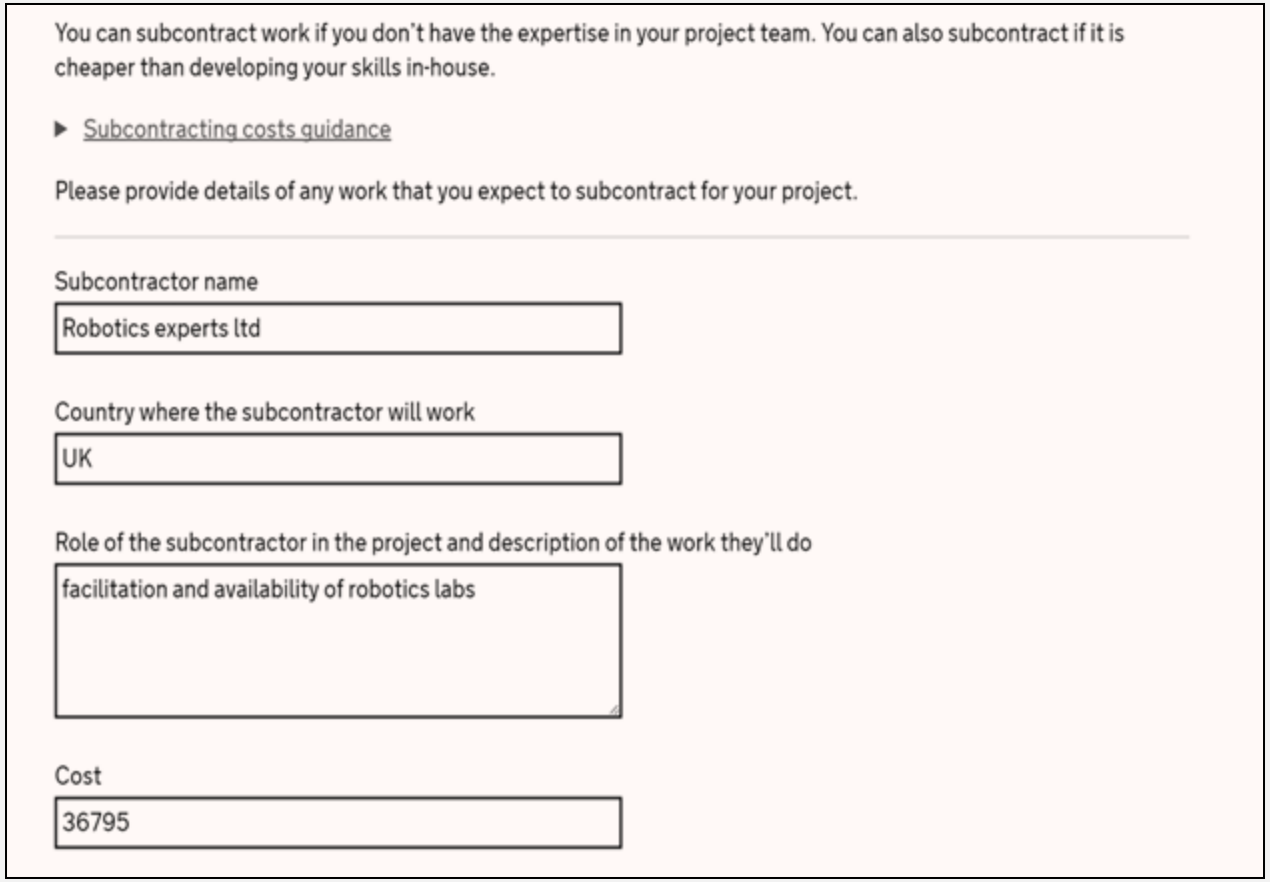
Eligible:

Subcontracting outside of the UK is permitted.

You should fully explain the specific skills the subcontractor brings to the project.

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

All costs must be justified and quantified.


You can subcontract work if you don't have the expertise in your project team. You can also subcontract if it is cheaper than developing your skills in-house.

▶ Subcontracting costs guidance

Please provide details of any work that you expect to subcontract for your project.

Subcontractor name

Robotics experts ltd

Country where the subcontractor will work

UK

Role of the subcontractor in the project and description of the work they'll do

facilitation and availability of robotics labs

Cost

36795

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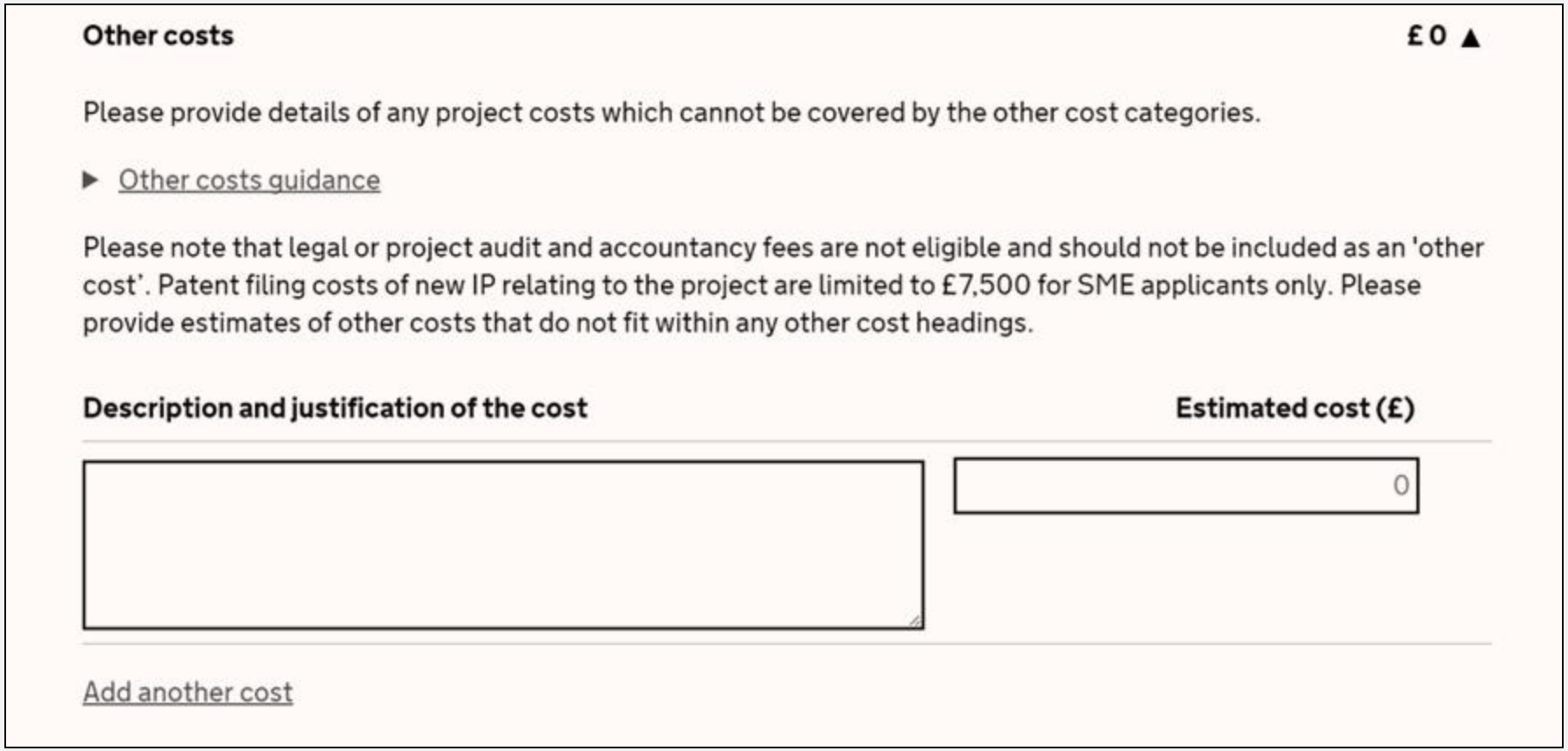
Other costs

Costs that could not be added under previous headings.

Do not double count.

All costs will be reviewed by the finance team during contract award



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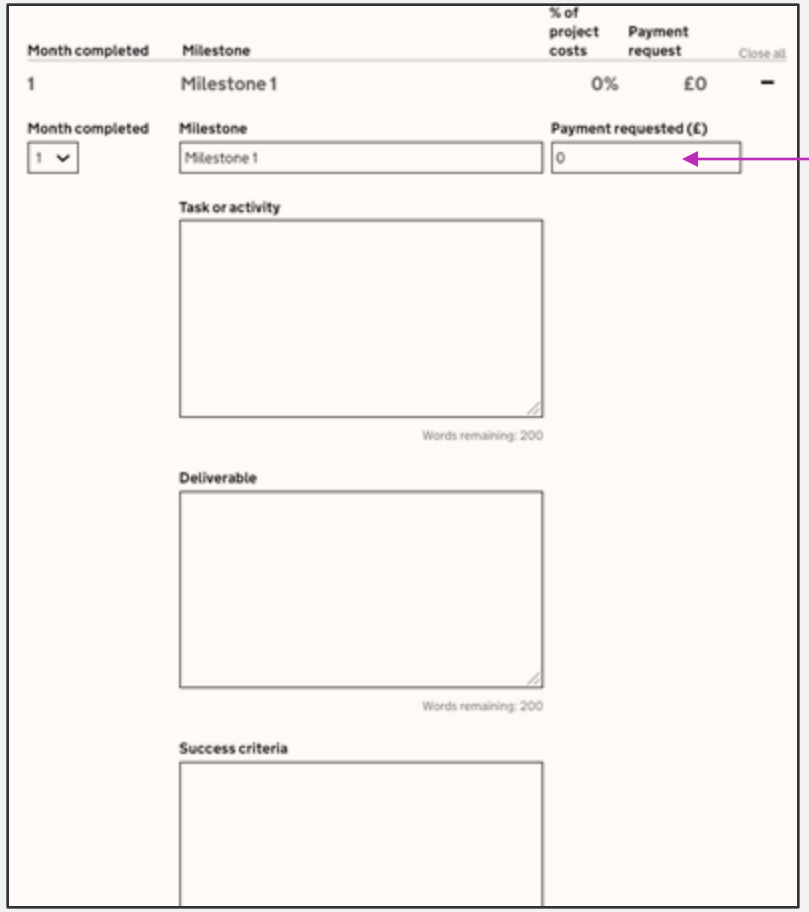
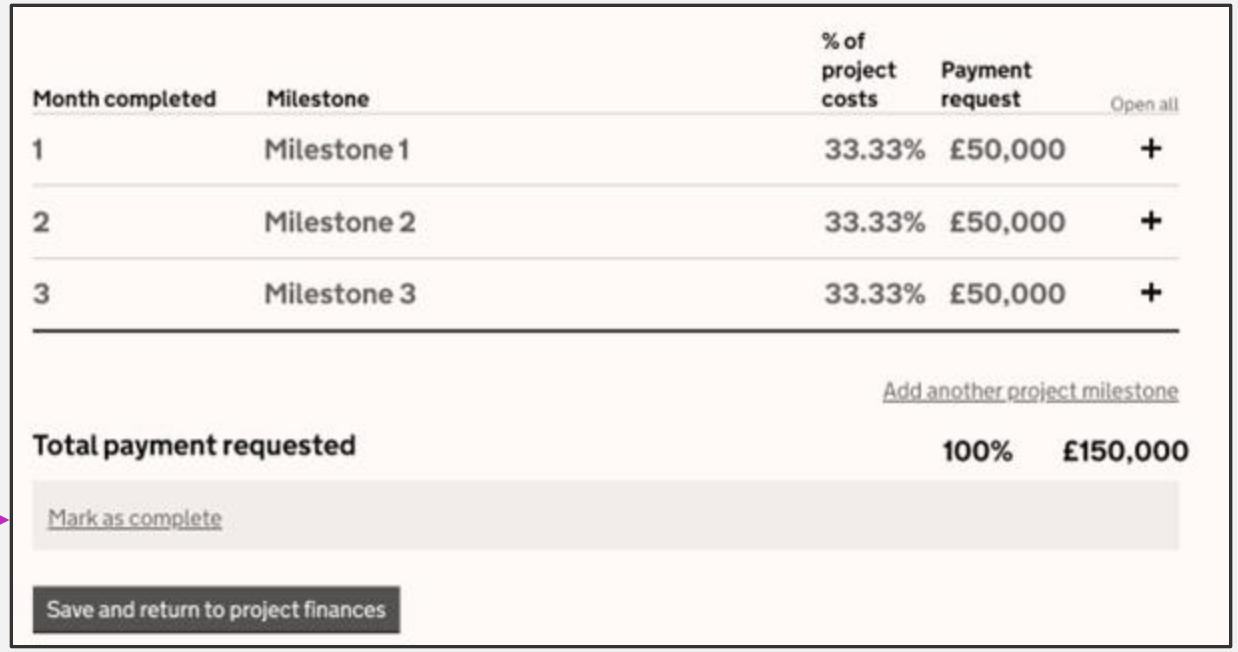
Payment milestones



Enter each milestone and any associated payments



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

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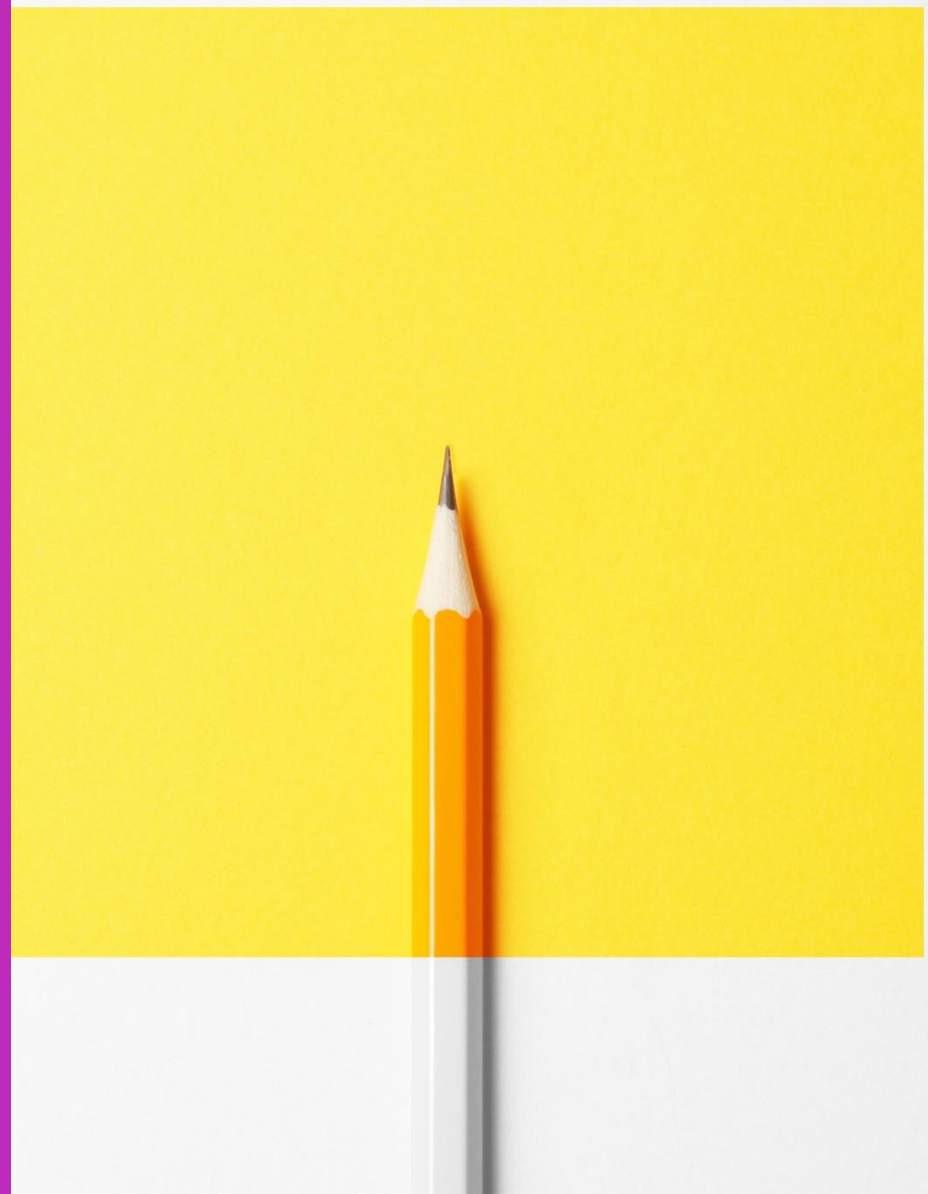


Information to include in your milestone template

- 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.

Milestone example

Milestone

Build test environment for prototype

Task or activity

Complete physical hardware build

Software integration finalised

Deliverable

Prototype test environment built in accordance with associated designs

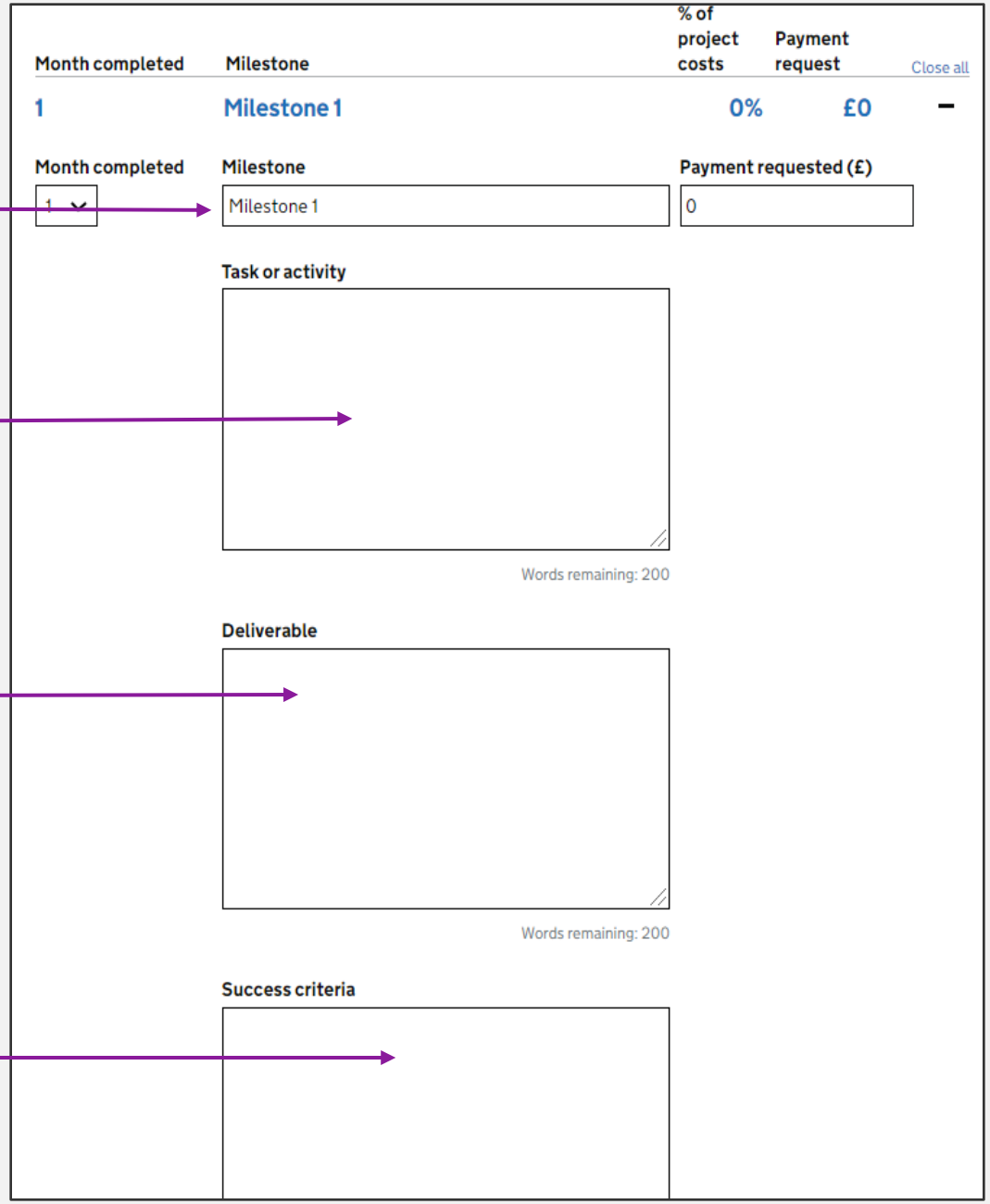
Operating instruction manual completed

Success Criteria

Fully operational test environment.

Successful integration of prototype and test environment software.

0.5% error rate



Checking your finances are complete

Finances summary

These organisations have not marked their finances as complete:

- Ludlow
- EGGS

This application cannot be submitted until all items in the finances section have been marked as complete by all partners.

		Total costs (£)	Funding level (%)	Funding sought (£)	Contribution to project (£)	Other public sector funding (£)
Empire Ltd Lead organisation	✔	**200,903**	30.00	57,803	140,632	2,468
Ludlow Partner	⚠	**200,903**	30.00	57,803	140,632	2,468
EGGS Partner	⚠	**990**	100.00	990	0	0
Total	⚠	**£402,796**		116,596	281,264	4,936

Check your finances have been correctly inputted, as per the eligibility criteria of the competition.

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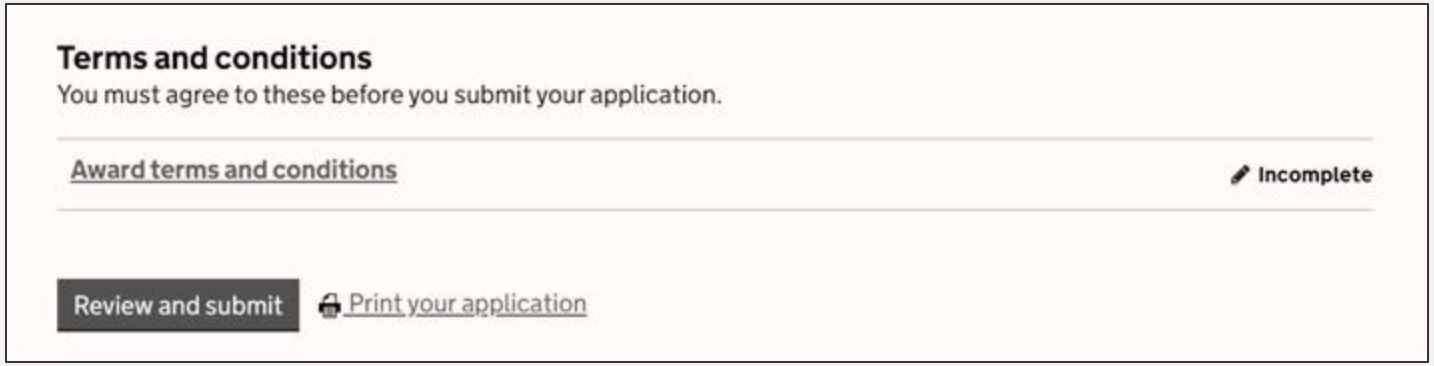
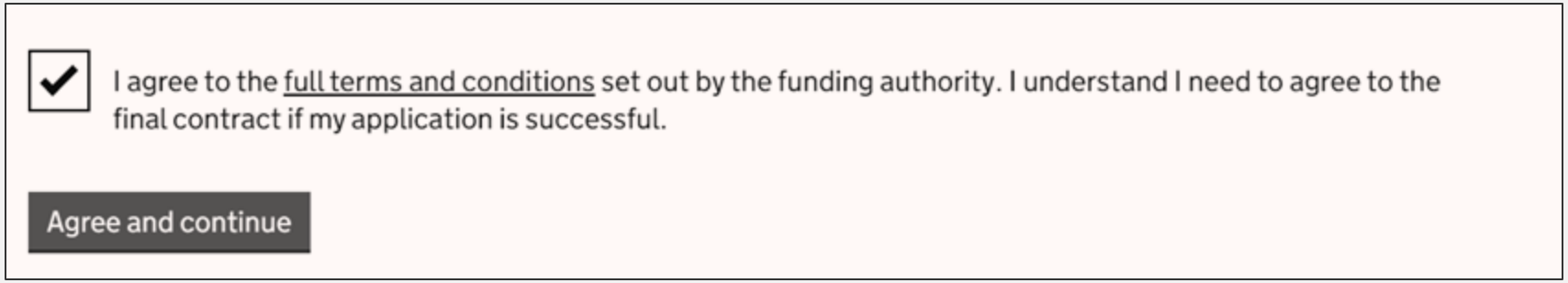
Terms and Conditions

Before you can submit your application you must agree to the draft terms and conditions for this procurement competition. Please ensure you share the T&Cs with your legal team at the earliest possible opportunity.

Note that for procurement, they may differ from any you have agreed to before. These terms are set and are non-negotiable.





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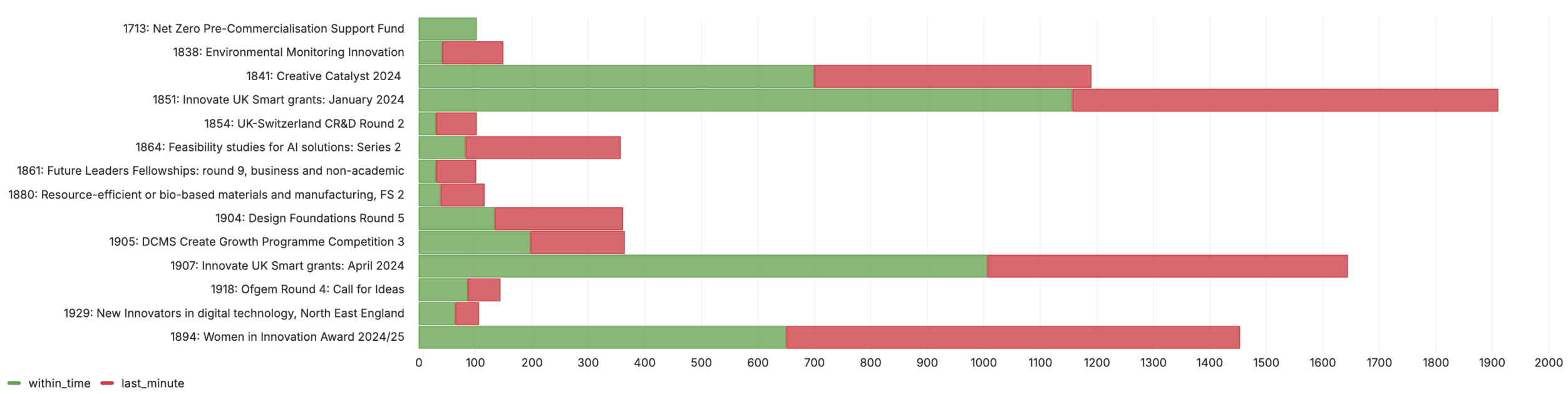
Submitting your application

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.



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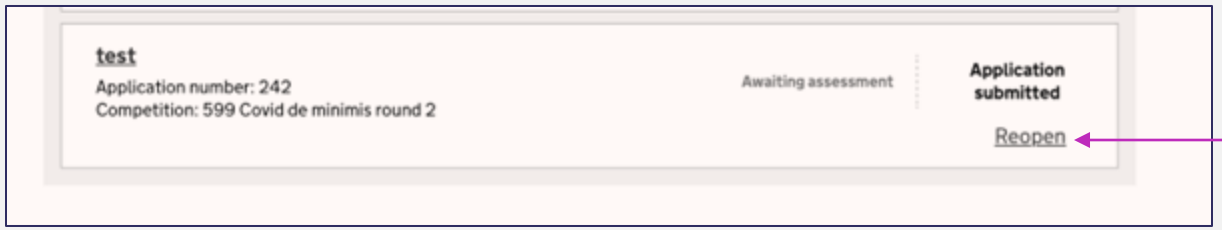
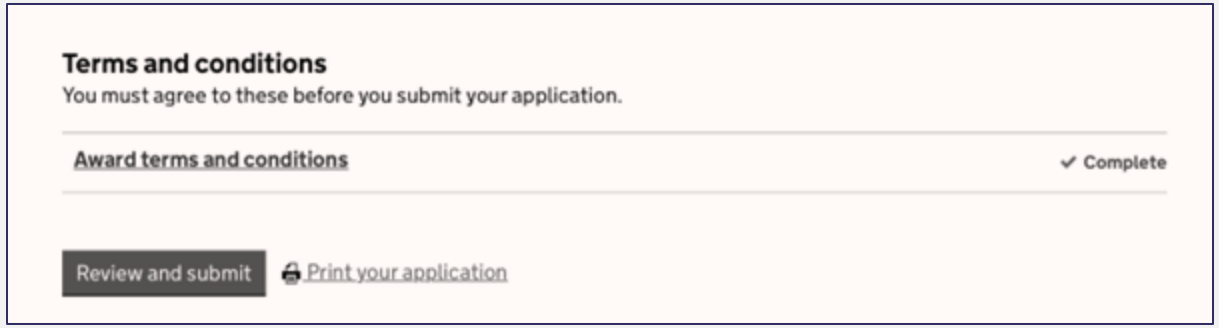
Editing a submitted application



Reopen by clicking here



Remember to press ‘Submit application’

Innovate UK

Pros & Cons of using AI to support you

With the advances in AI technology, it is only natural to use technology to support you in applying to our competitions. Whilst we don't recommend or advise against it, we would like to make you aware of the following which could potentially impact your project.

Pros

- Removes barriers for people with disabilities and non-English speakers
- Allows you to rephrase your content to meet the word count in a question
- Ensures all aspects of a question are answered
- Can aid a better understanding of:
  - intended/wider market
  - best practice in project management
  - complementary technologies and advances in the industry
  - expected project impacts

Cons

- It is not always accurate in its assumptions and can get things wrong
- AI learns from the information you give it as well as what it has already learnt
- May provide a generic response meaning your application could use similar phrasing to others
- AI can be detected as non-human as it lacks expression and insight because it relies on logic to summarise information based on the question asked

Whilst AI offers many benefits, it is important you are aware that **you are potentially sharing your idea with the world,** so be careful what you share as you have no control over how it is shared on once you do.

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Assessment

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Assessment

[YouTube Playlist]

1

How do our assessors assess?

Innovate UK • 8.1K views • 2 years ago

2

How are successful applications selected for funding?

Innovate UK • 17K views • 2 years ago

3

What steps are there before a project starts?

Innovate UK • 7.7K views • 2 years ago

4

How are successful projects monitored?

Innovate UK • 4.1K views • 2 years ago

5

How successful applicants receive their funding.

Innovate UK • 4.6K views • 2 years ago

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Project setup

If you pass the technical assessment, you will have a further eight steps detailed in your notification to complete in Project Setup before being able to start your project.

These are:

- Project details
- Project team
- Documents
- You will be allocated a Monitoring Service Provider (MSP)
- Bank details
- Finance checks
- Spend profile
- Contract

Please share the T&Cs with your legal team at the earliest possible opportunity to avoid any delays.

You are expected to complete all the steps above within 30 calendar days of receiving your notification. Failure to do so may result in funding being withdrawn.

Work can only commence on your project once you have received your Go Live email.

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Additional Support

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Innovate UK Business Growth

https://iuk.ktn-uk.org/business-growth/

Innovate UK Business Growth (previously Innovate UK EDGE) is a key part of the UK innovation agency's deep investment in the pioneering businesses that drive economic growth. It is a publicly-funded service available to all high potential small to medium sized innovation-driven companies, including Innovate UK grant winners.

Exploit Innovation:
Grow your business by protecting your IP, improving innovation management and accessing the innovation ecosystem globally through us.

Source funding:
Grow and scale your business by accessing the right finance and funding for you and becoming investment ready.

Enter new markets:
Helping you to make connections to partners and leverage insights to expand into vertical and international markets and achieve scaling ambitions.

Ready to scale?
The Innovate UK Scaleup Programme helps the highest potential businesses realise their ambitions.

UKRI Innovate UK

Useful Information

- UKRI's General Guidance
- Innovate UK Business Connect's Good Application Guide
- Who we fund
- Collaboration Agreement Guidance: Lambert Toolkit
- Innovate UK: Shaping the Future

Funding opportunities

To find out more about the competitions currently available you can visit either the **Innovation Funding Service (IFS)** or the **funding finder** on the UKRI website. Through these links, you can review the competitions available and decide which ones may be right for you.

You can **sign up to our newsletter** to receive all the latest information on our competitions straight to your inbox or **register for email alerts** to get page updates from Innovate UK.

The government also offers **other opportunities for businesses to get finance and support**.
Innovate UK reserves the rights to host competitions on a needs basis and will adjust each competition criteria and scope accordingly. We may occasionally run closed competitions that are for invited applicants only. These are run based on the challenge requirement or need.

UKRI Innovate UK

Contact

Customer Support Services

0300 321 4357 (Monday - Friday 9am-12pm and 2pm-5pm)

support@iuk.ukri.org

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ukri.org/councils/innovate-uk

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Q&A

Innovate UK