THE CANADIAN SPACE AGENCY & THE UK SPACE AGENCY PRESENT

"THE AQUALUNAR CHALLENGE"

UK TRACK

APPLICANT GUIDE

Canadian Space Agency | Agence spatiale canadienne

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Impact Canada

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How to use this guide

This document relates to the UK track of the Aqualunar Challenge (the Challenge), a UK-Canada challenge prize that will reward innovative technologies for use on the Moon to purify lunar water. These technologies may also contribute to novel water purification technologies here on Earth.

This guide aims to support anyone interested in entering the UK track of the Aqualunar Challenge. It contains all the information you need, including:

- Background on the Aqualunar Challenge and context about lunar water;
- The problem the Aqualunar Challenge is addressing and the types of technologies we're looking for;
- The support and awards available;
- Who can enter, and what is involved in participating in the Aqualunar Challenge;
- How you can enter.

You can read each section independently, but we recommend that you read the entire guide (along with the full **Terms and Conditions** and **Frequently Asked Questions**) before you enter the Aqualunar Challenge.

For more information about the support to enter the Aqualunar Challenge, refer to the **Aqualunar Challenge website**. For Canadian innovators looking to apply to the Canadian track of the Aqualunar Challenge, refer to the **website for the Canadian track of the Challenge.**

If you've read the guide and you still have questions, contact the team at aqualunar@challenges.org

Background

What is a challenge prize?

Challenge prizes offer a reward to whoever can first or most effectively meet a defined challenge. Through a public competition, challenge prizes aim to tap into and engage the broadest possible community of innovators to solve a specific problem or challenge.

Rather than specifying what a solution must look like, challenge prizes set out a clearly defined goal, along with information on how success will be measured and invite innovators to propose how they think it could be solved. This approach allows for a wide range of solutions to be considered.

Who's involved?

The Aqualunar Challenge is a project of international collaboration between the United Kingdom and Canada, with joint but distinct tracks for each of the UK and Canada. This document relates to the UK track of the Challenge.

In the UK, the Aqualunar Challenge is delivered by Challenge Works on behalf of the UK Space Agency.

In Canada, the Aqualunar Challenge is organised and delivered by the Canadian Space Agency (CSA) in partnership with the Privy Council Office's Impact Canada program, situated within the Impact and Innovation Unit (IIU).

Space Agency (UKSA)

The UK Space Agency plays a major role in delivering the government's National Space Strategy. UKSA support a thriving space sector in the UK, which generates an annual income of £16.5 billion and employs 47,000 people across the country. UKSA staff include scientists, engineers, commercial experts, project managers and policy officials who help to:

- catalyse investment to support projects that drive investment and generate contracts for the UK space sector
- deliver missions and capabilities that meet public needs and advance our understanding of the Universe
- champion the power of space to inspire people, offer greener, smarter solutions, and support a sustainable future.

UKSA is an executive agency of the Department for Science, Innovation and Technology (DSIT).

The Aqualunar Challenge is supported by funding from the International Bilateral Fund, UKSA's dedicated fund for building and strengthening international partnerships.

Challenge Works

Challenge Works exists to design challenge prizes that help solve pressing problems that lack solutions. We shine a spotlight where it matters and incentivise people to solve these issues. We are independent supporters of change to help communities thrive. We inspire the best placed, most diverse groups of people around the world to take action. We support the boldest and bravest ideas to become real, and seek long term change to advance society and build a better future for everyone. Challenge Works is part of the global innovation foundation, Nesta. To find out more visit **challengeworks.org.**

Challenge Works is delivering the UK track of the Aqualunar Challenge in partnership with the UK Space Agency.

Canadian Space Agency (CSA)

Canadian Space Agency is a federal agency responsible for managing all of Canada's civil space-related activities. CSA is responsible for advancing the knowledge of space through science and using its discoveries for the good of Canadians and all of humanity.

The CSA is the funder and administrator of the Canadian track of the Aqualunar Challenge.

Privy Council Office (PCO) and Impact Canada

Privy Council Office supports the Canadian Prime Minister and Cabinet. Led by the Clerk of the Privy Council, the department helps the Canadian government in implementing its vision, goals and decisions in a timely manner.

Impact Canada, housed within the Privy Council Office, is a Government of Canada-wide effort to help accelerate the adoption of innovative funding approaches to deliver meaningful results to Canadians. Challenge Prizes, Pay-for-Success technologies and Behavioral Science are its key business lines.

Impact Canada is delivering the Canadian track of the Aqualunar Challenge in partnership with CSA.

Section 1: Introduction and context

1.1 About the Aqualunar Challenge

The Aqualunar Challenge is a challenge prize with a £1.2m prize pot to drive the creation of innovative technologies for use on the Moon to purify water on the lunar surface. This is being delivered by Challenge Works and the UKSA, in collaboration with CSA and Impact Canada.

We're seeking technologies that can purify water in one of the harshest environments known to humanity: the surface of the moon.

International collaborations have been key to the success of countless space missions. This Challenge represents a first of its kind collaboration between UKSA and the CSA.

The UK track of the Aqualunar Challenge will reward UK-led water purification innovations that will benefit Earth and space. We need your help to pioneer technology and innovation that will purify water on the moon.

Key dates

Applications open	17 January 2024
Applications close	8 April 2024
Announcement of finalists	By end of June 2024
Finalist submissions due	Late January 2025
Announcement of winners	By end of March 2025

Section 2: What we are looking for and Section 3: What we are offering describe in detail the structure of the Challenge, the different stages, what we are looking for and what we are offering.

1.2 The presence of water on the Moon: an introduction

On October 9th 2009, a two-ton Atlas Centaur rocket body, which is a part of the Lunar CRater Observation and Sensing Satellite (LCROSS), impacted a permanently shadowed region (PSR) of the Cabeus crater on the Moon. This mission aimed to obtain evidence of water presence on Earth's closest celestial body by observing the plume of debris (vapour, fine dust, heavy material) that occurred when the rocket body impacted the crater.

The mission was successful in finding evidence for the presence of water in the PSR. While the mission was not specifically designed as a basis for in-situ resource utilisation (ISRU), it did provide valuable data that could be relevant to future ISRU efforts on the Moon[1].

ISRU refers to the process of collecting and utilising locally available resources in space, for space. It is expected to play a significant role in enabling more ambitious and sustainable space exploration missions[2,3]. By harnessing local resources, ISRU capabilities reduce the need for resupply missions.

Among all resources, water is of crucial interest for several reasons:

1. **Life Support:** Water is essential for sustaining human life. It can be used for drinking, food preparation, hygiene, and as a source of oxygen.
2. **Propellant Production:** Water can be split into hydrogen and oxygen through electrolysis and these gases can serve as propellants for rockets, providing the necessary thrust for space travel. Producing propellant in-situ reduces the need to transport large quantities of fuel from Earth, making space missions more cost-effective and enabling deep space exploration.

While LCROSS did reveal the presence of water on the Moon, the analysis of the ejecta also revealed multiple volatile compounds that could represent water contaminants preventing its use for future space missions. Water in its purified form is a critical resource and enabling its use in-situ could greatly benefit long-term sustained human presence of the Moon and exploration of deep space.

Lunar purification of in-situ water has never been demonstrated successfully on the lunar surface and there are multiple challenges that exist in a space-based environment that current terrestrial-based purification technologies are unable to meet. For example, the abrasive nature of lunar regolith and the constraining realities of launching systems into space including: the lower gravity present on the lunar surface, smaller volume and mass requirements, limited power and other inputs, and many others.

Using the LCROSS data as a reference for possible contaminants found in lunar regolith, water purification technologies could have a substantial impact on the future of prolonged space exploration on the lunar surface and beyond.

1.3 In-situ resource utilisation (ISRU) general context

ISRU is a capability that includes resource assessment, preparation, processing, extraction and in-situ transportation, manufacturing, and construction. Current plans target the lunar South Pole to establish ISRU activities, including the extraction, and purification of in-situ lunar water-ice[4]. Lunar water purification systems will need to be included in the broader lunar ISRU architecture, whether as a subsystem of a future ISRU plant, a large rover, or as a payload on a lunar lander. At present, there are various capability and technological gaps that must be addressed for successful ISRU activities on the lunar surface. The International Space Exploration Coordination Group (ISECG) has identified technological gaps that must be addressed to complete future ISRU activities and missions on the lunar surface[5].

1.4 Presence and content of water-ice on the lunar surface

Current knowledge

The presence of water-ice on the lunar surface has been indicated by multiple missions, including the Clementine, Moon Mineralogy Mapper (M3) the Strategic Observatory for Infrared Astronomy (SOFIA), and others[6,7]. Potential lunar water sources include surface frost, pyroclastic deposits, deep bulk water and shallow bulk water. Shallow bulk water (up to 5% weight) would be the primary target for ISRU activities on the lunar surface, of which there are four data sets: LCROSS, Chandrayaan-1, Lunar Reconnaissance Orbiter (LRO), and Lunar Prospector (LP)[8].

The LCROSS mission provided key insights into the presence of water-ice and other volatiles on the lunar surface in the Cabeus crater and is the single "ground truth" point data set[9]. The LCROSS mission found several volatiles and minerals present in some capacity in lunar regolith as shown in **Table 1**. Estimated water weight percentages have varied anywhere from 5.6 ± 2.9% weight from the LCROSS measurements[12].

Future

NASA's Volatiles Investigating Polar Exploration Rover (VIPER) will land on the South Pole of the Moon in late 2024[13]. VIPER has three spectrometers: neutron, infrared and mass, and is equipped with a drill that can dig up to one metre deep to provide data on the nature, amount, and accessibility of water on the lunar poles and in PSRs[14]. The VIPER mission aims to spend at least 100 days exploring the lunar surface to collect this data and information. If successful, VIPER will provide key insight into the distribution of water-ice on the Moon, as well as its history and origin through resource mapping.

Table 1 – Volatiles and minerals present in lunar regolith, LCROSS mission[10,11]

Molecule	**% Weight**
Hydrogen Bearing	
Water (H_2O)	5.5
Hydrogen (H_2)	1.40
Hydrogen Sulfide (H_2S)	1.74
Ammonia (NH_3)	0.31
Hydroxyl (OH)	0.00
Organics	
Carbon Monoxide (CO)	0.70
Ethylene (C_2H_4)	0.27
Carbon Dioxide (CO_2)	0.32
Methanol (CH_3OH)	0.15
Methane (CH_4)	0.03
Inorganic Compounds	
Sulfur Dioxide (SO_2)	0.64
Metals	
Calcium (Ca)	0.20
Mercury (Hg)	0.24
Magnesium (Mg)	0.40
Sodium (Na)	-

1.5 Possible technologies for adaptation

Current terrestrial water treatment and purification technologies could possibly be adapted to support lunar water purification on the Moon. The following is a non-exhaustive list of water treatment families that could be adapted for lunar surface water purification:

- Filtration[15]: This could include micro filtration, ultra-filtration, carbon filters, greensand filters, or others;
- Reverse Osmosis;
- Degasification;
- Differential Permeation;
- Fractional Distillation/ Sublimation;
- Ion exchange resins;
- Electrode ionization.

1.6 Contaminants to be removed for the Challenge

Of the composition of molecules found in the evidence collected from the LCROSS mission, the following contaminants are relevant for water purification purposes for this Challenge:

- Hydrogen Sulfide (H_2S);
- Ammonia (NH_3);
- Carbon Monoxide (CO);
- Ethylene (C_2H_4);
- Sulfur Dioxide (SO_2);
- Methanol (CH_3OH); and
- Methane (CH_4).

In addition, it should be anticipated that there is remaining solid regolith particle from extraction that will also need to be removed.

Section 2: What we are looking for

2.1 The problem statement

The Aqualunar Challenge's problem statement is a brief articulation of the problem we hope innovators' technologies will contribute to addressing.

With humankind returning to the Moon later this decade, purifying the water that exists in lunar regolith (soil) is critical to enabling more ambitious space missions. Using lunar water - as drinking water, to grow food, to create oxygen and to split into hydrogen and oxygen for rocket fuel - is a key enabler for supporting future deep space exploration.

Data suggests that large quantities of water may exist in permanently shadowed regions near the lunar south pole[14]. But this water is not pure, with a number of contaminants preventing its use unless it is purified.

2.2 Challenge statement

The Challenge Statement is our call to action to innovators. It articulates the Challenge's aims and what we want applications to deliver, without predetermining what the solutions should look like. Finalists and, eventually, the winner, will be selected on the basis of how well they meet the Challenge Statement.

The Aqualunar Challenge is calling innovators to create innovative technologies for use on the Moon to remove contaminants found in lunar water.

These technologies may also contribute to novel water purification technologies here on Earth.

2.3 Judging criteria

This section outlines the criteria that will be used to assess and select our finalists and, eventually, the winners. The same Judging Criteria will be used throughout the Challenge, as they allow our judges to compare different technologies and how well these technologies could deliver against the challenge statement.

All Stage 1 Challenge participants will generate a design concept for an innovative technology that outlines how it will purify lunar water to remove the listed contaminants. This design concept must demonstrate potential for future adaptation to the unique constraints of space. The constraints and anticipated environment are outlined in the Mission Scenario.

Criterion	**Description**	**Weighting**
Contaminant removal	To what extent does the technology remove contaminants thought to be present in lunar water?	20%
Appropriateness for mission scenario	To what extent is the technology appropriate for operation on the lunar surface, as specified in the mission scenario?	20%
Innovation	To what extent is the technology innovative compared to the current state of the art?	12%
Reliability	To what extent does the technology operate reliably?	12%
Solution adoption potential	To what extent has the team demonstrated a post-Challenge route to market, adoption and scale for their technology?	12%
Efficiency	To what extent does the technology maximise outputs and minimise inputs?	6%
Resource recovery	To what extent does the technology recover the contaminants from the lunar water?	6%
Autonomy and monitoring	To what extent can the technology operate autonomously, without human intervention (including the extent to which it can provide telemetry)?	6%
Capacity to deliver	To what extent does the team have the technical and commercial expertise to bring the technology forward?	6%

2.4 Mission scenario

The mission scenario describes the long-term use case that you will be competing to deliver the best technology for. During the Challenge, teams won't be going to the Moon: you will be creating concepts (in Stage 1) and then proofs of concept (in Stage 2) of water purification technologies.

We understand that, during the Challenge, teams will not develop a technology that is ready to meet all of these constraints. But we are looking for your concept design report and subsequent proof of concept to take these objectives into account as much as possible.

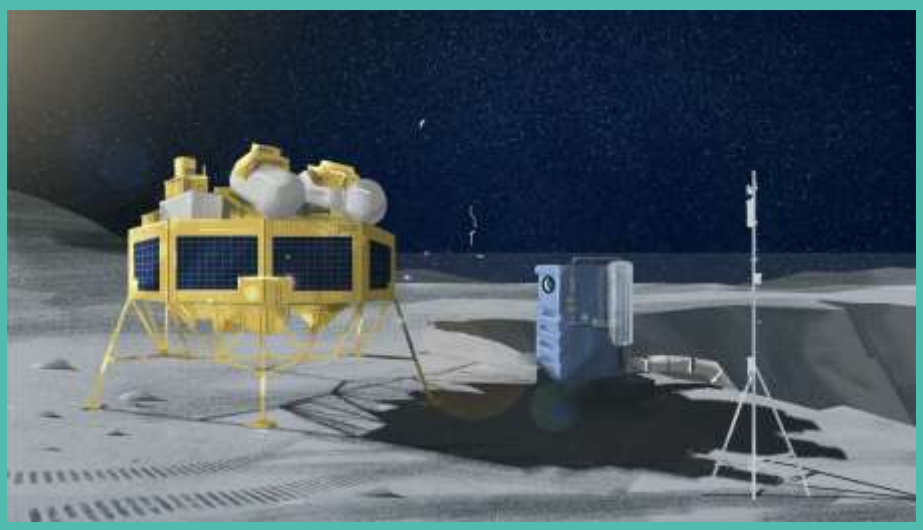
The mission scenario outlines information about the hypothetical environment in which your technology would operate on the Moon. It also outlines the circumstances leading to the acquisition of the water sample you need to purify and what it is expected to contain. The scenario lists environmental factors and technology specifications, which act as constraints and decision points for you to base your design on. The mission scenario is based on a real-world mission on the lunar surface and represents the ultimate goal for lunar water purification technologies. You won't be expected to have all the assumptions tested but you should consider the implications of these assumptions and factor these into your design.

Mission scenario

Your team's technology has been ferried to the Moon onboard an uncrewed spacecraft and has touched down near the rim of Shackleton Crater, near the Lunar South Pole.

Inside the crater, buried in the regolith (soil) is ice. There's a large regolith extraction area in the permanently shadowed area of Shackleton Crater. A separate subsystem is then doing an initial processing of the regolith, leaving dirty ice.

This is primarily frozen H_2O, but it also contains varying levels of Hydrogen Sulfide (H_2S), Ammonia (NH_3), Carbon Monoxide (CO), Ethylene (C_2H_4), Sulfur Dioxide (SO_2), Methanol (CH_3OH), and Methane (CH_4), plus traces of solid regolith.



Mission scenario (continued)

You can assume that you are located next to this processing operation, or a short distance away from a permanently shadowed area if your process requires it.

Your technology must take this dirty ice and reliably produce at least one litre per hour of clean drinking water.

The Lunar conditions you need to take into account include:

- The low and fluctuating temperatures present in your chosen location (within or outside Shackleton Crater).
- The presence of highly abrasive regolith particles.
- The low gravity on the Moon (1/6th Earth gravity).
- The lack of any atmospheric pressure.

In addition, you need to take into account the technical constraints of a lunar lander, including:

- Minimising power consumption.
- Minimising physical dimensions.
- Minimising mass.
- Design for robustness to G forces in launch and landing.
- Robustness to radiation and solar wind.

There will be no human intervention available to monitor, service or operate the technology.

Section 3: What we are offering

3.1 Overview of the challenge structure

The Challenge has a stage-gated structure, with successful applicants receiving funding at the end of each stage. Winners selected in stage 1 will receive a prize to develop their technology during stage 2. At the end of stage 2 a first place winner, second place runner-up and third place runner-up will be selected to receive final prizes. The UK track of the Challenge is made up of two stages:

Stage 1: Concept design January 2024 - April 2024

Applications to the Challenge open on **17 January 2024**, and close at **15:00 BST** on **8 April 2024.**

Applicants will be required to submit an online application through the Challenge website, which provides a description of how their technology meets the challenge objectives, Mission Scenario, and judging criteria.

This Applicant Guide will help applicants complete an application for Stage 1 of the Challenge. If selected, successful applicants from Stage 1 will receive further information and details for Stage 2

Assessment of stage 1 April 2024 - June 2024

All eligible applications will be assessed and 10 finalists selected.

Stage 2: Proof of Concept June 2024 - January 2025

Finalists will be announced via our website in June 2024. Each finalist will receive a prize of £30,000 to develop their technology over a 7.5-month period. During this time, finalists will also receive non-financial support and guidance.

In Stage 2, finalists will begin developing components of a prototype based on their concept design (approximately TRL3). Finalists will be expected to submit video footage to demonstrate their system or components of their system and will provide a final report that outlines how their technology meets the judging criteria.

Assessment of stage 2 & announcement January 2025 - March 2025

Finalists will be assessed and winners will be selected to receive first, second and third place prizes, with the winner receiving a prize of £150,000, a second place runner-up receiving £100,000 and a third place runner-up receiving £50,000. We will announce the winner and runner-up on our website in late March 2025.

The Challenge offers opportunities for international collaboration. In parallel, the Canadian track of the Aqualunar Challenge will support 8 teams during Stage 2. Finalists will have opportunities for international collaboration.

3.2 Financial Support

£600,000 in total will be awarded in grant funding to UK finalists (Stage 1) and winners (Stage 2).

To support innovators to develop their technologies, each of the 10 finalists will receive a £30,000 grant to develop and test their technology. In March 2025, we will announce which of our finalists has been selected as our first, second and third place winners. They will each receive further awards of £150,000, £100,000 and £50,000, respectively, to help further develop and get their technologies to market.

Stage	Stage duration	Teams per stage	Prize amount per winner
Stage 1	3 months	Up to 10 finalists	£30,000 per finalist
Stage 2	7.5 months	1 first place winner 1 second place runner-up 1 third place runner-up	£150,000 first place prize £100,000 second place prize £50,000 third place prize

3.3 Non-financial support

During the Challenge, in addition to the financial support, finalists will have access to capacity development support to help develop their technologies. This in-kind support will be tailored to the needs of innovators while ensuring equity of support and access. The details of this support will be tailored to finalists' needs once selected, but we expect it to include:

- **Access to specialist experts for technical and design support,** including support in designing for space, designing for water purification and technical feasibility and early de-risking
- **Commercialisation support**, including support in understanding the space ecosystem and routes to market, identifying use cases for terrestrial applications, building a business case and international trade considerations and regulations for space technologies
- Access to a dedicated mentor
- Technology roadmapping, design and project management skills support
- **Networking and collaboration opportunities**, including facilitated networking between UK and Canadian innovator teams and access to UK and Canadian experts through the technical support

Section 4: Who can enter

4.1 Eligibility criteria

The Eligibility criteria articulate who can enter the Challenge and conditions they will need to meet to be eligible, as well as what is required of them during the Challenge.

- The Challenge is open to individuals aged 18 years or over, academic groups, companies or non-profits, as well as partnerships between these.
- Teams may enter as a single lead organisation or as a consortium. Consortia must nominate a lead organisation, or lead person for teams of individuals. The lead organisation or individual in an applicant team must be UK-based. Applicants who are not UK-based may enter as part of a consortium, but they must be partnered with a UK-based organisation. The UK-based organisation must be the lead applicant. Grant and prize awards must be paid into a UK-based bank account in the name of the lead applicant.
- Successful applicants who applied as individuals must be willing to set up a legally incorporated organisation within the UK to receive the final first, second or third place prize. You will be able to use some of the stage 2 finalist funding towards reasonable expenses incurred through the incorporation process.

Note: The Eligibility criteria here are for applications to the UK track of the Aqualunar Challenge. Canadian applicants must apply to the Canadian track of the Challenge hosted by the CSA and Impact Canada.

4.2 What's expected of me?

All applicants to the Challenge are expected to abide by the Terms and Conditions. Please read these in full before submitting your application.

If you are selected as a finalist, you will be expected to use any funding received through the Challenge for the purposes of developing your technology. This could include developing or testing your technology, covering costs for staff working on your technology, or engaging external expertise or guidance.

As a finalist you will be expected to participate fully in the Challenge including events, monitoring and evaluation, and publicity and promotional activities relating to the Challenge.

There is no fixed time commitment for finalists but participation in the Challenge is a significant commitment involving time spent developing your technology, attending capacity building events during working hours and some travel for event.

Subsidy control

Applicants are required to comply with the Subsidy Control Act 2022, which exists to minimise the risk of distortion caused by public subsidy and increase the likelihood that subsides achieve positive outcomes. The funding in the Aqualunar Challenge is offered under the Research, Development and Innovation Streamlined Route, which offers applicants two options:

- Option A – for applicants who have received less than £315,000 in public funding over a rolling three-financial year period: you can apply under Minimum Financial Assistance (MFA) and do not need to provide any match funding. In the event you are successful in the Aqualunar Challenge, any funding will count towards your £315,000 total allowance if you apply for other public funding.

- Option B – for applicants who have received over £315,000 in public funding over a rolling three financial year or do not wish to apply for MFA: you can apply under the Research, Development and Innovation Streamlined Route and need to provide the appropriate amount of match funding towards the project. Please consult the Subsidy Control Annex for information on the amount of match funding required, which varies depending on the size and status of your organisation. Please include as an annex to your application a list of any grant subsidies you have received in the last three calendar years.

We anticipate the majority of applicants to the Aqualunar Challenge will apply under Option A.

Section 5: How to enter

5.1 Submitting your application

Applications are submitted online through Submittable, our online application management platform. Applications must be submitted by **15:00 BST** on **8 April 2024**. Submittable is a third party platform. For more information on Submittable see our terms and conditions and the Submittable privacy policy.

Before completing your application form, make sure that you've:

- Read this guide, our terms and conditions and the FAQs
- Verify that you meet the eligibility requirements
- Familiarised yourself with the challenge statement and the judging criteria and make sure you clearly address them in your application form

If you are ready to enter, go to the application page on our website.

5.2 How you will be assessed

We are looking for applications that are able to address our Challenge statement. Applications will be assessed against the judging criteria, which have been designed to allow us to compare and assess technologies.

After the deadline applications will be assessed on the basis of the eligibility criteria and the judging criteria. Shortlisted applications will also be subject to due diligence checks and we may ask you to provide additional information to support these checks. This assessment information will then be provided to our independent panel of judges who will select our finalists. We will let you know about the status of your application in June 2024 via email.

Information you provide in your application form may be shared with our partners (including Judges), where we are required to do so to administer the Challenge. More information on how we use your personal data is included in our Terms and conditions and Privacy Policy.

Annexes

References

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Subsidy control

The UK Space Agency supports UK based businesses to invest in research, development, and innovation. The support we provide is consistent with the UK's international obligations and commitments to Subsidy Control. These include:

- WTO rules
- the EU-UK Trade and Cooperation Agreement (TCA), (see EU-UK TCA summary and BEIS (Dept. for Business, Energy & Industrial Strategy) guidance)
- in certain circumstances (e.g. under the Northern Ireland Protocol) EU State aid regulations may also be applied
- other bilateral UK FTAs (Free Trade Agreements) where relevant
- Subsidy Control Act 2022

What is a subsidy?

For the purposes of UK international commitments, a subsidy is a measure which:

1. Is given by a public authority. This can be at any level; central, devolved, regional or local government or a public body.
2. Makes a contribution (this could be a financial or an in-kind contribution) to an enterprise, conferring an economic advantage that is not available on market terms. Examples of a contribution are grants, loans at below market rate, or a loan guarantee at below market rate or allowing a company to use publicly owned office space rent free. An enterprise is anyone who puts goods or services on a market. An enterprise could be a government department or a charity if they are acting commercially.
3. Affects international trade. This can be trade with any World Trade Organisation member or, more specifically, between the UK and a country with whom it has a Free Trade Agreement. For example, if the subsidy is going towards a good which is traded between the UK and the EU this could affect trade between the EU and the UK. It is not necessary to consider whether the subsidy could harm trade, just whether there could be some sort of effect. Subsidies to very local companies or a small tourist attraction are unlikely to be a problem as this is unlikely to affect international trade.

The BEIS Subsidy Control regime (or where relevant EU State aid regulations) are designed to prevent unfair advantages and distortion of trade: Complying with the UK's international obligations on subsidy control.

More information on the principles of awarding subsidies can be found in the BEIS guidance..

This award is being given under the streamlined route for research, development and innovation (SC10780). Find out more about the streamlined route for research, development and innovation.

The following table summarises the maximum funding levels for projects and the maximum intervention

thresholds allowable under this grant call. The categories provided align to category 1 & 2 of the research, development and innovation streamlined route.

	Large Enterprise	Medium Enterprise	Small Enterprise
Feasibility Study	50%	60%	70%
Industrial Research	50%	60%	70%
Experimental Development	25%	35%	45%

*An uplift of 15% to the intervention rate on eligible costs may be authorised for effective collaborations:

- Between Enterprises, where at least one of the Enterprises is a SME
- Between an Enterprise and one of more research and knowledge dissemination organisation, which must have the right to publish its one research results

In accordance with the streamlined scheme a maximum amount of £3 million is allowable to recipients.

When assessing which category applicants are applying for the definitions within the streamlined scheme guidance is to be used.

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

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

This would include digital products, processes or services, in any technology, industry or sector (including, but not limited to, digital industries and technologies, such as super-computing, quantum technologies, block chain technologies, artificial intelligence, cyber security, big data and cloud technologies). Industrial research comprises the creation of component parts of complex systems, and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, where necessary for the industrial research and notably for generic technology validation.

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

This includes digital products, processes or services, in any technology, industry or sector (including, but not limited to, digital industries and technologies, such as for example super-computing, quantum technologies, block chain technologies, artificial intelligence, cyber security, big data and cloud or edge

technologies).

This may also encompass, for example, activities aimed at the conceptual definition, planning and documentation of new products, processes or services. Experimental development may comprise prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real-life operating conditions where the primary objective is to make further technical improvements on products, processes or services that are not substantially set. This may include the development of a commercially usable prototype or pilot which is necessary for the final commercial product and which is too expensive to produce for it to be used only for demonstration and validation purposes.

Experimental development does not include routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements.

The following table summarises the UK definition of what constitutes an SME in accordance with the Companies Act 2006:

Company category	Staff headcount	Turnover	(or) balance sheet total
Medium sized	< 250	≤ £36m	≤ £18m
Small	< 50	≤ £10.2m	≤ £5.1m

To qualify for any category, the company must meet at least two of the above conditions (staff headcount, Turnover or Balance sheet total) within both the current financial year and the year previous.

Anything above the limits for a medium sized company is designated as a large company. For more information on company sizes, please refer to the company accounts guidance.

This is a change from the EU definition unless you are applying under State aid.

Other sources of public funding are not eligible as a Private Venture (PV)/match funding contribution.

Academic partners will be funded in all cases at 80% of Full Economic Cost (FEC).

2. Previous project subsidies

In accordance with paragraph 6.23 of the streamlined route guidance, cumulation rules apply for any award issued under this call. This limits the Agency's ability to fund projects that have received previous project funding that exceeds the total allowable under the streamlined route. To accurately assess compliance with the financial thresholds laid down in the streamlined schemes, all applicants are to identify any previous project funding from any public body over the last 3 years. Any applicant that has received over £3 million in total (including that been sought under this call) will be ineligible for this call.

Please provide a list of any relevant subsidies received within the last three years as an annex to your application.

3. Minimum Financial Assistance

The Subsidy Control Act 2022 has provision relating to Minimal Financial Assistance (MFA)

For organisations applying under MFA, the total subsidy which can be given to each organisation is up to a maximum of £315,000 over a rolling 3 fiscal year period. This threshold is subject to change and grant recipients should consult the subsidy control guidance for regular updates.

When calculating eligibility for the application of the MFA provision bidders must include cumulation of EU State aid de minimis grants under the EC's de minimis regulation and Small Amounts of Financial Assistance (SAFA) under the EU Trade and Co-operation Agreement (TCA) for the same 3 fiscal year period. The maximum total under the EC regulation is €200,000, the maximum total under SAFA is £340,000 or £325,000 Special Drawing Rights. This is for all project types and for most purposes, including operating aid. You must complete and provide UKSA with a declaration as part of your response.

The declaration asks you to tell us about any awards, including those made under de minimis and SDR, (from any source of public funding) over a rolling 3 fiscal year period.

If you have received an award under de minimis or SDR for the same period, this will be added to your total allowance under MFA. This means that the total award must not exceed £315,000) for any one organisation. You must declare this allowance to any other funding body who requests it.

4. Disclaimer

This guidance is not a substitute for taking independent legal advice on your eligibility status, before applying for funding. Every applicant is responsible for securing their own independent legal advice to ensure they are lawfully eligible.