Robotics and artificial intelligence hubs in extreme and challenging (hazardous) environments

Please note: This is an expression of interest with specific requirements. Applicants must read the call document and provide the detail requested as part of the expression of interest. This funding call is part of the Government’s Industrial Strategy Challenge Fund (ISCF). This is not a standard EPSRC funding call and the remit is unique to this call. Dates may be subject to change. EPSRC may mandate a specific spend profile across the duration of the programme and prior to EPSRC awarding the grants, all Hubs must undertake to start spend on 2 October 2017.

Call information

Innovate UK, EPSRC and NERC are working closely together to deliver an integrated programme investigating the development and deployment of Robotics and Artificial Intelligence (RAI) systems in extreme environments as part of the Industrial Strategy Challenge Fund (ISCF).

The ambition of the programme is to develop robotic solutions to make a safer working environment in industries such as off-shore energy, nuclear energy, space and deep mining, which will increase productivity and open up new cross disciplinary opportunities which are not currently available.

The programme is split into three separate elements, which will be delivered in parallel to provide connectivity across both research and innovation strands. The full programme will be strategically managed to meet the overall RAI challenge.
The four year RAI investment will address challenges in off-shore energy, nuclear energy, space and deep mining, and will include:

- **Use-inspired research Hubs with specific partnership resource**, to drive and accelerate translation of fundamental science in Robotics and AI systems (This call led by EPSRC);
- **Innovation programme** to support collaborative research and development with co-investment from industry (This call will be led by Innovate UK) and;
- **Demonstrator programme** to allow companies to test these systems in world-class facilities across the UK (This call will be led by Innovate UK).

EPSRC is inviting Expressions of Interest (EoI) for four **Use-inspired research Hubs** in the area of RAI for Extreme and challenging (hazardous) environments to address the programme ambition.

### How to apply

Expression of Interest followed by invite to full proposal.

Please note that expression of interest will need to be accompanied with a four page case of support, a one-page CV of the principal investigator and a one page letter of support from the lead University.

Applicants should submit their Expression of Interest through [this form](#). Applicants will need to email [RAIHubsCall@epsrc.ac.uk](mailto:RAIHubsCall@epsrc.ac.uk) to obtain the survey password.

Expression of Interest must be received by 15 June 2017 at 16:00 and must contain the required documents as outlined in the call document.

### Assessment process

EoIs will be assessed by an expert peer review panel using the assessment criteria stated in the call document. Successful EoIs will be invited to submit a full proposal. Full proposals will also be assessed by an expert peer review panel followed by interview. There will be no postal peer review.
Accelerating innovation with public and private investment: apply

As a UK business you can apply for a share of £8.5 million in grants and venture capital investment for early stage feasibility projects.

The investment accelerator pilot by Innovate UK will provide UK companies with simultaneous grant funding and venture capital investment for early stage projects worth up to £8.5 million.

This competition aims to bring private investors into Innovate UK grant-funded companies earlier. It should give applicants greater confidence that investment will continue, remove the need to chase additional investment and match funding, and award direct access to commercial acumen and market opportunities.

Funding available and eligible projects

There is £3 million of grant funding and £1.25 million of private equity investment for infrastructure systems projects. This includes:

- smart infrastructure
- energy
- urban living
- connected transport

A further £3 million of grant funding and £1.25 million of private equity investment is available for projects related to health and life sciences. This includes:

- agriculture
- biosciences
- health

Project requirements – what you need to know

We are looking to fund innovative high-risk projects and invest in companies that have real potential for growth. Single small and medium-sized enterprises (SMEs) can win full project costs up to £150,000 for early stage feasibility studies.

We will assess applications using the standard assessment process. Investors will use their own assessment techniques. Both Innovate UK and the investor partner must identify a project as fundable before a grant is offered.

The investor partners

To apply you will need to choose an investor partner based on their interests for this competition. These are:

- IP Group - all sectors
- Longwall Ventures - all sectors
- Mercia Fund Management - all sectors
- Oxford Sciences Innovation - all sectors
- Rainbow Seed Fund - all sectors
- Syncona Investment Management - health and life sciences only
- Touchstone Innovations - health and life sciences only

Competition information

- this competition opens on 8 May 2017, and the deadline for registration is 28 June 2017
- projects should last up to 12 months and range in size up to total cost £150,000
- single SMEs only should apply
- a total of 100% of project costs will be provided

Find out more about this competition and apply
UK businesses can apply for a share of up to £15 million to work on innovation projects in manufacturing and/or materials. Competition opened Monday 8 May 2017 and closes Wednesday 12 July 2017 at 12:00pm.

Innovate UK is to invest up to £15 million in innovation projects in manufacturing and/or materials. We will look to fund projects that focus on identified technical or commercial challenges. These should lead to increased productivity, competitiveness and growth for UK small and medium-sized enterprises (SMEs).

We expect projects to range in size from total project costs of £50,000 to £2 million. Projects should last between 6 months and 3 years. Projects must involve at least one SME, working alone or in collaboration with other organisations. Projects longer than 12 months or with costs of £100,000 or more, must be collaborative with other partners.

**Project costs of up to £100,000**

If you are an SME and expect your eligible project costs to be up to £100,000 and the project to last no longer than 12 months, you may run the project on your own. You may also work with other businesses or research organisations.

**Project costs of £100,000 or above**

If you expect your eligible project costs to be more than £100,000 or the project to last longer than 12 months, you must work with other organisations. At least one of these must be an SME.

We expect projects to last 6 months to 3 years. We expect them to range in size from total costs of £50,000 to £2 million. This will depend on the type of research activity you are carrying out. Please contact us at least 10 days before the submission deadline to discuss further, if your project falls outside this range.

**Contact us**

We can provide you with information and advice on Innovate UK competitions. We also provide help and technical support on using the Innovation Funding Service.

Call **0300 321 4357** to speak to an adviser (8.30am to 5.30pm, 5 days a week). Calls are free from landlines and most mobile numbers. Find out more about [call charges and freephone numbers](#).

Send your question or query to [support@innovateuk.gov.uk](mailto:support@innovateuk.gov.uk) and we'll get back to you as soon as possible.
The Sci-Tech Daresbury Business breakfast network (BBN) event is an opportunity to connect with the North’s most dynamic hi-tech entrepreneurs, corporates, universities, support organisations and funding and professional communities.

Once a month, a group of over 100 such individuals meets in The Innovation Centre to start their Friday with an hour or two of high-value networking. No heavy speeches, no presentations, just relaxed, informal but high-intensity networking and establishment of new business connections.

Arrival is 8.00am for 8:15am and the event finishes at 9:30am, however many stay longer to maximise networking opportunities.

Booking for this event opens on Wednesday 31st May 2017 and will close at midday on Wednesday 21st June 2017.

Due to the increasing popularity of these events it is highly recommended you become a member of the Sci-Tech Daresbury network, and you will then receive invitations to all the events.

Please note that all members and non-members need to book their places for each event, this is not an automated facility.

Once you have booked for the event you can access and download the delegates list prior to the event via NetworkHub and communicate in advance with key people you want to connect with at the event via the email button in the delegates list.

Register here
The UK Neutron and Muon Science and User Meeting will take place at Warwick University (Scarman House and The Slate) from 27-29 June 2017.

- **Tues 27 June** (11.00am onwards) will be a day for students who use neutrons and muons in their work – a chance to meet other students, and to learn more about neutron and muon techniques, and about the research that fellow students are doing.
- **Wed 28 June** (09.00 onwards) will be the main science day, split into five themes with talks on latest results from members of the community
- **Thurs 29 June** (09.00 – 13.00) will be a chance to hear about facility updates and other news of interest to ILL and ISIS users.

Registration is free to researchers at UK universities, and we will also cover reasonable travel expenses for UK researchers to attend the meeting.

Registration is now open: [https://tinyurl.com/NMSUM2017](https://tinyurl.com/NMSUM2017)

Registration will close on 2 June 2017.

We look forward to seeing you at Warwick in June.
Tech of tomorrow offers more convenient, carbon-friendly living

First-of-a-kind technology with the potential to come to market quickly is being trialled across the UK to improve the lives of citizens.

From schemes that promote cleaner, greener travel to online deliveries straight to your car boot – these are some of the innovative ideas being trialled in Innovate UK’s first of a kind deployment competition.

With more than 70% of people estimated to be living in urban areas by 2040, city infrastructure and design requires a drastic change in order to support a high quality of life.

Each of the projects is designed to enable a step change in innovation that will make a real difference to the energy, transport and urban infrastructure of the future. In total, 12 projects will share £18 million to develop their ideas.

Projects are exploring the potential to:

• take the flexibility of click and collect even further by delivering orders straight to the consumer’s car boot. This project – by Car Tap – uses new reliable and secure keyless vehicle access technology. The trial will enable 100 customers of Farmaround to receive deliveries of organic boxes

• address the problem of disposing used batteries – one of the areas of the Industrial Strategy Challenge Fund – by exploring how old Nissan electric vehicle batteries can be used to store peak electricity from UK homes. There will be a 50 unit, 12-month trial led by Powervault. Partners include Nissan, Aston University, Hyde Housing, Lyra Electronics, M&S Energy and Solarcentury

• ease congestion and problems with parking by operating a virtual loading bay. Commercial vehicle operators will be able to pay to reserve kerb space to load or unload. Transport for London Road Network (TLRN) is running the trial in Wandsworth, focusing on high-density loading ‘hotspots’

• convert electricity into hydrogen at a mass scale to create affordable, green energy for the transport sector. The trial by ITM Power will provide energy balancing and refuelling for a fleet of 20 fuel cell buses in Birmingham

• encourage the adoption and use of electric vehicles by making charging even easier. ZAPINAMO is an easily deployable, rapid charging system. It is trialling 2 solutions:
  ◦ rapid charging for up to 20 taxis at once at Heathrow Airport, making it easier to park and charge and improving air quality
  ◦ a mobile charger to serve 4 Europcar E-Car Club electric vehicles, which comes directly to you as and when you need it

A full list of projects can be found in our list of funding competition winners 2017.
Sci-Tech Daresbury named leading UK science park

Sci-Tech Daresbury has been hailed as the science campus making the most significant contribution to innovation in the UK.

The recognition came at the prestigious UK Science Park Association (UKSPA) member awards, held recently in York when Sci-Tech Daresbury picked up the award for ‘setting the pace’ in innovation and for supporting the growth of knowledge-based firms.

Sci-Tech Daresbury was also shortlisted for ‘Best Project’ award for last year’s phenomenally successful Open Week, which attracted more than 7,500 members of the public.

The UKSPA awards recognise and celebrate the achievements of the science park and innovation movement in the UK. UKSPA was created by the sector for the sector and has seen its membership grow to more than 150 member locations.

John Downes, group managing director of Langtree and chairman of the Sci-Tech Daresbury joint venture company, said that the award reflects the continuing success of the campus’s business strategy.

He said: “The last 12 months have been very strong for the campus, with new developments in the Enterprise Zone and a record number of new companies joining our business community. This award underlines our reputation as a place where business can innovate and flourish and we are delighted to have won it. Since 2005, 95 per cent of Sci-Tech Daresbury companies have achieved three-year business survival rates which compares to a UK average of between 50 and 60 per cent for this sector. Campus companies also achieved average sales growth rates of 30 per cent per year over the past five years with 41 per cent of these exports. This is all supported by a 10-year collaboration with the Department for International Trade. It is figures like these that helped us to attract 34 companies to the campus in 2016 and that also give us the confidence to increase investment. We have recently completed and opened the £20m Techspace One and Two buildings, which are already attracting major interest.”
CERN experiment sees glimpses of new science

The LHCb experiment at CERN has announced a result that could be an early indication of new physics beyond our current understandings of the Universe.

The Standard Model of particle physics is the theory that predicts how particles and forces behave, however it is incomplete, not including gravity, nor explaining dark matter that makes up most of the Universe. More data is needed before LHCb scientists can definitively confirm they've found a crack in the Standard Model of particle physics, but this result strengthens similar indications from earlier studies.

Dr Simone Bifani from the University of Birmingham presented the new results in a seminar at CERN. "The measurements represent a milestone for the LHCb collaboration. When we update the analysis to include data recorded during Run 2 we have the potential to make the first observation of physics beyond the Standard Model at the LHC."

In this study, the LHCb collaboration looked at the decays of B0 mesons to an excited kaon and a pair of electrons or muons. The muon is 200 times heavier than the electron, but in the Standard Model its interactions are otherwise identical to those of the electron, a property known as lepton universality. Lepton universality predicts that, up to a small and calculable effect due to the mass difference, electron and muons should be produced with the same probability in this specific B0 decay. LHCb finds instead that the decays involving muons occur less often.

"Lepton universality is a basic feature of the Standard Model - break it, and you've blown our existing understanding of particle physics wide open," said Professor Tara Shears from the University of Liverpool, a leading scientist working on the LHCb experiment. "This result gives us a tantalising glimpse of what might be out there. We need to analyse more data to see if this behaviour is real or a statistical quirk, but, with the high quality data LHC has delivered and the fantastic performance of our particle detectors, we're ready for it."

Professor Tim Gershon from the University of Warwick and spokesperson for LHCb-UK added "The mood is one of cautious excitement -- no-one is popping any champagne corks yet. Detailed understanding of these deviations requires a long-term programme of measurements that we are now planning. Work is ongoing towards LHCb detector upgrades that will enable the increased sensitivity that is required."
External Innovations and Innovations Club

The External Innovations team manages the activities that aim to realise the impacts and benefits that flow from STFC’s investments in science and technology towards commercialisation through one to one brokering, events and a range of funding schemes.

If you wish to contact the teams for more information please see the following contacts and email addresses.

Innovations club: innovationsclub@stfc.ac.uk

External Innovations – Global Challenges

Jason Green  Head of External Innovations
Tel: + 44 (0)1793 442 014  Email: Jason.green@stfc.ac.uk

Ling Xu  Knowledge Exchange Manager
Tel: + 44 (0)1793 442 104  Email: ling.xu@stfc.ac.uk

Katharine Hollinshead  21st Century Challenges Programme Manager
Tel: + 44 (0)1793 442 068  Email: katharine.hollinshead@stfc.ac.uk

Stephen Loader  21st Century Challenges Programme Manager
Tel: +44 (0)1793 442 111  Email: stephen.loader@stfc.ac.uk

Administration

Andi Kidd  Office Manager
Tel: +44 (0)1793 442 059  Email: andi.kidd@stfc.ac.uk

Pauline Thompson  Programme Support
Tel: +44(0)1793 442 650  Email: pauline.thompson@stfc.ac.uk

Richard Traini  Grants Manager
Tel: +44(0)1793 442 162  Email: richard.traini@stfc.ac.uk

The Innovations Club newsletter contains a selection of articles drawn from our partner organisations that we think you will find interesting. We welcome your comments innovationsclub@stfc.ac.uk