



National Space Technology Programme

Space for growth

**COMPETITION FOR COLLABORATIVE R&D FUNDING
OCTOBER 2011**

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Summary

The UK Space Agency and its partners the Technology Strategy Board and the South East England Development Agency (SEEDA) are to invest up to £8.5m in collaborative R&D projects to stimulate innovation and growth across the space industry. This investment forms the core of the space agency's National Space Technology Programme (NSTP) and aims to help UK industry exploit the growth opportunities identified in the *Space Innovation and Growth Strategy*. The NSTP is a £10m programme to promote sustainable economic growth. Further elements will be announced in due course.

The competition's scope is in line with the R&D priorities for the UK space industry outlined in the National Space Technology Strategy and its associated technology road maps. It will also encourage the use of the infrastructure and open innovation culture established by the International Space Innovation Centre (ISIC) at Harwell and Guildford. This is an opportunity for promising UK technologies and applications to be developed to meet their full commercial potential and for business to explore collaborations with other sectors to establish services in new growth markets.

This competition will focus on projects that:

- accelerate the development of innovative commercial technologies for space
- lead to new services that exploit data gained from space-based systems
- lead on to identifiable commercial opportunities or will position UK organisations to access other public/private funding where this is required for further development.

It is likely we will award grants of up to £2m to a small number of large 'flagship' projects, and grants of between £50k and £100k to around 20 smaller 'fast-track' projects. Projects must be collaborative and business-led. They can range from industry-focused basic research aimed at establishing technical feasibility, through to

applied research and experimental development (attracting up to 75%, 50% and 25% of total project costs respectively). We do, however, anticipate that most applications will be in the area of applied research (attracting up to 50% funding).

The competition opens on **31 October 2011** and applicants must register by noon on **7 December**. Fast-track projects will go through a single-stage application process, while applicants for the flagship projects will go through a two-stage process. A competition briefing will be held in Harwell on **9 November 2011**.

Background

The UK space sector contributes £7.5bn a year to the UK economy, directly employs 24,900 and supports a further 60,000 jobs across a variety of industries. The sector is experiencing major growth – averaging 9% a year between 1999 and 2007 – and it could be worth £40bn in 2030 if the UK increases its share of the global space economy from 6% to 10% by adopting the recommendations of the Space Innovation and Growth Strategy. This growth will be driven by innovation and the development of new applications for governments and consumers.

The UK Space Agency became fully operational on 1 April 2011 and is at the heart of UK efforts to explore and benefit from space. It is responsible for ensuring that the UK retains and grows a strategic capability in space-based systems, technologies, science and applications. Its aim is to promote sustainable economic growth, secure new scientific knowledge and provide benefits to all citizens. The agency is contributing £6m to this competition, which forms the core of the National Space Technology Programme.

The Technology Strategy Board's remit from the department of Business Innovation and Skills is to 'work closely with the UK Space Agency to enable the development, commercialisation and exploitation of space

technologies'. This collaboration should encourage the UK space industry to address broader challenges and growth opportunities across a wide range of emerging markets. The Technology Strategy Board's £2m contribution to this competition is part of the strategy to encourage new collaborations across technology sectors that lead to the development of new applications and services using space data.

SEEDA supports R&D activity that drives economic growth in the South East. SEEDA is contributing £0.5m to this competition and is particularly interested in projects that accelerate the development of the Centre for Climate and Environmental Monitoring from Space (CEMS) as part of ISIC.

Looking for facilities to help you innovate? Go to www.isic-space.com to learn more about how ISIC can help.

Scope

This competition supports the recommendations of the National Space Technology Strategy in targeting collaborative R&D activity that:

- develops and de-risks technologies needed to directly increase the UK's share of global high-growth markets
- ensures the UK levers maximum benefit from our strategic funding commitments in Europe and beyond
- maximises the return from UK's existing investments in the International Space Innovation Centre
- develops new technologies and intellectual property (IP) for the market by encouraging UK-based SMEs and academia to exploit ideas in applications and services.

Proposals must fall into one or more of the following five market areas. Where a proposal cuts across more than one area, the application should indicate the predominant area.



Satellite telecommunications

European industry, with the support of the European Space Agency, is embarking on the design and development of the next generation of three-to-six-tonne telecommunications satellites scheduled for launch before the end of this decade and aims to achieve at least 30% improvement in capability over the current generation.

It is essential that the UK prepares to build upon its key industrial competence in the field of satellite telecommunications to increase its share of this growing market. Priority will therefore be given to technology themes that support this market objective including:

- telecommunications spacecraft platform, structure and composites
- spacecraft chemical and electric propulsion systems
- power subsystems and batteries
- avionics systems and subsystems, equipment, telemetry and telecommand (TMTC), and satellite operations
- payload systems capability (including radio frequency electronic equipment and antennas).

Sensing

Priority themes include:

- low-cost synthetic aperture radar (SAR) development to reduce the price-per-pixel of imagery by up to 65%, make a satellite constellation affordable and provide fast temporal revisit. Applications include maritime surveillance, natural resource management and civil resilience. Includes data processing, analysis and service provision
- low-cost high-resolution imager – affordable systems at a significant price differential to existing systems
- low-cost atmospheric sensors to measure greenhouse gases
- detectors: improving performance (for example lower noise, and improved spectral response and radiation hardness) and manufacturing processes.

Increasing array size for the visible, near infrared and short-wave infrared

- health, environment and security sensing from *in-situ* space instrumentation
- secure data communications, development of expertise and technology in countering attacks on commercial and scientific missions
- R&D projects that will accelerate the development of CEMS (see www.cems-facility.org.uk). In particular CEMS aims to support the ESA Climate Change Initiative, position the UK for major roles within the EU Global Monitoring for Environment and Security (GMES) programme and accelerate the commercialisation of novel applications and earth observation derived services.

Position, navigation and timing

Priority themes include:

- services that exploit the new opportunities brought about by the Galileo and EGNOS satellite navigation systems and associated services, such as public regulated service (PRS)
- applications and techniques to enhance the security and resilience of satellite navigation services – including encryption, protection and interference detection
- applications or services that will mitigate any effects of the imminent increase in solar activity.

Robotics and exploration

Priority themes include:

- autonomous vehicles, including autonomous mission management, navigation, robotic control, data fusion and multi-agent autonomy
- robotic manipulators including teleoperation
- novel power technologies – nuclear power/heating sources, power conversion, autonomous mission management, very-low-power systems and energy scavenging.

Access to space

Priority themes include:

- significant cost savings in satellite platform design and manufacture
- miniaturisation and exploitation of micro-electro-mechanical technology in space to drive a step change in spacecraft electronics, sensors and actuators
- novel mission concepts leading to new commercial opportunities in Earth observation or telecommunications – including reusable or small satellite launch systems, inter-orbital transportation, de-orbiting.

If you have any specific queries about the scope of this competition please email your questions to competitions@innovateuk.org

Looking for partners to work on your project? Go to **_connect** (www.innovateuk.org/connect) to find collaborators and networks.

Funding allocation and application process

UK Space Agency, Technology Strategy Board and SEEDA have allocated up to £8.5m to fund collaborative R&D projects that address the technical challenges and align with the technology areas described above.

Projects must be collaborative and can involve science-to-business or business-to-business interactions. Projects must be business-led and academics can apply only as a collaboration partner in a consortium.

Projects can range from industry-focused basic research aimed at establishing technical feasibility, through to applied research and experimental development (attracting up to 75%, 50% and 25% of total project costs respectively). We do, however, anticipate that most applications will be in the area of applied research (attracting up to 50% funding).

We will fund both fast-track projects and a small number of flagship projects.

Fast-track projects should last six-to-nine months. There is a single-stage assessment process and grants of between £50k and £100k will be awarded to fund applied research (at 50% of project cost). Projects can include work packages of basic research (at 75% of project cost).

Flagship projects should last one-to-two years. There is a two-stage assessment process and grants of up to £2m will be awarded to fund applied research (at 50% of project cost). Projects can include work packages of experimental development (at 25% of project cost).

All projects must clearly focus on collaborative R&D activity that will accelerate the commercial exploitation of space technology or will lead to new applications and services based on space-derived data.

The funding will be allocated based on the quality of applications. As a guideline, it is likely that fewer than four flagship projects will be funded together with around 20 fast-track projects. The UK Space Agency and Technology Strategy Board reserve the right to take a portfolio approach to the final selection of projects.

Applicants are strongly encouraged to exploit and build on the capability of the International Space Innovation Centre.

Applications for fast-track grants will be subject to a single-stage process that will open on **31 October 2011**. Applicants must register by noon on **7 December** and the competition closes at noon on **14 December 2011**. Applicants will be

informed of the outcome of their application by **1 February 2012**.

Flagship grant applications will follow a two-stage process:

Stage 1: applicant submits an expression of interest

Stage 2: we invite selected applicants to submit a full application.

The competition will open on **31 October 2011**, and applicants must register by noon on **7 December 2011**. Compulsory expressions of interest (EOIs) must be submitted by noon on **14 December 2011**. After assessment by an independent panel of experts, selected applicants will be invited to submit full applications from **16 January 2012**. The deadline for completed applications from selected applicants is noon on **29 February 2012**.

A competition briefing will be held in Harwell on 9 November 2011 to explain the process and we strongly recommend that applicants for both elements attend. Further details can be found in the *Guidance for Applicants* for this competition, available from our website (see www.innovateuk.org under Competitions) after you have registered for this competition.

Note that ALL deadlines are at noon.

More information

To apply for this competition you must first register with us. You can do this by going to our web page for this competition at

www.innovateuk.org under Competitions. When you register you will get access to all the supporting information you need to read before you apply, including the *Guidance for Applicants* and the application form.

Competition helpline:
0300 321 4357

Email:
competitions@innovateuk.org

Publicity

The Technology Strategy Board and the UK Space Agency frequently publish the results of competitions and this includes engagement with the media. Applicants will be asked to provide an agreed form of words for use in publicity material. E-mail pressoffice@tsb.gov.uk and julia.short@ukspaceagency.bis.gsi.gov.uk with any queries.

The South East England Development Agency promotes and enables economic growth in the South East England region by creating the conditions to grow businesses and by helping to create additional, better quality, higher-paid jobs. The Government has announced that the Regional Development Agencies (RDAs) will close at the end of March 2012. Economic development and regeneration will in future be led by Local Enterprise Partnerships and other successor bodies. SEEDA is transferring its responsibilities for this project to the Technology Strategy Board.

The UK Space Agency is at the heart of UK efforts to explore and benefit from space. It is responsible for all strategic decisions on the UK civil space programme and provides a clear, single voice for UK space ambitions.

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

The Technology Strategy Board
North Star House
North Star Avenue
Swindon
SN2 1UE

Telephone: 01793 442700

www.innovateuk.org

Key dates

Fast Track	
Competition opens	31 October 2011
Briefing day	9 November 2011
Registration deadline	7 December 2011 noon
Deadline for receipt of applications	14 December 2011 noon
Applicants informed	1 February 2012
Flagship	
Competition opens	31 October 2011
Briefing day	9 November 2011
Registration deadline	7 December 2011 noon
Expressions of interest deadline	14 December 2011 noon
Applicants informed	11 January 2012
Stage 2 opens (for invited applicants)	16 January 2012
Deadline for receipt of full applications	29 February 2012 noon
Applicants informed	30 March 2012