

# Innovation through partnership

## BAS Strategy for innovation and impact

### Summary

Innovation and impact are fundamental to British Antarctic Survey's (BAS) vision and UK Research and Innovation's (UKRI) mission. BAS has considerable potential to advance knowledge, improve lives and deliver growth aligned with the UK's industrial strategy, whilst innovating from within by inventing and adopting novel technologies and processes, especially for the net zero carbon challenge.

We realise this potential through a strong innovation culture, sound self-awareness, understanding of the external landscape and targeted partnerships. By aligning values, harnessing assets, data and samples, and carefully prioritising our work, we will deliver impact despite limited resources. Our outcomes will include operational efficiencies and BAS data, models and inventions used by business, government and civil society to support environmentally sustainable growth.

### Setting the scene

#### Our vision and mission

Impact is embedded in our vision to be a world-leading centre for polar science and polar operations, addressing issues of global importance and helping society adapt to a changing world.

Our mission forms part of UKRI's mission to advance knowledge, improve lives and drive growth. We put an innovation culture at the core of our world-leading research. We are recognised for:

- A commitment to excellence in polar science – recently positioned as the world's leading polar institution with the highest field-weighted citation impact ([The Antarctic Research Trends Report 2025](#))
- Experienced polar operational professionalism and innovation, safely delivering complex operations in extreme environments
- Being a partner of choice for science, operations and business wherever polar expertise can be applied
- Leading commitment to environmental stewardship of the polar regions

- Developing our staff to reach their full potential
- Sustaining an active and influential presence in Antarctica on behalf of the UK and providing leadership in Antarctic affairs

Our aim for innovation and impact at BAS is straightforward: to generate UK and global impact from our unique expertise and assets, facilitated by strategic partnerships.

## Understanding Innovation and Impact

Innovation has two key features: it introduces something fresh (new, original or improved) and creates new value through the benefits or impact it delivers.

For BAS, innovation is twofold:

External innovation: We generate new insights, processes, products and services that align with the BAS mission and work with others to translate them into wider benefits for society, improving lives and livelihoods.

Internal innovation: We identify and develop new or improved ways of carrying out our research and operations. This increases effectiveness and sustainability, improving resource and carbon efficiency, safety, wellbeing, inclusivity and job satisfaction for us and our partners.

## Our approach

Partnerships for external innovation: We design research with partners and stakeholders to deliver real-world impact. Understanding what end users need ensures our research can be put into practice. We support this work through knowledge exchange and a limited amount of investment.

Partnerships for internal innovation: We are upgrading our infrastructure and are committed to net zero by 2040. We will share our innovation needs with partners and co-design solutions using our data, models and samples. Through partnerships, we'll build skills in areas that benefit everyone and share what we learn.

## Strategic context

### Government priorities

The UK Government, through its [Modern Industrial Strategy](#) and [National Security Strategy](#), has recognised that innovation based on sound environmental awareness and inclusivity is a major driver for sustainable economic success. The UK was the first major economy to pass a law requiring net-zero carbon emissions by 2050 and has committed to the [Global Goals for Sustainable Development](#). Through the legacy of its COP26 presidency, the UK is aiming to deliver on the Paris Agreement and the UN Framework Convention on Climate Change.

The Department for Science, Innovation and Technology (DSIT) prioritises excellent research that improves lives and drives growth. The Government Office for Technology Transfer helps turn research into practical application.

### Innovation and Impact in the UKRI and NERC families

A core principle of UKRI, NERC and BAS is to respond quickly to new challenges and opportunities across disciplines. We aim to turn research into practical applications and create solutions by bringing business and academia together.

[UKRI's Strategy](#) and [Corporate Plan](#) set out priorities for delivering a UK research and innovation system that provides everyone with the opportunity to contribute and benefit. [NERC's Forward Look](#) focuses on environmental research affecting people and the economy. BAS research can be applied beyond the polar regions, with relevance to the eight high-growth sectors backed by the industrial strategy (IS-8) – from maritime technologists to satellite operators, from pharmaceuticals to insurance companies. Like NERC, we are building stronger relationships with business that benefit everyone, whilst protecting the environment and lives.

### The Cambridge innovation community

Innovate Cambridge brings together one of the most vibrant innovation communities in the world. With the expansion of the West Cambridge site, BAS's headquarters have become an integral part of this energetic campus, linked to an increasing number of enterprises and Cambridge University departments. Our Aurora Innovation Centre forms part of the network of innovation facilities in the greater Cambridge area.

## Strategic priorities

Our innovation and impact priorities have been developed alongside the BAS Science and Operations Strategies and are aligned with the Modern Industrial Strategy's IS-8 sectors.

### 2025-27 investment priorities

We will intensify investment in:

- AI and associated technologies for decarbonisation and environmental intelligence (IS-8: Digital and Technologies)
- Maritime capabilities: Expertise and intelligence for operations in sea ice (IS-8: Defence)
- Drones and autonomous systems (civil use): Environmental intelligence from autonomous systems; testing in polar regions (IS-8: Defence)
- Wind, hydrogen, solar: Progressing clean and low-energy solutions for science delivery in remote, cold and high-altitude environments (IS-8: Clean Energy)

### Building additional capability

We will also build capability and partnerships in:

- Insurance, reinsurance and sustainable finance: Space weather, sea level rise and wider environmental intelligence for risk mitigation and resilience (IS-8: Financial Services)
- Agri-tech and pharmaceuticals: Novel bioactives from Antarctic biodiversity (IS-8: Advanced Manufacturing and Life Sciences)

Annex 1 indicates how BAS expertise maps onto all eight sectors of the Industrial Strategy.

## What drives our priorities?

### Impact

Benefiting lives and livelihoods is the primary driver for BAS innovation. We contribute to IS-8 through impacts on the economy, environment, public policy or services, society, health, culture and quality of life. We value each of these areas and work with diverse partners to strengthen our portfolio of innovation projects.

### Financial sustainability

We also recognise the financial reality of a research landscape where traditional sector-based public funding is under pressure. Delivering benefits to stakeholders depends on BAS maintaining

and developing its expertise and world-class assets. By strengthening our financial sustainability and competitiveness, innovation outputs will help ensure our continued impact.

## Futureproofing

We engage in continuous horizon scanning to proactively identify emerging technologies, approaches, materials and systems that can enhance scientific operations, improve resource efficiency and develop innovative applications with potential societal and economic impact.

## Empowering people

Staff are the ultimate source of innovation in every organisation. BAS staff are encouraged to initiate and participate in innovation activities. This is facilitated and accelerated by making training accessible, including on entrepreneurial and intrapreneurial skills, awareness of enablers and boundaries (including policies and procedures), and building and maintaining fruitful relationships.

By creating a range of training options, we aim to nurture and develop staff at all level, helping them to build on their strengths, tap into their passion for making a difference, and advance their careers through innovative work. Leadership actively seeks feedback from staff on how to improve development opportunities and how to make BAS an even more innovative place of work.

## Our starting point

Strategic innovation requires a cultural mindset built on organisational self-awareness and thorough understanding of the wider operational and societal landscape and how it is evolving.

## Our strengths

- Our people: Internationally recognised expertise and the outstanding dedication of our staff
- World-class assets: State-of-the-art physical infrastructure including the Royal Research Ship Sir David Attenborough, aircraft, research stations, laboratory facilities and the Aurora Innovation Centre
- Diverse research outputs: Wide-ranging knowledge assets including data, models, code, processes, technologies, expertise, pipeline for bioactive products, maps, images and educational resources
- Trusted leadership: The advisory role our experts play in national and international fora
- Strategic location: Our position in the thriving innovation landscape of Greater Cambridge and the Cambridge-Oxford arc

## Our challenges

We work within the boundaries of government regulations, competition for resources, rigorous environmental stewardship and the rhythm of polar operations. The latter makes swift reaction to short-term commercial opportunities challenging. Additionally, an increase in complexity and volume of core work constrains our ability to capitalise on wider innovation opportunities that draw on the expertise of BAS staff.

## Taking action: Four steps to success

### 1. Knowledge of internal strengths and needs

We build robust self-awareness of our strengths and gaps in capabilities and capacity by identifying and mapping strategic assets and needs, including building a BAS Knowledge Asset Register as a living document.

We also work to remove barriers to inclusive innovation. This requires sustained staff engagement through bespoke workshops and training, exchange of best practice through the Knowledge Asset Network of the Government Office for Technology Transfer, and the work of Innovation Champions supported by corporate communication channels.

### 2. Knowledge of the external landscape

We maintain awareness of the external landscape, including competition and emerging trends, through:

- Gathering intelligence by linking with strategic networks such as Innovate UK Business Connect, the Government Office for Technology Transfer Knowledge Asset Network, Catapult Centres, Innovate Cambridge, strategic policy and R&D initiatives, industry associations and stakeholder fora
- Working with the Government Office for Technology Transfer, our Entrepreneur in Residence and university business schools to carry out market analysis
- Active participation in sector-specific external conferences

### 3. Formation of aligned partnerships

We build fruitful partnerships through clarity of boundaries and priorities. BAS only targets partnerships that align with our values of environmental stewardship and protecting lives and livelihoods.

We run engagement activities between BAS and stakeholder networks, virtually or at the Aurora Innovation Centre, in strategic areas where our strengths are aligned with stakeholder needs, or where external expertise can address operational, cultural or scientific challenges at BAS. For

each prioritised area, we develop engagement plans to identify potential partners and build impactful collaborative or commissioned work for the short, medium and long term.

#### 4. Joint translation of strengths into solutions and growth

Strong, enduring partnerships enable BAS to track and celebrate the full impact of its expertise, including benefits that emerge beyond our direct involvement.

Converting BAS strengths into impact entails:

- Identifying targeted funding opportunities and providing pump-priming to build collaborative projects
- Delivering projects to high standards, grounded in reality and aligned with BAS's drive for excellence in science and operational professionalism
- Building technologies and services step by step, starting with basic working versions.
- Responding swiftly and pragmatically to partnership opportunities, establishing BAS as the first-choice partner for polar expertise.
- Building strategic partnerships that demonstrate measurable impact, generate ongoing opportunities for collaboration, and adapt as both partners' needs evolve.



Annex 1: BAS areas of expertise mapped onto the IS-8 sectors and *sub-sectors* of the Industrial Strategy (priorities indicated with ★ below)

Industrial Strategy-8	Established impact	Current investment / collaboration	Impact potential
Advanced Manufacturing	<i>Space weather intelligence</i> for resilient satellite design and operations		
		<i>Batteries</i> and novel chemistries for cold, remote and challenging environments (test bed)	<i>Advanced Materials</i> for cold, remote and challenging environments
		<i>Agri-tech</i> : cold-adapted biopesticides and soil improvers from polar microbes ★	
	Ruggedised equipment, autonomous sensors, and polar-grade engineering that creates UK supply chain opportunities		
Creative Industries	<i>Film and TV; Music, Performing and Visual Arts</i> : expertise, materials and audio-visual assets to engage the public with Antarctica and help communicate environmental change and solutions		
	<i>Video Games</i> : 'sounds of space' and other audio-visual assets into virtual reality; gamification of heritage		
Clean Energy Industries	<i>Wind, hydrogen, solar</i> : expertise to progress clean energy solutions in remote and challenging environments (incl. off-grid and micro-grid operations; energy storage; sustainable liquid fuels) ★★		
	low-carbon logistics developed for polar use		
Digital and Technologies		<i>AI</i> for decarbonisation, optimisation and environmental intelligence ★★★★★	
		<i>Cyber Security</i> for remote and challenging environments	
	Earth observation, decadal-scale environmental data and metadata data for training models, AI/ML-driven climate modelling, automated operation of remote scientific instrumentation, satellite analytics, and geospatial services		
Financial Services	<i>Insurance and reinsurance markets and sustainable finance</i> : space weather, sea level rise, reductions in sea ice and wider environmental intelligence ★		
Defence	<i>Drones and Autonomous Systems</i> (civil use): Environmental intelligence from autonomous systems in the air, marine surface and sub-surface; testing in polar regions; situational awareness ★★		
	<i>Maritime capabilities</i> : Expertise and intelligence for operations in sea ice ★★★★★		
Life Sciences		<i>Pharmaceuticals</i> : novel bioactives from Antarctic biodiversity ★	
		<i>Medtech</i> : Telemedicine for primary care; cold weather medicine; zoonotic diseases	
Professional and Business Services		<i>Management Consultancy</i> : environmental monitoring services, data and intelligence; environmental leadership in business education, consulting on remote and low-carbon operations, logistics in polar regions and sea-ice navigation	