Biotechnology and Biological Sciences Research Council

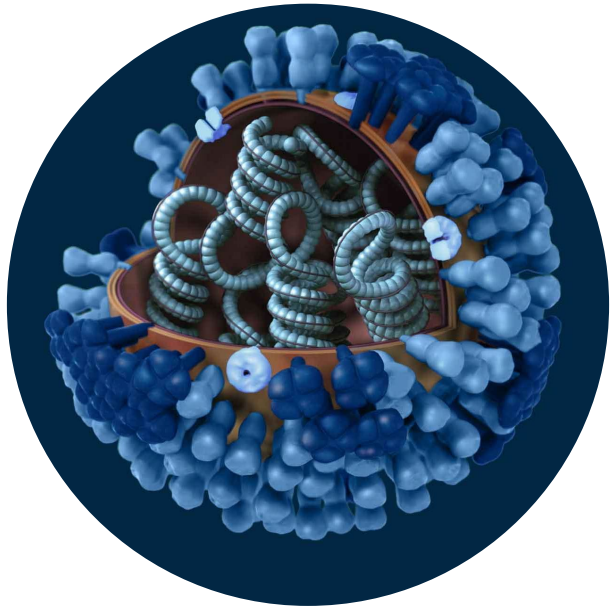
Introduction

BBSRC: supporting UK bioscience for 30 years

Ground-breaking **discoveries**, **technologies** and real-world **impact**

Pioneering research

Opening new avenues



Addressing global challenges

Pathogen preparedness & eradication

Economic impact

Economic impact:
>£300m invested in wheat research (since 2000)
UK: £4 for every **£1** invested
Globally: £8.90 for every **£1** invested

BBSRC – our vision

To advance the frontiers of biology and drive towards a healthy, prosperous and sustainable future

UKRI Biotechnology and Biological Sciences Research Council
UKRI Arts and Humanities Research Council
UKRI Economic and Social Research Council
UKRI Engineering and Physical Sciences Research Council
UKRI Innovate UK
UKRI Medical Research Council
UKRI Natural Environment Research Council
UKRI Research England
UKRI Science and Technology Facilities Council

BBSRC Facts & Figures

Supporting…

~2,000 Students

197 Fellows

~1,600 FTE Early Career Researchers

~330 FTE Research Technical Professionals

£481.6m 2023/24 spend

2847 active awards

93 HEIs

15 Strategic Partner Universities

8 Institutes (>£400m)

Leveraging investment…

>1,300 Business Partnerships*

>£146m Co-funding

>400 Spin-outs

~£7bn Economic benefit (over 20yr)

5 Research & Innovation Campuses

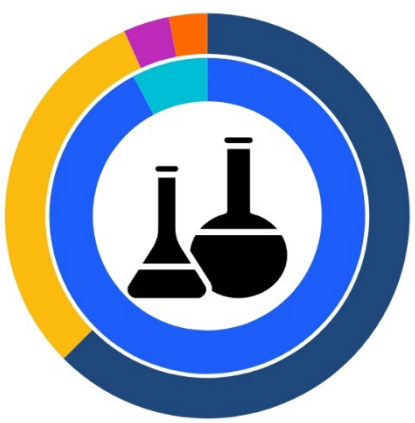
>200 Tenant companies

>£1.2bn Private investment

>2,300 Employees

*since 2010, final figures to be confirmed following conclusion of an on-going evaluation

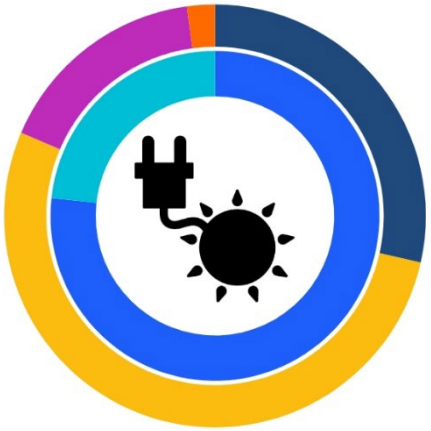
Overview of 2023/24 research investment spend: £342.9m



Understanding the rules of life
£125.8m

Transformative Technologies
£87.1m

Sustainable agriculture and food
£138.7m



Advanced manufacturing and clean growth
£35.9m

Integrated understanding of health
£80.5m

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63% of the research portfolio addresses one or more strategic challenge

37% of the portfolio relates specifically to Understanding the rules of life

National Engineering Biology Programme

Application-inspired themes & challenges

Biomedicine
Enhancing human health through innovation in prevention, diagnosis and therapeutics

Clean Growth
Greener manufacturing, power & supply chain solutions

Food Systems
Productive & sustainable food and farming solutions

Environmental Solutions
Healthy, productive & resilient environmental systems

Discovery-inspired themes & challenges

Bioinspired Design
Building on the fundamental potential of biology

Bioengineered Cells & Systems
Constructing and/or modifying form and function of cells and systems.

Novel Materials
Novel & enhanced chemistry, materials, products and production processes

Cross-cutting research and technologies

Areas requiring transformative underpinning research and technology development to unlock the full impact of Engineering Biology
For example: AI, rational design, sensors, scalability and scale-up, metrology and standardisation

Underpinning enablers

Required to create an entrepreneurial environment, conducive to realising the potential of Engineering Biology
For example: connectivity, talent and skills, knowledge exchange and commercialisation, infrastructure, flexible regulatory landscape

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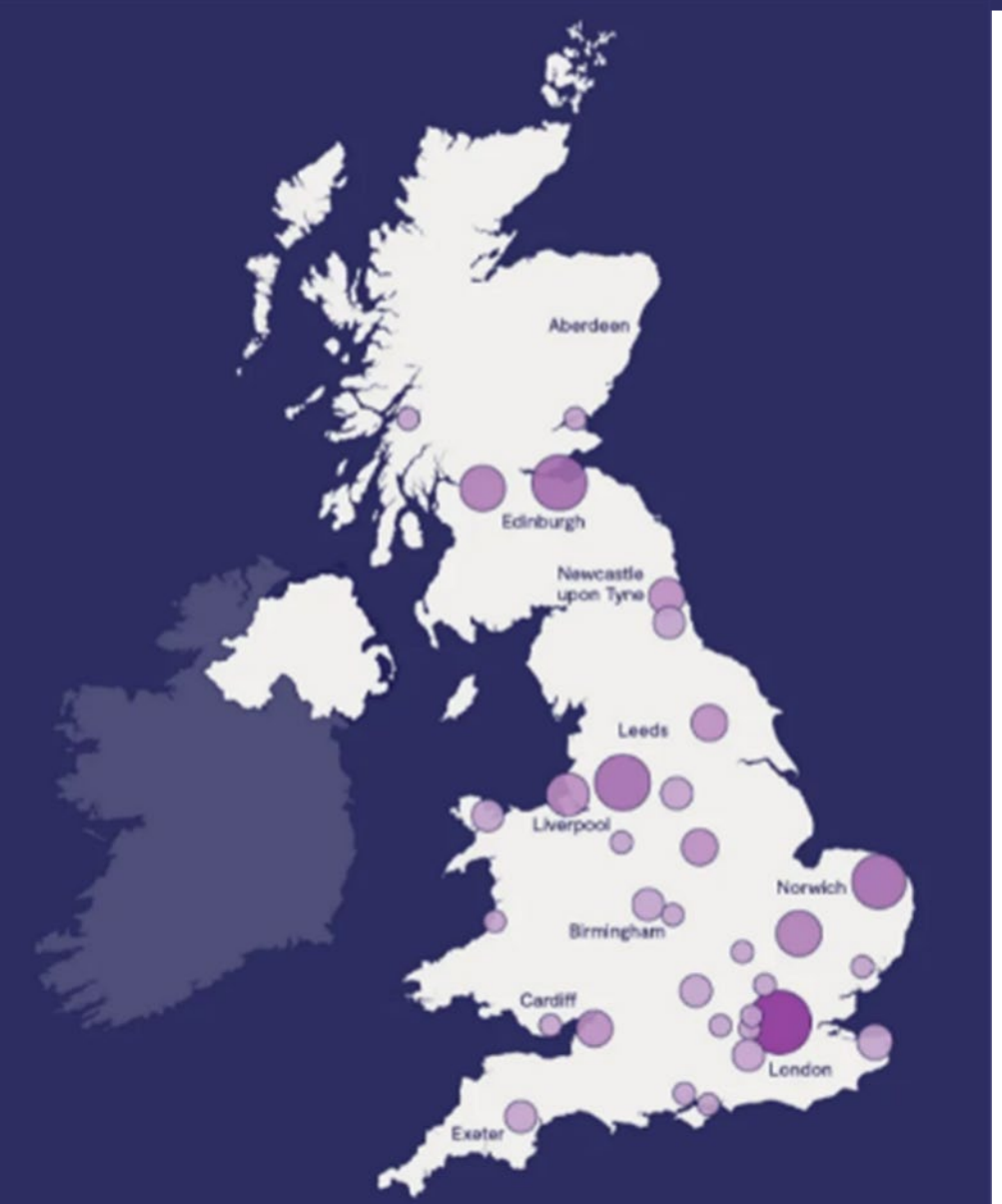
UKRI Engineering and Physical Sciences Research Council
UKRI Innovate UK
UKRI Medical Research Council
UKRI Natural Environment Research Council
[dstl]
Ministry of Defence

UKRI Supporting UK Engineering Biology



£125m UKRI Investment in Engineering Biology, including:

- **6 Mission Hubs (5 years, £70m)**
- **22 Mission Awards (24 months, £30m)**

BBSRC Supporting the development of Standards and Metrology Training:

- **National Measurement Laboratory (NML)**
- **Roll out of training starting in 2025**

Other Infrastructure Available to the Community:

- **Edinburgh Genome Foundry**
- **Liverpool GeneMill Foundry**
- **Earlham Foundry**
- **London DNA Foundry**

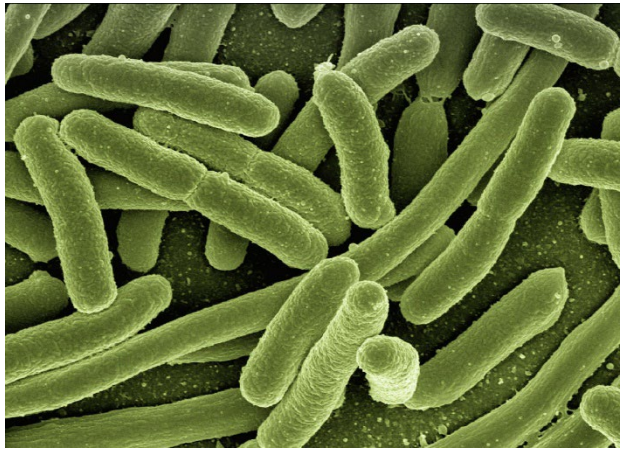
Bioscience: addressing grand challenges

Supporting delivery of **bio-based solutions,** through **partnership working**

Environment/climate change

Food security & nutrition

Healthy ageing



Infectious disease

Making the best use of our land

Land Use for Net Zero (LUNZ) Programme

£20m investment to help drive transformation of UK land use to achieve net zero by 2050

Co-designed with government departments - research will feed directly into policy and decision-making

Working closely with other supported programmes

AFN Network+

TRANSFORMING UK FOOD SYSTEMS Strategic Priorities Fund

GGR-D PROGRAMME Greenhouse Gas Removal Demonstrators Programme

UK Research and Innovation

Department for Environment Food & Rural Affairs

Department for Energy Security & Net Zero

Llywodraeth Cymru Welsh Government

Department of Agriculture, Environment and Rural Affairs

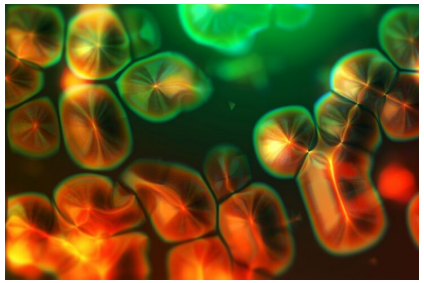
Scottish Government Riaghaltas na h-Alba

2024 – some other examples of activities

January

LUNZ programme – Phase 1 award

February

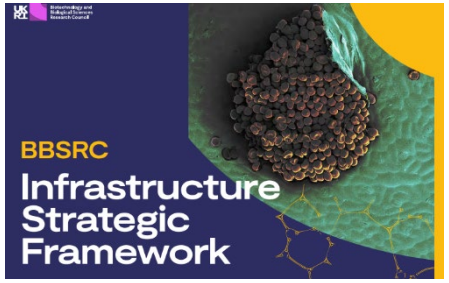


£100m to support Engineering Biology Hubs and Awards

£11.5m with EPSRC and Innovate UK to support UK sustainable biomanufacturing

March

UKRI support for international partnership programmes



Launch of Infrastructure Strategic Framework

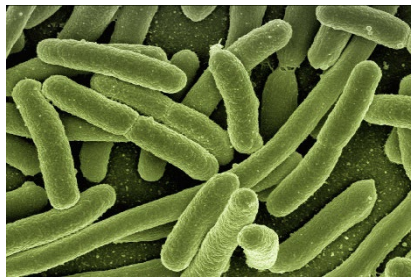
May

£4.6m to support UK sustainable aquaculture

2024 – some other examples of activities

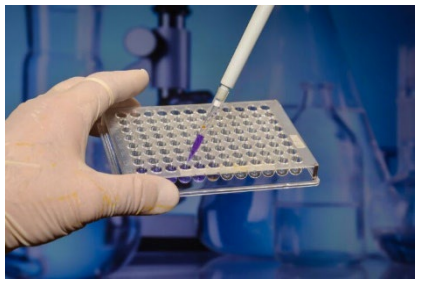
July

£34m investment for BioFAIR



£4.8m to support 8 transdisciplinary networks to tackle AMR

August



£28m with MRC to establish the Human Functional Genomics Initiative programme

Launch of £15m National Alternative Protein Innovation Centre

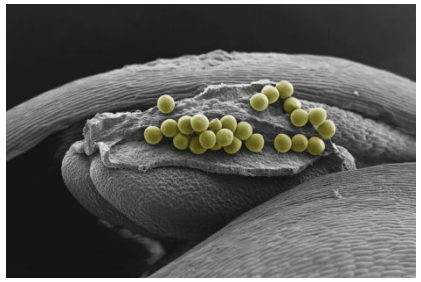
September

UKRI announces first projects from new interdisciplinary scheme

Publication of refreshed Strategic Framework underpinning Bioscience for an Integrated Understanding of Health

October

6 new Global Centers awards, in partnership with NSF, focused on the bioeconomy



£4m awarded through our 2023 Transformative Research Technologies programme

£2.5m with Innovate UK to support Diet & Health Open Innovation Research Clubs

Supporting People, Culture & Talent

BBSRC Fellowships – 15 awards made this year

BBSRC-EPSRC Centres for Doctoral Training – 3 programmes

UKRI Collective Talent - continuing to engage in transition

- **BBSRC-NERC doctoral landscape awards** – 21 universities

Championing research culture formation

- Connecting Culture Fund
- Enhancing EDI in BBSRC-funded networks

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Looking ahead

Our refreshed Forward Look

Plan to launch in Spring 2025 - welcomed contributions and engagement from community

SAPs, Big Ideas Pipeline, Futures Workshop, Annual Strategic Workshops, Community Consultation, Executive Chair's Roundtables, Strategic Partner Conversations, Community Webinars, Conferences…

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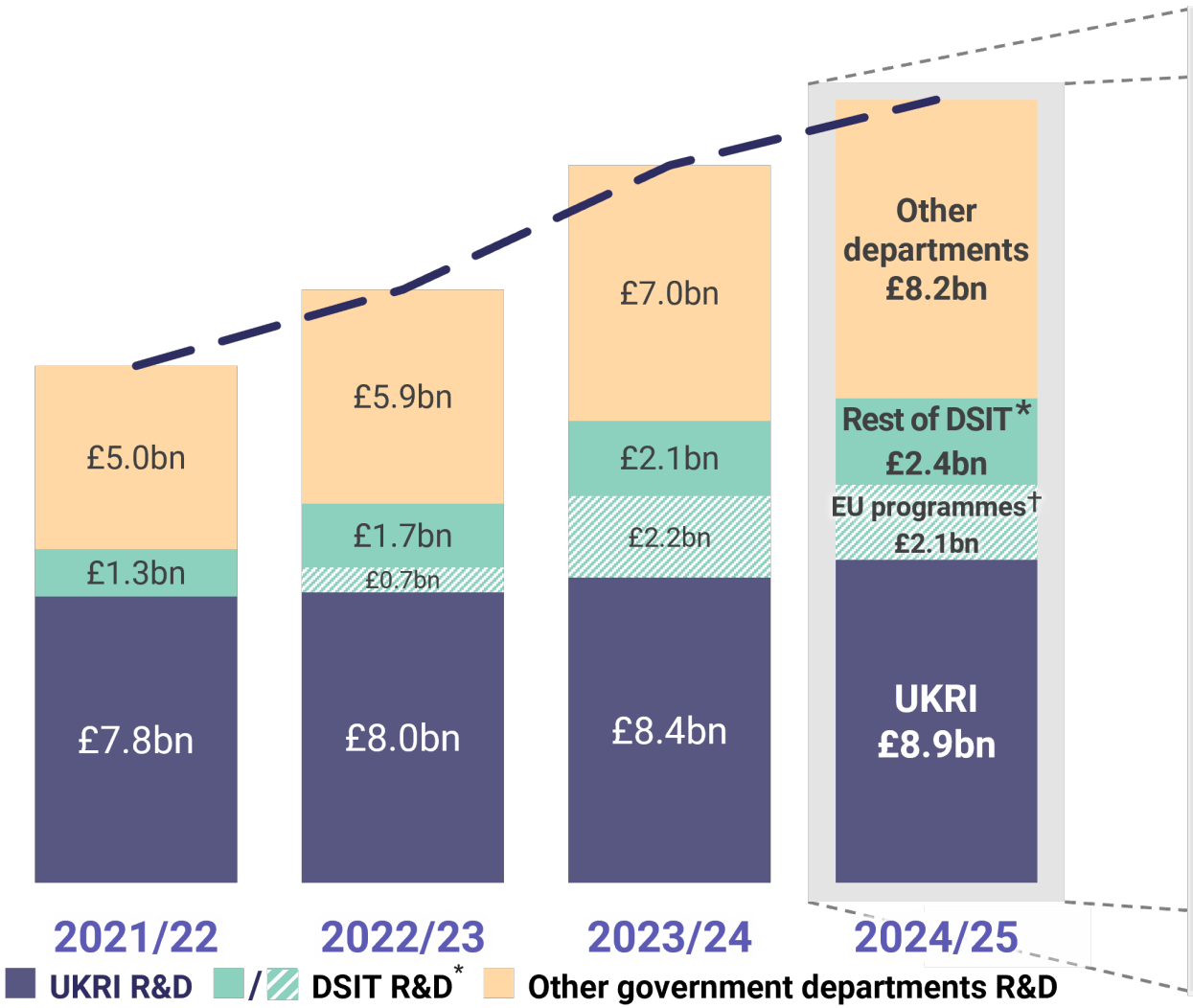
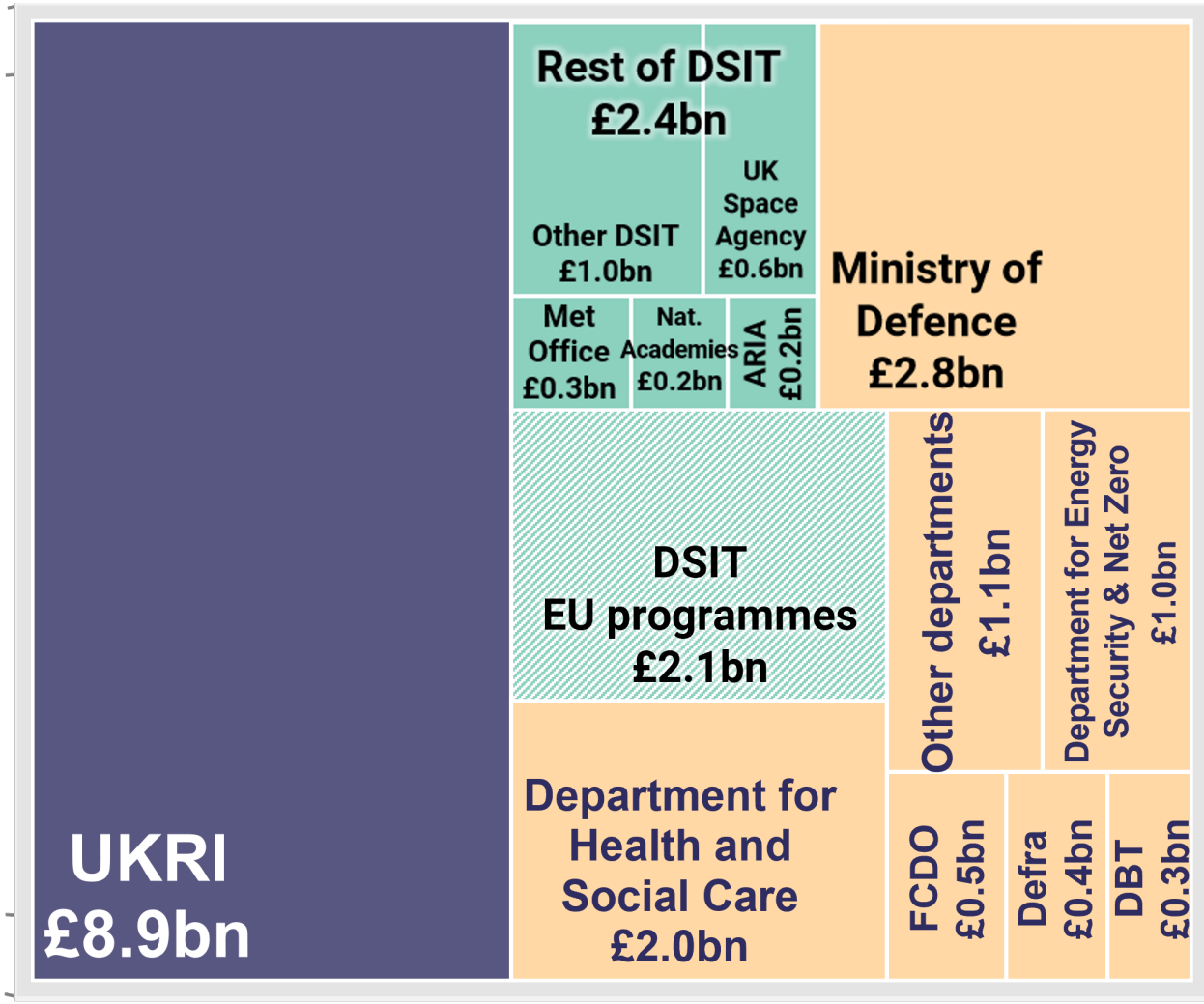
Spending Review
Government R&D budgets have risen





An overview of government R&D budgets in 2024/25

* *DSIT was formed in February 2023. Budgets for 2021/22 and 2022/3 reflect programmes in predecessor departments.*

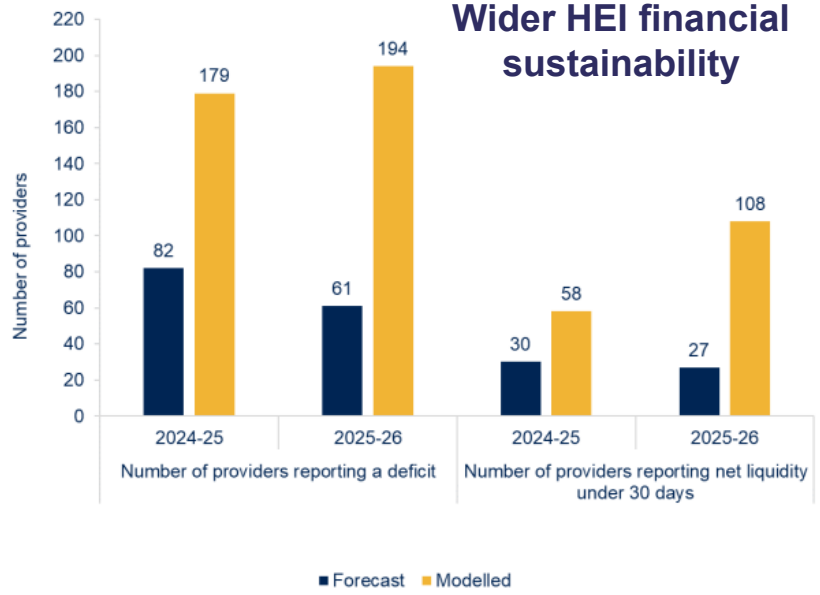
† *DSIT budgets from 2022/23 include EU R&D programme association costs (e.g. Horizon Europe).*

Government missions

1. **Kickstart economic growth**
   to secure the highest sustain growth in the G7 – with good jobs and productivity growth in every part of the country making everyone, not just the few, better off
2. **Make Britain a clean energy superpower**
   to cut bills, create jobs and delivery security with cheaper, zero-carbon electricity by 2030, accelerating to net zero
3. **Take back our streets**
   by halving serious violent crime and raising confidence in the police and criminal justice system to its highest level
4. **Break down barriers to opportunity**
   by reforming our childcare and education systems, to make sure there is no class ceiling on the ambitions of young people in Britain
5. **Build an NHS fit for future**
   that is there when people need it; with fewer lives lost to the biggest killers; in a fairer Britain, where everyone lives well for longer.

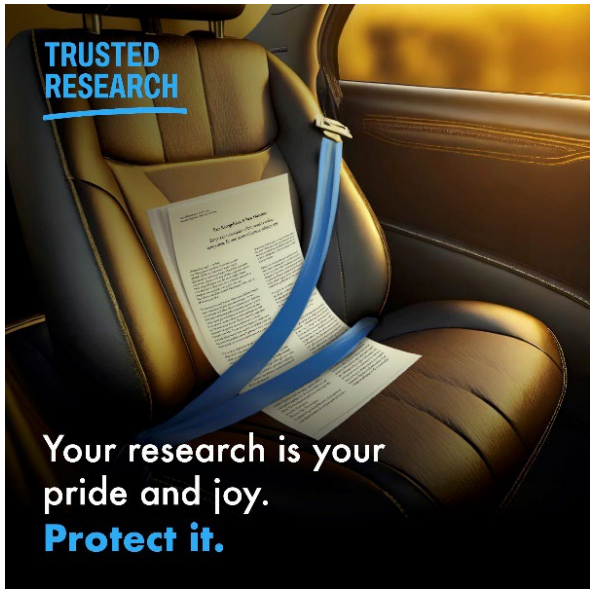
Some live issues impacting the R&I system

Figure 2: Number of providers reporting a deficit and low liquidity levels, comparison of forecast and modelled data, 2024-25 to 2025-26



Wider HEI financial sustainability

HEI impact of National Insurance increase



Environmental sustainability

UK Research and Innovation

Funding Service

Research Operational challenges

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Response mode – recent decrease in success rates

Priorities

Developing BBSRC's Forward Look and Delivery Plan to reflect changing bioscience landscape

Work within UKRI to ensure that UK Bioscience is effectively embedded in activities of other Councils and vice versa

Developing and continuing to invest in our skills base & new talent

Continuing to:

- **Ensure highest quality research**
- **Co-create & enable our national bioscience landscape**
- **Incentivise and motivate connectivity and added value**

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Spotlight

The Importance of Research Technical Professionals to Bioscience

12 December 2024

Rob Hardwick
Interim Associate Director of People, Talent, and Culture

Dr Tim Shuttleworth
Head of Research Infrastructure

Research Technical Professionals

The term Research Technical Professional, or RTP, is commonly used to refer to the range of technical roles that are critical to enabling research and innovation.

It covers range of roles and seniorities, including but not limited to:

- technical professional staff
- individuals staffing core facilities
- data scientists
- data engineers
- archivists
- informaticians
- statisticians
- software developers
- audio-visual technologists

More information here

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UKRI strategy: world class people and careers

Priority 1.2: Develop the breadth of skilled people and teams essential for the future R&D workforce

UK Research and Innovation

People and Teams

UKRI Action Plan

March 2023

- Promote **diverse and flexible career paths**, enabling movement across disciplines, sectors, and academia without barriers.
- Enhance **support, visibility, recognition, and career development** for all essential R&I roles.
- Adapt skills and training to **equip researchers and innovators** with professional, entrepreneurial, and **technical expertise** for diverse careers, and collaboration with businesses.

Technician Commitment

The Concordat to Support the Career Development of Researchers

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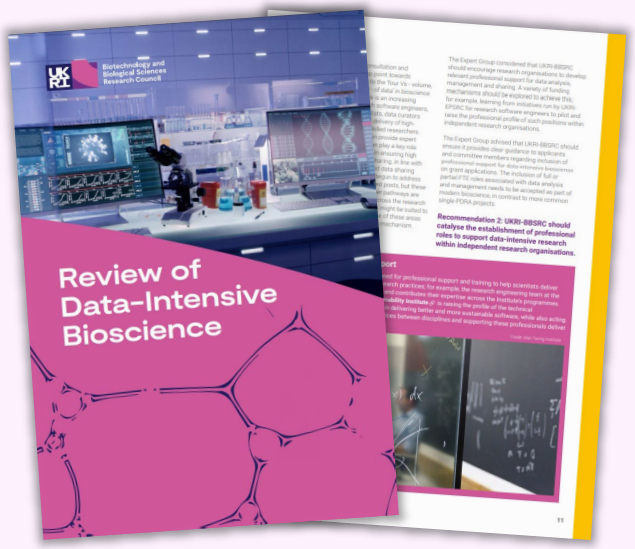
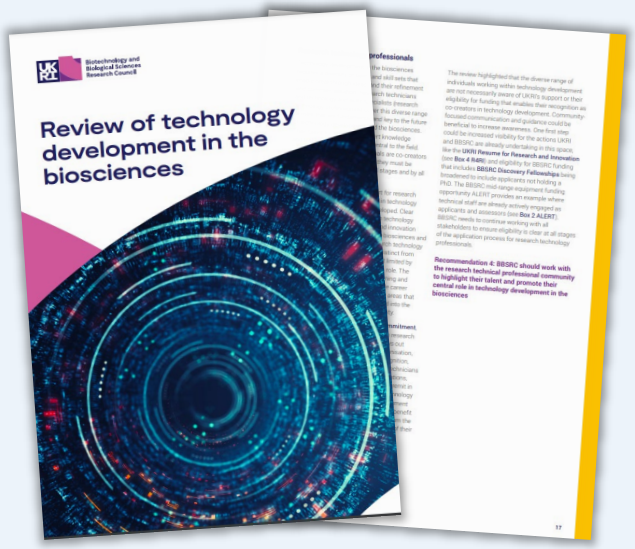
UK INSTITUTE FOR TECHNICAL SKILLS & STRATEGY

BBSRC recognises the importance of RTPs



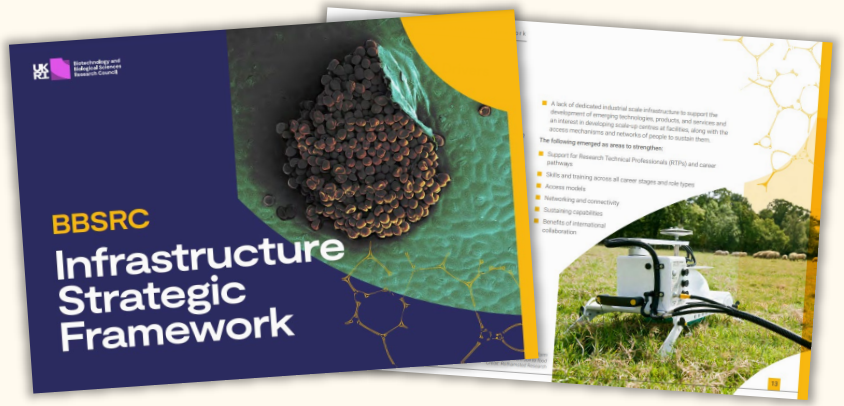
"BBSRC should catalyse the **establishment of professional roles** to support data-intensive research within independent research organisations"

Find it **here**



"BBSRC should work with the **research technical professional community** to highlight their talent and promote their central role in technology development in the biosciences"

Find it **here**



"We will … advocate for the crucial role people play in sustaining infrastructure, championing the role of **Research Technical Professionals (RTPs)**"

Find it **here**

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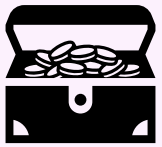
BBSRC works with RTPs in a number of ways

Building on the Technician Commitment UKRI Action Plan and the UKRI People and Teams Action Plan, we aim to champion the role of RTPs in research and innovation and the value they bring to our investments

Providing **opportunities to influence** BBSRC's strategic planning, ensuring views represented in our decision-making

Embedding support for RTPs within our peer review processes to **promote recognition** of their skills and expertise



Raising **awareness of funding eligibility** such as ALERT, Transformative Research Technologies and Responsive Mode

Collaborating with external partners that support RTPs, such as the Institute for Technical Skills and Strategy.

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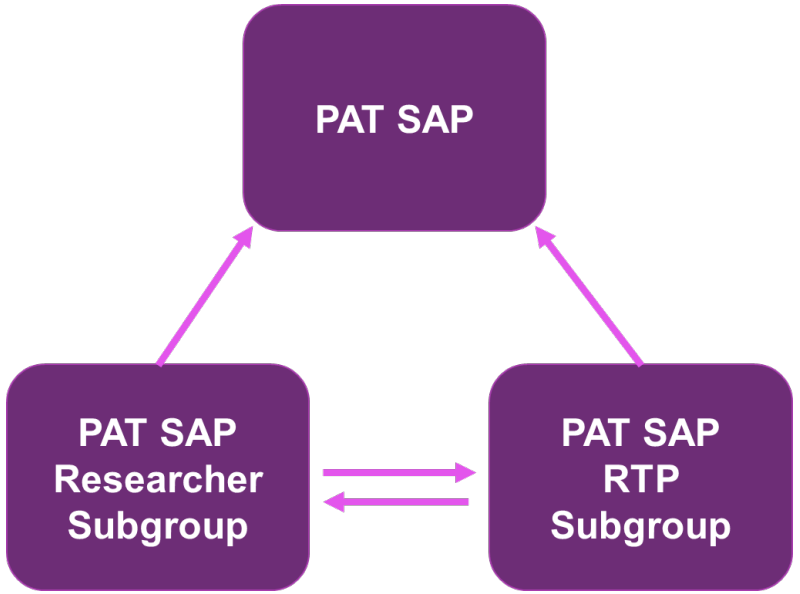
Contact us with general enquiries: technicalresearchers@bbsrc.ukri.org

PAT SAP RTP Subgroup

The **People and Talent Strategy Advisory Panel** (PAT SAP) considers issues related to the careers and development of staff working within the biosciences, helping to shape BBSRC strategy for supporting these individuals



Encouraging RTP engagement in Peer Review

The Pool of Experts is BBSRC's peer review college, our primary source of experts to review our grant proposals

BBSRC periodically runs recruitment exercises for new members

Last year, eligibility was opened to Early Career Researchers (ECRs) and RTPs for the first time.

- Of the 150 appointments made to the PoE, around a third were ECRs, but only 2 identified as RTPs
- We're working hard to improve this in future recruitment rounds

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RTPs Funding Eligibility

RTPs are eligible to apply for a range of funding opportunities as Project Lead and/or Co-Lead

BBSRC welcomes grant applications from RTPs provided:

- their appointment is resourced from the central funds of their institution at the time of application
- they carry both a level of responsibility and range of duties appropriate to a person with substantial research experience
- they meet the specific eligibility criteria of the funding opportunity in question

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More information here

Contact us: technicalresearchers@bbsrc.ukri.org

RTPs Funding Eligibility

BBSRC Fellowships

Aimed at researchers wanting to conduct their own independent research in a host laboratory

Supports the transition of early-stage researchers to fully independent research leaders

There is no longer a requirement to have a PhD

Use of the narrative CV format called the Résumé for Research and Innovation (R4RI) provides a better opportunity to demonstrate a breadth of research outputs beyond publications

More information here

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ICURe explore

Why?

BBSRC ICURe EXPLORE is the leading UK-wide bioscience pre-accelerator helping Bioscience teams to validate their business ideas

Who?

Open to **biosciences researchers, PhD students and technicians** from universities and research institutes across the UK

More information here

Supporting Mobility – Flexible Talent Mobility Accounts (FTMAs)

Institutional level awards to **enable placements or secondments** for research staff to work outside of their usual environment and pursue other training activities.

- These awards act as a training platform for the individual and increase porosity between sectors
- As the name suggests, the awards are very flexible in terms of the nature, duration and location of the activities and collaborators

A wide range of research staff are eligible to benefit (postdocs, RTPs, KEC staff, senior researchers and more)

25% of the award is ring fenced for RTPs

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RTPs supported by FTMAs

Activities supported

6-month project including:

- **placement for a technician** to learn techniques for analysis of airborne DNA
- **Engagement with potential end-users** of these methods
- Providing **proof of concept analyses** to these end users

Queen Mary University of London

Outcomes achieved

After successful training in the methods, the **technician facilitated a conference** for a variety of NGO end-users and policy partners

Bat Conservation Trust · NATURAL ENGLAND · JNCC Joint Nature Conservation Committee · Scottish Forestry Coilltearachd na h-Alba

Demonstrated proof of concept of the method to new potential commercial organisations

Follow on funding sought from Natural England

Technician now employed as a project manager for the Environment Agency

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RTPs supported by FTMAs

Activities supported

Imaging facility manager received specialist microscope training at the headquarters of Leica in Germany

UNIVERSITY OF CAMBRIDGE

Leica MICROSYSTEMS

Outcomes achieved

Facility manager **gained knowledge and skills** in microscopy

After the visit, they **prepared a training course** at the University of Cambridge

The Facility manager **built relationships** with specialists at Leica that will be beneficial to their work

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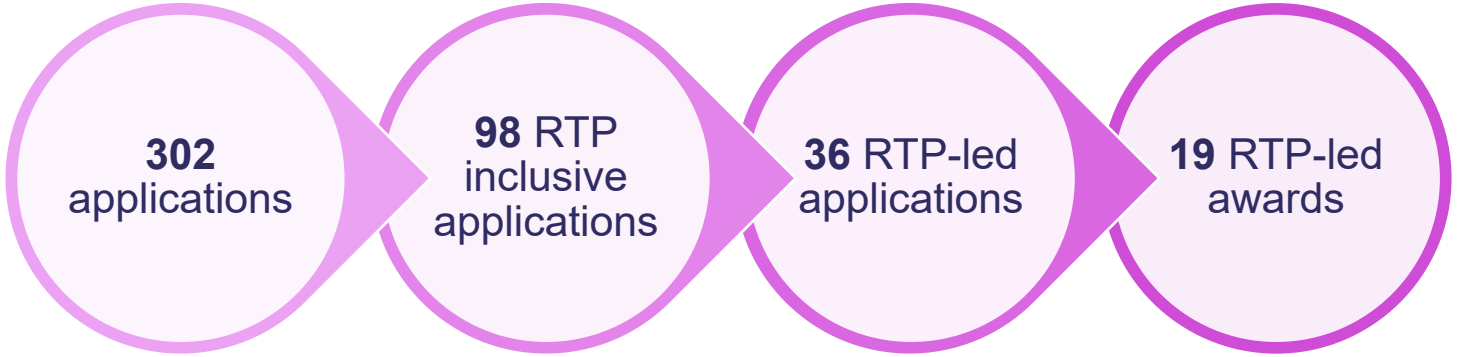
ALERT: Mid-Range Equipment Call

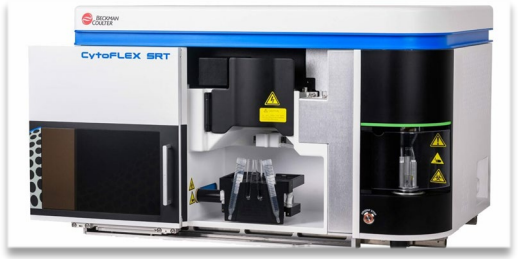
ALERT supports the purchase mid-range equipment for the biosciences between £200,000 to £1.5 million

Across the 2021, 2022 rounds 2023:



- Since 2021, **over half RTP-led** ALERT applications have been **successful**
- **The top ranked** proposals from 2021 and 2022 were RTP-**led**

Close engagement with RTPs **strengthens** ALERT applications!



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ALERT 2024 is open – more information here

Contact us about ALERT: bbsrcalert@bbsrc.ukri.org

The value of RTPs in ALERT

We worked with the **Institute for Technical Skills & Strategy** to create a three-part video showcasing how RTPs leveraging BBSRC's ALERT funding to support the delivery of bioscience research and innovation.

These videos showcase:

- The role ALERT plays in supporting UK bioscience
- How RTPs add value to BBSRC ALERT applications
- Reflections of Prof Pippa Hawes on her experience as ALERT Panel Chair and the importance of RTP recognition

Watch the videos on YouTube here

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UK INSTITUTE FOR TECHNICAL SKILLS & STRATEGY

RTPs supported by ALERT

Dr Rachael Walker, Head of Flow Cytometry Facility at Babraham Institute

Project Lead for “BD FACSDiscover S8 sorter”

*“Being able to obtain the latest flow cytometers for Babraham Institute is important to be able to **drive innovations** and **advance our world-class science**. The ALERT grant allowed us to advance our offering to include the latest image sorter from BD Bioscience, the FACSDiscover S8. We have had the S8 sorter since July and this **innovative technology** is already having an impact on Babraham Institute science and the science carried out by companies on the Babraham Research Campus”*

Dr Iain Milne, Head of Research Computing at The James Hutton Institute

Project Lead for “Crop Diversity GPU - Growing Plant Understanding”

*“Crop Diversity HPC supports **seven institutes** around the UK, and its success wouldn't have been possible without the funding we've received from the BBSRC ALERT. A small team of **RTPs and/or RSEs** manage and support the cluster on behalf of over **600 users**. The community we've built has been instrumental in fostering the development of essential **new skills and capabilities**, not just in areas of bioinformatics and data analysis but also computational skills within my team. It has significantly **elevated our visibility**, enabling us to **attract further funding and recognition** for our contributions to the scientific community.”*

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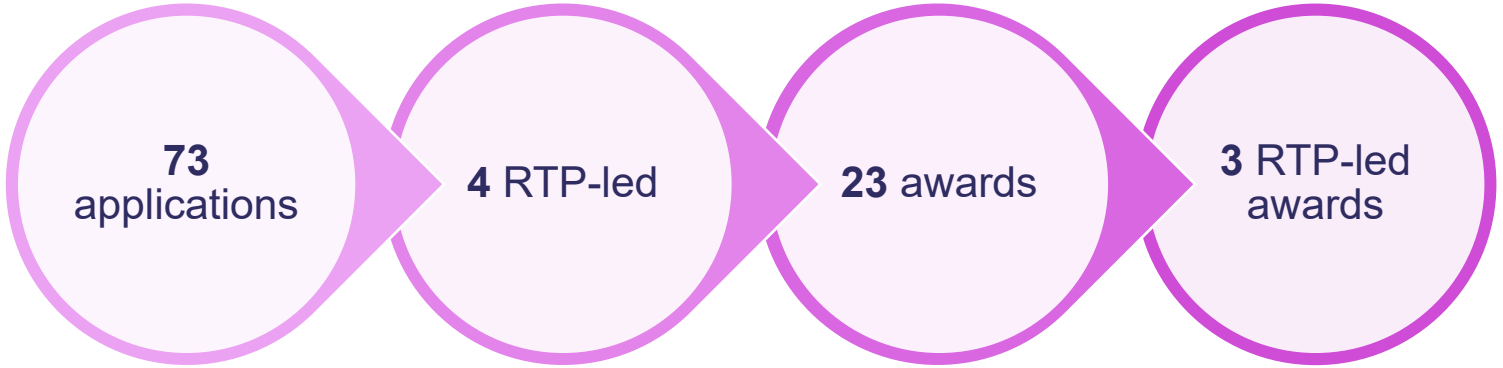
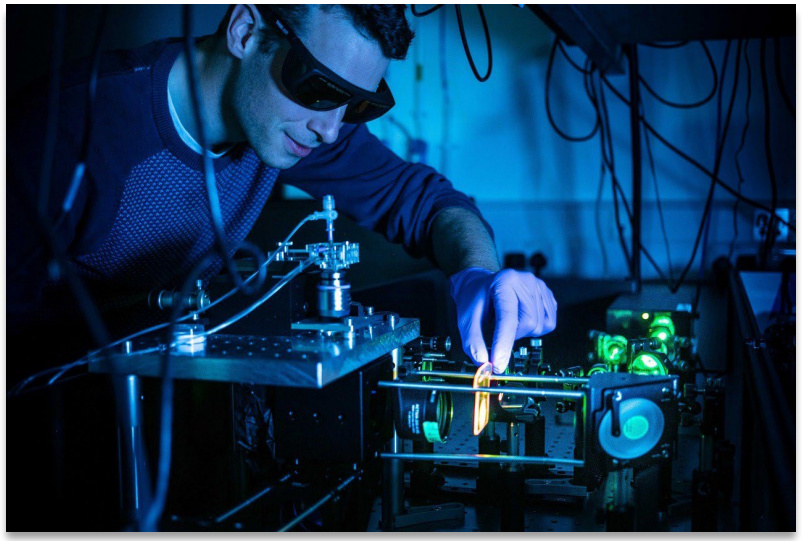
Transformative Research Technologies (TRT)

Launched following BBSRC's Review of Technology Development

Small funds for early-stage development of cutting-edge research technologies for the biosciences – up to £225,000 for projects lasting 6 to 18 months

In the 2023 round:





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Contact us about TRT: technology.development@bbsrc.ukri.org

RTPs supported by TRT

Dr Maud Dumoux, Associate Investigator at Rosalind Franklin Institute

Project co-lead for “Advanced SEM optimisation for cryo FIB-SEM”

*“The 23TRT has been an **easy and accessible application**. Thanks to this award, we have been able to implement our proposed **technical development** approach, and it has **positively impacted our field** and, more personally, **my career**.”*

Dr Charles Wood, Senior Scientific Officer, University of Portsmouth,

Project lead for “Development of Lab-based Cryogenic Hard X-ray Microscopy for Soft Biological Materials”

*“Beyond enabling the development of cutting-edge lab-based technology for X-ray microscopy, this award has significantly **enhanced how my contributions are perceived** within a Higher Education Institute. As an **RTP**, gaining recognition for balancing facility management and research development can be challenging. This award has provided a platform to **showcase the value of this dual role**. Leading this project has strengthened my **leadership** and **strategic decision-making skills**, while taking-on direct **line management responsibilities** has provided an invaluable opportunity to mentor staff and **develop as a manager**. I’m sincerely grateful to BBSRC for their support, and their ongoing support for RTPs.”*

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Working across UKRI – Digital RTPs

BBSRC is working with partners across UKRI to realise our vision for a state-of-the-art, national Digital Research Infrastructure

A range of investments and activities are required to build this system, including

- large-scale compute facilities, including high-throughput, high-performance, and cloud computing
- data storage facilities, repositories, **stewardship** and security
- software and shared code libraries
- mechanisms for access, such as networks and user authentication systems
- people: the users, and the **experts who develop and maintain** these powerful resources

This cross-UKRI programme recognises the fundamental importance of digital RTPs in achieving this vision

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Contact us about the UKRI DRI programme: dri@ukri.org

Digital RTPs

We intend the term **Digital RTP** to be an inclusive umbrella term that covers a range of job roles, including but not limited to:

- Data scientists
- Research software engineers (RSEs)
- Data stewards / curators
- System architects
- Systems administrators
- Technical delivery of digital research infrastructures
- Technical professionals as part of research teams

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UKRI support for Digital RTPs

Funding opportunity

Digital infrastructure: new approaches to skills or software

Awards to be announced shortly

More information here

Funding opportunity

UKRI Digital Research Technical Professional Skills NetworkPlus

Assessment ongoing

More information here

Funding opportunity

UKRI DRI: digital research infrastructure skills hubs for accelerated compute

Assessment ongoing

More information here

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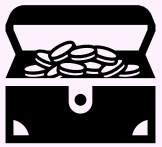
In summary

BBSRC continues to champion the important role of RTPs in research and innovation and the value they bring to our investments

Providing **opportunities to influence** BBSRC's strategic planning, ensuring views represented in our decision-making

Embedding support for RTPs within our peer review processes to **promote recognition** of their skills and expertise



Raising **awareness of funding eligibility** such as ALERT, Transformative Research Technologies and Responsive Mode

Collaborating with external partners that support RTPs, such as the Institute for Technical Skills and Strategy.

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Thank you

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Contact us:

- General enquiries: technicalresearchers@bbsrc.ukri.org
- About ALERT: bbsrcalert@bbsrc.ukri.org
- About TRT: technology.development@bbsrc.ukri.org
- About the UKRI DRI programme: dri@ukri.org

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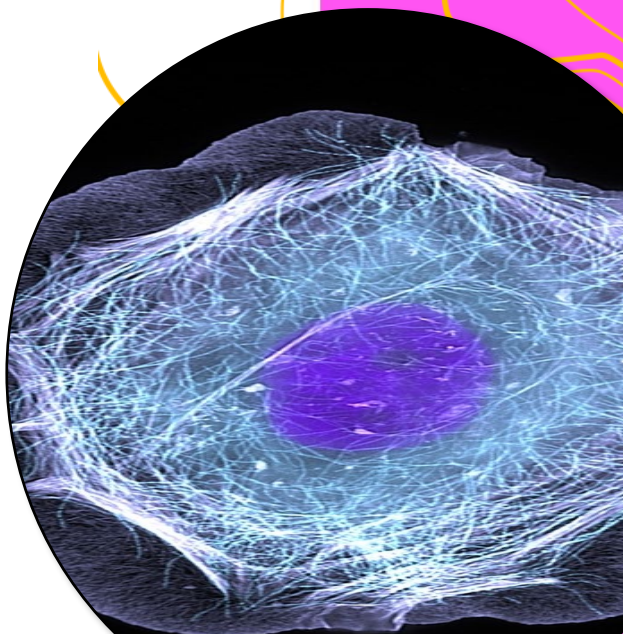
BBSRC Responsive Mode

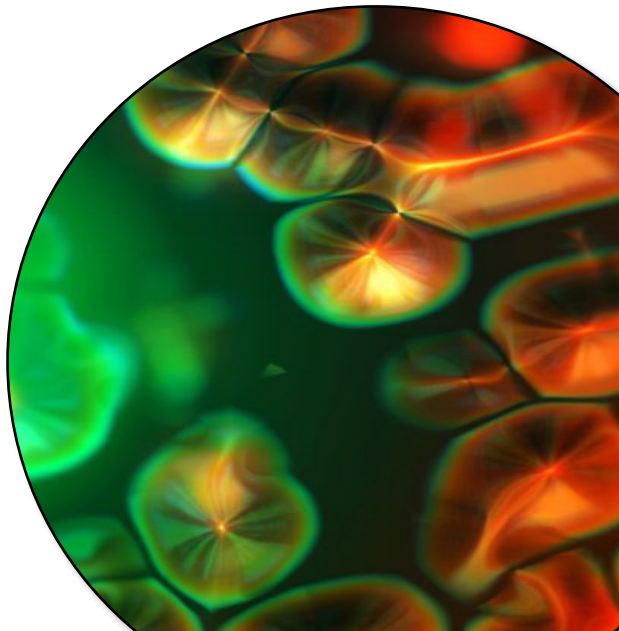
Evaluation and reform work

Dr Jef Grainger



Responsive mode (RM) in context

- Most Research Councils have one…
- They are all a bit different - whilst the underlying systems and some key operational parameters are harmonising
- We now have a cross-Research Council (interdisciplinary) RM too
- BBSRC's largest research and innovation investment
- RM is positioned as a 'core' engine for world-class UK bioscience and researcher-led endeavour.



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Why the focus on RM now?

- BBSRC's RM Committee model is now 15 years old – although many operational developments/refinements since
- Since implementation of the current model, we have not systematically reviewed the scheme
- It is our biggest commitment and has been protected in lean times.

Government can be curious why

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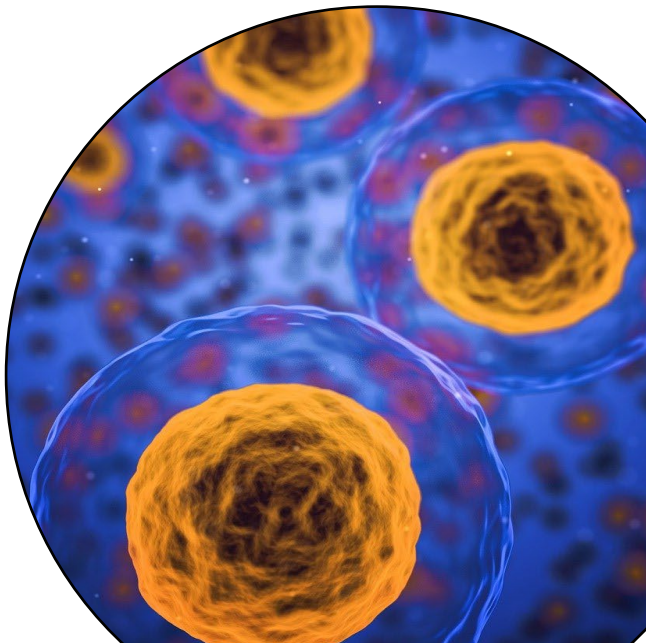
Why the focus on RM now?

- The RM system is under considerable pressure – mostly felt by the research community
- Our systems and tools are evolving, opportunities to innovate
- Although many success stories, a perception we could be doing even better - some timeliness to look at this.



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So we need to understand how we've done

- What does BBSRC RM mean to the bioscience community?
  - Primary purpose
  - Added value expectations, cultural role
  - Shape of the portfolio – who, what, where?
  - Key trends
  - Uniqueness, strengths and weaknesses, possible gaps
  - Value of outputs and their impacts
  - Perceptions vs evidence.

RM evaluation now underway

Multi-part analysis:

- In-house grants data (quantitative) analysis
- External community consultation to test views and perceptions – *we want to hear from you*
- External data analysis; bibliometrics and metadata
- Final synthesis and independent review guided by expert steering panel.

Aiming to draw on interim and final outputs in a dynamic way.

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What will we do with what we learn?

- A stocktake to help us look to the future
- This will help us to consider options to:
  - Evolve RM to ensure it remains fit for purpose
  - Be clearer and more explicit about what that purpose is
  - Encourage and support a diversity of bioscience disciplines, approaches, people and organisations
- We aim to:
  - Boost community engagement and confidence
  - Ensure RM of the future is considered a ‘go to’ scheme for the UK’s best bioscience research proposals.

Exploring options for change

- In parallel with the evaluation, start to consider what we might do differently to address known challenges and informed by emerging findings
- Will look at a range of options from ‘low hanging fruit’ to the more radical
- Looking at other parts of UKRI and beyond to benchmark and explore what works well across the RM system
- Aim is to have laid the groundwork to be able to respond quickly and confidently to the evaluation’s interim and final findings.

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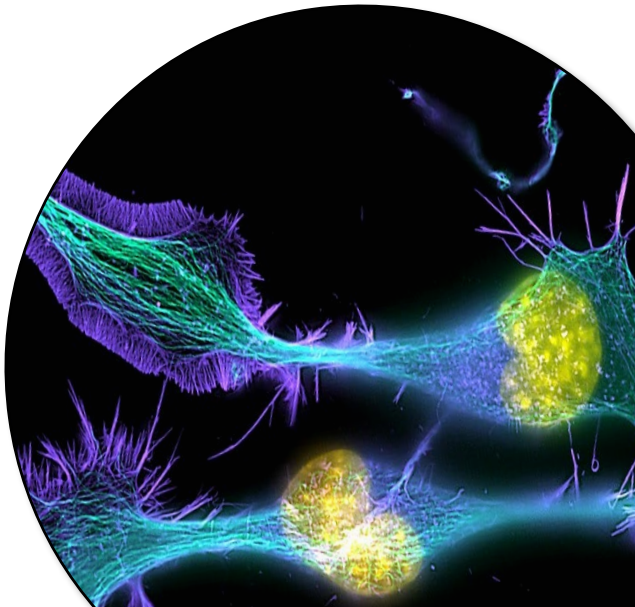
We welcome your feedback and views!

- We would like to get a short ‘temperature take’ today, which will help test and refine some of the evaluation questions we will ask, and options we may consider for future ways of working.



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1. **What do you see as the greatest strength(s) of BBSRC Responsive Mode?**

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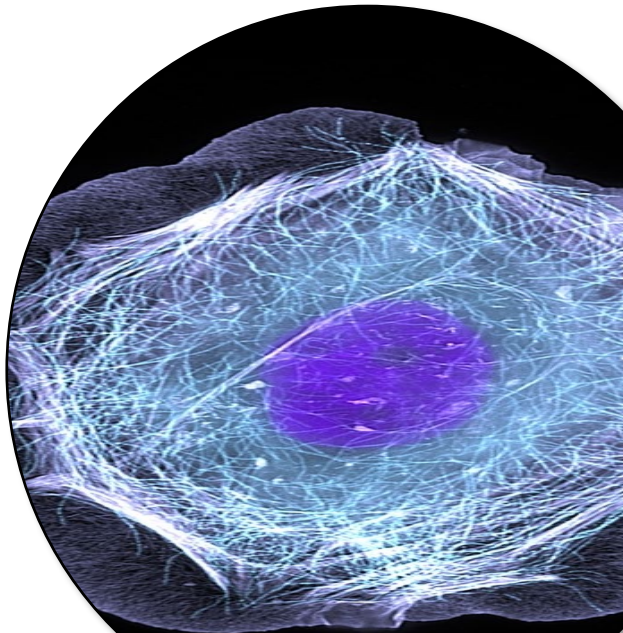
1. **What do you see as the greatest strength(s) of BBSRC Responsive Mode?**

2. **Other than financial resources, what single change would most improve BBSRC Responsive Mode?**



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