Keynote Speaker
Conférencier

Roger Eccleston
UKRI-STFC
Executive Director
-
Directeur excécutif

STFC's Portfolio Approach to Managing Large-Scale Facilities

National Research Facilities Workshop

March 2026

Roger Eccleston

Executive Director, National Laboratories, Large Scale Facilities.

Science and Technology Facilities Council

We are part of UK Research and Innovation

Operating across the whole of the UK with a combined budget of almost £9 billion, UK Research and Innovation brings together the seven research councils, Innovate UK and Research England.

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Arts and Humanities Research Council


Science and Technology Facilities Council


Research England


Natural Environment Research Council


Medical Research Council


Innovate UK


Economic and Social Research Council


Engineering and Physical Sciences Research Council


Biotechnology and Biological Sciences Research Council

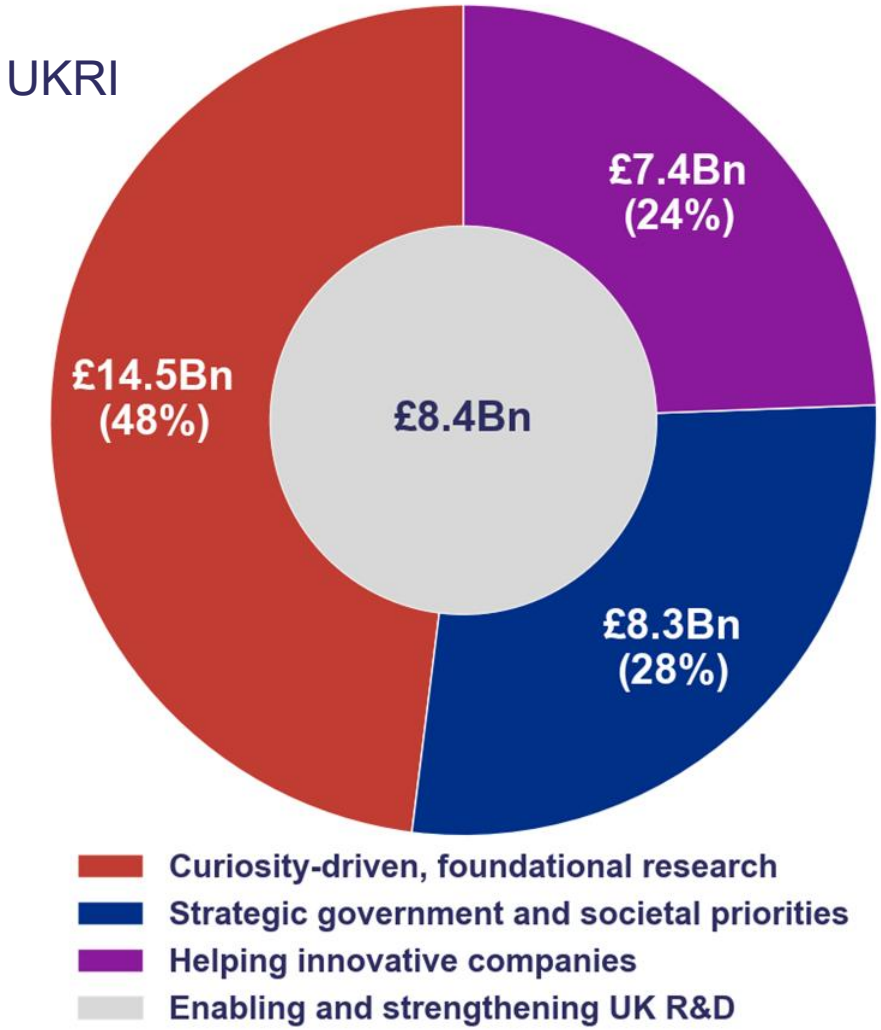

UKRI Mission
Advancing Knowledge
Improving Lives
Driving Growth
UK Research
and Innovation

Funding and resource allocation

Science and Technology Facilities Council

UKRI approach to allocations.

- Alignment of the budget to a new single mission, to advance knowledge, improve lives, and drive UK growth.
- Focus on doing fewer things better and backing winning ideas.
- Emphasise making choices in how we invest, by prioritising areas where the UK can be world-leading and by working closely with business.



Science and Technology Facilities Council

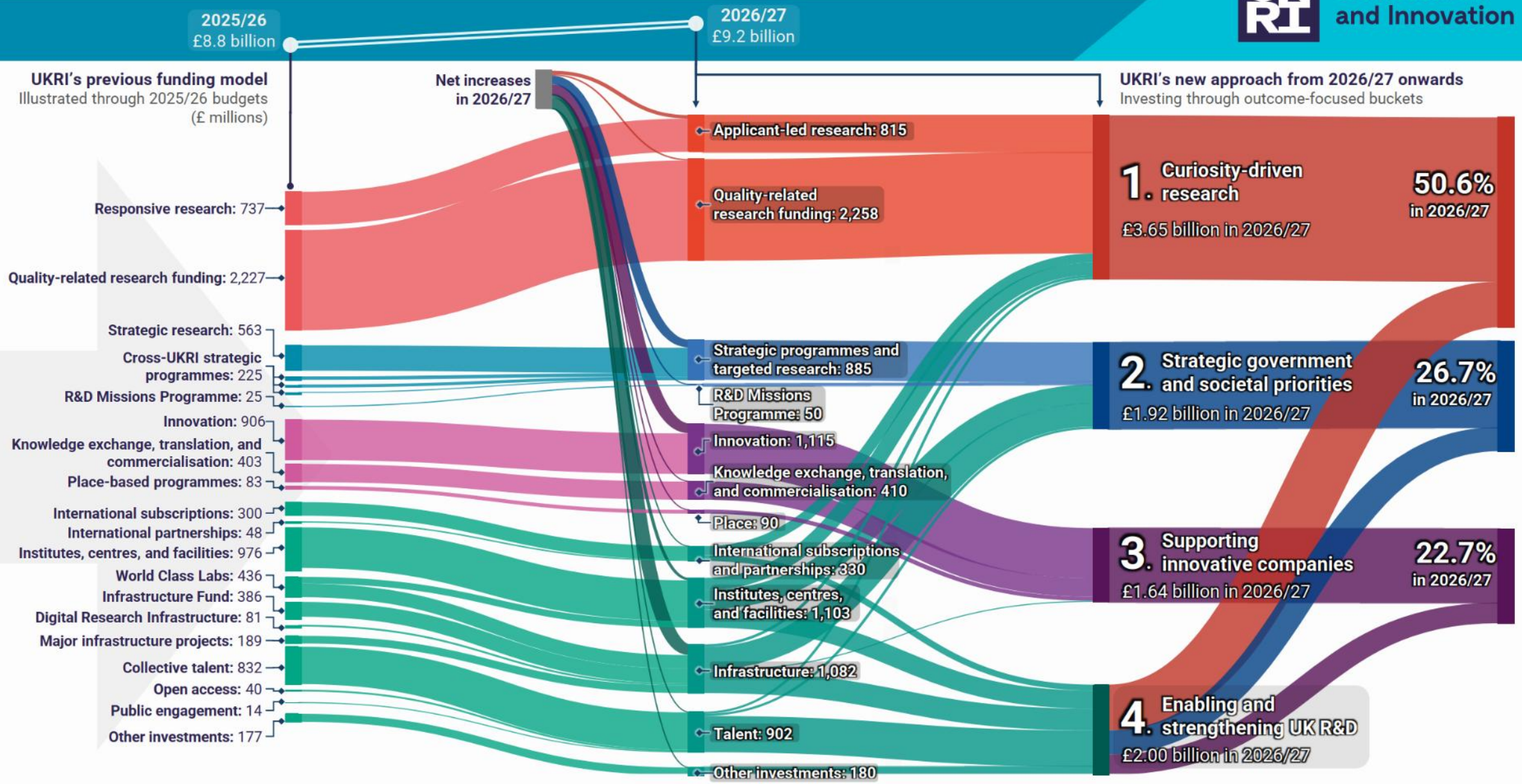
Figures cover the whole SR period

Addressing Government and Societal Priorities

- Programmes will be developed with DSIT and other government departments, universities, researchers, innovators, investors and businesses, and will use the full capabilities of UKRI's councils and enabling functions.
- At portfolio level, investments will target an average leverage ratio of at least £3 of private investment for every £1 of public investment, with higher ratios when investing to support innovative companies, supporting increasing long-term benefits to society.

UKRI is investing its rising budget through a new, more outcome-focused approach

UK Research and Innovation



Note 1: Total funding levels across the individual lines in the financial year 2025 to 2026 differs from UKRI's total published budget of £8,811 million, as the diagram excludes programmes not directly managed by UKRI, as well as a small proportion of quality-related research funding that has been rephased between financial years (around 3%). This has not been included in order to provide the figure on the same basis as the 2026 to 2027 financial year.

Note 2: 'Other investments' includes administrative support and investment in the transformation of UKRI's systems and processes.

The Science & Technology Facilities Council

Science and Technology Facilities Council

STFC's mission

Our mission:

- Discovering the secrets of the Universe
- Developing advanced technologies
- Solving real world challenges

Our responsibilities:

- Frontier research: particle physics, astronomy, nuclear physics, space science
- Major UK multi-disciplinary facilities
- Stewardship of our R&I campuses
- Governance and operation of UK-funded international facilities

UKRI Science and Technology Facilities Council

We are a **strategic research and innovation organisation** with collaboration and long-term investment at the heart of everything we do.

Our **national laboratories solve national problems**. We employ our science at scale for the benefit of the UK.

Our expertise **trains the future STEM workforce** of the UK, inspiring and engaging the next generation.

From critical technologies to cultural heritage, **we create a bright future** while shining a light on the richness of our past.

We discover what's possible.

UKRI Science and Technology Facilities Council

STFC in brief

~ £1.0 billion

£180M **grant funding** for UK particle physics and astronomy

£500M building and operating some of the UK's largest **national facilities**

£330M supporting **international collaboration** in large research infrastructures

£11M growing STFC's vibrant **research and innovation campuses**

UKRI Science and Technology Facilities Council

£180 million supporting UK particle physics and astronomy research

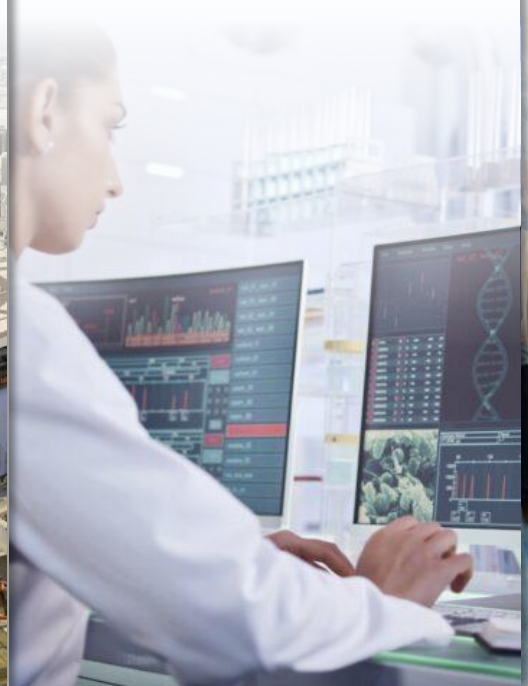
- Nearly 3,000 researchers
- 900 PhD students
- > 100 research organisations
- Largest research projects (e.g. LHC, ELT)

£500 million operating facilities and national laboratories

- 3,000 staff across six UK sites (>80% STEM)
- Currently >200 apprentices, >135 graduates and >75 placement students
- 11,000 users annually at our multi-disciplinary facilities

Significant impact investing in innovation

- 60 spin-out companies: attracting £98M investment and creating £230M GVA
- 243 patents and factor eight ROI from our technology innovation programme



£11M accelerating innovation and creating clusters

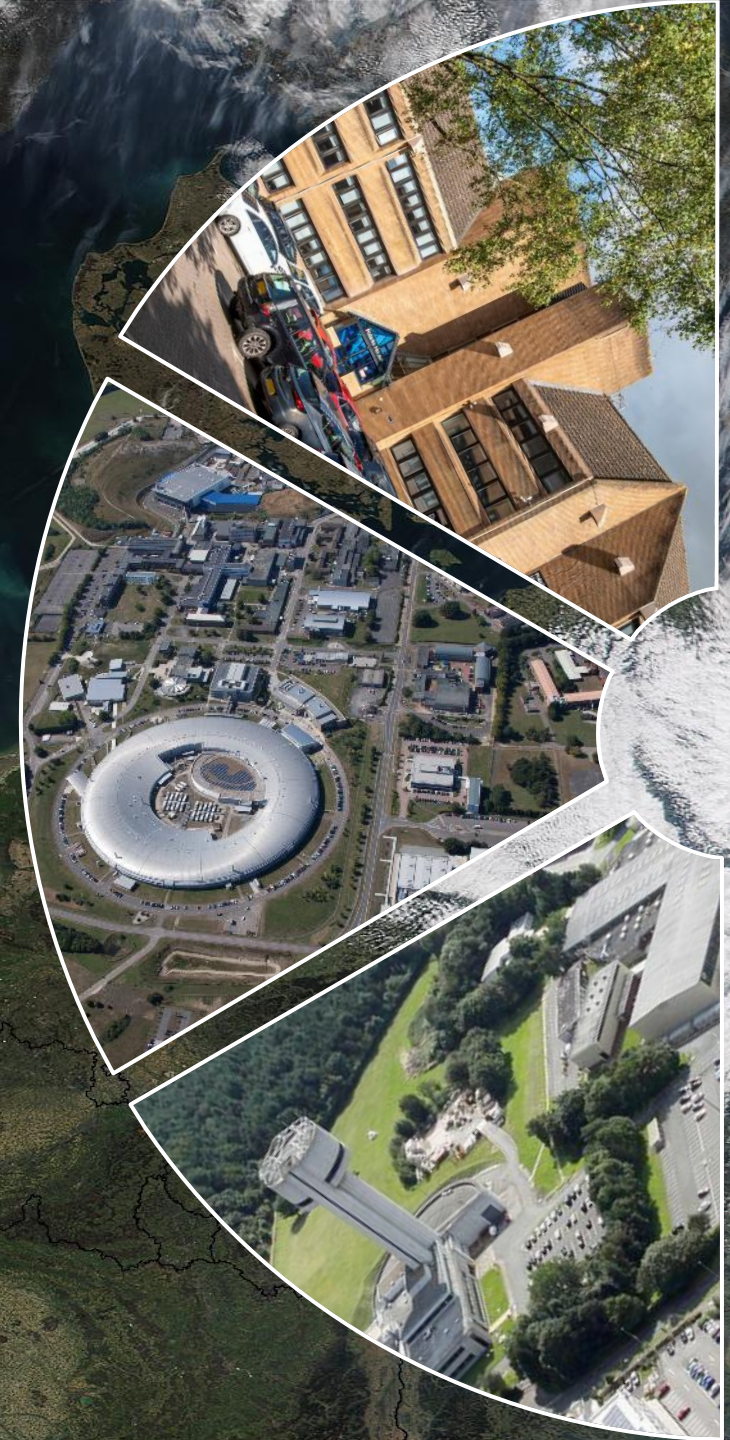
- Two R&I campuses supporting over 8000 jobs in 370 high-tech companies
- Seven business and innovation clusters including Space, Health, Digital, Energy and Quantum

STFC sites across the UK

Rutherford Appleton Laboratory at Harwell

near Didcot, Oxfordshire

- ~2300 STFC staff
- International multidisciplinary research infrastructures and facilities
- Harwell science & innovation campus – 7500+ people and 220+ businesses
- Clusters – Space, Energy, Quantum, HealthTec, Defence



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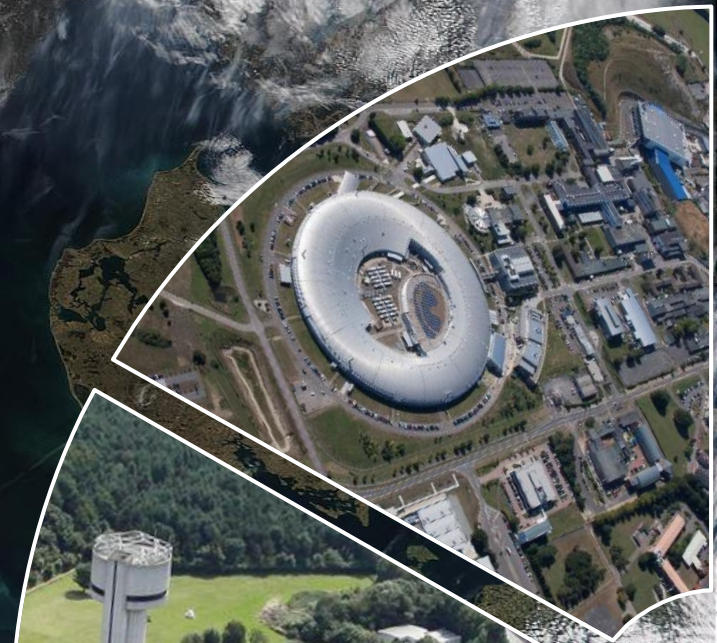
STFC sites across the UK

Daresbury Laboratory

in the Greater Liverpool City Region

- ~700 STFC staff
- Internationally-renowned engineering, cryogenics and e-infrastructure expertise
- SciTech Daresbury campus – 2000+ people and 160+ businesses
- Clusters – Digital, HealthTec, Space



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STFC sites across the UK

UK Astronomy Technology Centre

at the Royal Observatory, Edinburgh

- ~130 STFC staff
- Centre of excellence for the development of scientific instrumentation and facilities for ground- and space-based astronomy
- Higgs Centre for Innovation – £23M investment raised, 26 companies incubated over six years

Science and Technology Facilities Council

STFC sites across the UK

Boulby Underground Laboratory

Saltburn-by-the-Sea, North Yorkshire

- ~15 STFC staff
- UK's deep underground science laboratory
- 1.1km underground in a working polyhalite mine
- A unique environment for multidisciplinary science: almost completely free from background radiation

UKRI Science and Technology Facilities Council

STFC sites across the UK

Chilbolton Observatory

Hampshire

- ~5 STFC staff
- Meteorological measurements
- Radio and microwave propagation experiments
- Satellite tracking and communication

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STFC sites across the UK

Polaris House

Swindon, Wiltshire

- ~110 STFC staff
- UKRI Head Office
- Home to STFC Programmes Directorate and Strategy, Planning & Communications functions
- Management of >£585M STFC budget

UKRI Science and Technology Facilities Council

STFC sites across the UK

Rutherford Appleton Laboratory at Harwell

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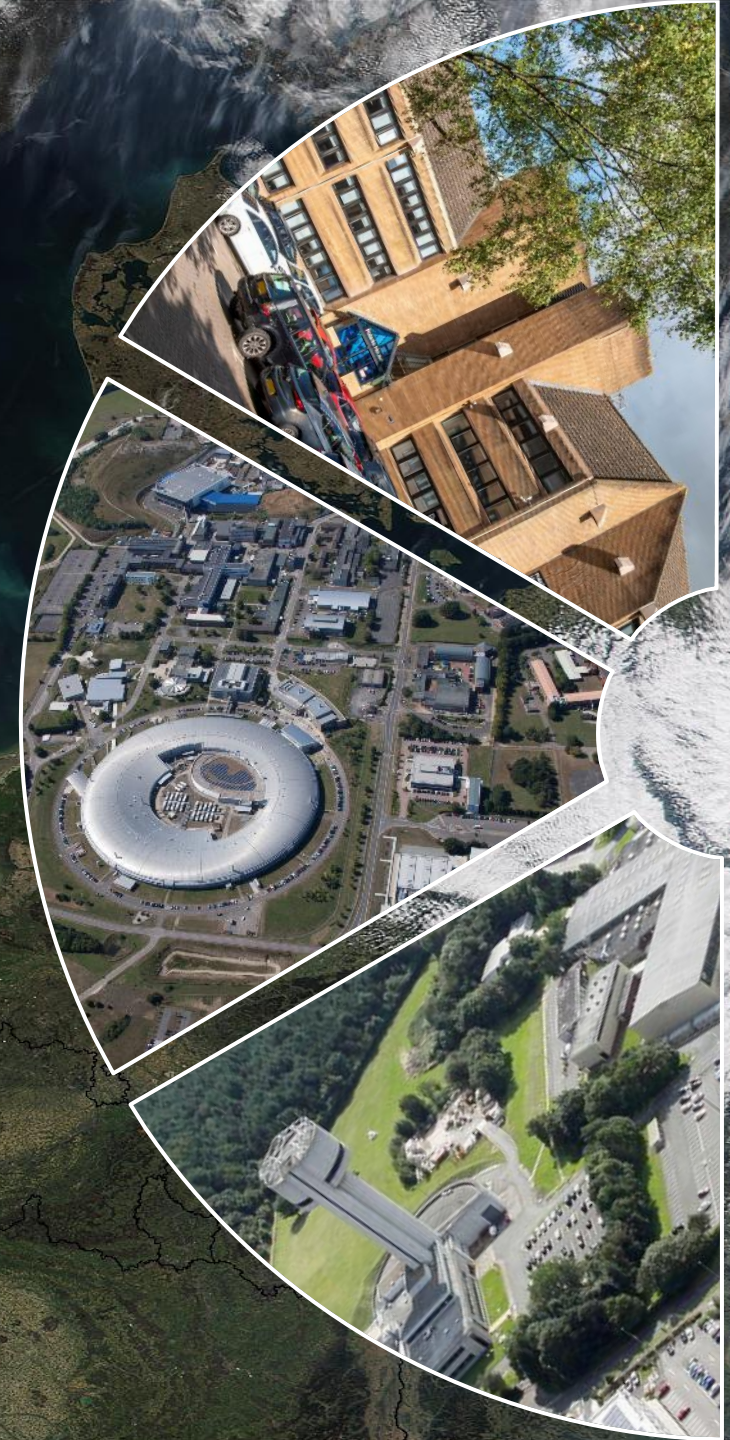

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Facilities Council

Diamond Light Source

The UK's national synchrotron

- 'Third generation' light source
- Fourth generation upgrade now funded and ongoing (70x flux)

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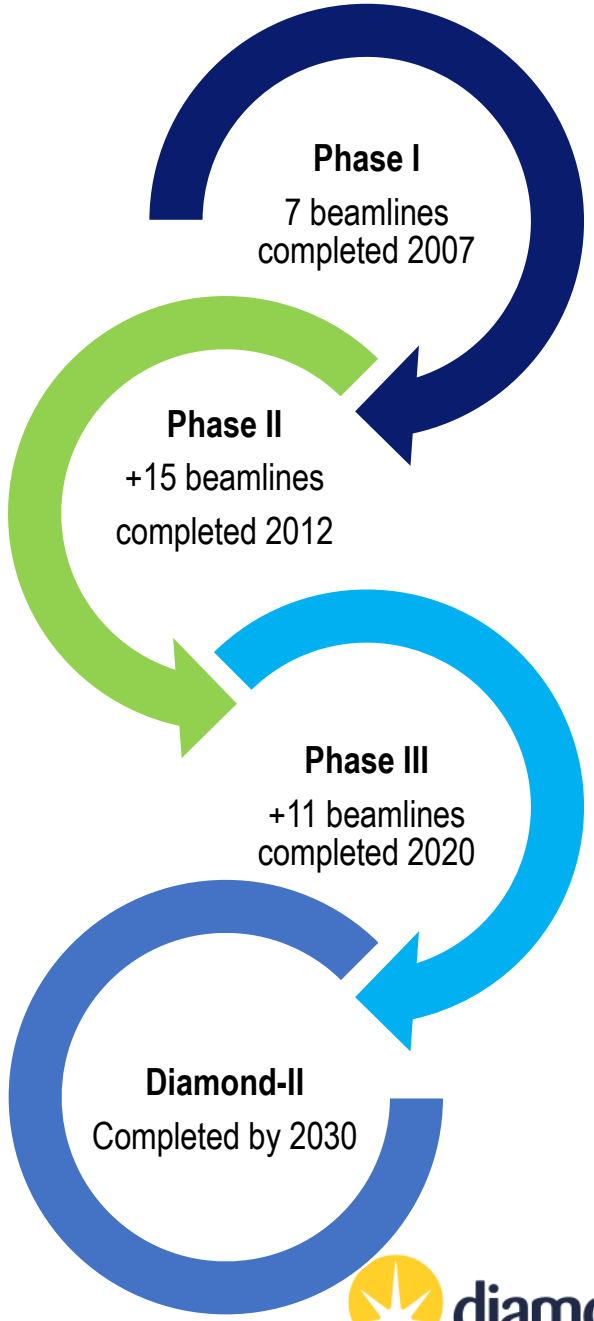
Diamond Light Source

- Largest scientific facility to be built in the UK over last 40 years
- Diamond is a private – not for profit – company, formed as a joint venture between UKRI's STFC (86%) and Wellcome (14%)
- 14,000 interested researchers with over 750 staff on the ground +140 more on Diamond-II and grants
- 50%-50% split of output for Life – Physical Sciences
- Strong industrial program in Life and Physical Sciences



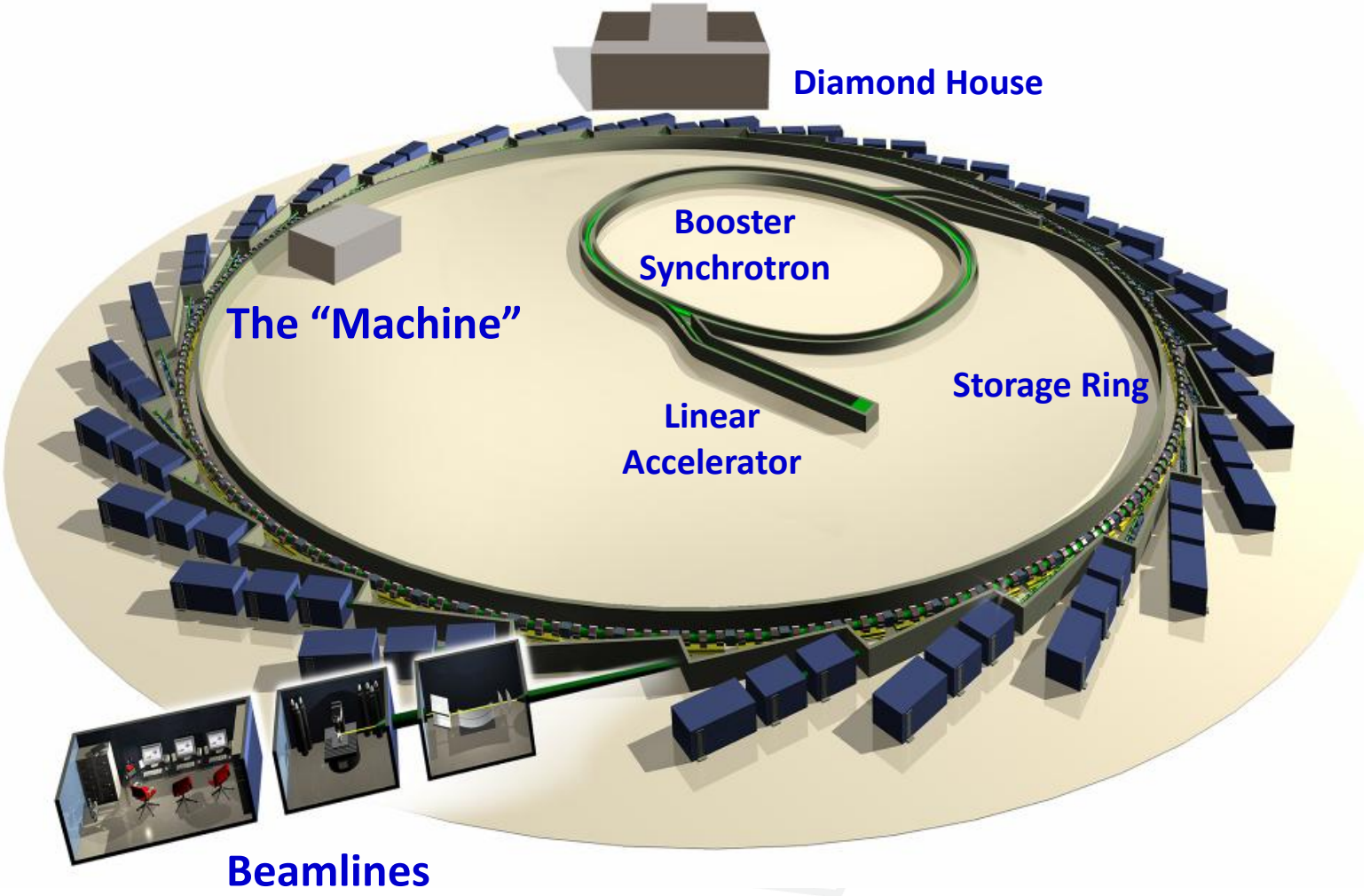
Science and Technology Facilities Council

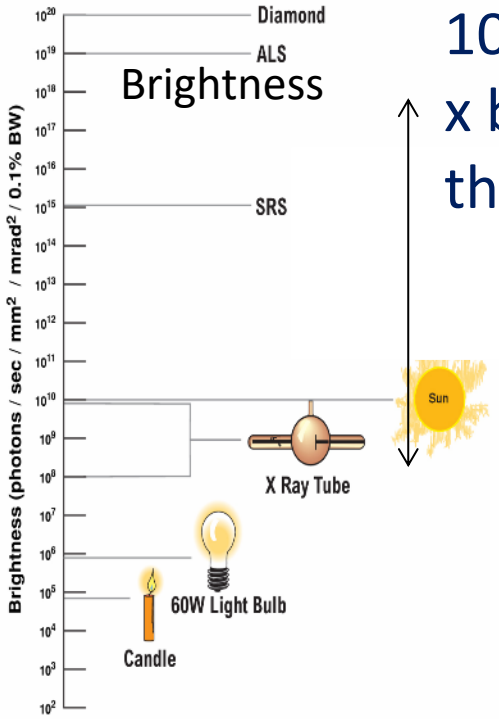
wellcome

All areas of science covered except military and tobacco research

diamond

The Diamond Facility

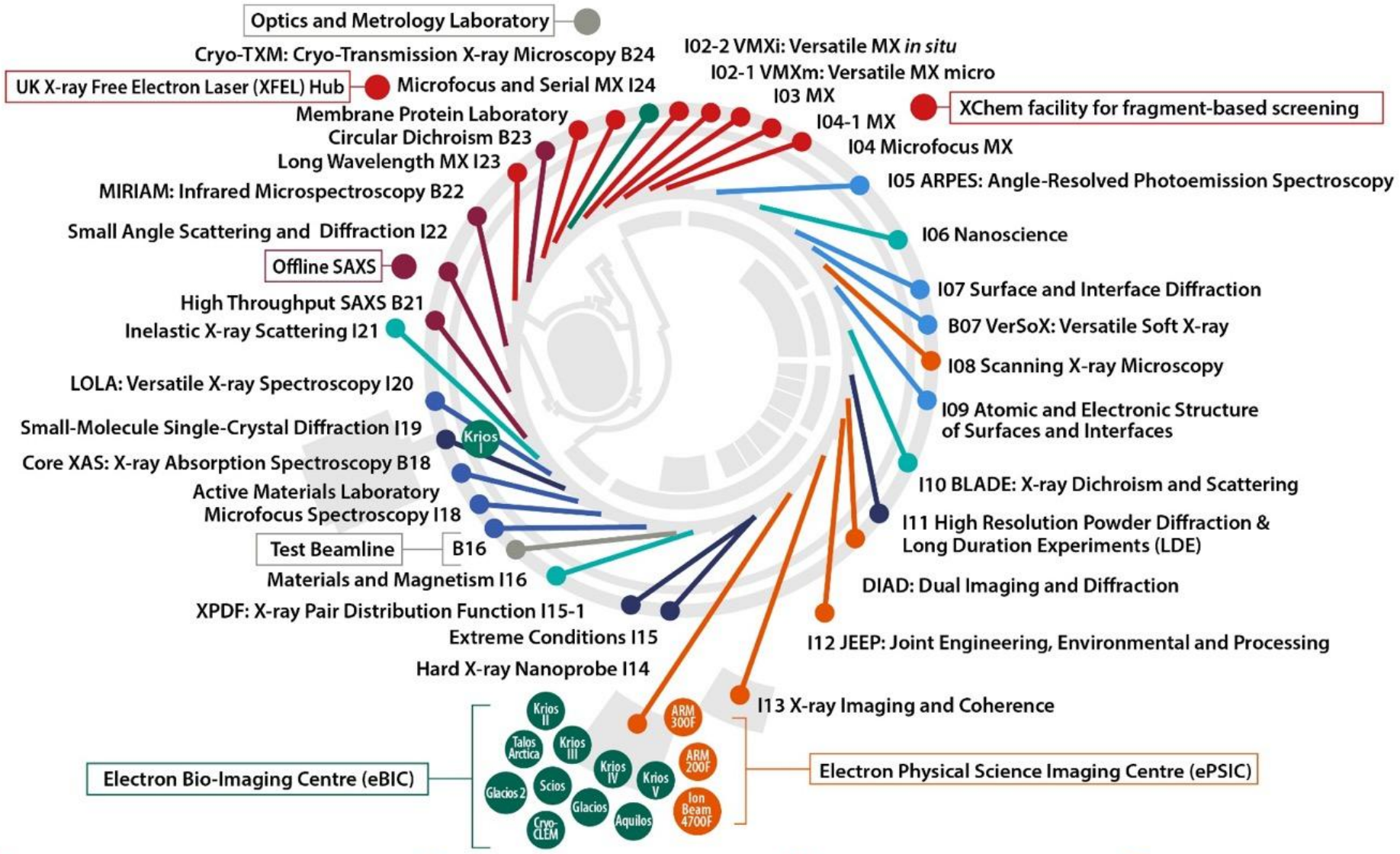




10,000,000,000 x brighter than the sun !

diamond

Instruments/beamlines



RAL Space

The UK's national laboratory for advancing the understanding of space and our environment

- Over fifty years of heritage, delivering over 210 space missions

Science and Technology Facilities Council

National Satellite Test Facility

The UK's sovereign satellite test capability

- Civilian and military usage

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National Quantum Computing Centre

The UK's national laboratory for quantum computing.

- Technology, skills, and industry engagement

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ISIS Neutron and Muon Spallation Source

Innovative development and exploitation of neutron and muon sources, science, instrumentation and technology

- World-leading neutron source
- Major upgrade underway – four brand-new beam lines, and five beam line upgrades

Science and Technology Facilities Council

The ISIS Pulsed Neutron and Muon Source

- 800 MeV Proton Synchrotron
- Two Target Stations
- 30 Neutron Instruments
- 5 Muon Instruments

In a typical year...

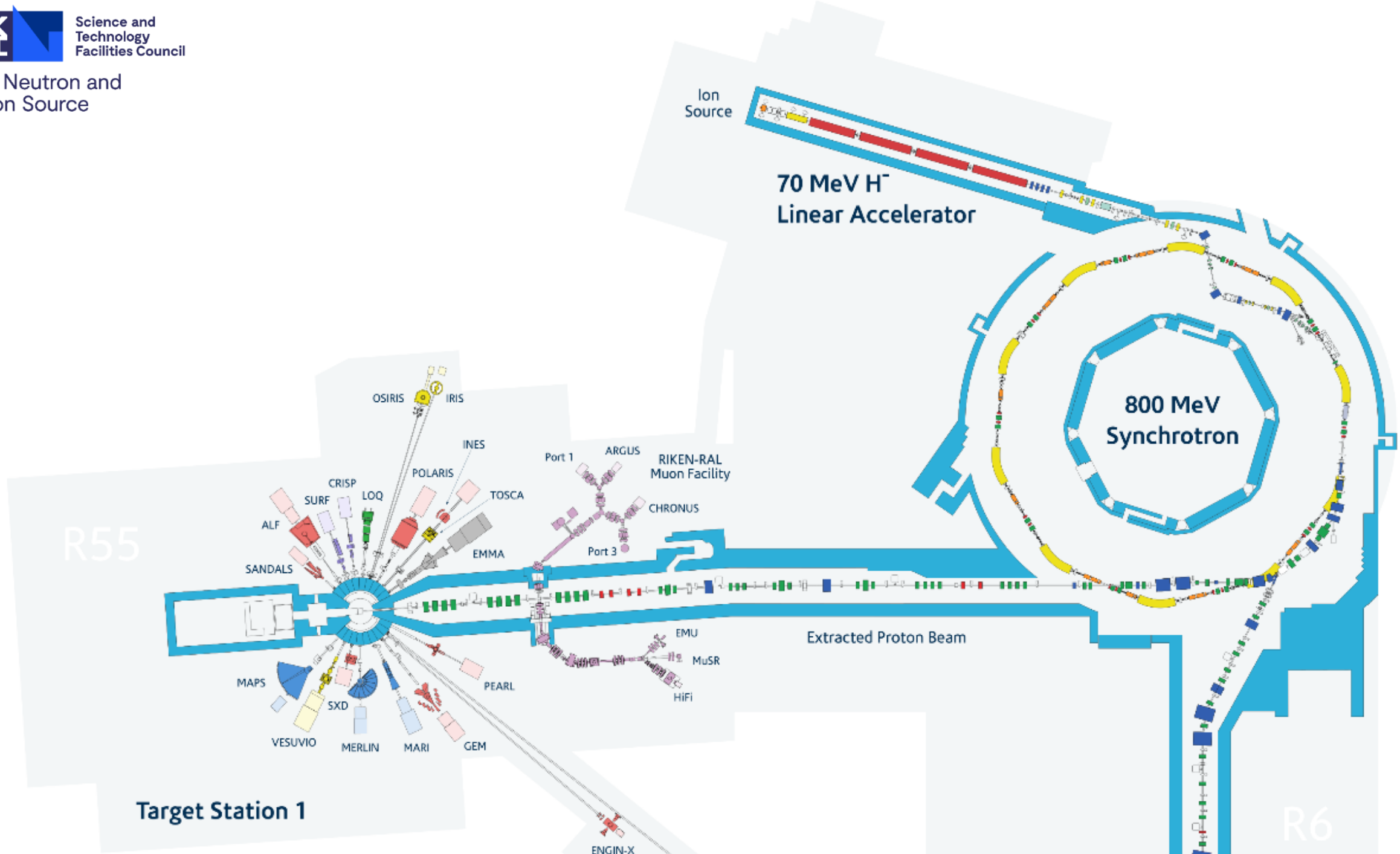
1200 experiments *by* **3000** users *from* **30** countries *generating* **600** publications

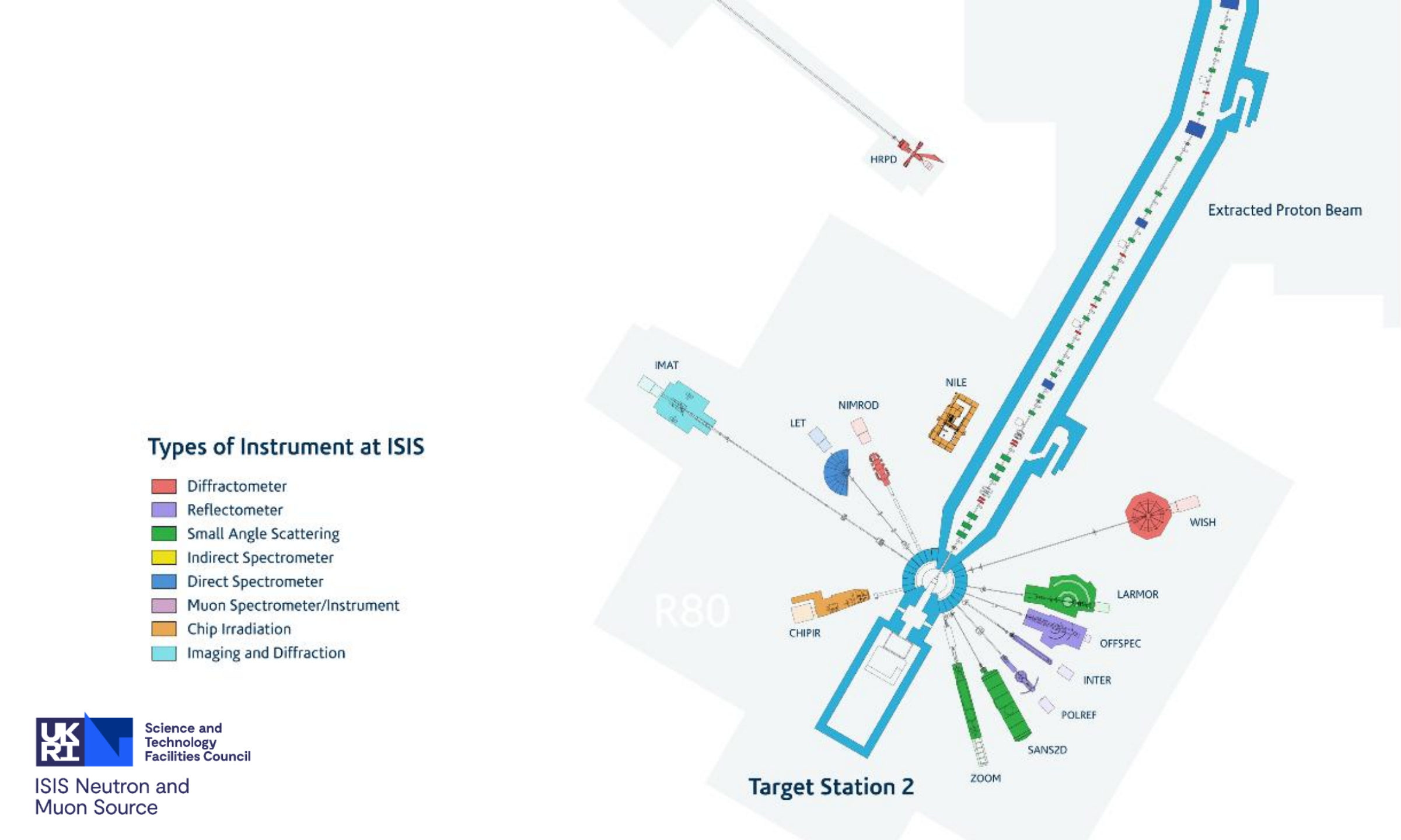
Science and Technology Facilities Council

ISIS Neutron and Muon Source

Science and Technology Facilities Council

ISIS Neutron and Muon Source





Types of Instrument at ISIS

- Diffractometer
- Reflectometer
- Small Angle Scattering
- Indirect Spectrometer
- Direct Spectrometer
- Muon Spectrometer/Instrument
- Chip Irradiation
- Imaging and Diffraction

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ISIS Neutron and Muon Source

ISIS Science

- Physics
- Chemistry
- Earth Science
- Soft Matter
- Biological Science
- Medicine
- Cultural Heritage
- Materials Science
- Engineering
- Space Science
- Environmental Science

Energy & Clean Growth

Life Sciences & Healthcare

Advanced Manufacturing & Materials

Quantum Science & Materials

Science and Technology Facilities Council

ISIS Neutron and Muon Source

Extreme Photonics Application Centre

Developing novel laser-based accelerators and particle sources with unique properties and applications

- Part of the Central Laser Facility
- High rep-rate dipole laser technology
- Joint UKRI/MOD investment

Science and Technology Facilities Council

Central Laser Facility

One of the world's leading, state-of-the-art laser facilities for multidisciplinary science

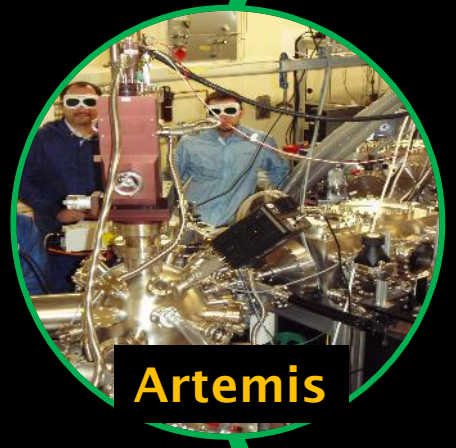
- High-power laser facilities (high energy physics) and bespoke suite of smaller-scale lasers (life sciences, catalysis etc.)
- Vulcan 20-20 upgrade in progress

Science and Technology Facilities Council

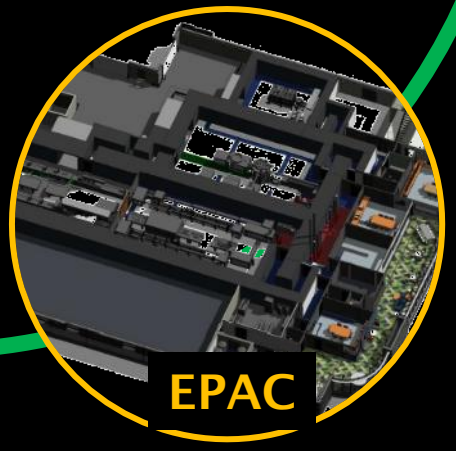
The UK's Central Laser Facility

Nanoscale Imaging

Extreme Conditions



Functional Dynamics



Application of Extreme Conditions

Science and Technology Facilities Co

STFC is global

We have deep international connections

- Most of our research involves international collaborations or impacts
- Long-established partnerships across Europe and around the world - 35 countries
- Our international programme is delivered in close collaboration with government departments
- We form part of the governance of major international facilities including:
  - CERN – Geneva
  - SKA – UK, Australia & Africa
  - ESO – Chile
  - ESS – Sweden

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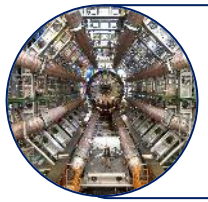
UK international subscriptions

Science and Technology Facilities Council

UK international subscriptions

European Molecular Biology Laboratory (EMBL)
Europe's leading life sciences laboratory
Germany/Spain/United Kingdom/Italy/France



European Organisation for Nuclear Research (CERN)
European laboratory for particle physics research, home to the Large Hadron Collider
Switzerland

European Southern Observatory (ESO)
A suite of telescopes for world-class astronomy in the Chilean Atacama Desert
Chile/Germany (HQ)

European Spallation Source (ESS)
The world's most powerful pulsed neutron source, with attendant data centre
Sweden/Denmark

Under construction

European X-Ray Free Electron Laser (European XFEL)
Ultra-short and intense X-rays for multi-disciplinary applications
Germany

Institut Laue-Langevin (ILL)
World-leading neutron reactor facility
France

Facility for Antiproton and Ion Research (FAIR)
A unique collection of high-energy and high-intensity ion and antiproton sources
Germany

Under construction

European Synchrotron Radiation Facility (ESRF)
High-energy synchrotron light source
France

Square Kilometre Array Observatory (SKAO)
The world's largest radio astronomy facility, operating across two sites
Australia/South Africa/United Kingdom (HQ)

Under construction

UKRI Science and Technology Facilities Council


Science and
Technology
Facilities Council
Integrated Portfolio
Management
Science and
Technology
Facilities Council
HARWELL

Principles

- STFC facilities provide critical and unique and/or world-leading under-pinning capability to UK research & innovation.
- Complementarity is a great asset
- The benefits extend beyond research collaboration
- Co-location reaps many rewards

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Facility access

- Free at the point to access
  - Provides low friction access to facilities promoting agility, collaboration and innovation.
  - Some stakeholders are less invested
- Industry access
  - Collaboration with HEIs – free.
  - Proprietary facility time – cost-recovery but with flexible access routes
- International Partnership
  - Investment in infrastructure.
  - Access
  - Highly effective at promoting scientific and technical collaboration

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

UK industrial liaison

Big science is a driver for innovation and growth

- STFC's industrial liaison team works to **maximise the value that UK industry gains** through membership of our international research infrastructures
- Our approach is targeted and business-centric
- Since 2021, our industrial liaison team has **doubled the value of UK CERN contracts** from 11M CHF to 23M CHF
- Encapsulated in UK Strategy for Engagement with CERN

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UK industrial liaison impacts

Financial return is not the only impact

- Impacts include: innovation alliances, new skills, university partnerships, international collaborators (commercial and academic), export experience and market profile.
- Partnering with UK Government and facilities, STFC develops **pathways to maximise these returns** to UK industry from all research infrastructures.
- These **impact a broad range of markets** such as energy, medical and aerospace.
- Working with partners like UKAEA and UKSA, we seek to **catalyse UK industry supply chains** for key **strategically important technologies**.

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Complementarity & collaboration

UK national facilities are internationally-renowned centres of expertise

- STFC and UKRI maintain a prioritised range of research infrastructures, considering national and international capabilities
- Our national capabilities underpin our engagement and collaboration with international research infrastructures
- ASTeC and Technology Department play a vital role in development of the ESS, recently meeting a major ESS milestone in a first for the UK.
- Successful qualification and provision of 84 superconducting cavities for ESS – a project initiated in 2016 with £30M funding.

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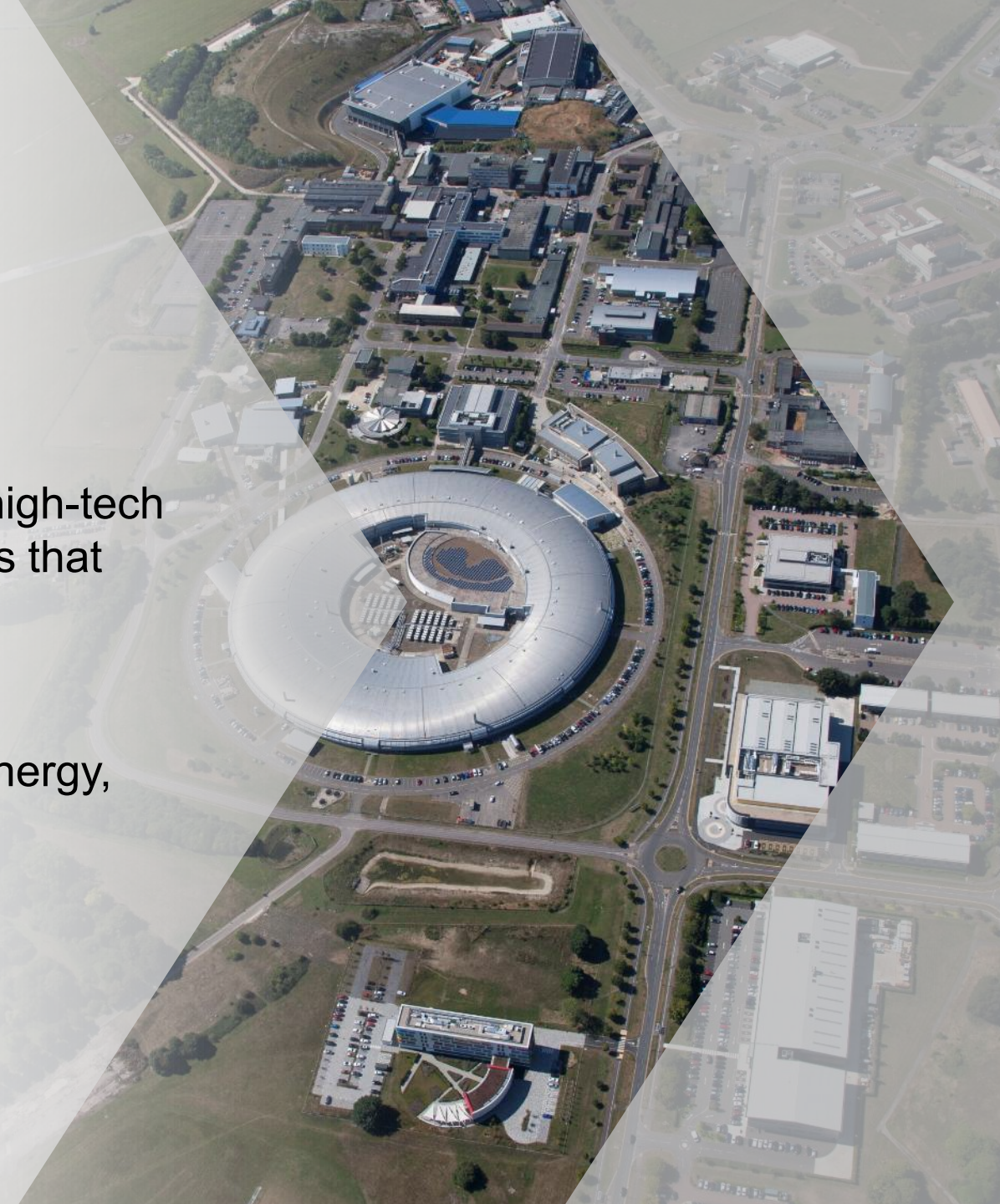
Exploiting co-location

Research & innovation campuses

Driving **innovation-led growth and job creation** in high-tech businesses, while enabling the operation of campuses that support world-class UKRI facilities.

Capabilities include:

- Clusters focused on space, health technologies, energy, quantum, digital, materials, and defence
- Estates planning, development and maintenance
- Safety, health and environment
- Provision and support for digital infrastructure



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Science & Innovation Campus

>220 organisations

>7500 people

>£1.43Bn IPOs & investment raised

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UK Atomic Energy Authority

Brookfield

- 700-acre site
- 220+ organisations
- 7500+ people
- 60+ nationalities represented

- Highly connected: 70% of organisations collaborated with another business or facility

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- Supporting ‘grow-on’ and scale-up businesses: over £1.43Bn investment raised & IPOs

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- Incubating early-stage businesses: ESA BIC UK has over 92% business survival rate, incubate and alumni companies generate ~£300M GVA annually

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- Driving economic growth: over 63% of organisations export products or services

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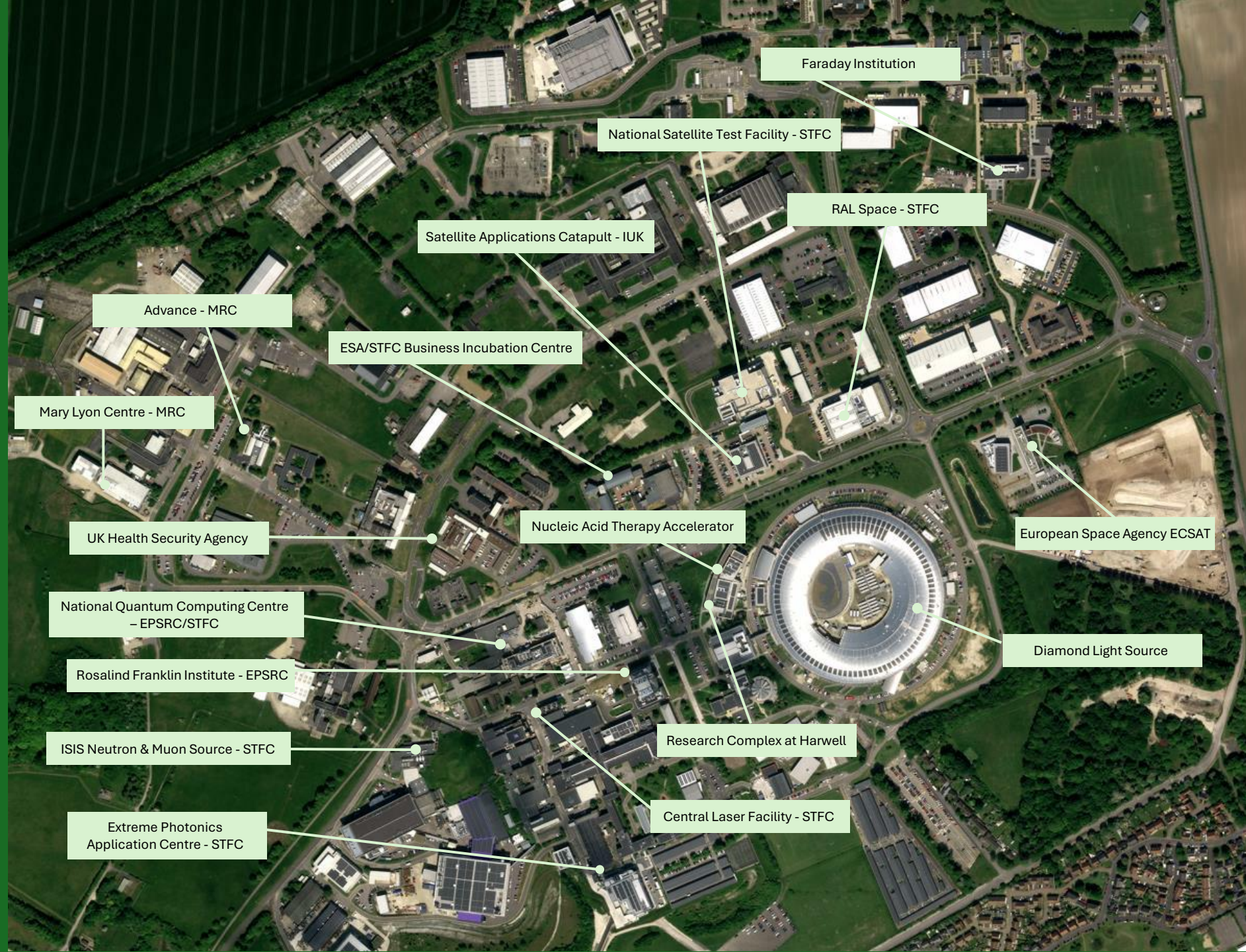

A unique environment

- Co-located large-scale multidisciplinary facilities
- Technology, engineering, and digital expertise
- Embedded innovation and business incubation
- Proactive collaborative networking

Spotlight on: Harwell Space Cluster

Centred around RAL Space and the National Satellite Test Facility (NSTF), the Harwell Space Cluster contains over 105 UK space organisations, employing over 1400 people. The cluster is at the heart of the UK space industry, which contributes £5.7 billion to UK GDP.

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Sci-Tech

DARESBURY

>160 organisations

>2000 people

10x lower company failure rate than UK average

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Strategic Planning and Priority Setting

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A changing environment

- Increased focus on government and societal priorities
- Changing user communities
- A changing international research landscape

Curiosity-driven, foundational research
Strategic government and societal priorities
Helping innovative companies
Enabling and strengthening UK R&D

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A changing environment

- Responsive to user programmes

- Focus on academia
- Reliance on core funding

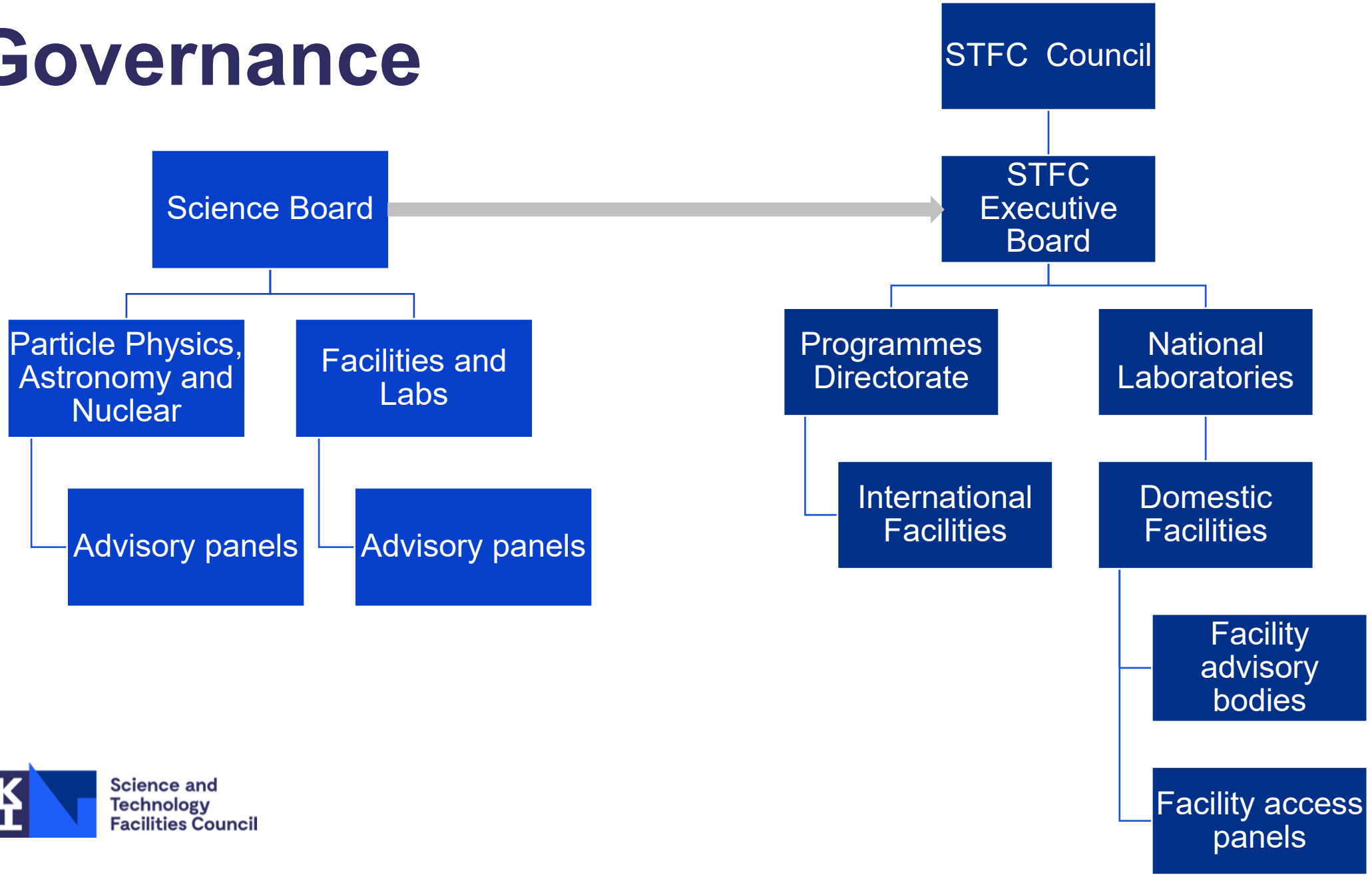
- Proactive in setting areas of focus aligned to HMG priorities
- Broader range of users
- Addressing a range of funding sources
- Long-term strategic partnerships
- Longer-term planning
- Portfolio approach

UKRI Science and Technology Facilities Council

Governance Framework

Science and Technology Facilities Council

Governance



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Major Infrastructure Investment

- Bids typically originate within Councils
- Prioritisation at UKRI level
  - Infrastructure Committee
  - Informed by a Facilities Strategic Advisory Group and an advisory working group
- Proposals will follow a Government Gateway process.

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International facilities

- Joint governance between STFC and DSIT
- Joint representation on facility councils etc..

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ISIS Neutron and Muon Source and the UK-Canada partnership

Science and Technology Facilities Council

ISIS Neutron and Muon Source

ISIS – Canada partnership: pilot project

MOA FOR ISIS – NEUTRONS CANADA COLLABORATION

supported by

THE UK INTERNATIONAL SCIENCE PARTNERSHIPS FUND

Science and Technology Facilities Council | ISIS Neutron and Muon Source

About | For Users | For Industry | Science | Instruments | Technology | Beam Status | News

New partnership will expand Canadian access to ISIS Neutron and Muon Source 27 Sep 2023

A new collaborative agreement between ISIS Neutron and Muon Source and Neutrons Canada will open doors for the Canadian research community by providing enhanced access to UK neutron infrastructure.

Canadian researchers have been without access to neutron beams since 2018, when the National Research Univers
agreement with a foreign neutr
expired.

Under the new collaboration ag
proposals from Canadian resea
and up to March 2025. ISIS wil
preferential access. Funding fo

"Forging partnerships with high
Canadian capacity for material
will collaborate with ISIS on ac
term scientific partnership betw

"We welcome Canadian resear
have been pioneers in the tech
spectroscopy to the later indus
exchanges that will benefit bot

Looking ahead, Neutrons Cana
proposals from Canadian resea
the coming decade.

"This agreement with ISIS is N
leadership shown by Professor
benefit researchers all over Ca

Canadians who wish to take ac

Science and Technology Facilities Council | ISIS Neutron and Muon Source

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Canadian Access to ISIS

Support for experiments from Canadian researchers at ISIS

The UK International Science Partnerships Fund (ISPF) is providing funds to enable the development of Canadian use of ISIS and to foster the collaboration between ISIS and Canadian researchers. This funding, for the period 2023-2025, will support Canadian PI experiments at ISIS and a workshop to promote collaboration and partnerships between ISIS and Canada. A new collaboration agreement between ISIS and Neutrons Canada has been signed to support this programme.

Proposals for ISIS neutron beamtime are welcome from Canadian researchers, initially for experiments to be run by 31 March 2024. Funding is available for around 5 experiments, enabling travel and subsistence costs for up to two Canadian researchers to come to ISIS per experiment. Proposals should be submitted through the "Canadian Access" route in the ISIS online proposal system. Researchers are encouraged to contact an ISIS instrument scientist in advance of proposal submission, to discuss technical aspects of a proposal and beamtime availability before March 2024. In the event of oversubscription, preference will be given to users who are new to using neutrons or the ISIS facility.

A further 12 Canadian experiments will be supported to be run between 1 April 2024 and 31 March 2025. The ISIS online proposal system recently accepted the first round of proposal submissions. A second call will be in spring 2024.

For further details, please contact Philip King at ISIS.

Neutrons Canada

News

New partnership will expand Canadian access to ISIS Neutron and Muon Source

PUBLISHED ON SEPTEMBER 28, 2023

A new collaborative agreement between ISIS Neutron and Muon Source and Neutrons Canada will open doors for the Canadian research community by providing enhanced access to UK neutron infrastructure.

Mario Campana (third from left), a scientist at the ISIS Neutron and Muon Source, meets with UWindsor students Omotayo Gbadamosi, Maks Dziura, and Stuart Castillo at its facility in Oxfordshire, U.K.

Scientists working to secure access to research technology

Nov 6th, 2023

Drew Marquardt is travelling around the world trying to get Canadian researchers access to neutron scattering technology.

Neutron beams help analyze materials on the smallest scales to provide information that would be impossible to find out any other way. Canada's last source of neutrons closed in 2018, and since then, Dr. Marquardt — acting head of the Department of Chemistry and Biochemistry — has been rustling up agreements and plans to get Canadian users access to highly coveted facilities.

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ISIS Neutron and Muon Source

University of Windsor

ISIS – Canada partnership: pilot project (2023 – 2025)

- MoU to govern the project between ISIS and Neutrons Canada
- Support for workshop (Hamilton, Ontario) to develop Canadian Neutron Long-Range Plan
- Dedicated proposal route to ISIS created, with scientific review by a Canadian panel
- 30 experiments at ISIS supported
- 52 researcher-visits to ISIS by 41 unique researchers from 13 Canadian institutions
- 26 visitors were PhD / Masters students – good training
- Majority of PIs / visitors were new – strong demand

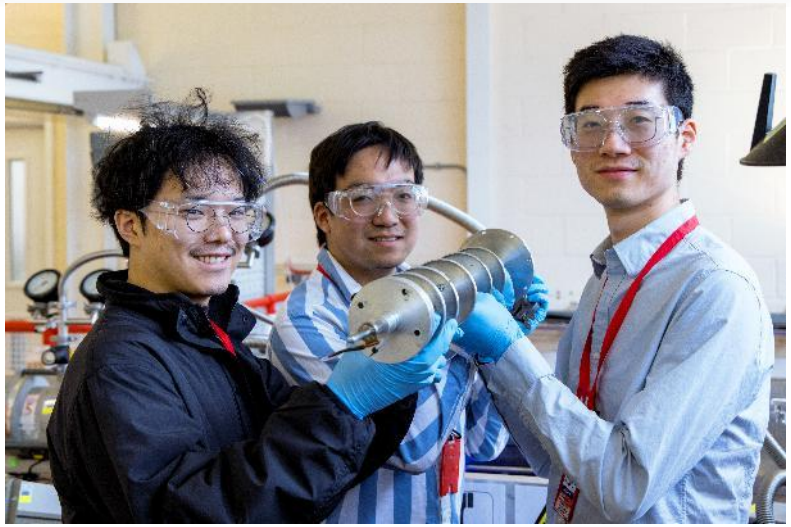
News

ISIS Neutron and Muon Source awards beam time to Canadians

JUNE 27, 2024

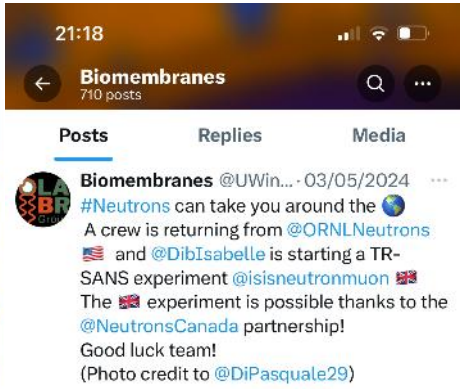
University of Windsor researcher examining the effect of pancratistatin on lipid packing in live cancerous mitochondria.

University of Regina researchers studying histology of blood vessel preservation in Cretaceous dinosaur bone.



Researchers from University of Waterloo investigating lithium-based solid electrolytes

University of Calgary researchers with Fabrizia Foglia (UCL, UK) during studies of organic polymer electrolytes.



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