

# Update from STFC Programmes Directorate

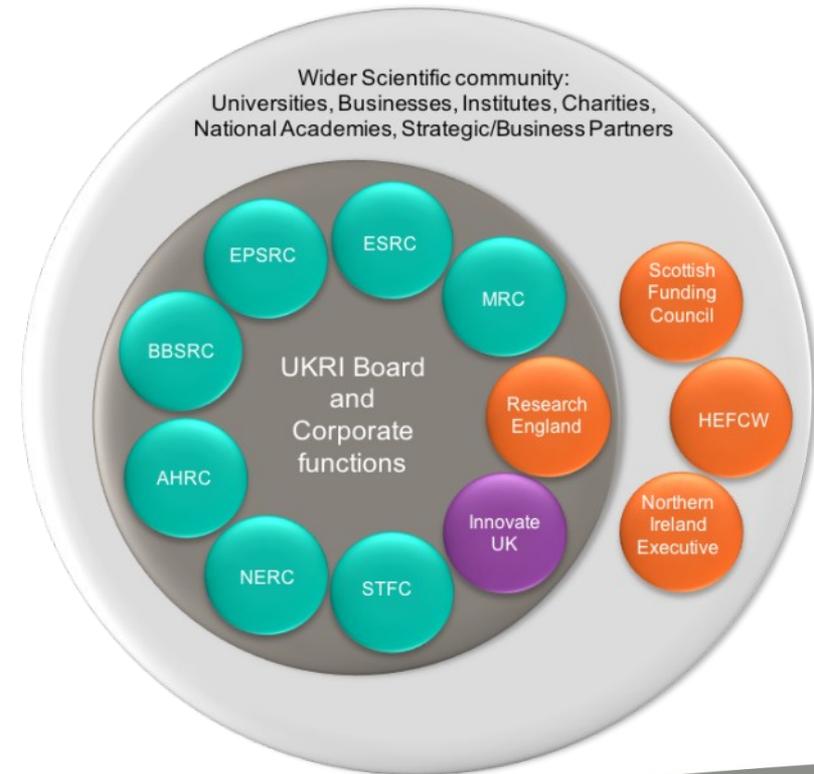
Grahame Blair  
STFC-UKRI

Nuclear Physics Town Meeting  
Warwick  
6<sup>th</sup> January 2019

# UK Research and Innovation

UK Research and Innovation (UKRI) formed on 1 April 2018 as the new funding organisation for research and innovation in the UK

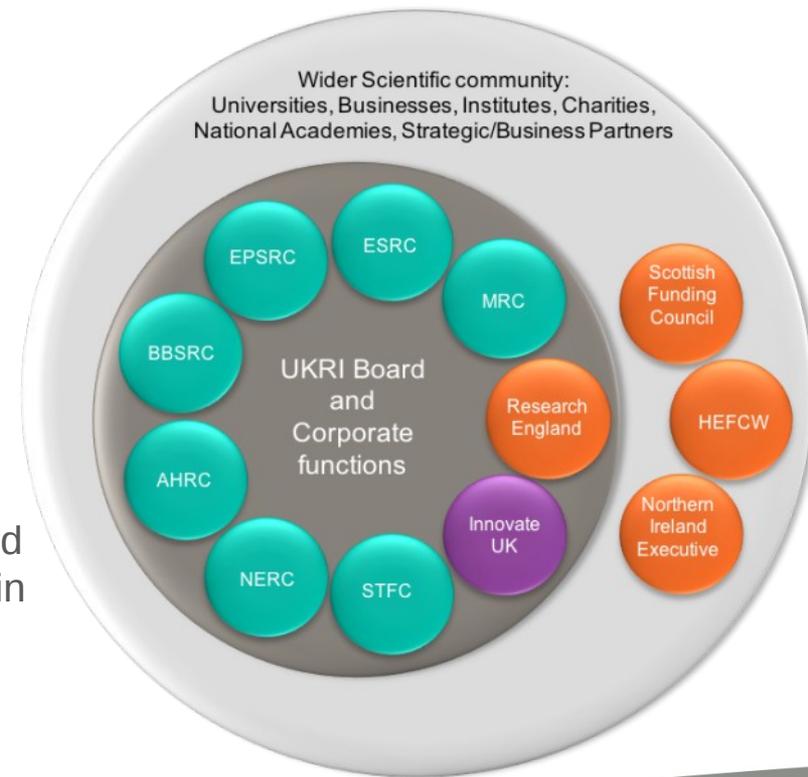
- It brings together the seven UK Research Councils, Innovate UK and a new organisation Research England
- Strengthens the connections between research disciplines
- STFC is part of a larger organisation but will retain much of its identity:
  - Delegated budget remains unchanged
  - Culture already aligned with UKRI



# UK Research and Innovation

Brings many advantages and opportunities:

- Strengthened strategic approach to future challenges
- Unified voice for the UK's research and innovation system
- Improved quality of evidence on the UK's research and innovation landscape
- Amongst the immediate priorities:
  - Engaging stakeholders to create a well informed roadmap to reaching 2.4% of GDP investment in R&D by 2027
- In addition, enables a more coherent cross-discipline approach to R&I



# UKRI Strategic Prospectus

The Vision is:

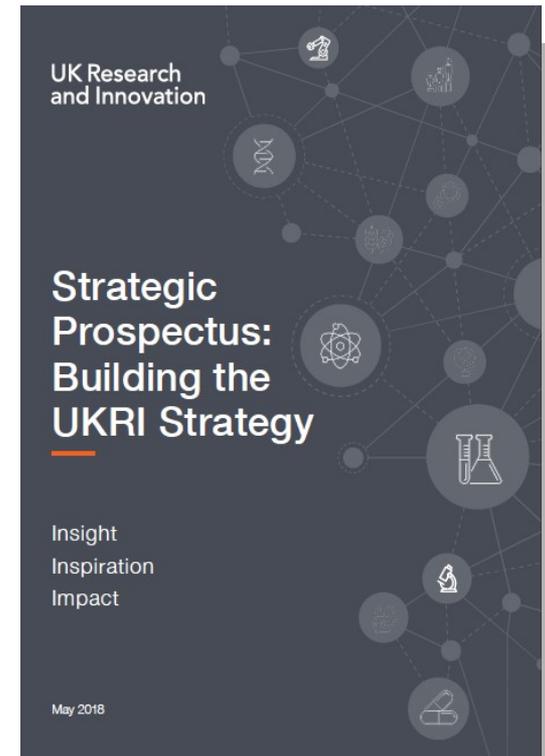
- Benefiting everyone through knowledge, talent and ideas

The Mission is:

- Push the frontiers of human knowledge and understanding
- Deliver economic impact
- Create social and cultural impact by supporting society to become enriched, healthier, more resilient and sustainable

Underpinned by:

- Foundations for excellent research and innovation
- Best environment for research and innovation



# STFC's Priorities

Key priorities for STFC's SDP:

- Fully engage with new frontier science opportunities to drive development of novel technologies
- Use our inspiring high-tech facilities (in UK and overseas) as a training ground for skills in engineering, technology and computing for the UK
- Create a strategic pipeline for developing our world-leading National facilities and to keep them world class
- Grow our stewardship of the R&I ecosystem at the Harwell and DL Campuses
- Strengthen strategic partnerships with other councils, e.g. EPSRC

# STFC: Change and refresh

We're continuing to work through the division of responsibilities within UKRI between the Councils and the central team, and between UKRI and BEIS

- We need to deliver a more efficient process and service for you, for government, for staff and for the public
- The UKRI Transformation Programme is underway, and will lead to internal changes – e.g. HR, Finance already centralised teams, opportunities to reduce red tape etc

STFC also experiencing some change

- Executive Board retirements and departures has allowed a refresh at the top level, including better representation of our lab-based activities
- We're also conducting a targeted review of the Consolidated Grants process

# Equality, Diversity and Inclusion

E,D&I is a very high priority for STFC and UKRI

- Jennifer Rubin (Executive Chair, ESRC) is the UKRI E,D&I champion
- UKRI Board made strong public commitments
- STFC now has a dedicated EDI team and is establishing an high-level Advisory Body chaired by a Council member (Sheila Rowan), and an internal Implementation Group



Physics community has taken some positive steps

- But recent cases demonstrate we cannot be complacent, cannot simply assume we are doing “OK”
- There needs to be an increased focus on E,D&I across all of activities
- In PD we have already invited consultants to look at our processes and all staff are undergoing unconscious bias training.

# UKRI Funding Opportunities

Autumn Statement 2016 uplift to research and innovation budget:

- Industrial Strategy Challenge Fund (ISCF) – Wave 2 challenges underway, launch of Wave 3 expected
- Global Challenges Research Fund (GCRF) – large amounts still unallocated
- Strategic Priorities Fund (SPF) – £560 million over three years, bids from UKRI Councils and BEIS PSREs
- Talent Fund – £300 million over three years
- Commercialisation Fund – £108 million
- Strength in Places Fund – £115 million over three years for collaborative bids between research organisations and business to support regional growth
- Fund for International Collaboration (FIC) – £110 million over three years

# STFC and the new funds

The STFC community was not as successful with round one of GCRF as hoped:

- We accepted the need to improve our bids, and for closer working with other councils, departments and industry

In the last year there has been significant progress:

- Received funding for National Satellite Test Facility at Harwell from ISCF
- Now expecting several major projects to be confirmed in coming weeks from SPF and FIC

Recently (since April) adopted a new approach:

- Target highest-priority ideas from STFC's communities
- Our job is to align these highest priority ideas with the new funding opportunities

# New ideas and reviews of old

The Developing a World Class Programme exercise in summer has provided 51 “proposals” now reviewed by STFC Council, Executive Board and Science Board

- It wasn't a prioritisation, but instead the collection of new ideas with which to bid for the new UKRI-wide funding streams – the list is on our website
- The list is already being used to help inform bids for Fund for International Collaboration, Strategic Priorities Fund.

We continue our regular reviews of our programmes

- Completing programme evaluations of computing, nuclear physics and particle astrophysics

# PD Update 1

- Tony Medland retired in December 2018.
- Restructuring of Directorate:
  - Particle Physics, Accelerator Physics and CERN – [Charlotte Jamieson](#), with Sarah Verth and team.
  - Nuclear Physics, Particle Astrophysics, Computing – [TBA](#), with Jenny Hiscock and team.
  - Skills and Programme Delivery – new division merging previous education and skills with public engagement, together with grants delivery.
- Ongoing process of “Transformation” within UKRI.
- Opportunities call in 2018, plus a capital call.
- New opportunities of Strategic Priorities Fund, awaiting Outcome – PD submitted in areas of:
  - [Sensors for Science and Society](#)
  - [Quantum Sensors for Fundamental Physics](#)

# PD Update 2

- About to renew MoU with ECT\* with contribution at current level for 2019-2021.
- NP proposals have been evaluated by Science Board, with the following invited to submit full proposals
  - The Advanced Charged Particle Array at ELI-NP (ACPA@ELI)
  - AGATA – Precision Spectroscopy of Exotic Nuclei'
- DiRAC Computing – Efforts continue to find funding.
  - core component, together with GridPP, of National e-Infrastructure provision

# PD Update 3

- The **2018 Particle Physics Experiment** consolidated grants round, £60M~ for 2019-2022 now awaiting final approval
  - Huge funding pressures due to continued flat cash, magnified by changes in TRAC methodology, and LHC commitments
  - Resulting programme smaller but relatively balanced between groups and experiments. Carries significant risks to UK deliverables and physics
  - Mitigation being finalised by STFC but outcome will be sub-optimal
- **New major project investments:**
  - ALIGO+ (£11M~ over 4 years) – first PPAN project to secure UKRI directed funds
  - ATLAS Phase 2 Upgrade construction (£32M~ over 6 years) approved and underway
  - CMS Phase 2 Upgrade construction (£11M~ over 5 years) approved and grants being prepared for announcement

# NP Programme Evaluation

- NP Evaluation will feed into next Balance of Programme (BoP2) exercise in 2019/20.
- Has considered current and future balance of the programme.
- Inter-dependencies between areas to be managed (e.g. NP and PP).
- Each review will explore the consequence of  $\pm 10\%$  funding over the next 5 years.
- Impact potential will be important.
- Preparations for next Spending Review are in progress.

# Review of Consolidated Grants

- CG Review is underway, due to report in early 2019.
  - Chaired by Alison Davenport (former chair of Science Board).
- Will consider options for grants delivery mechanisms for PP Experiment and Theory, Astronomy and Nuclear Physics.
- Will need to meet the needs of STFC and its communities and offer flexibility to meet the different needs of the programme.
- But should also be administratively straightforward and efficient in line with UKRI processes and TRAC methodology.

# Skills and Engagement

- 11 Ernest Rutherford Fellowships to be awarded in 2019
- 220 students awarded in 2018 on Doctoral Training Partnerships
- Data Intensive Science Studentships – another 27 students awarded to the 8 centres in 2018 plus 22 match funded students
- UKRI Future Leader Fellowships – launched in 2018, 3<sup>rd</sup> round closing date of 2<sup>nd</sup> May for mandatory outline proposals
- Other schemes awarded in 2018 - Innovation Fellowships, Innovation Placements and Alan Turing Artificial Intelligence Students, Industrial CASE students
- Hawking Fellowships – new scheme to be launched in 2019 in the areas of maths, physics and computer sciences, up to 10 per year for the next five years

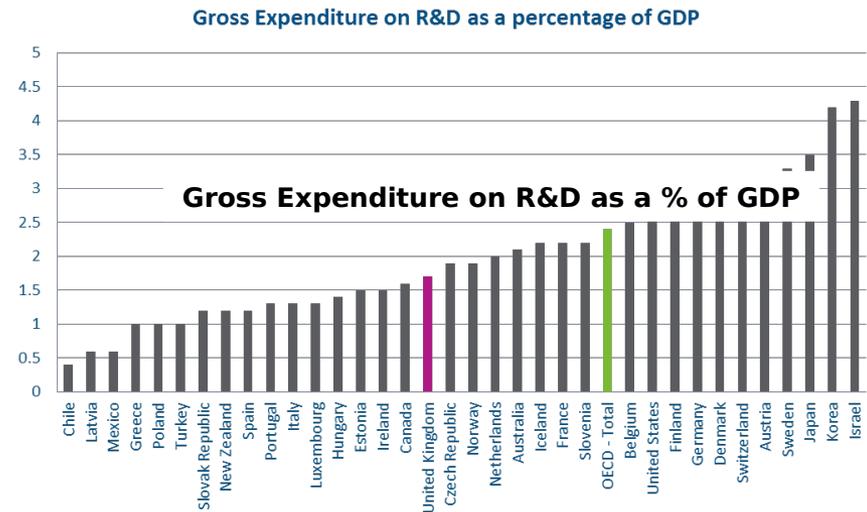
# Skills and Engagement

- Ten summer schools supported in 2018 with over 450 students attending
- Summer school for CDT students held at UCL in July
- CDT event held in Edinburgh for 2018 cohort of students to participate in training sessions including careers sessions with non-academic partners
- Immediate employment of students in diverse sectors of the UK economy including:
  - 53% University,
  - 5% Public Sector
  - 28% Private Sector
  - 10% Teaching, study or self-employed
- Over 70% of those employed in private sector are employed in software development, data analysis, engineering and finance

# Spending Review 2019

Government announced intention to hold a full Spending Review in 2019

- Precise timing not confirmed, nor is the period of time it will cover
- Will be challenging as public finances remain tight, despite the “end of austerity” message
- Brexit remains an unknown
- But ... commitment to raise total investment in research and development to 2.4% of Gross Domestic Product by 2027



Source: OECD STI. Data is the latest available for each country.



# CSR Preparations

UKRI requested scenarios for lower, unchanged and higher budgets to inform their bid to BEIS

- Options for infrastructure projects

STFC also provided an optimum scenario of the benefits from increasing our:

- Core Programme
- Skills and Talent
- Science Estate / "well found" labs
- Innovation
- Technology



Credit: STFC/Martin Malies

# Infrastructure Roadmap

This is an exciting time for UK science:

- Government's Industrial Strategy highlights the importance of Research and Innovation to the UK economy
- Significantly increased investment in Research and Innovation
- Goal of 2.4% of GDP by 2027

Currently developing the “UK Research and Innovation Infrastructure Roadmap”

- Work led by STFC on behalf of UKRI
- First exercise of its type in the UK
- Will provide an evidence base of current research infrastructures and future research needs out to 2030

# Infrastructure Roadmap

## Main Outputs:

- **Interim Reports**
  - Summary of landscape analysis (December)
  - Themes within sectors (planned early 2019)
- **Final Report (May/June 2019) covering**
  - Landscape (what we have got)
  - Future capability needs (what the research and innovation community needs)
  - Options for meeting future needs with narrative
  - **Not** a prioritisation exercise



Factual resource  
that may be  
used to inform  
policy

# Summary

- 2019 will be a challenging year – many uncertainties and changes ahead.
- Hard to plan given potential influences of FX, CSR, ERC.
- PD is evolving to address some of these, including increased emphasis on cross-council opportunities.
- Flat cash continues to bite, with huge opportunity cost to the programme.
- Will need to stay alert to new opportunities.
  
- Any Questions?