



Engineering and
Physical Sciences
Research Council

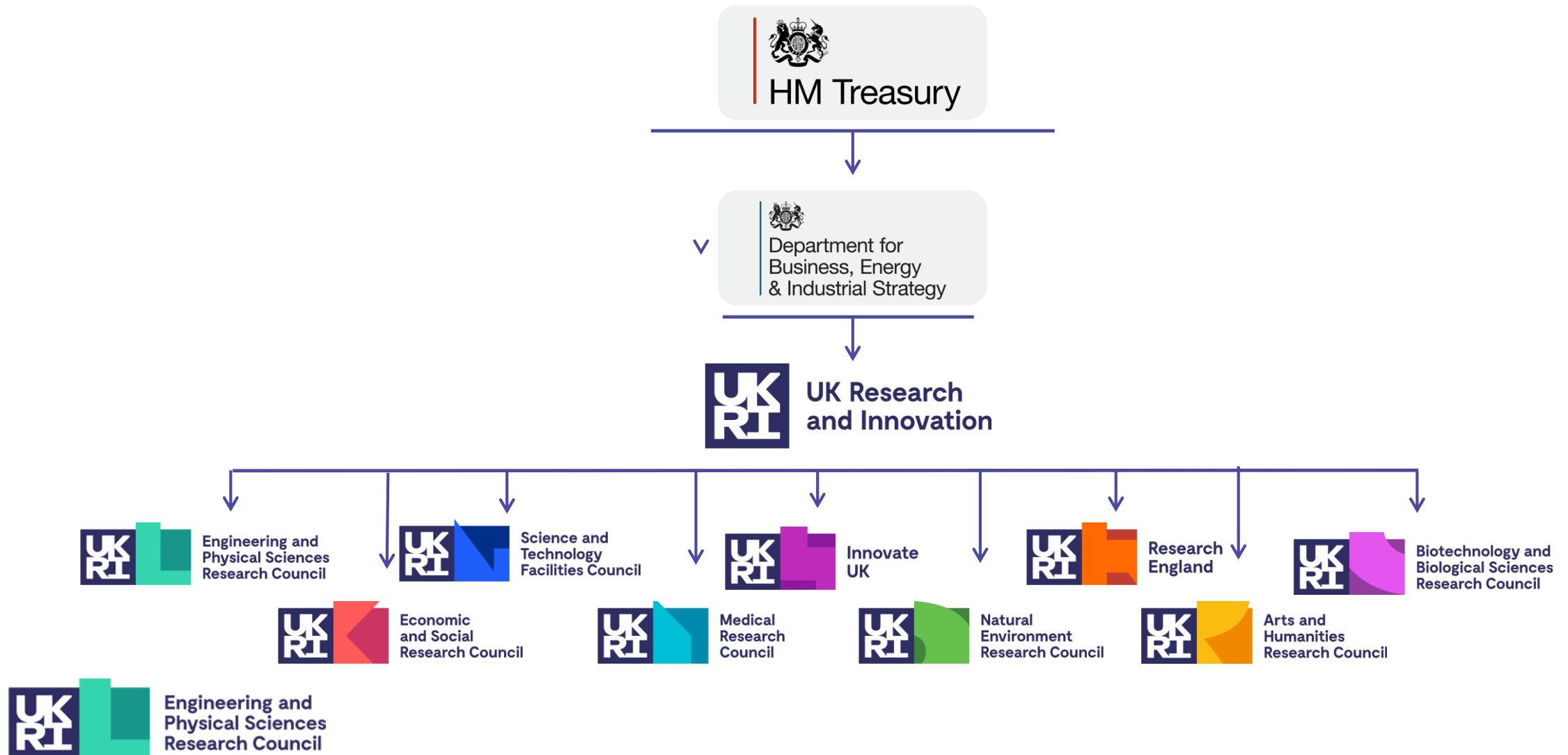
Welcome

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- UKRI Overview
- EPSRC Delivery Plan
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UKRI Structure



UK Research and Innovation

We work with the government to invest over £7 billion a year in research and innovation by partnering with academia and industry to make the impossible, possible. Through the UK's nine leading academic and industrial funding councils, we create **knowledge with impact**.



**UK Research
and Innovation**



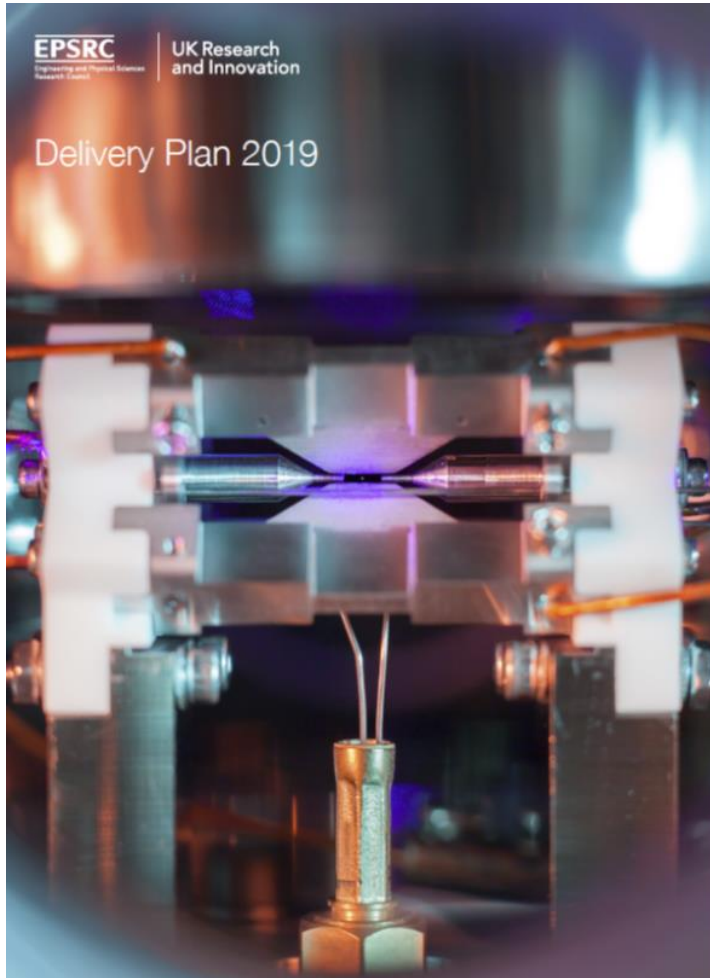
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Our mission



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EPSRC Vision: Delivery Plan 2019



To make the UK recognised as the place where the most creative researchers can deliver **world-leading engineering and physical sciences research**

To work within the research ecosystem of UKRI, the R&D base within business, SMEs, government departments, charitable organisations and international **partnerships** to identify and tackle new research challenges and **deliver societal and economic impact** from our research base

To build on our **strong working partnerships with business** to play a leading role within UKRI, particularly working in **partnership with IUK**, in delivering economic prosperity to the UK (and hence the government's target of 2.4% of GDP invested in R&D by 2027)

Foundations and Distinctiveness

EPSRC has...

- **domain specialism** (from pure maths to manufacturing)
- strong **portfolio knowledge** and **understanding**, rooted in evidence and staff background
- long-standing experience in **business engagement** and partnership
- success in **securing top-down funds**
- deep-rooted **culture of flexibility** and working at pace



How do we Achieve our Vision?

- community **engagement** and **trust**
- the UKRI leadership **recognises our domain knowledge** and sees us as the “go to” Council for all EPS advice and investment
- work effectively with our **community, partners, advisory groups, learned and professional societies and Government** to position our portfolio of funding
- be effective in **articulating our future portfolio needs and directions**
- in communicating, we must be able to **respond at pace** and at the appropriate level for the intended audience



The Priority Framework

Delivering economic impact and social prosperity



Productive
Catalysing growth



Connected
Enhancing future digital technologies



Healthy
Transforming healthcare



Resilient
Ensuring adaptable solutions

Realising the potential of engineering and physical sciences research



Promoting excellence in research



Realising excellence in people



Connecting the research landscape to accelerate impact



Enhancing business engagement

Enabling the engineering and physical sciences to deliver



Managing our portfolio and priorities



Future-proofing state-of-the-art research infrastructure



Accessing talent through equality, diversity and inclusion



Inspiring, informing, and interacting with the public

**Discovery Research
in Engineering and Physical Sciences**

Putting the Delivery Plan in Context

National Productivity Investment Fund (NPIF)

- Industrial Strategy Challenge Fund (ISCF)
- Strategic Priorities Fund (SPF)
- Talent & Skills
- Strength in Places Fund (SIPF)
- Fund for International Collaboration (FIC)

UKRI cross-cutting themes

- **EPSRC with Innovate UK and Research England:** Commercialisation of University Research
- **MRC:** Future Leaders Fellowships + ... (NPIF)
- **ESRC:** ED&I
- **STFC:** Infrastructure (Infrastructure Roadmap)
- **NERC:** Grants Funding Service
- **Innovate UK:** ISCF (NPIF)
- **AHRC:** International

Global Challenges Research Fund (part of the UK's Official Development Assistance (ODA))

Strategic Priorities Fund

- The **Strategic Priorities Fund (SPF)** was set up to build on the vision of a 'common fund' set out in **Sir Paul Nurse's review**.
- The SPF aims to support high quality research and development priorities which would otherwise be missed – **multidisciplinary and interdisciplinary programmes identified by researchers and businesses at the cutting edge of research and innovation**. There are three primary objectives of SPF:
 - To drive an increase in high quality multi-disciplinary and inter-disciplinary research and innovation
 - To ensure that UKRI's investment links up effectively with government departments' research and innovation priorities and opportunities
 - To ensure the system is able to respond to strategic priorities and opportunities

Strategic Priorities Fund: Wave 1

Title	Total investment £m	Other partners
AI and data science for science engineering and government	39.3	BBSRC, STFC, MRC, NERC
Physics for life	31.2	MRC, BBSRC
Ensuring the security of digital technologies at the periphery	30.6	IUK, AHRC, ESRC
Climate resilience	18.7	NERC, Met Office, ESRC, AHRC
Clean air: analysis and solutions	19.6	NERC, Met Office, MRC, ESRC, IUK, NPL
Landscape decisions	10.5	NERC, ESRC, BBSRC, AHRC
Constructing a digital environment	10.4	NERC

Criteria

- Drive an increase in high quality multi- and inter-disciplinary research and innovation
- Ensure that UKRI's investment links up effectively with government departments' research priorities and opportunities
- Ensure the funding landscape system is able to respond to strategic priorities and opportunities

Strategic Priorities Fund: Wave 2

Title	Total investment £m	Other partners
National Interdisciplinary Circular Economy Research Programme	30	NERC, ESRC
Protecting Citizens Online	18.3	ESRC, AHRC
Trustworthy Autonomous Systems	33.87	AHRC, STFC, UKSA, IUK, ESRC
Harnessing Exascale Computing	43	Met Office, UKAEA, STFC, NERC, MRC
Clean Air: Future Challenges	22	NERC, Met Office, IUK, ESRC, MRC, STFC, NPL
Greenhouse Gas Removal	32	NERC, BBSRC, IUK, AHRC, ESRC
Quantum Sensors for Fundamental Physics (QSFP)	40	STFC

Criteria

- Drive an increase in high quality multi- and inter-disciplinary research and innovation
- Ensure that UKRI's investment links up effectively with government departments' research priorities and opportunities
- Ensure the funding landscape system is able to respond to strategic priorities and opportunities

Industrial Strategy Challenge Fund: EPSRC Involvement

Wave 1

- Faraday Battery Challenge (£264m)
- Robots for a Safer World (£93m)
- Medicines Manufacturing (£188m)

Wave 2:

- Transforming Construction / Active Building Centre (£170m)
- Prospering from the Energy Revolutions (PFER) (£108m)
- Audience of the Future (£33m)
- Next Generation Services (£20m)
- Quantum Technology (£20m)

- From data to early diagnostics and precision medicine (£210m)

Wave 3:

- Future Flight (£125m)
- Industrial Decarbonisation Challenge (£170m)
- Digital Security by Design (£70m)
- Transforming Foundation Industries (£66m)
- Manufacturing Made Smarter (£147m)
- Commercialising Quantum Technologies (£70m)
- Driving the Electric Revolution (£80m)
- Smart Sustainable Plastic Packaging (£60m)



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EPSRC Mathematical Sciences

Mathematical Sciences Team

RESEARCH BASE

Director: Jane Nicholson

Deputy Director: Claire Graves

Katie Blaney

Mathematical Sciences strategy
Mathematical Sciences budget

Rebecca Williams (50% Maths; 50% ISCF)

Equality, Diversity and Inclusion
Complexity Science

Marianne Rolph (50% Maths; 50% ISCF)

INI and ICMS Review
Additional Funding Programme
New Horizons

Ruqaiyah Patel (50% Maths; 50% AIR)

Artificial Intelligence
Digital for Development

Ruvimbo Gamanya

Applied Mathematics
Monitoring our Portfolio
Remit Interface
Large grant holders workshop
New Horizons

Laura McDonnell

Statistics and Applied Probability
Operational Research
Responsible Research and
Innovation
Public Engagement

Joseph Westwood

Pure Mathematics
Maths in Business
Early Career Researcher Forum
Lead Agency Opportunity

Mark Jenkinson

Mathematical Analysis
Mathematical Physics

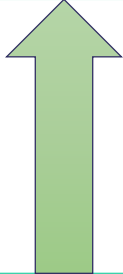
Delivery Support Team



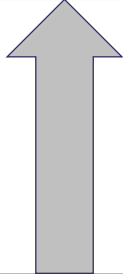
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Mathematical Sciences Vision and Objectives

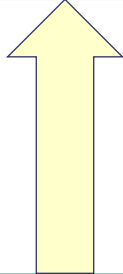
Our aim is to sustain core research capability across the breadth of mathematical sciences while promoting transformative and cross-disciplinary research all of which has the potential for significant impact



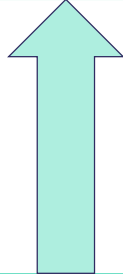
Encouraging a strengthening of connections to other disciplines and to industry



Working to secure the pipeline of future talent through both doctoral training and targeted support for individuals



Actively managing the balance of the Mathematical Sciences portfolio with input from our stakeholders



Informing the Mathematical Sciences community of opportunities within the UKRI funding landscape

Theme Priorities 2020/21

Managing our portfolio and priorities

- Relationships with learned societies
- Large grant holders workshop
- Rationale assessment strategy for maths team
- A framework for gathering community input on individual research areas
- Discipline hopping opportunities
- Multi-scale biology community building
- Big ideas in Maths identified

Promoting excellence in research

- New horizons activity

Realising excellence in people

- Fellowships

Equality, Diversity and Inclusion

- An understanding of the importance of this to Maths

Inspiring, Informing and Interacting with the Public

- Responsible Research and Innovation, knowledge building

Enhancing business engagement

- More maths in business grants (i-CASE, prosperity partnerships)
- Engage with individual collaborators
- Links into strategic business partners
- More business leverage on grants

New Horizons

- Aims to help grow the portfolio of new transformative research ideas.
- Pilot scheme funding researcher-led, high-risk discovery research focussed on advancing knowledge and securing the pipeline of next generation ideas.
- £10M for projects costing up to a maximum of £200k each and up to 24 months in duration.
- The pilot is running for Mathematical Sciences and Physical Sciences

Pathways to Impact

- From 1st March 2020 a separate Pathways to Impact statement and Impact summary will no longer be required for ALL UKRI SCHEMES by 01 March 2020
- To reflect this change assessment of impact will be considered as part of overall proposal assessment.
- Benefits and opportunities
 - The change allows applicants to be more creative, integrating appropriate activities to realise the impact of their work throughout their proposed research programme
 - Pathways to Impact was a 'one size fits all' approach
 - The focus will now be on supporting the level of impact activities that are appropriate to the specific research discipline and project.
 - Reviewers will be able to use their experience to assess whether the proposed impact activities are appropriate for the scientific discipline and project as a whole

Lead Agency Opportunity

- We have a lead agency agreement with the National Science Foundation (USA)
- The scope of this activity is to reduce current barriers to working internationally including:
 - Identifying appropriate funding agencies
 - Dealing with the risk of 'double jeopardy'
 - Dealing with different timetables for different funding agencies
- Other agreements are in place with Luxemburg, Sao Paulo and Ireland

Additional Funding for Mathematical Sciences

- Following the announcement by the Prime Minister on 27 January 2020 of up to an additional £300 million for mathematical sciences
- EPSRC is now working on the implementation of this programme.

Additional Funding – what is it for?

- up to £19m additional funding for PhD studentships
- around £34m additional funding for career pathways and new research projects including multi-institutional projects and programmes
- up to £7m additional funding to support both new PhD studentships/research fellows at the Heilbronn Institute in Bristol, and funding for increased workshop participation at the Isaac Newton Institute in Cambridge and International Centre for Mathematical Sciences in Edinburgh.

Studentships for October 2020

We have allocated £15 million of studentship funding to start in the autumn of 2020. This allocation will:

- Be made through training grants based on our doctoral training partnership awards
- Have the level of the award to each university calculated by algorithm based on the EPSRC mathematical sciences portfolio held by a university
- Have the funding ringfenced for studentships in mathematical sciences
- Have studentship awards equivalent to four years' support
- Allow open eligibility for up to 50 % of each universities' studentships.
- Universities that have been offered an allocation of studentships received a letter from Professor Lynn Gladden, Executive Chair of EPSRC dated 14 February 2020.

Advisory Group

- The Advisory Group is drawn from members of the mathematical sciences research community.
- In the first instance this was based on a combination of nominations from the group that met with Government to discuss the funding and representation from the EPSRC Mathematical Sciences Strategic Advisory Team.
- The group is chaired by Professor Alison Etheridge, a member of EPSRC Council
- The first meeting was held on Monday 23rd March

Roles of Decision Making & Advisory Groups

Council

Provides strategic direction and decisions across the **whole EPSRC portfolio**

Strategic Advisory Network (SAN)

Provides strategic policy advice and recommendations by considering **cross-cutting themes**

Science, Engineering and Technology Board (SETB)

Provides scientific guidance across the **whole remit of EPSRC**

Strategic Advisory Teams (SATs)

Provide strategic policy and scientific advice and recommendations at a **theme and research level**

We also seek advice from our established relationships with universities and business



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Mathematical Sciences: Strategic Advisory Team

- Dr Jeremy Bradley – Royal Mail Group Ltd
- Professor Peter Challenor – University of Exeter
- Professor Jonathan Dawes - University of Bath (Chair)
- Professor David Evans - Cardiff University
- Professor Stephane Launois - University of Kent
- Professor Sara Lombardo – Loughborough University
- Dr Sean McGinty – University of Glasgow
- Dr Carmen Molina-París – University of Leeds
- Dr Nick Polydorides – University of Edinburgh
- Professor Victoria Pope – Independent
- Professor Gregory Sankaran – University of Bath
- Mr Robert Shaw – AstraZeneca
- Professor Gwyneth Stallard – Open University
- Professor Arne Strauss - WHU - Otto Beisheim School of Management

SAT Recruitment 2020

- Advertisement is likely to go live early June
- Deadline anticipated late July/early August
- If you are interested in working with us, please look at the opportunities and consider applying

Early Career Forum

- The Mathematical Sciences Early Career Forum acts as an informal advisory stream to EPSRC
- Members are advocates for EPSRC within the community, and provide a broad perspective of the needs and views of the mathematical sciences community, offering opinion across the breadth of the Theme
- Early Career SAT member appointment also sits on the Forum

COVID-19 and UKRI

- Looking at extending deadlines on open funding opportunities
- Urgency call for research and innovation to address COVID-19
- Six month costed extension to PhD students in their final year
- No cost extensions allowed due to COVID-19
- Open Access Review Consultation has been extended to 29 May 2020

<https://www.ukri.org/research/coronavirus/>



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Thank you

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