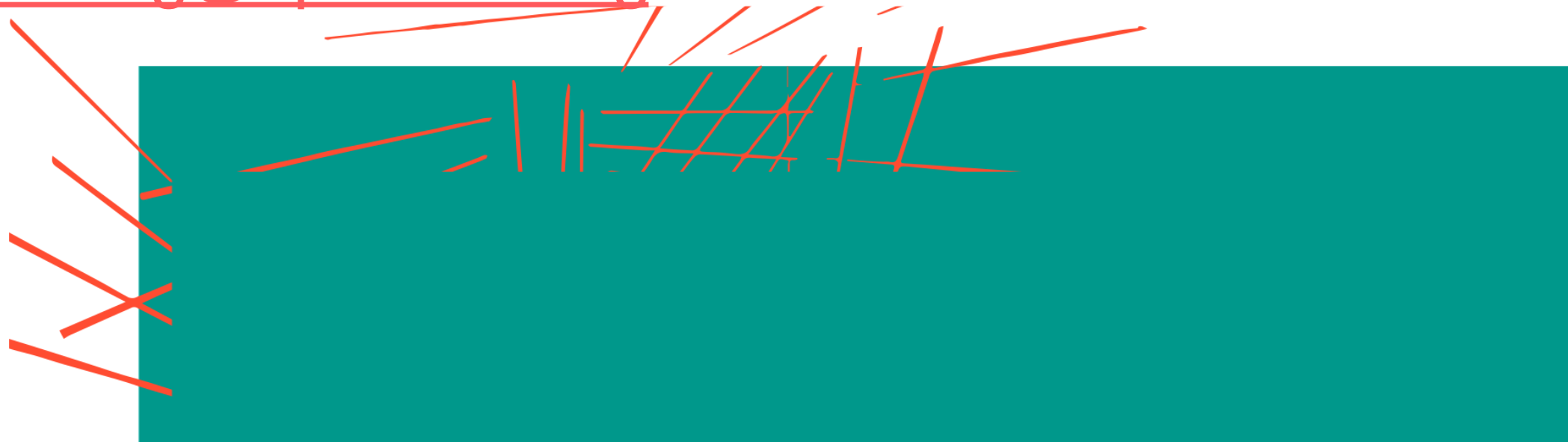
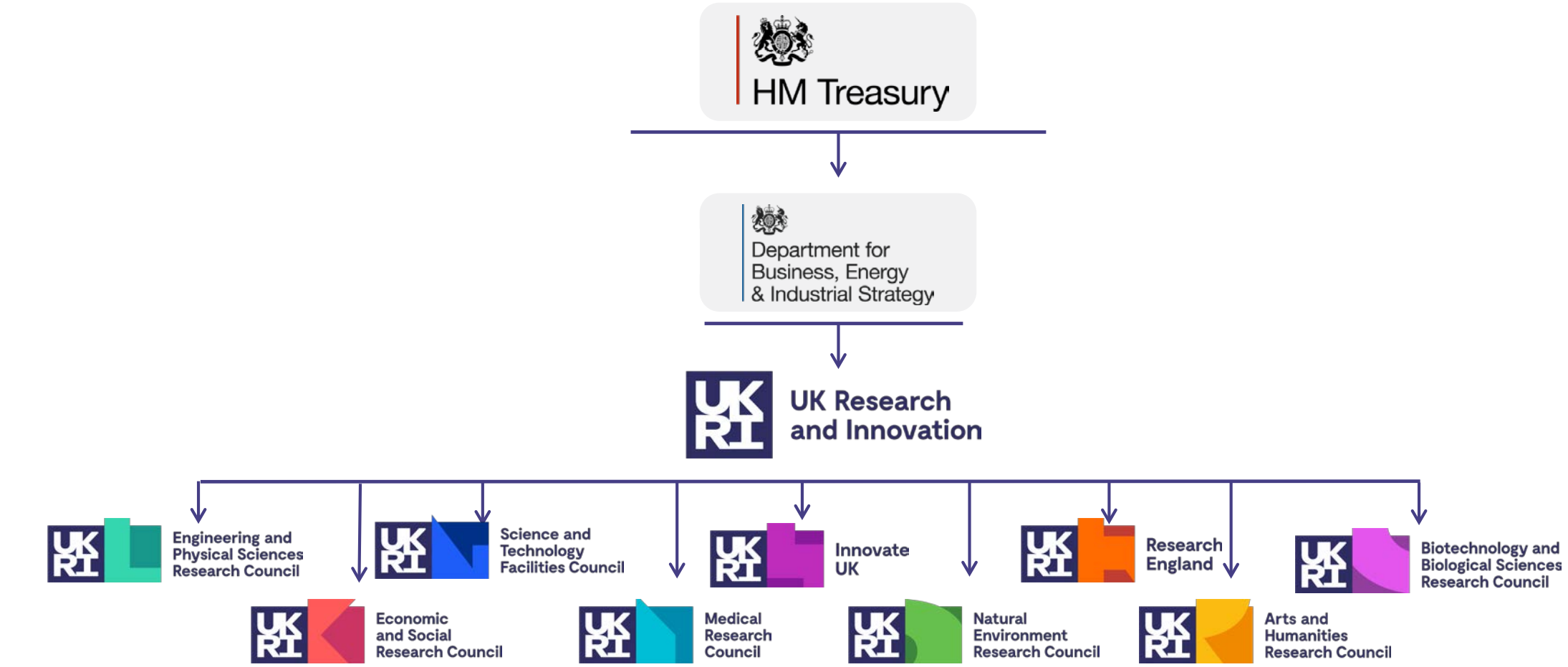
Engineering and Physical Sciences Research Council

EPSRC/UKRI

Dr Derek Craig, Head of Regional Engagement – Scotland

derek.craig@epsrc.ukri.org





Engineering and Physical Sciences Research Council

EPSRC Heads of Regional Engagement (Pilot)

- Strengthening and developing relationships with existing and new regional stakeholders.
- Connecting the regional landscape to the national EPS strategy through:
  - horizon scanning activities
  - identifying clusters of excellence in regions
  - identifying and communicating regional and national EPS objectives
- Maximising the benefit of the delivery plan at a regional level – through building on our portfolio of excellence and being positive disruptors.

Email addresses: firstname.surname@epsrc.ukri.org

Engineering and Physical Sciences Research Council

Putting the Delivery Plan into 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))**

Engineering and Physical Sciences Research Council

EPSRC

Vision

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

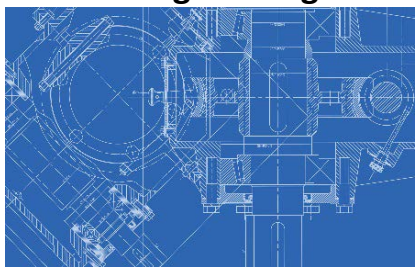
- To **work within the research ecosystem** of UKRI, the R&D base within business, SMEs, government departments, charitable organisations and international partnerships to identify and **tackle new research challenges and deliver societal and economic impact from our research base**

- 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)

UKRI Engineering and Physical Sciences Research Council

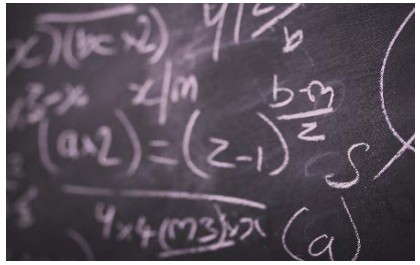
Our Portfolio

engineering



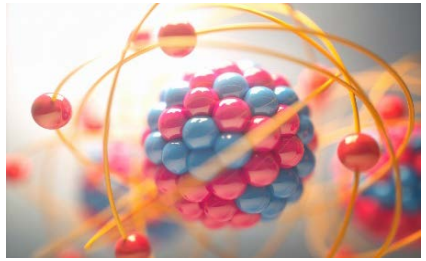
materials

mathematics



chemistry

physics



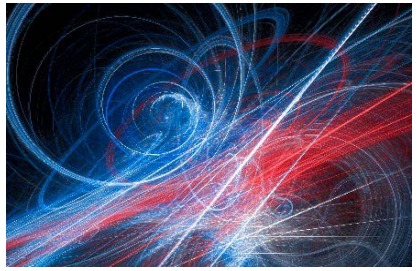
healthcare technologies

digital economy

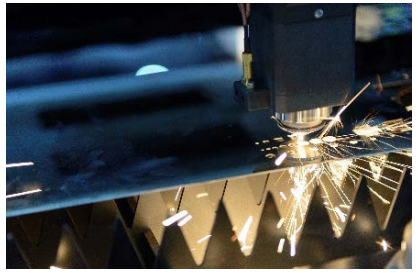
cybersecurity

ICT

quantum technologies



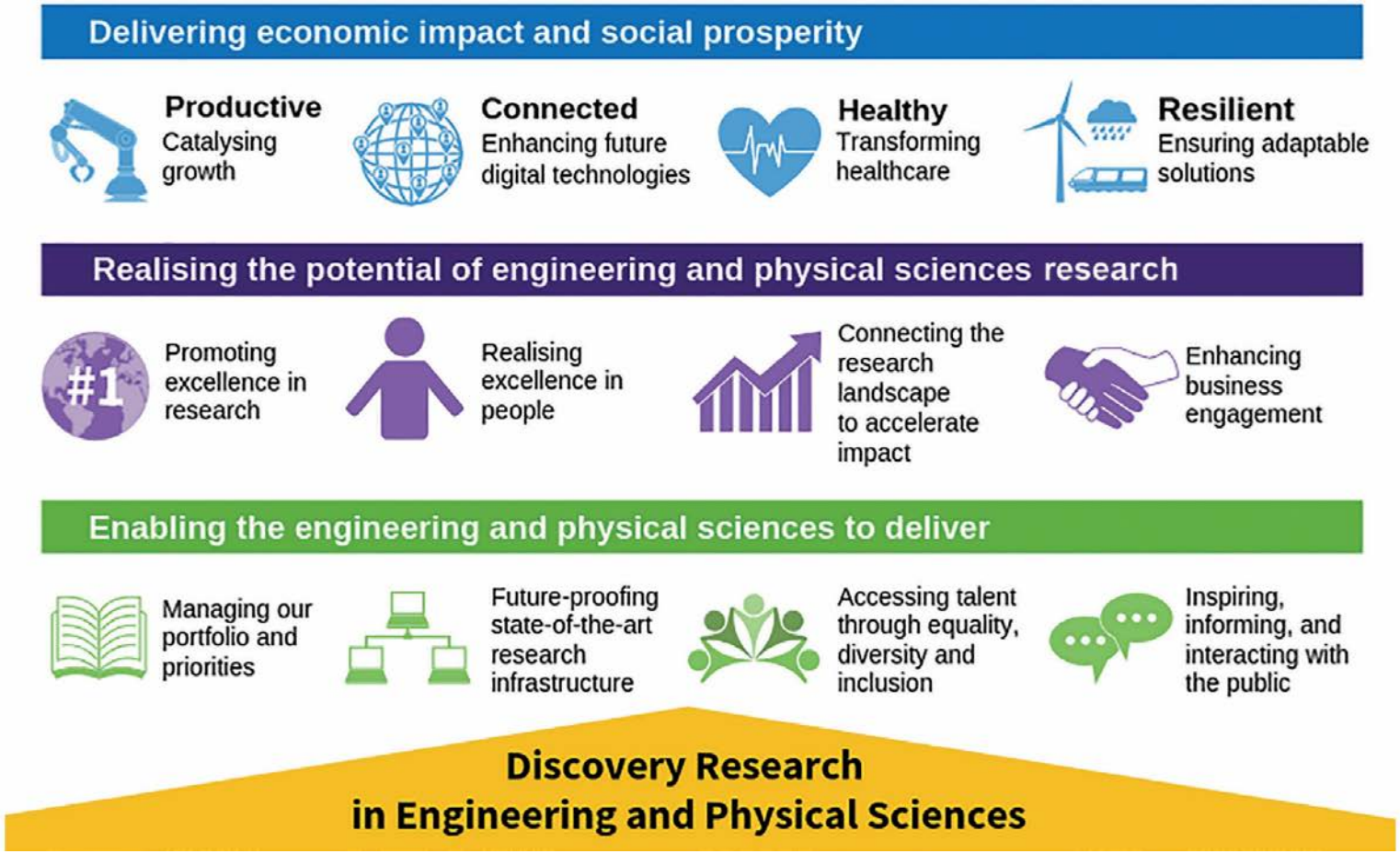
manufacturing



energy

Engineering and Physical Sciences Research Council

The Priority Framework



Engineering and Physical Sciences Research Council

The Priority Framework

Objective 1: Delivering economic impact and social prosperity

To generate economic impact and social prosperity by exploiting our existing and future research base to deliver a **productive**, **connected**, **healthy** and **resilient** nation

Productive

Connected

Healthy

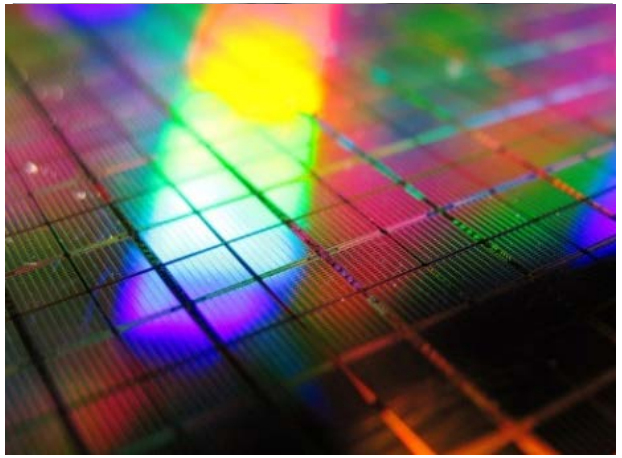
Resilient

Engineering and Physical Sciences Research Council

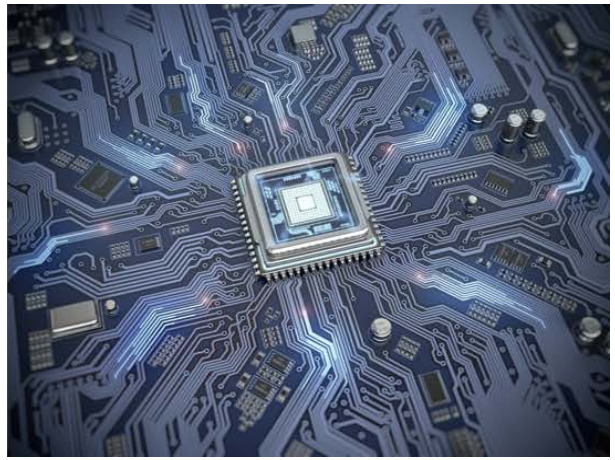
Productive Nation: Catalysing Growth

We will deliver a more **agile, creative, competitive** UK economy, **sustainable** for the long term

Manufacturing
invest up to £20m across projects, networks and fellowships in manufacturing



Materials
develop at least one SPF and one ISCF proposal to address new concepts in materials research and industrial challenges



Quantum Technologies
recommission the Quantum Hubs and establish the £77m National Quantum Computing Centre

UKRI Engineering and Physical Sciences Research Council

Research Landscape: Quantum Technologies

….from discovery research to commercialisation

Basic Research Partnership

EPSRC

National Quantum Computing Centre

3 CDTs

UKNQTP Hubs

quantum communications
computing and simulation
imaging
sensing and timing

Translation

Engineering and Physical Sciences Research Council

1990	1998	2002	2013	2019	2022
Research grants in quantum physics and laser cooling of cold atoms/ions	UK Quantum Optics Network (universities, industry, MOD)	Quantum Information Processing Interdisciplinary Research Collaboration	Phase I of National Quantum Technologies Programme (NQTP), including 4 Hubs and Fellowships		Phase II of NQTP: Hubs + new National Quantum Computing Centre

Connected Nation

Enhancing Future Digital Technologies

We will ensure the UK remains at the **forefront** of creating new digital **technologies** and **innovation** pathways

Artificial Intelligence
review AI research landscape with UKRI colleagues and wider stakeholders to produce an investment strategy enabling AI to realise its full potential

Cyber Security
new Centres of Excellence in cyber-security research; scope a cyber-security call (<£10m) focussed on reducing cyber-attacks on UK businesses and citizens

Turing Fellowships
work with the ATI, the Office for AI, DCMS and BEIS on the design and delivery of the £46m Turing Fellowships

UKRI Engineering and Physical Sciences Research Council

Healthy Nation

Transforming Healthcare

We will deliver the new materials, novel techniques and innovation needed to drive **better quality** of life and ensure **higher standards** of **affordable** healthcare

Body-Technology Interface
explore with MRC future research opportunities exploiting EPSRC skills in sensors, device miniaturisation, and data science

Population Health Challenges
building on Healthcare Impact Partnerships, scope out a further £20m call co-branded with NIHR

Transformative Healthcare for 2050 Call
launch a £25m call to research physical interventions to transform community health and care

UKRI Engineering and Physical Sciences Research Council

Resilient Nation

Ensuring Adaptable Solutions

We will invest in research which enables society to **anticipate**, **adapt** to and **respond** to change, whether natural or manmade, short or long-term, local or global

New Energy Technologies
investment in Supergen Programme including sustainable hydrogen production

Future Transport Solutions
including a focus on science and engineering research to underpin decarbonisation solutions

Real-World Resilience Challenges
fellowship priority areas in decarbonisation and resilient energy systems

UKRI Engineering and Physical Sciences Research Council

The Priority Framework

Objective 2: Realising the potential of engineering and physical sciences research

To unlock the potential of EPS research by stimulating and challenging the research community to **open up new areas of science; supporting talented people;** and **strengthening engagement with users and business**

Promoting Excellence in Research

Realising Excellence in People
supporting researchers to work across university and business sectors

Connecting the Research Landscape to Accelerate Impact
continue and extend IAA activities

Enhancing Business Engagement

Engineering and Physical Sciences Research Council

Delivery Plan Highlights…..

- **New Horizons**
  - Researcher-led, high-risk discovery research
  - Focus on fundamental research
  - Initial pilot to be undertaken during 2020

- **Centres of Excellence**
  - To support single or multi-organisational activities
  - Areas in which the UK can be recognised as having world leading expertise
  - “Programme grant +”

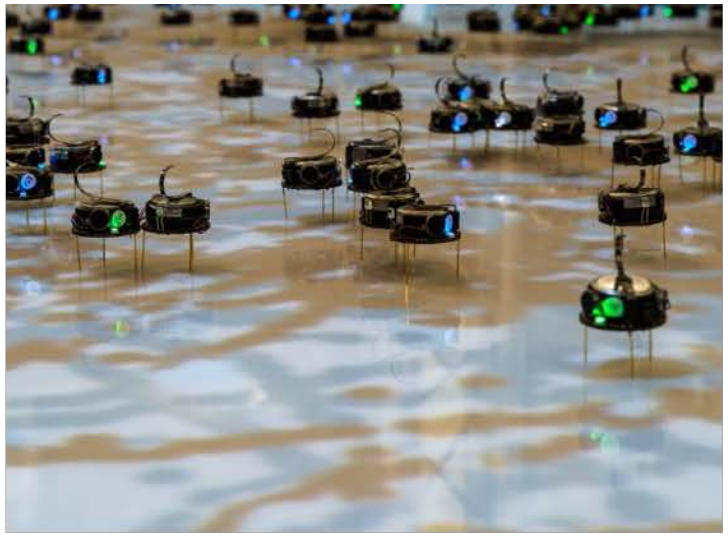
- **Institutes**
  - Longer-term activities which take an international leading role in developing the research base and technologies.
  - Typically a significant multi million pound investment of recognised need.

Engineering and Physical Sciences Research Council

Enhancing Business Engagement

We will invest in **high risk** discovery research to deliver **tomorrow's** transformational innovations **crucial to economic and societal prosperity**

Pilot New Opportunities with SMEs



Extend Our Partnerships to New Sectors

Expand our Prosperity Partnerships

UKRI Engineering and Physical Sciences Research Council

Enhancing Business Engagement

Prosperity Partnerships

- Rounds 1 and 2 – £66m EPSRC investment leveraging ~£90m from businesses and universities
- 22 lead companies with three partnerships led by SMEs, and a further 6 SME project partners

UKRI Engineering and Physical Sciences Research Council

Recent Changes/Announcements

- Brexit
  - 2020 transition period
  - Horizon 2020 and EU Funding remains open
  - UKRI strengthening international relationships

- Global Talent Visa
  - To be administered via UKRI
  - Opportunity to fast track visa applications to attract the best talent to the UK
  - Open from February 20th

Engineering and Physical Sciences Research Council

Recent Changes/Announcements

- Removal of Pathways to Impact and Impact Statements
  - Implemented from March 1st 2020
  - “Outputs, Outcomes, Impact”
  - Impact is an essential part of all research funding

- Funding for “Advanced Mathematics”
  - £300M over 5 years (subject to business case approval)
    - £19M for PhDs (4 year studentships)
    - £34M for multi-institutional projects and programmes – including scheme or grants of small amounts to seed corn early stage idea creation.
    - £7M to support Heilbronn, INI and ICMS

UKRI Engineering and Physical Sciences Research Council

Engineering and
Physical Sciences
Research Council

Funding Awards

EPSRC Funding Mechanisms

- New Investigator Awards
- Standard Research Proposals
- Fellowships
- Programme Grants

UKRI Engineering and Physical Sciences Research Council

What is a New Investigator Award?

- These awards provide funding to support the establishment of early career academics.
- They should support career progression as well as a program of high quality research.
- Requires commitment from your University on how they have and will support you.

Engineering and Physical Sciences Research Council

Applicants

- Must **hold an academic lectureship position**
  - Who have **not previously led** an academic research group
  - Who have **not received a significant grant**

- Applicants must comply with the standard EPSRC terms for eligibility to hold research grants

- Applicants who have **previously been in industry** and are transitioning to academia are **welcome to apply**

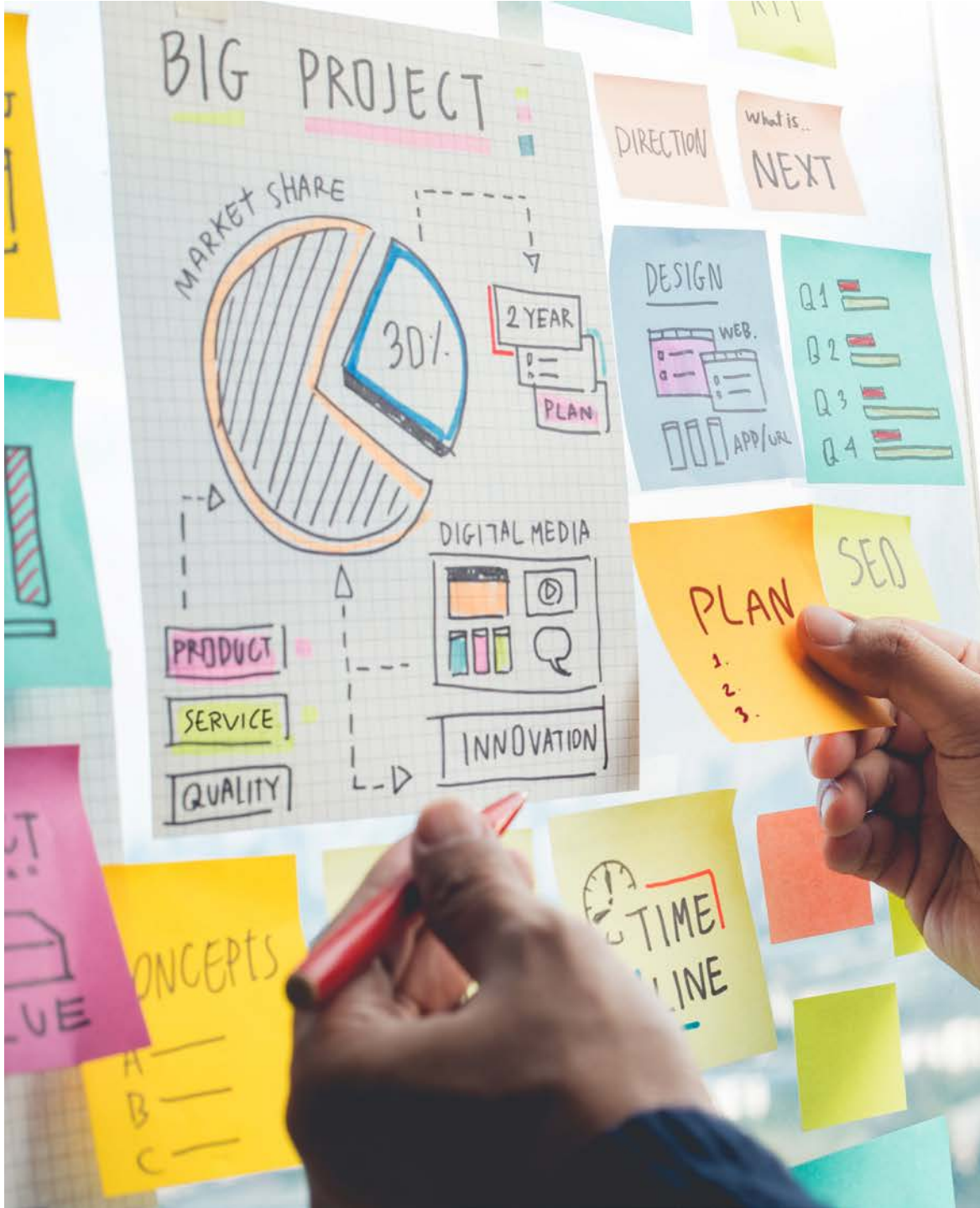
- Applicants who are applying to EPSRC as **PI for the first time** - except for overseas travel

UKRI Engineering and Physical Sciences Research Council

Projects

1 Should be **self-contained** and comprise a **single research vision** with clearly defined objectives and outcomes.

2 Should demonstrate you establishing an independent research group. **Co-Is from your own department are** therefore **prohibited.**



Engineering and Physical Sciences Research Council

Scale of the Award

- PI time: typically 10-20%
- CoIs: only where they bring complementary or different skills
- PDRA: typically 1-3yrs
- Conferences: identify which – for both you and PDRA
- Consumables: as appropriate for the research
- Equipment over £10K: 50% costs from University

All need to be justified

Engineering and Physical Sciences Research Council

Assessment of your proposal

- Submission: When submitting your proposal you will need to select which Research Area you are applying under.

- Assessment: EPSRC Portfolio Manager (receives your proposal and assigns *at least* 3 reviewers – including 1 of your suggested reviewers.

- Reviews: Once three *usable* reviews are received the Portfolio Manager decides how to proceed.

Engineering and Physical Sciences Research Council

Assessment of your proposal

- Reviewer Response: Important to get this correct – do not waste these 2 pages!

- Reviewer Panel: Domain experts in that discipline. Do not re-review your proposal. Weigh up Peer Review vs. Reviewer Response.

- Proposal Ranking: Panel create a rank ordered list of the proposals against the assessment criteria as a recommendation of funding. Ultimately budget dictates what is to be funded.

UKRI Engineering and Physical Sciences Research Council

Assessment criteria

- Quality: Research excellence is the **primary** criterion for assessment of all proposals

- National Importance: Secondary major criterion. Needs to demonstrate contributes to the health of the discipline and meets national need.

- ~~Pathways to Impact: Secondary criterion. Needs to demonstrate how you will create impact from your research. Not specifically REF impact!~~

Engineering and Physical Sciences Research Council

Standard Research Proposals

- Largest funding scheme
- Flexible: proposals can range from small travel grants to multi-million pound programmes
- Support for activities including: Research projects, feasibility studies, instrument development, equipment, travel, collaboration.
- Open always: No closing dates, regular assessment panels

UKRI Engineering and Physical Sciences Research Council

Programme Grants

- Flexible funding for world leading research groups to address global research challenges
- Comprise a suite of related research activities towards an overarching theme
- Generally interdisciplinary and collaborative
- Applicants **must** discuss with EPSRC prior to applying
- Up to six years in duration

Engineering and Physical Sciences Research Council

Fellowships

- Personal awards to develop the recipient as a leader of the future by:
  - Positioning themselves and their research within their field
  - Establishing their research group
  - Acting as an advocate for STEM and EPSRC

- Only available in specific priority areas and at certain career stages

- Career stage is associated with set of attributes that applicants should evaluate against their own track record

UKRI Engineering and Physical Sciences Research Council

UKRI Engineering and Physical Sciences Research Council

Engaging with EPSRC

A Big Idea

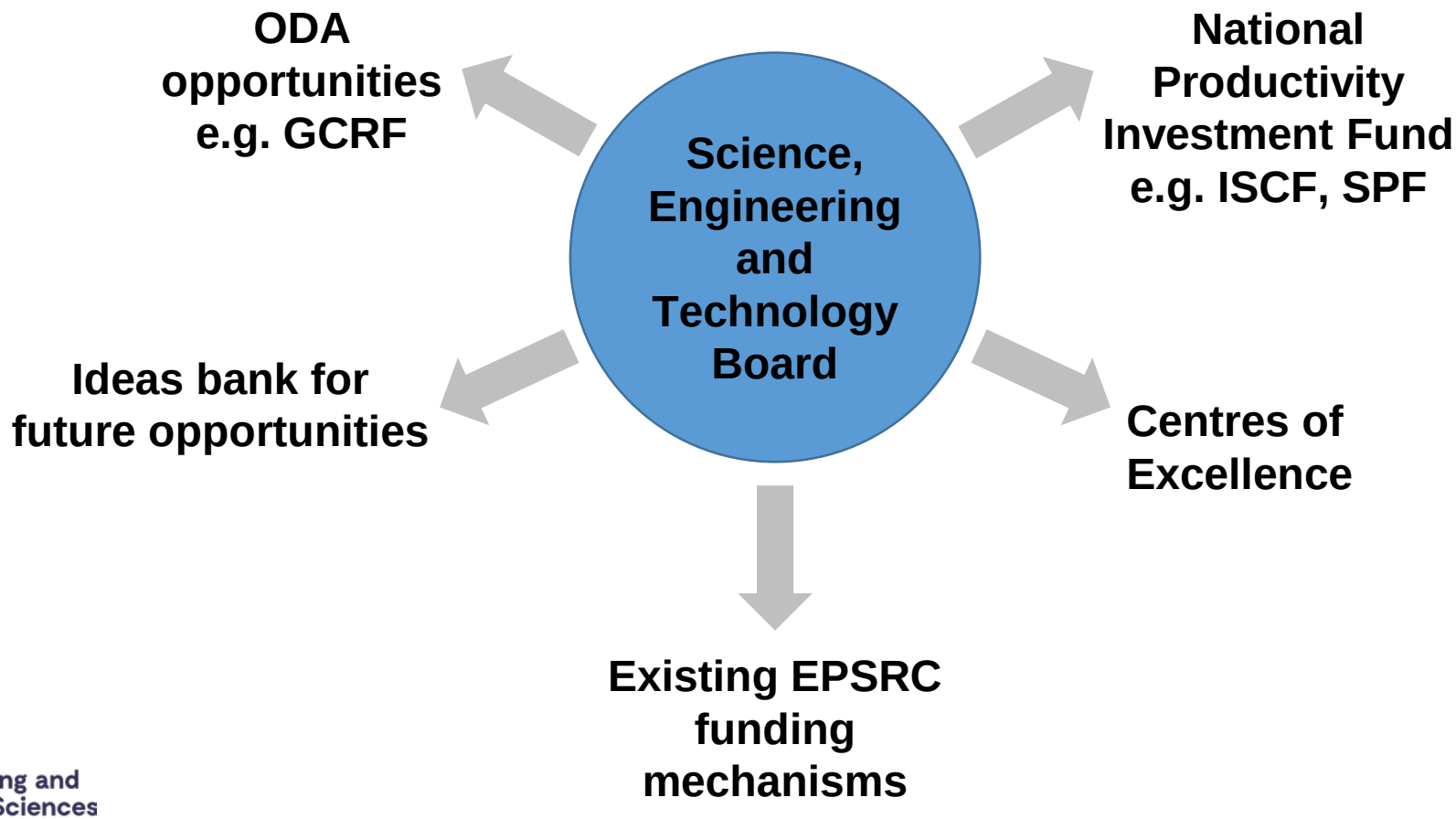
….a route for the community to submit ideas for areas of research or challenge that have great potential for the UK to capitalise on

- the scale of the idea would need action of investment of ~£10-100m and often requires a multidisciplinary multi partner approach
- submitting the idea does not in itself lead directly to funding but if the idea is felt to have traction, it would be discussed more widely with peers and potential partners to build a case and identify a possible route to bid for programme funding support e.g. SPF, ISCF, spending review etc.

Big idea submitted → Ideas assessed and taken forward → Developing ideas with the community → Business ready

UKRI Engineering and Physical Sciences Research Council

Science, Engineering and Technology Board



Engineering and Physical Sciences Research Council

Using scientific and technological insight to identify and champion new research challenges at the cutting edge of engineering and physical sciences for future investment

How can you get involved?

- Early Career Forums – informal advisory group for EPSRC themes
  - Manufacturing Research (within Manufacturing the Future theme)
  - Engineering
  - Mathematical Sciences

- Strategic Advisory Teams
  - Annual call for new members
  - Advise on Theme strategy and priorities

- Peer Review and Panels
  - Associate Peer Review College initially
  - Periodic call for new members to fill gaps in the membership portfolio
  - Self-nomination anytime, using online form

UKRI Engineering and Physical Sciences Research Council

Realising Excellence in People
supporting researchers to work across university and business sectors

EPSRC Doctoral Education Review

- Phase 1 Spring and Summer 2020:

Developing principles for EPSRC's Doctoral training Investment

- Phase 2 Autumn 2020:

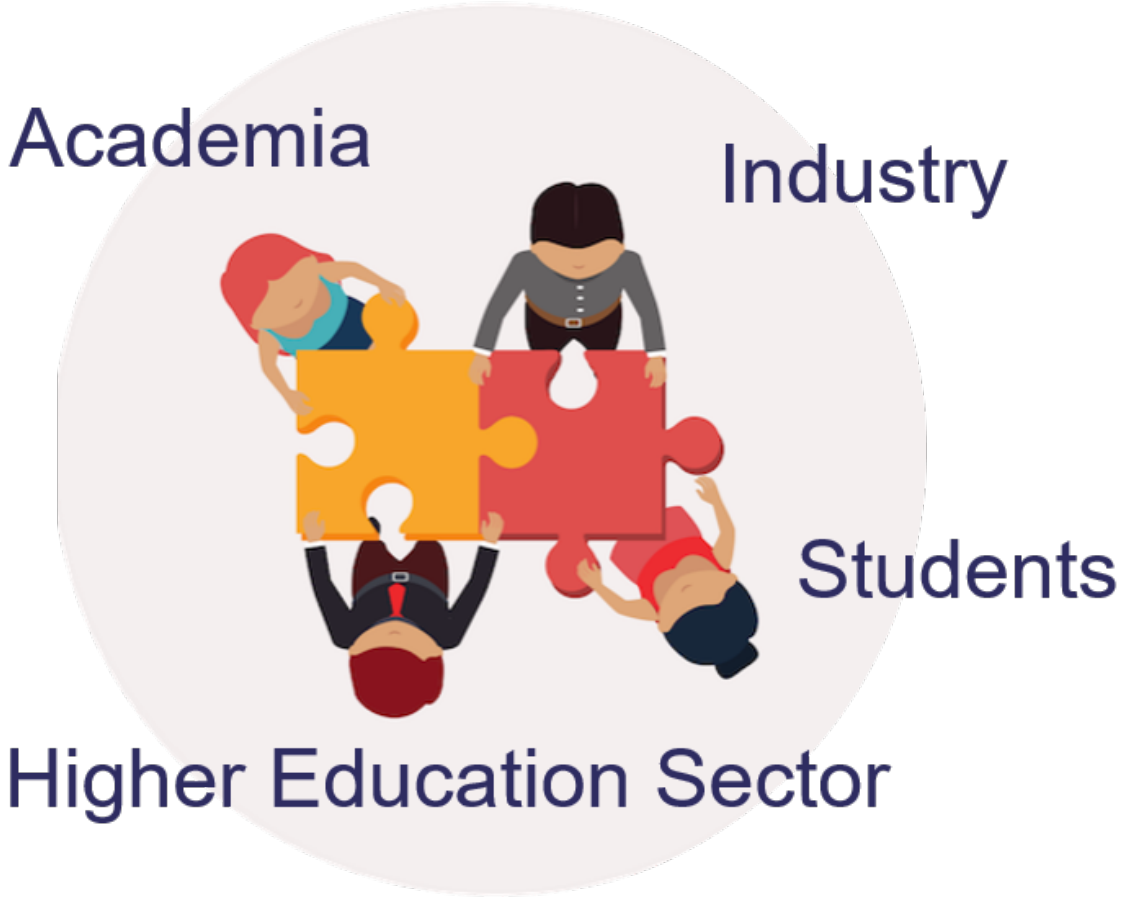
Develop recommendations for EPSRC's future approach to Doctoral Investments

EPSRC Doctoral Education Review

- Come to an Event - Deadline for applications 13:00 17th Feb
- https://epsrc.ukri.org/funding/calls/

- Complete the community survey

- Submit evidence



Engineering and Physical Sciences Research Council

https://epsrc.ukri.org