



Changing landscapes and new opportunities

23th April 2018



UKRI



Transition to UKRI: drivers for the creation of UKRI

- ■ ■ Greater **strategic vision** for UK science
- ■ ■ Providing a **stronger voice** into Government in support of UK science
- ■ ■ Creating greater space for individual Research Councils to put **more effort into science** (and less into back-office)
- ■ ■ Enabling **greater co-ordination** including for interdisciplinary research
- ■ ■ Improved **policy for science** and improved **science for policy**

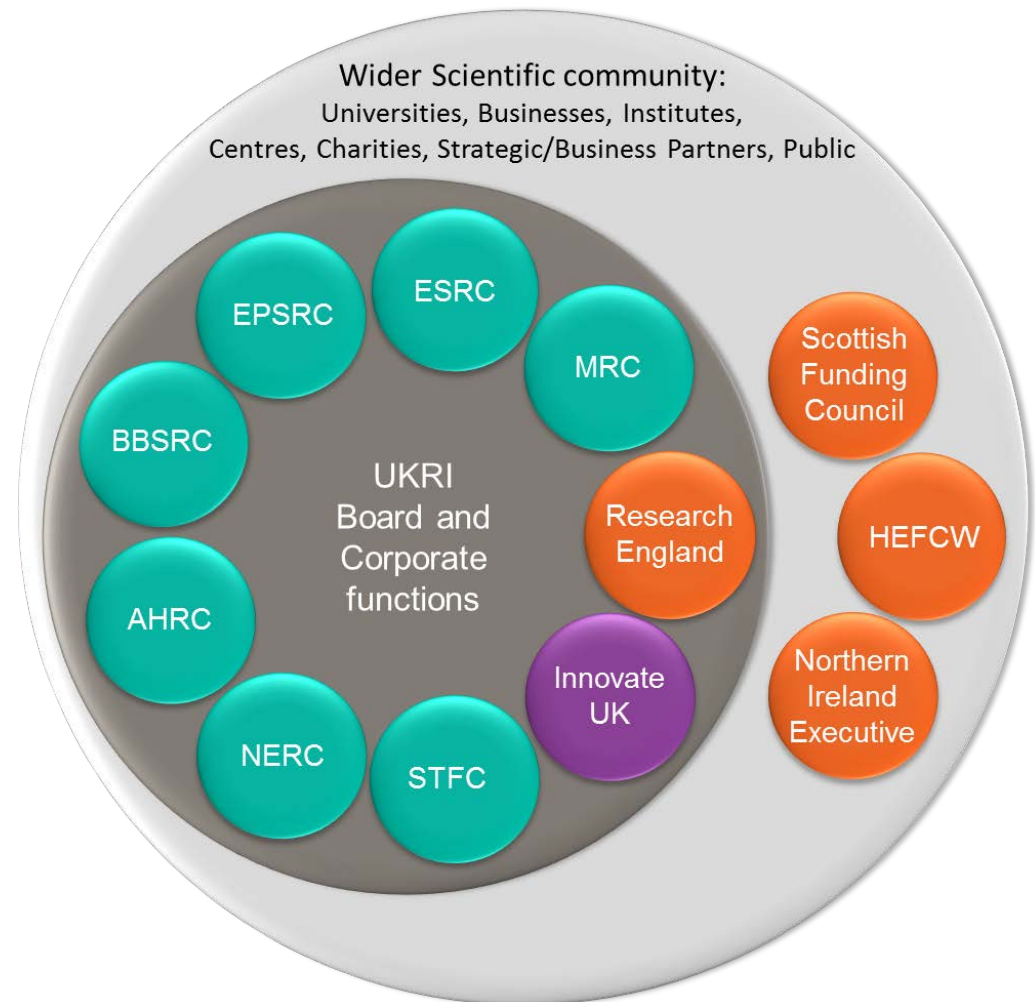
**DRIVERS
FOR UKRI**



Transition to UKRI: UKRI organisation

UK Research and Innovation, launched on 1 April 2018, will be the new funding organisation for research and innovation in the UK.

UKRI brings together the seven **UK Research Councils**, **Innovate UK** and a new organisation, **Research England**, working closely with its partner organisations in the devolved administrations.



Transition to UKRI: EPSRC's role in the changing landscape

To be an
outstanding organisation
that ensures the UK maintains its
world leading position in research and innovation

Knowledge

Push the frontiers of
human knowledge

Economy

Deliver economic
impact and create
better jobs

Society

Create social impact
by supporting our
society to become
stronger and
healthier

**EPSRC is well placed, through its core investment in
fundamental EPS research and skills, to provide the strong
foundation for UKRI**

**MISSION
STATEMENT**



Transition to UKRI: The Government's White Paper

The Government published its Industrial Strategy White Paper in November 2017



UKRI will deliver a further **£725m through ISCF** over the next three years, including through **six new wave two challenges**, and **two pioneers**

An investment of **£300m** over the next three years in world-class **research and innovation talent**, including additional PhD and KTP places, and prestigious awards that support rising stars and the top talent from both the UK and overseas

UKRI will work the Government to develop a new competitive **Strategic Priorities Fund**, which builds on the vision of a 'common fund' set out in Sir Paul Nurse's review

**INDUSTRIAL
STRATEGY**



Transition to UKRI: The Government's White Paper

A new **£115m Strength in Places Fund** to support areas across the UK to build on their science and innovation strengths



UKRI will work with the Government to launch a new **'International Research and Innovation Strategy'** in early 2018, and a new **£110m Fund for International Collaborations** to enhance the UK's excellence in research and innovation through global engagement.

The Industrial Strategy also sets out four **Grand Challenges** to put the UK at the forefront of the industries of the future: Growing the Artificial Intelligence and Data Driven Economy, Clean Growth, Future of Mobility and our Ageing Society.

The Government will also announce **Sector Deals** in construction, life sciences, artificial intelligence and automotive industries.

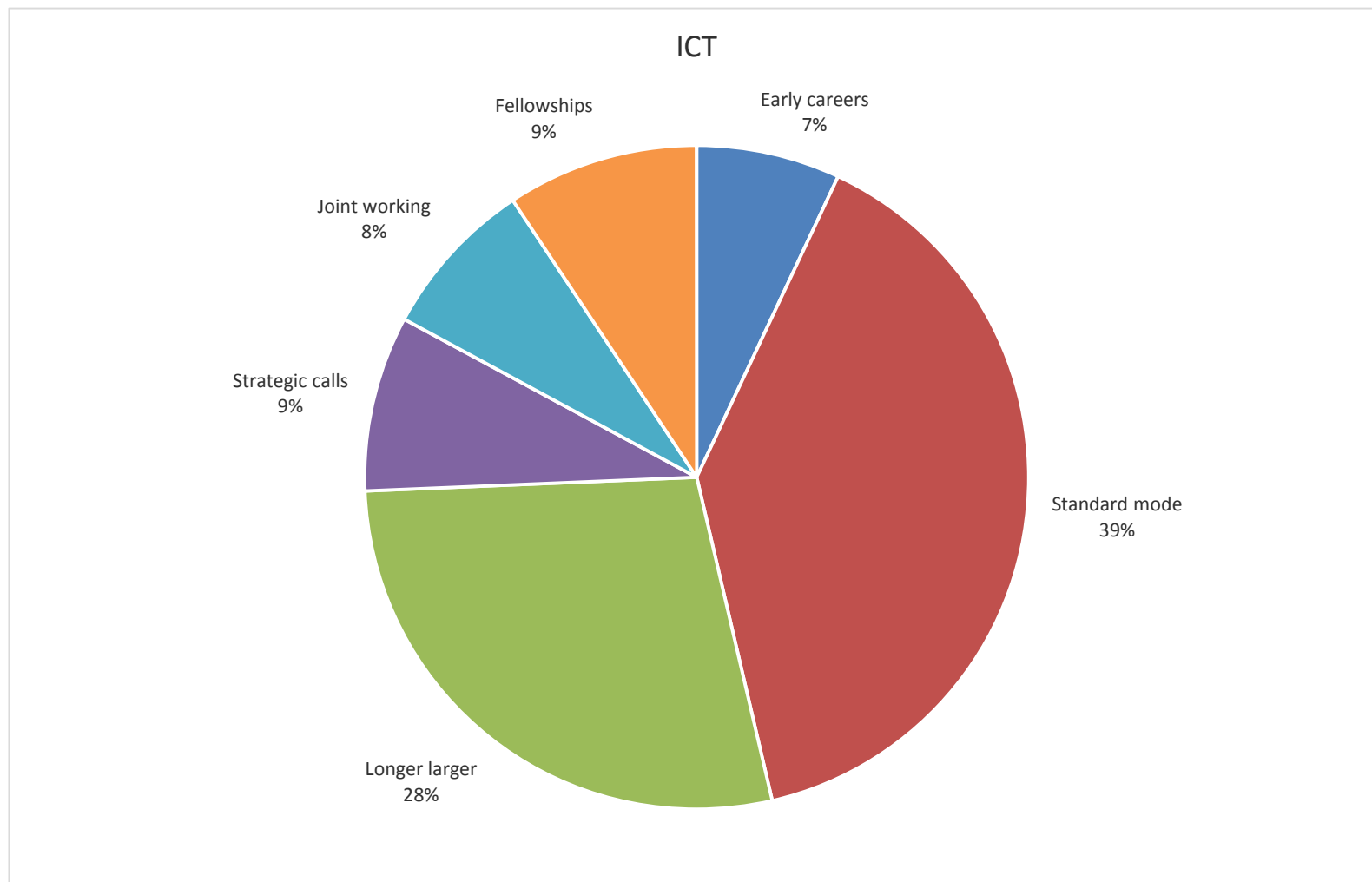
**INDUSTRIAL
STRATEGY**



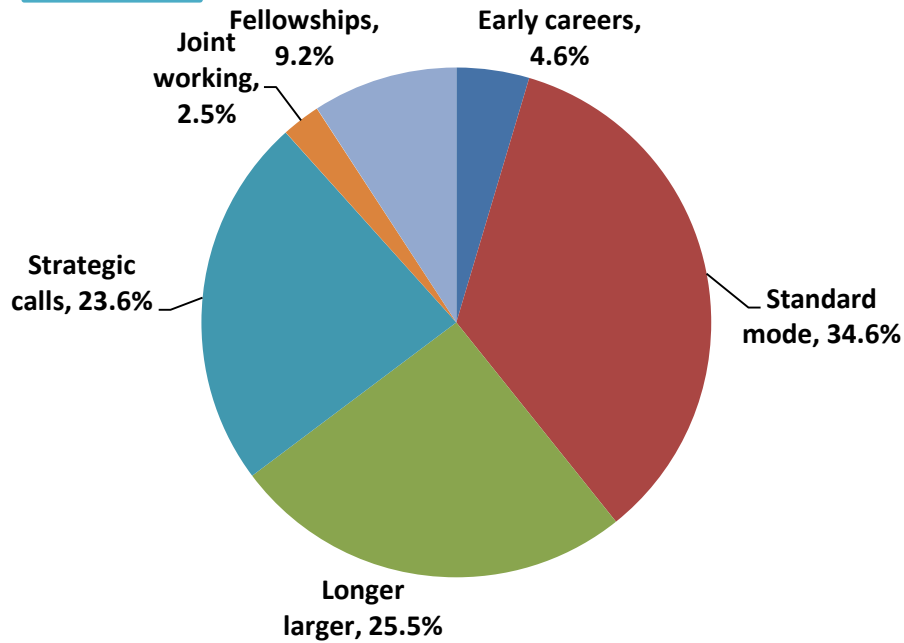
ICT THEME



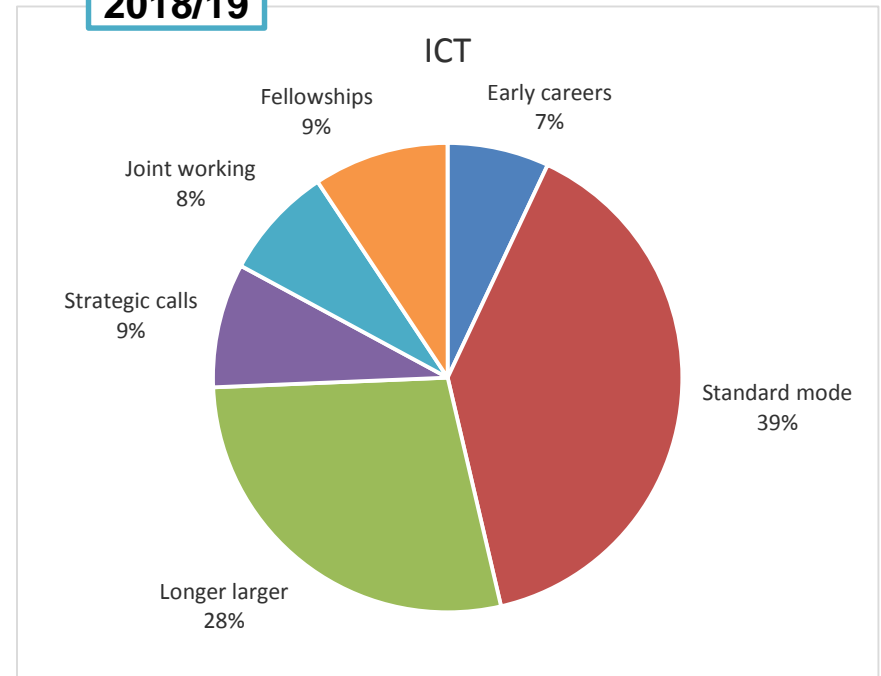
2018/19 Planned Commitment



2017/18



2018/19



- We have fewer calls planned than in 2017/18. This reflects 2017/18 being a year to stimulate activity following implementation of our balancing capability strategies and cross ICT priorities.
- This results in a slight increase of standard mode, longer larger grants and early careers to account for the change to New Investigators awards.



■ ■ ■ Completed calls

- ■ ■ Automating science discovery
- ■ ■ New approaches to data science
- ■ ■ Cross-Disciplinary and Co-Creation
- ■ ■ Human like computing

■ ■ ■ Other activities:

- ■ ■ We held a PUC workshop
- ■ ■ We have launched a call in RF and microwave devices
- ■ ■ We are currently renewing the National Dark Fibre Infrastructure Service
- ■ ■ A launch event for ORBIT was held at the House of Lords in January.



- ■ ■ Additional EPSRC doctoral training funding and Innovation Placement for current EPSRC studentships for AI in 2018
 - ■ ■ 35 studentships within areas aligned with the Industrial Strategy either via CDT or DTP routes
 - ■ ■ Allocation based on training portfolios aligned to areas where priority skills relevant to the Industrial Strategy were identified
- ■ ■ UKRI AI CDT Call
 - ■ ■ Additional CDTs to support research training of relevance to AI – expected 10-20 CDTs
 - ■ ■ Addressing training needs in AI research challenges across the breadth of all the Research Council remits



- ■ ■ Action Plan based on the findings of the Napier Study *Understanding the status of underrepresented Groups in ICT* to be published with the study in April 2018
- ■ ■ Action Plan has been drawn up with our partners: BCS, IET, CPHC, UKCRC and TechWorks
- ■ ■ Four priorities for the coming year:
 - ■ ■ Establishing a baseline
 - ■ ■ Organising a forum to exchange best practice, identify priorities to tackle
 - ■ ■ Celebrating success in diversity through targetted case studies
 - ■ ■ Exploring the challenges around discrimination, harassment and aggression

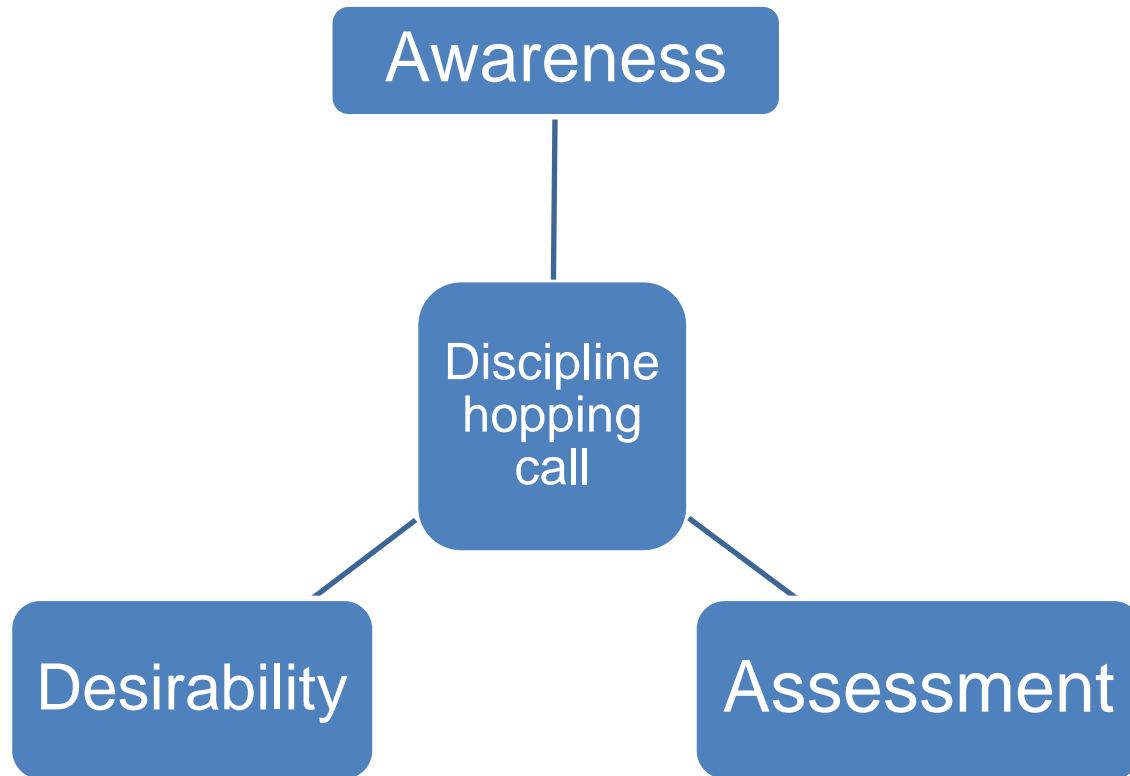


- 20 applications invited to interview
- Assessment panels include academic and business representatives
- Interviews 7/8 June



- Doctoral student competition, prize sponsored by industrial partners – Stage 1 closes 26 April 2018
- Personal cash prizes of £2,000 for four category winners, award ceremony and dinner in Nov 2018
- Last Pioneers event was 2015 (ICT Pioneers)
- For 2018, we have broadened it out to “Connected Nation” pioneers with prize categories covering:
 - Safe and Secure Cyber Society
 - Intelligent Informatics
 - Making Digital Technology Work for People
 - Creative Computing for the Digital Economy
- Aim: recognise exceptional UK doctoral students whose research contributes to Connected Nation, and to raise profile of UK EPS research





Industrial Strategy



Transition to UKRI: The Government's White Paper

The Government published its Industrial Strategy White Paper in November 2017



Establishes the Five Foundations for a transformed economy

- **Ideas** – *the most innovative economy*
- **People** – *good jobs and greater earning power for all*
- **Infrastructure** – *a Major upgrade to the UK's infrastructure*
- **Business Environment** – *best place to start and grow a business*
- **Places** – *prosperous communities across the UK*

Sets four **Grand Challenges** to position the UK at the forefront of the industries of the future

- **Artificial Intelligence and Data Driven Economy,**
- **Clean Growth,**
- **Future of Mobility**
- **Ageing Society**

Potential **Sector Deals** in construction, life sciences, artificial intelligence and automotive industries.

**INDUSTRIAL
STRATEGY**



The Government published its Industrial Strategy White Paper in November 2017



The white paper sets a Commitment to raise total research and development investment to 2.4 per cent of GDP by 2027

As part of this UKRI will deliver:

- £725m **Industrial Strategy Challenge Fund** Wave 2 and commission Eols for further waves of investment
- £300m in world-class **research and innovation talent**
- £750m competitive **Strategic Priorities Fund**
- £115m **Strength in Places Fund**
- £110m **Fund for International Collaborations** to enhance the UK's excellence in research and innovation through global engagement

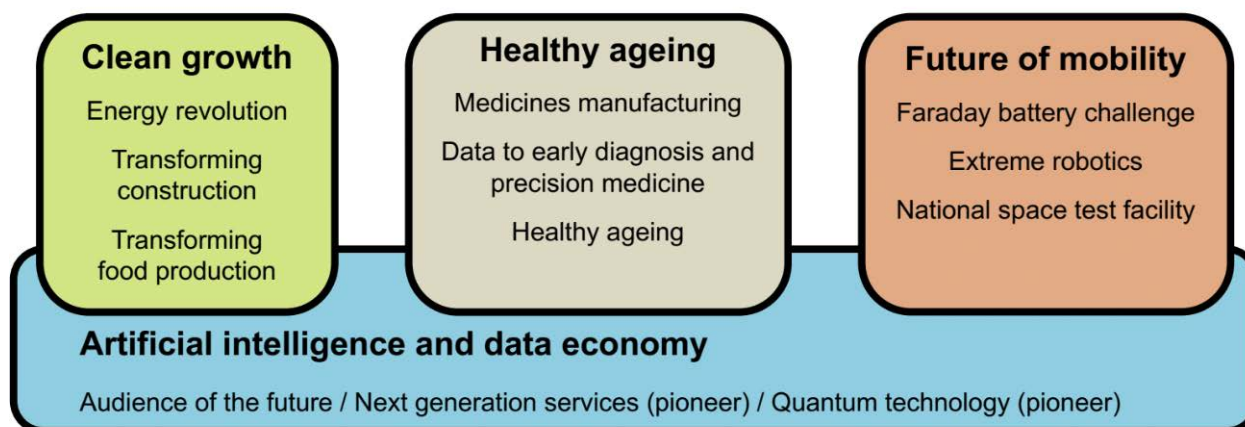
**INDUSTRIAL
STRATEGY**



Challenge Fund aims:



- To build on the UK's world-class research base to **deliver the science that business needs** to transform existing industries and create new ones
- **To accelerate commercial exploitation** of the most exciting technologies the UK has to offer the world, **ensuring that scientific investment truly delivers** economic impact, jobs and growth right across the country
- To support **industry-led programmes** powered by **multi-disciplinary research and business-academic collaboration**



EPSRC and the ISCF: wave one challenges



Medicines manufacturing technologies



Batteries for clean and flexible energy storage



Manufacturing and materials of the future

Satellites and space technology



EPSRC and the ISCF: wave two challenges and pioneers

Transforming
construction



Data to early diagnosis
& precision medicine



Transforming food
production



Next generation
services



Energy revolution



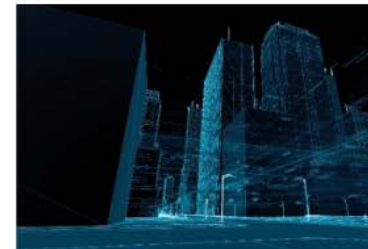
Healthy ageing



Audience of the future



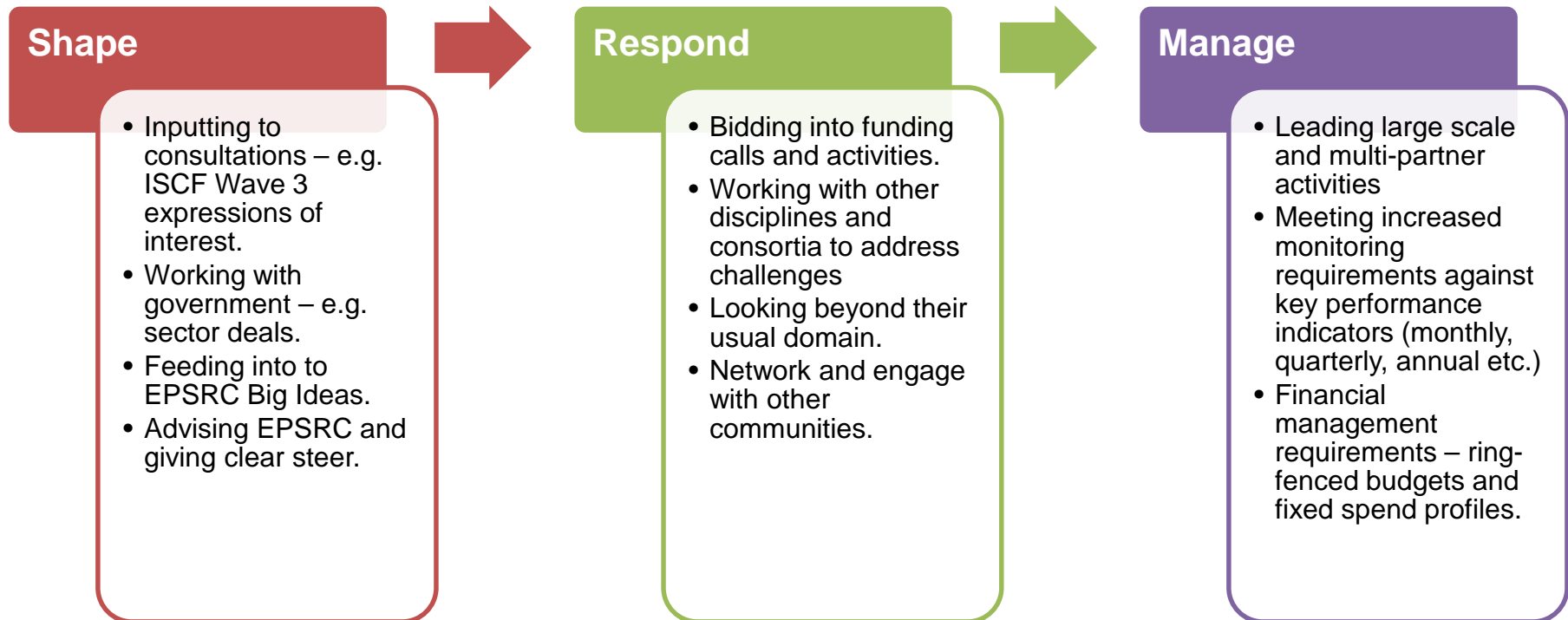
Quantum technology



- Delivered by UKRI with the aim to start in April – going through BEIS/Treasury business case approvals at the moment
- Will be led by a Challenge Director – recruitment underway very soon
- Several linked to Sector Deals and other government plans/policy
- Wave Three Process to be launched imminently



What does all of this mean for the engineering community?



Big Ideas, Strategic Priorities Fund and ICT's Voice



What is Big Ideas?

- Big Ideas is an EPSRC project that is developing a **framework to identify and prioritise new “Big Ideas”** that is flexible, responsive and organisationally robust.
- Big ideas are those that are **hard to achieve, require significant support** (financial, people, skills) to make them possible and have **ground-breaking impacts** (in all forms), **attract public and government enthusiasm and excitement**.
- The framework will **support the development of these ideas from conception to business case** in a consistent manner.
- **Three lenses:** fundamental/blue skies research; multi-disciplinarity; societal/economic/industrial challenge.



Big ideas:

- hard to achieve,
- require significant support (financial, people, skills) to make them possible
- have ground-breaking impacts (in all forms), attract public and government enthusiasm and excitement.

Fundamental/blue skies research; multi-disciplinarity; societal/economic/industrial challenge.



- Responding to a changing environment – have to be ready for `fiscal events`, new `funds` and emerging priorities: GCRF, ISCF, Strategic Priorities Fund, Place Fund
- Ensuring that our community are ready to respond and articulate their ideas in a manner that appeals to government audiences.
- Allowing ideas to be generated, assessed and developed in a transparent manner.



What does Big Ideas mean for me?

- The Big ideas framework provides the opportunity to work with colleagues and communities to develop an exciting and visionary idea into a case for future funding.
- **Transparent process**, providing a clear mechanism for putting these big ideas forward.
- The process **supports the development of an idea** from its original conception into a compelling business case. **IT IS NOT A COMPETITION**
- **Any idea can be pitched**, although there is no guarantee of funding.
- Form and guidance on web site
- Big Ideas inbox: bigideas@epsrc.ac.uk



Protectors of the Long-Term: making a case

Protectors of long-term fundamental research

We are making the case to Government and industry that continued investment in science and engineering is critical to maintaining our world-class UK research base

How can you help us?



**MAKING
A CASE**



- ■ ■ The ICT community is broad with many disparate components that do not always work together
- ■ ■ ICT is pervasive so it is essential the community does work together, for example, to:
 - ■ ■ have a strategy for the area (research and facilities) so as to be ready to take advantage of funding opportunities
 - ■ ■ make its voice heard in a new structure with competing demands – some from communities claiming to act on its behalf



- ■ ■ We need to involve the professional bodies
- ■ ■ The objectives would be:
 - ■ ■ To engender a more collegiate approach from the ICT community.
 - ■ ■ To encourage increased collaboration on strategy between EPSRC's ICT theme and other stakeholders.
 - ■ ■ To identify the major strategic opportunities for the research community as a whole and for the community to become proactive in seeking solutions.

