



# Changing landscapes and new opportunities

23<sup>th</sup> 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**

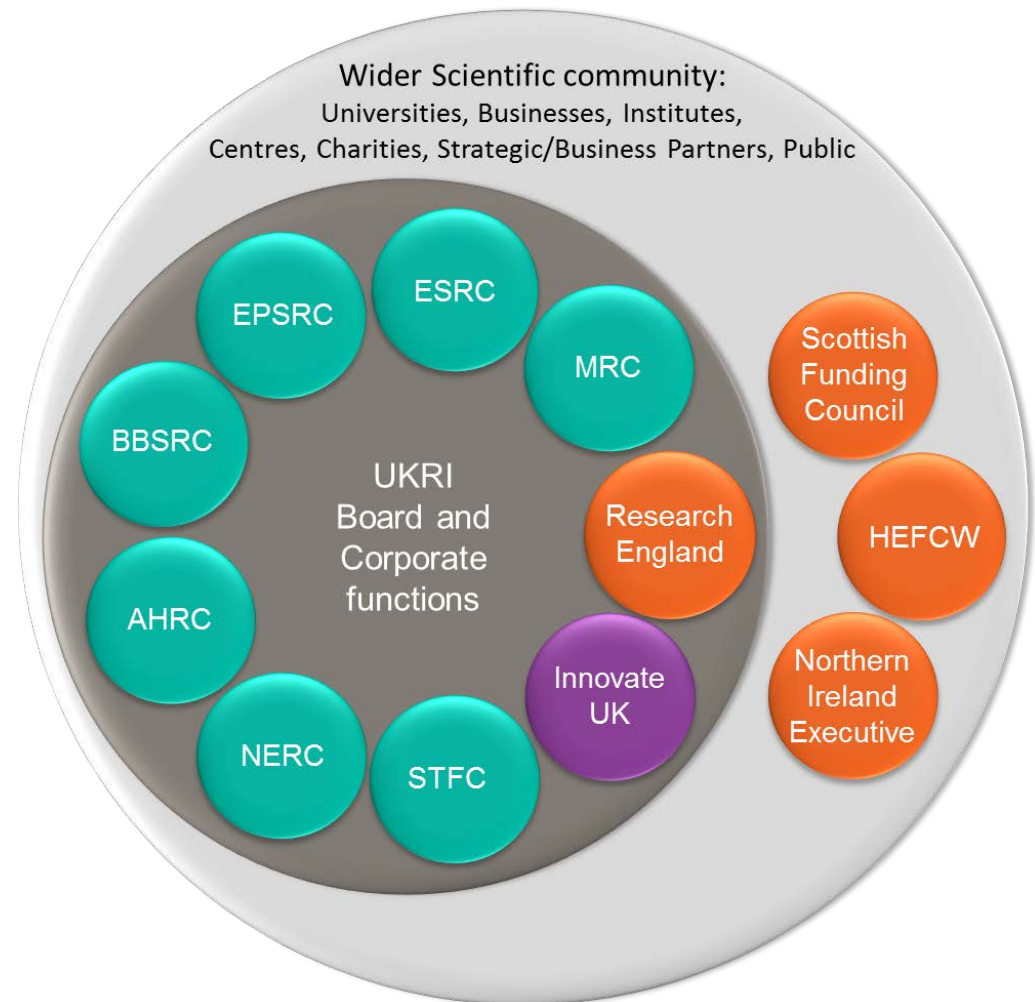
**DRIVERS  
FOR UKRI**



# 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**

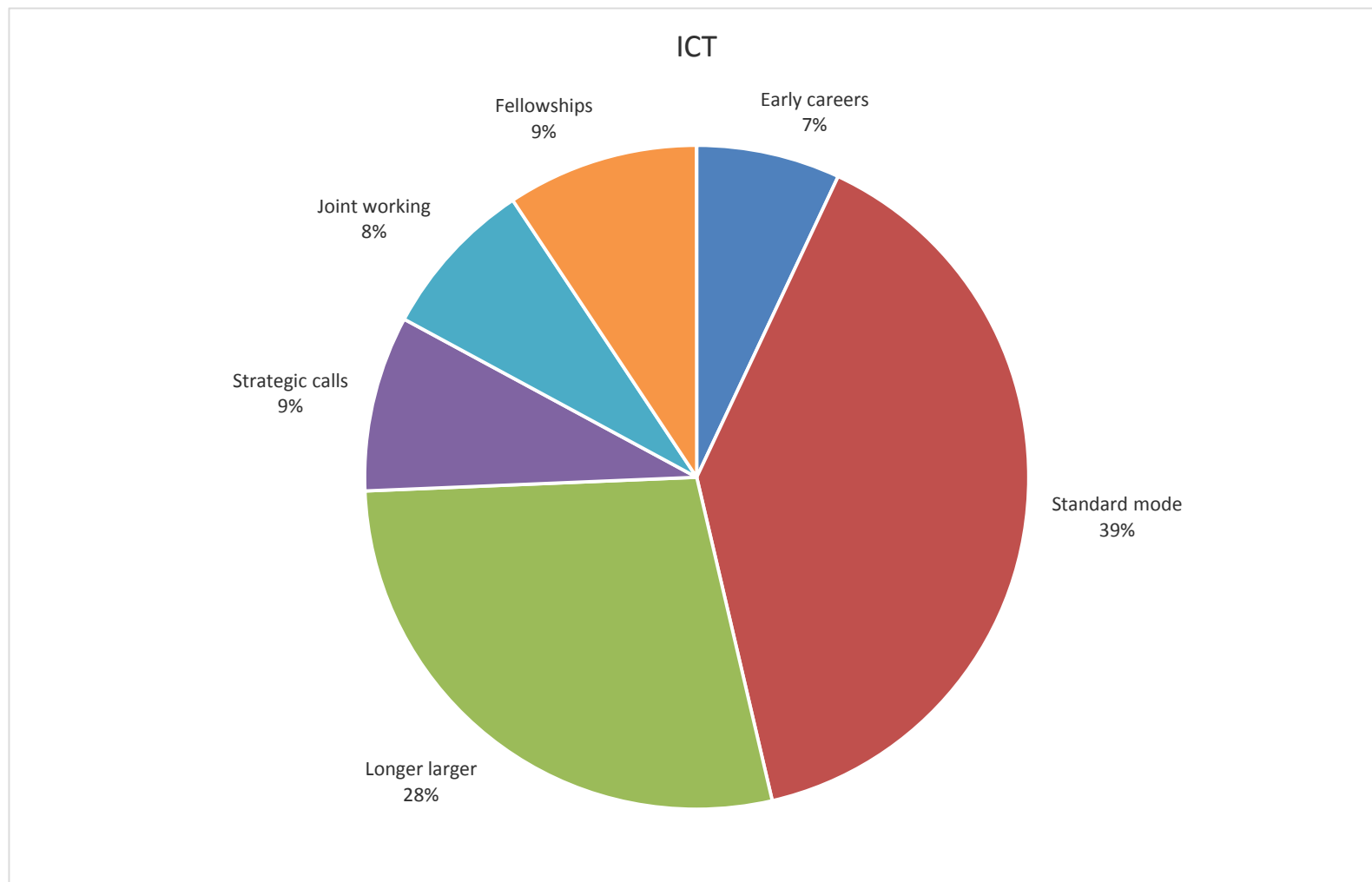


# ICT THEME

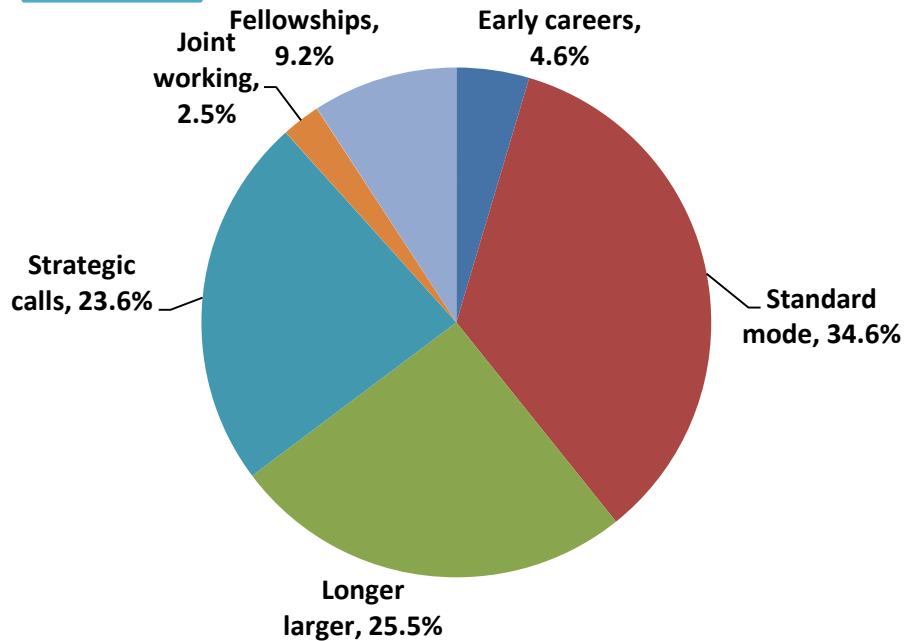




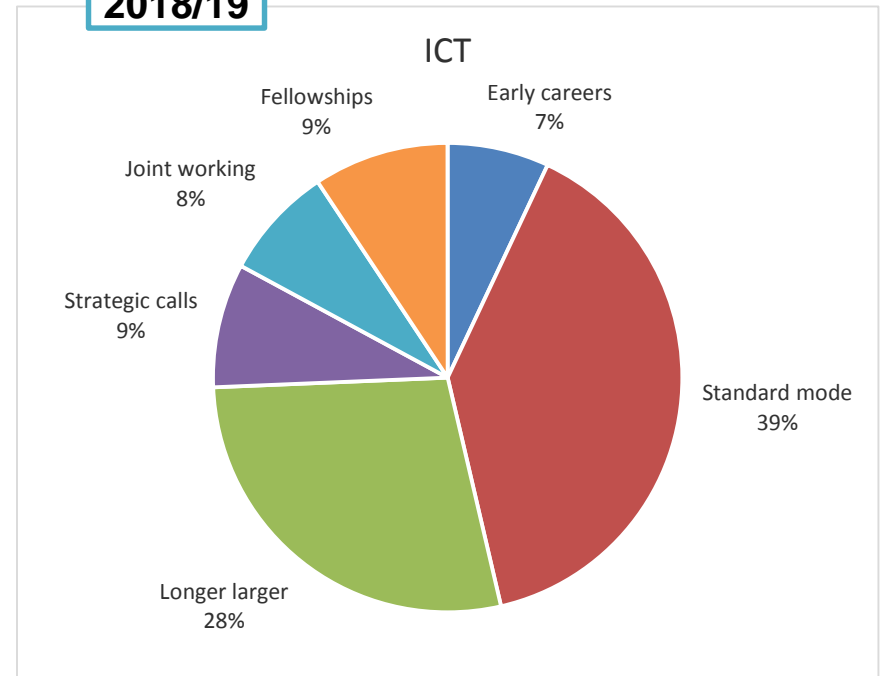
# 2018/19 Planned Commitment



**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

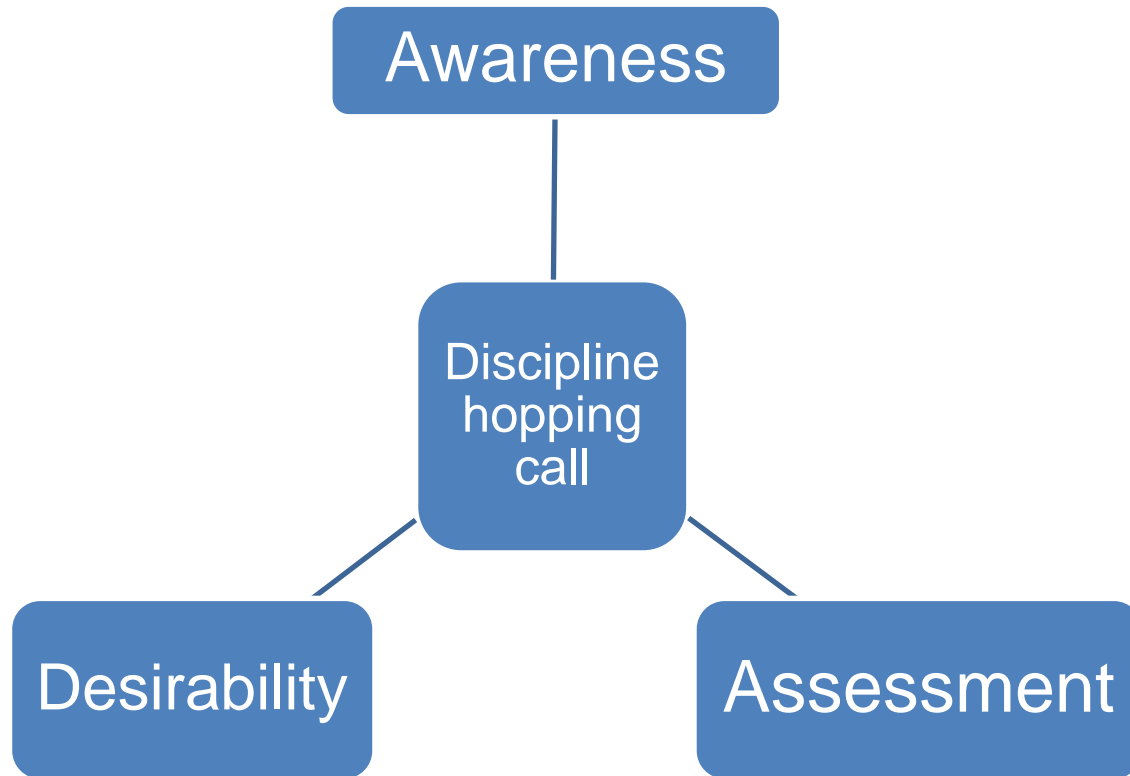


- 20 applications invited to interview
- Assessment panels include academic and business representatives
- Interviews 7/8 June



- 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

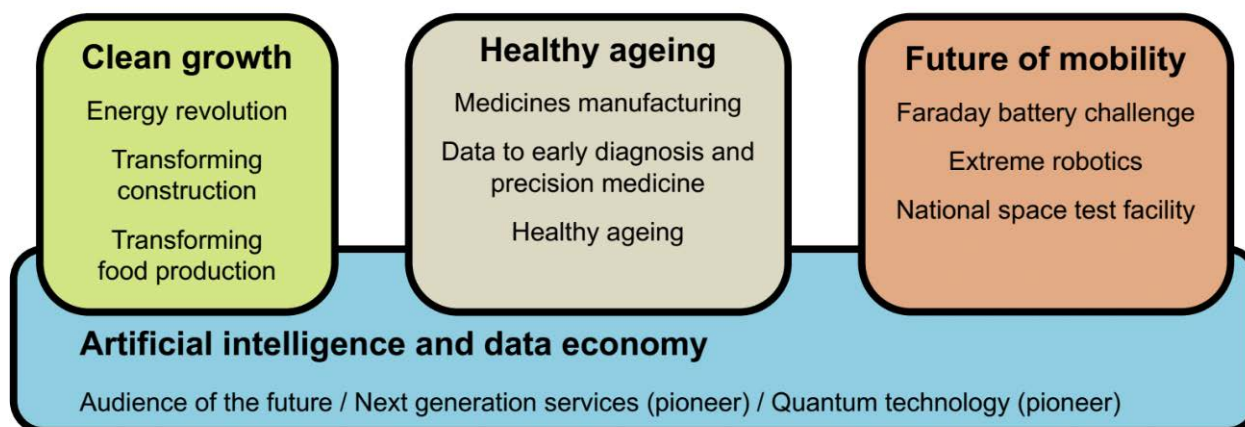
**INDUSTRIAL  
STRATEGY**



## 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



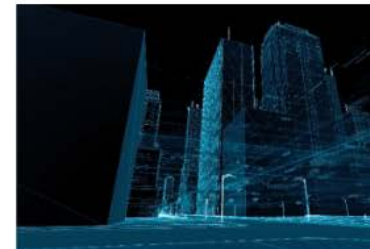
Healthy ageing



Audience of the future



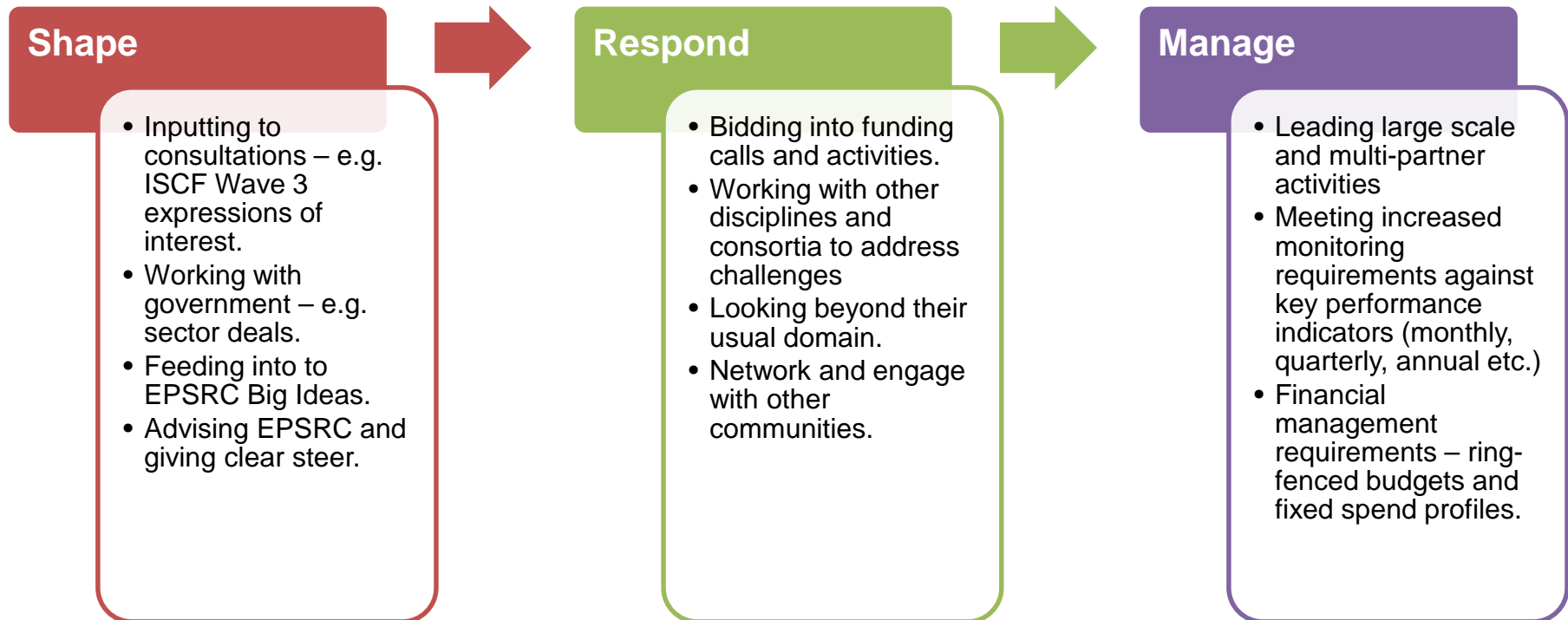
Quantum technology



- 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](mailto: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.

