

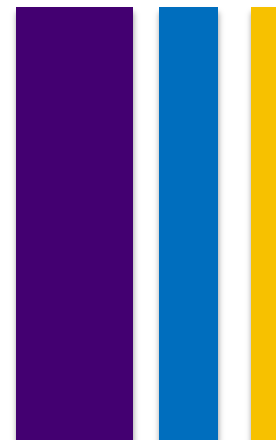


EPSRC perspective on resilience

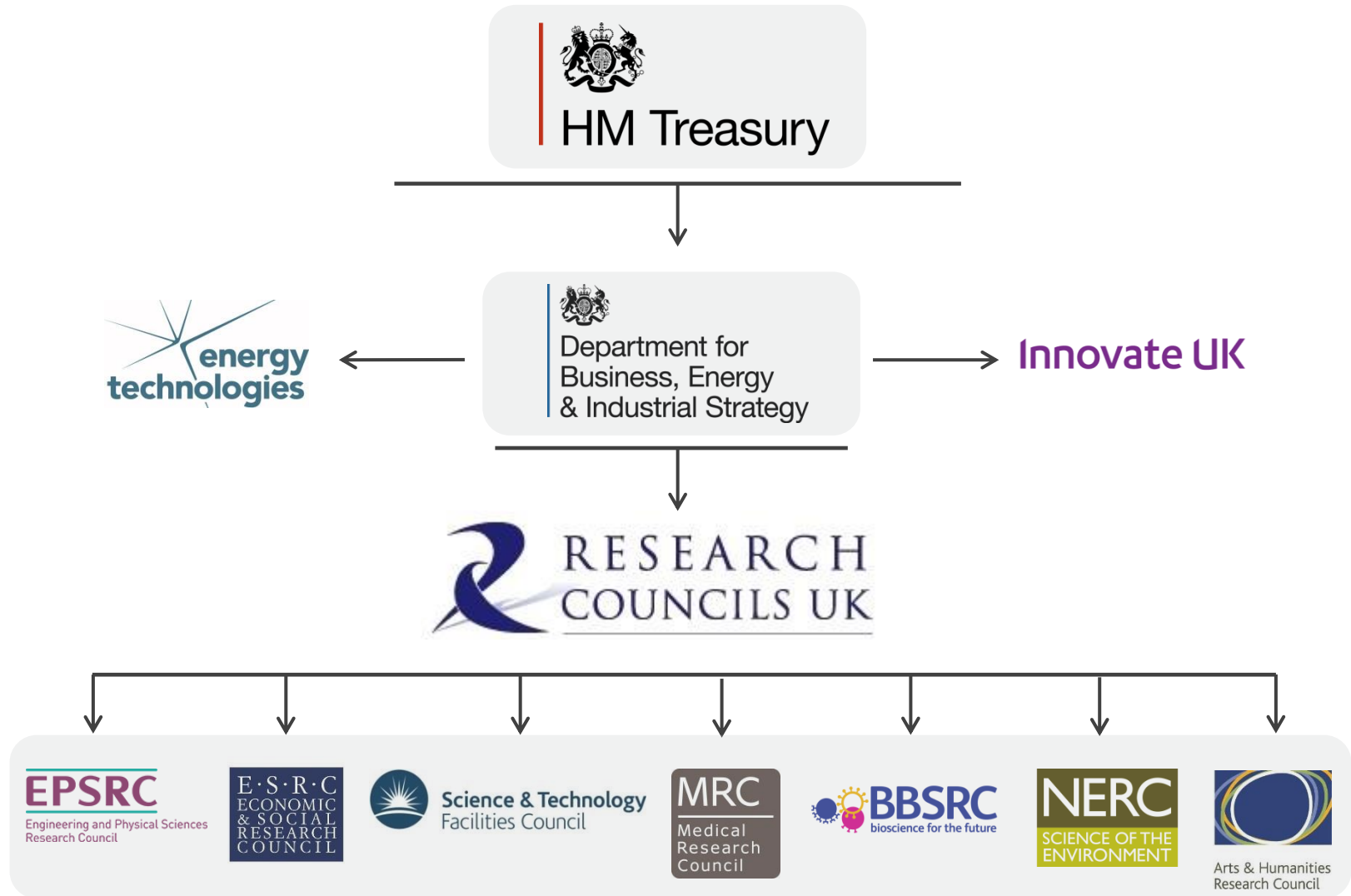
5th December 2017

Nick Cooper

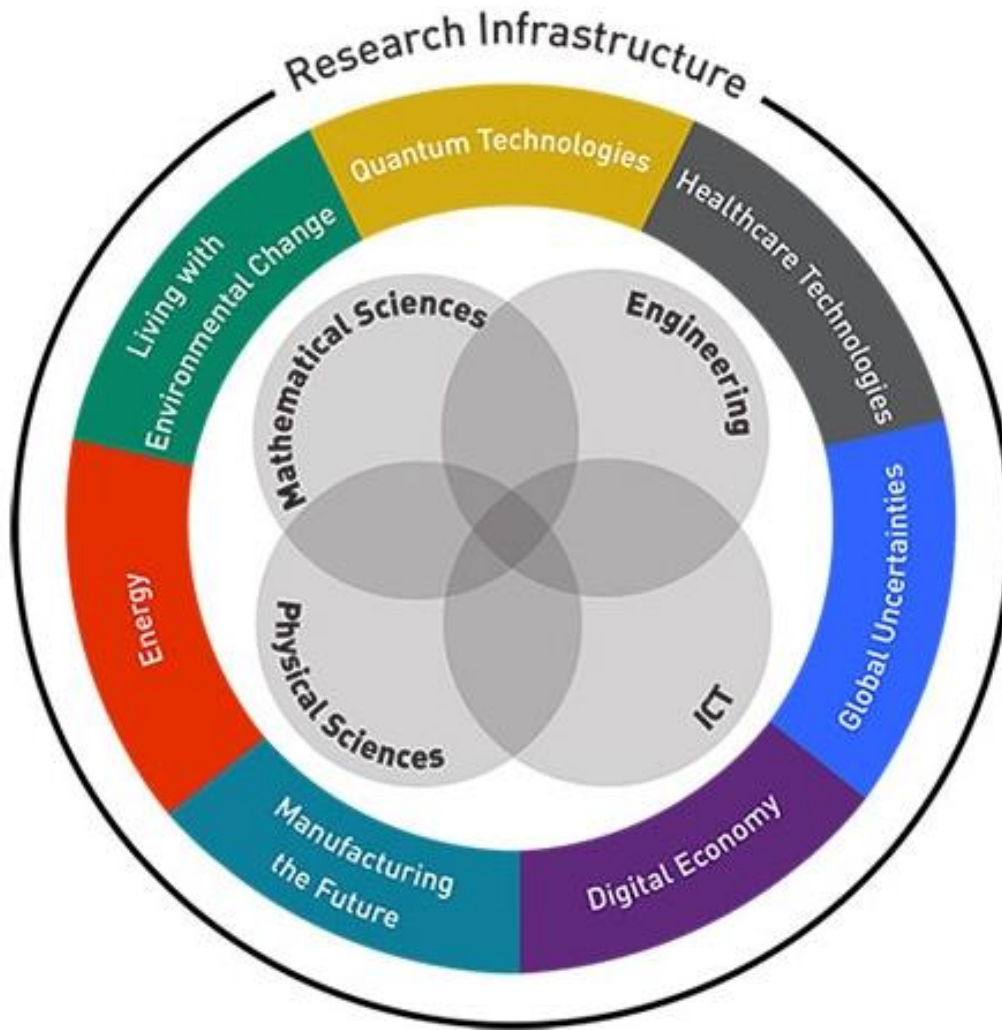
Portfolio Manager – Water /Coastal & Waterway Engineering



Who we are



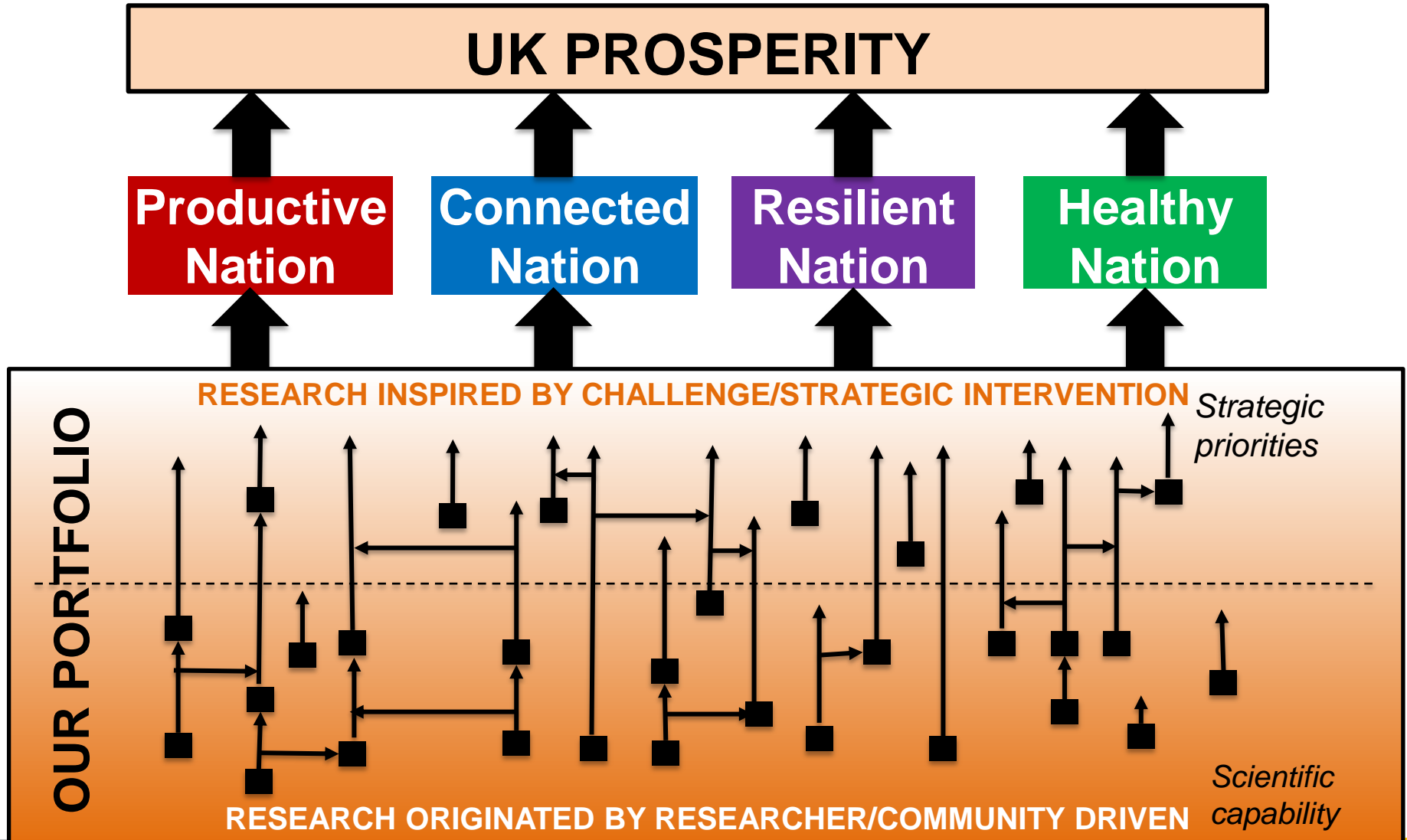
What we do



EPSRC's Strategic and Delivery Plan



Delivery Plan Framework



Productive Nation

**Creative,
innovative,
competitive
economy**

- Introduce disruptive technologies
- Drive innovation through digital transformation
- Focus on circular economy

Connected Nation

**Surviving and
thriving in a
digital world**

- Enable a data driven economy
- Deliver intelligent technologies and systems
- Ensure safe cyber society

Resilient Nation

**Adaptive,
prepared,
sustainable**

- Achieve energy security and efficiency
- Ensure a reliable infrastructure
- Develop solutions to acute threats

Healthy Nation

**Improved
quality of life
through better
mental &
physical health**

- Transform community health & care
- Improve prevention and public health

RESILIENT NATION – Adaptive, prepared, protected, secure, safe, sustainable

R1: Achieve energy security and efficiency

R2: Ensure a reliable infrastructure which underpins the UK economy

R3: Develop better solutions to acute threats: cyber, defence, financial and health

R4: Manage resources efficiently and sustainably

R5: Build new tools to adapt to and mitigate climate change

For example:

Systems engineering, complexity science and uncertainty quantification to understand interdependencies for better decision making

Materials research and resource efficiency to enable sustainable use of assets

Infrastructure engineering to design, build and test across length-scales

Data science and analytics to anticipate, understand and model threats and optimise solutions

Generation, storage and transmission technologies for future energy options and reducing energy consumption and demand

RESEARCH CAPABILITIES

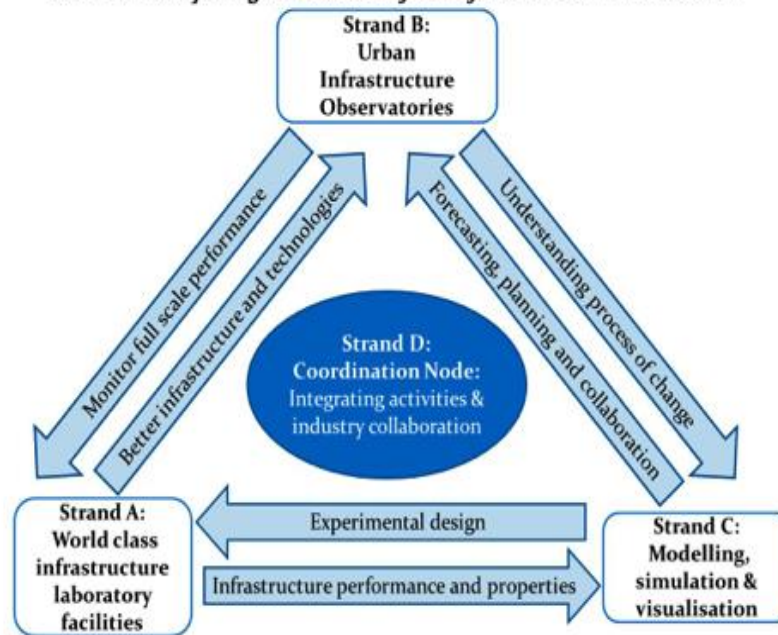
SKILLS & LEADERSHIP

UK Collaboratorium for Research in Infrastructure & Cities (UKCRIC) Vision

“To understand how to make the system of systems that constitutes the nation’s infrastructure more resilient to extreme events and more adaptable to changing circumstances and contexts, and how it can provide services that are more affordable, accessible and usable to the whole population”

“To provide leadership and support for the development and growth of a coordinated and coherent, world class, UK-based national infrastructure research community, which engages government, city and commercial policy makers, investors, citizens and academia in a joint venture that drives innovation and value creation in the exploitation of services provided by national infrastructure.”

UKCRIC: a synergistic vision for infrastructure research



- ■ ■ Adaptation and Resilience in the Context of Change
- ■ ■ Two network grants: 2009-14 £815k; 2014-18 £1.22m
- ■ ■ Aims: to provide access to knowledge, data and tools; draw on research outputs; offer facilitated knowledge exchange
- ■ ■ Recent 6-month £46k knowledge exchange grant
 - ■ ■ To analyse the contributions and value of EPS research and investments towards a Resilient Nation and so to explore options for continuing to promote and enhance their value to the nation



How can our cities, their hinterlands, linking infrastructure, rural surround and the regions they are in, be transformed to be resilient, sustainable, more economically viable and generally better places to live?

- **8 fellowships funded in 2016**
- **Total value £4.6m**
- **Recent second call – 7 further Environmental Change fellows funded in April 2017 (£4.3m)**

How can digital technologies be applied to help the human and natural environments be more resilient and adaptable to climate change?

- **2 Senior Fellowships funded**
- **Total value £4.2m**

www.epsrc.ac.uk

☎: 01793 44 4441

✉: nicholas.cooper@epsrc.ac.uk

 @EPSRC

