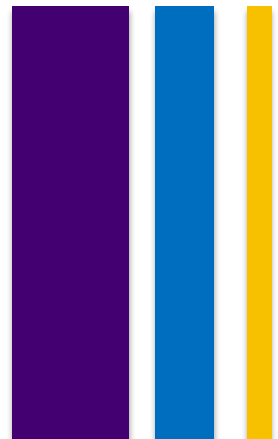




AMR and EPSRC

AMR Networks Meeting, Sheffield, Sept '16
Christina Turner and Stephanie Newland



- ■ ■ AMR at RCUK
- ■ ■ EPSRC Outcome Framework – Healthy Nation
- ■ ■ EPSRC in the health landscape
- ■ ■ AMR in the EPSRC landscape
- ■ ■ Funding
- ■ ■ Questions



“Unless we take global action, antimicrobial resistance will become an even greater threat to mankind than cancer currently is.” – George Osborne, April 2016

- launched in 2014,
- identified four themes to address the AMR challenge :
 - Theme 1:** Understanding the resistant bacteria
 - Theme 2:** Accelerating therapeutic and diagnostics development
 - Theme 3:** Understanding the real world interactions
 - Theme 4:** Behaviour within and beyond the healthcare setting
- foster collaboration between diverse disciplines and share information across the public and private sectors.

At least £35M allocated by RCUK to date across this initiative

EPSRC :

- £6M of Bridging the Gaps awards to encourage specific links between EPS and AMR,
- >£1M to innovation and collaborative grants in theme 2.
- Relevant to several challenges within the HT strategy (Future Therapies, Optimising Treatment)

More information on the MRC website [here](#)



Science for a successful nation

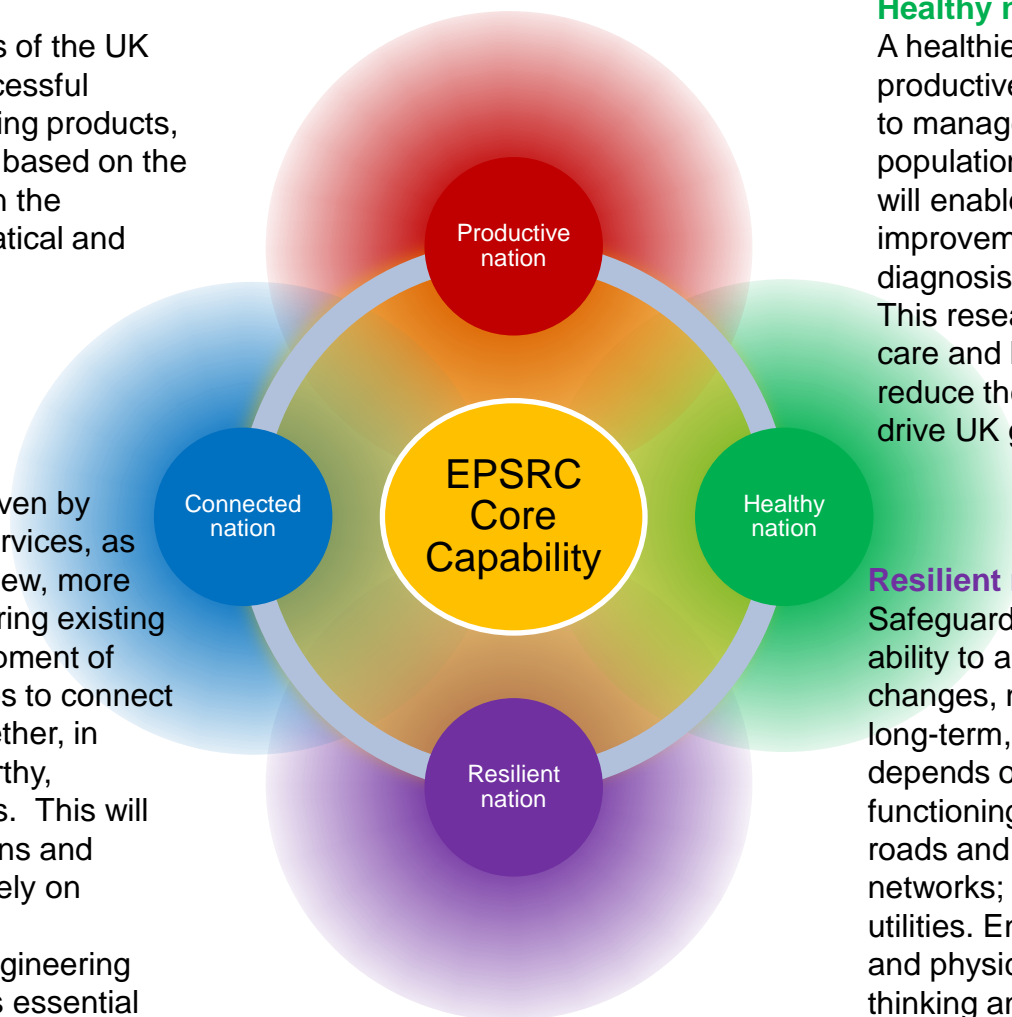
Developing the case we are making to Government

Productive nation

The future competitiveness of the UK economy requires the successful development of world leading products, processes and technology based on the discovery and innovation in the engineering, ICT, mathematical and physical sciences

Connected nation

The UK's success will be driven by whole new industries and services, as yet unimagined, as well as new, more cost effective ways of delivering existing services through the development of transformational technologies to connect people, things and data together, in safe, smart, secure, trustworthy, productive and efficient ways. This will drive growth across all regions and sectors of the UK. This will rely on discovery and innovation in mathematics, computing, engineering and physical sciences and is essential to deliver a knowledge economy.



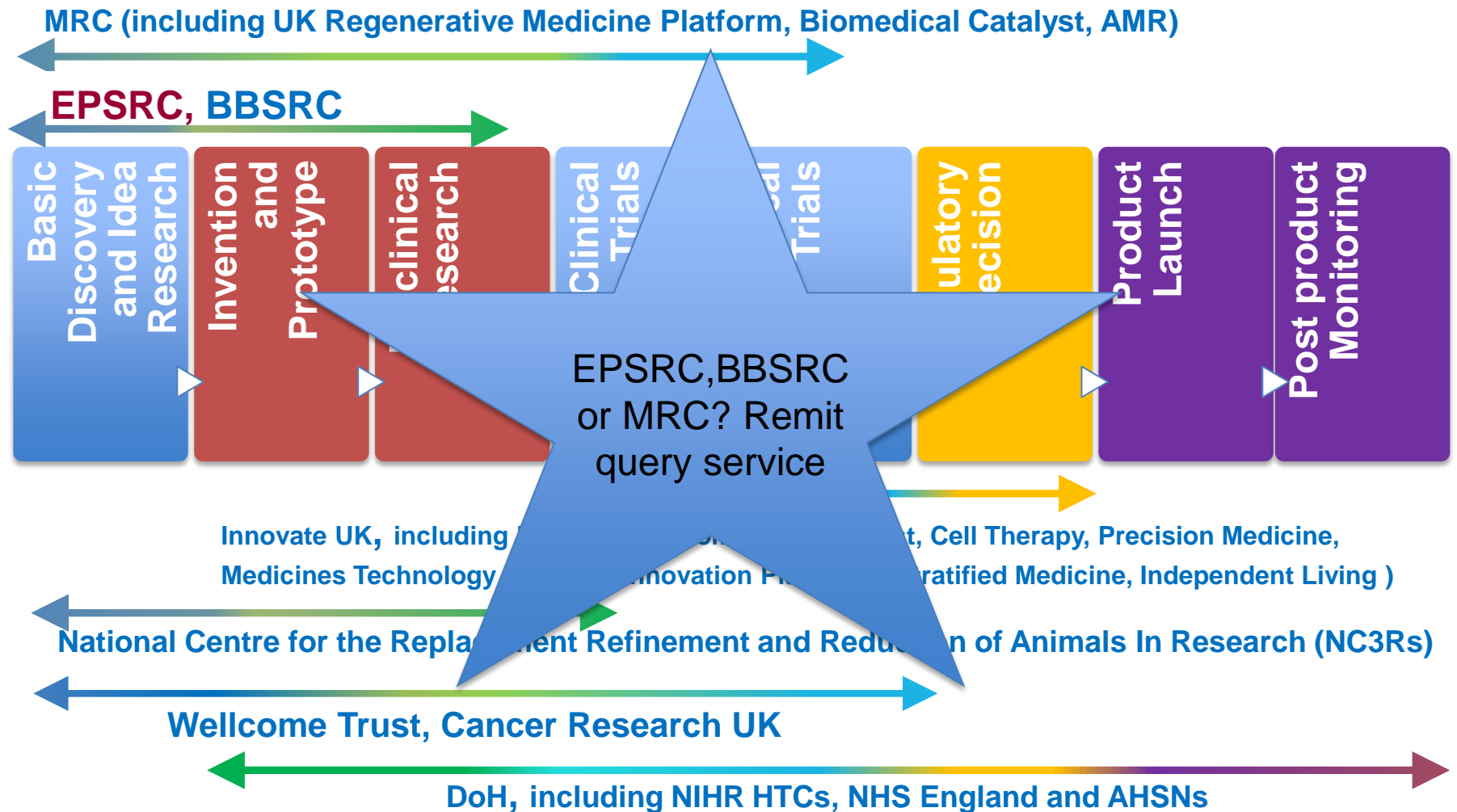
Healthy nation

A healthier society will be more productive and resilient, and better able to manage the impacts of an ageing population. Innovative technologies, will enable transformative improvements in the prevention, diagnosis and treatment of illness. This research will deliver higher quality care and better patient outcomes, will reduce the cost of healthcare and will drive UK growth.

Resilient nation

Safeguarding our way of life requires an ability to anticipate, adapt and respond to changes, natural or man-made, short or long-term, local or global. UK prosperity depends on the smooth and sustainable functioning of complex infrastructures: roads and railways; communications networks; water, energy and waste utilities. Engineering, mathematics, ICT and physical sciences can lead the new thinking and innovation needed to build a truly resilient nation for the future.

EPSRC in the healthcare landscape



HEALTHY NATION – Improved quality of life through better mental and physical health

H1:
Transform
community
health and
care

H2: Improve
prevention
and public
health

H3: Optimise
diagnosis
and
treatment

H4: Develop
future
therapeutic
technologies

H5: Advance
non-
medicinal
interventions

Advanced materials

Disruptive technologies for sensing and analysis

Future manufacturing technologies

Medical device design and innovation

Novel computation and mathematical techniques

Novel imaging technologies

RESEARCH CAPABILITIES

SKILLS & LEADERSHIP

[Link to outcomes descriptions on EPSRC website](#)

■ ■ ■ **Theme 1:** Understanding the resistant bacteria

- ■ ■ Tools for understanding bacteriology e.g. novel chemistry biology tools

■ ■ ■ **Theme 2:** Accelerating therapeutic and diagnostics development

- ■ ■ Improved drug delivery strategies (H3)
- ■ ■ Novel synthesis and scale-up for new drug/vaccines (H3)
- ■ ■ Smart surfaces and dressings (H1,2,3)
- ■ ■ Non or minimally invasive therapies/surgery/diagnostics (H3,4,5)

■ ■ ■ **Theme 3:** Understanding the real world interactions

- ■ ■ Spread and prevention (H1,2)
 - ■ ■ Built environment – e.g. how to design buildings and environments to prevent infection?
 - ■ ■ Novel materials to inhibit spread/prevent infection
 - ■ ■ Surveillance and data analytics to understand spread/prevent
 - ■ ■ Improving water quality - understanding principles of transmission and diagnostic evaluations to design and optimise water treatments

■ ■ ■ **Theme 4:** Behaviour within and beyond the healthcare setting

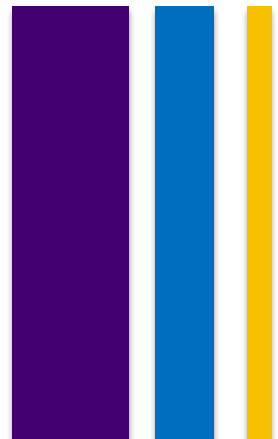
- ■ ■ H1 – Self management; H2 – prevention; H3 – optimise diagnostics/treatments; H4 – novel therapies; H5 – minimally invasive





Monitoring Bridging the Gap Awards

Why? What? When?



- ■ ■ EPSRC wants to use the monitoring in order to
 - ■ ■ Capture activities planned and undertaken
 - ■ ■ Make sure institutions are using/managing the money
 - ■ ■ Create case studies
 - ■ ■ Helps publicise EPS involvement in this high profile agenda
 - ■ ■ Sell to Government/parliament
 - ■ ■ Encourages wider participation of EPS
 - ■ ■ Scope out emerging research themes
 - ■ ■ How this relates to future funding
 - ■ ■ How could/should EPSRC best support further AMR work
 - ■ ■ Informs RCUK AMR strategy
 - ■ ■ Informs EPSRC wider strategy development
- ■ ■ This is not a stage-gating exercise or mid-term review

■ ■ ■ Section 1 - Summary of main outputs* of activities events

*Note we're not asking for details of papers etc. as these should be captured in Research Fish, we don't want you to duplicate effort.

■ ■ ■ Section 2 – High level summary of 'plus' funding as a funding mechanism

■ ■ ■ Section 3 – Case studies and thoughts on emerging themes, directions of travel

■ ■ ■ This is your opportunity to help us sell EPS involvement in AMR and guide EPS AMR research support

■ ■ ■ Why are these opportunities? Why the UK?

■ ■ ■ Annex Tables

■ ■ ■ 1a - List all activities and costs

■ ■ ■ 1b - Details of **top five** most expensive and top five most influential activities/events (not plus funding)

■ ■ ■ One table per activity

■ ■ ■ If you don't have five of each that's ok

■ ■ ■ If they crossover that is fine too – you don't need to duplicate

■ ■ ■ 2 – Summary for each plus funding activity



1.Summary and Reflections of past and planned events/ activities

Please keep this section brief and only to bullet points where possible.

List of key successes

List of key difficulties and indicate if they were solved

New collaborations that emerged

Number of:

- 1. Funding applications submitted (include funding body)**
- 2. Papers submitted**
- 3. Projects undertaken**

that have resulted from BTG

How do the undertaken events/activities relate to the impact and engagement plans detailed in your 'Pathway to Impact' statement?

How have events/activities developed over the course of the award?

Indication of total money spent

Activity plans for final stage of the award

2.Summary and Reflections of ‘plus’ funding

Management of ethical approvals (human and animal)

How was (and will) the feasibility funds managed and awarded? Has the strategy evolved over the award?

How does the research supported so far relate to the original funding application?

Indication of total money spent

Future potential call ideas and scoping activities

3.Emerging opportunities for UK research direction/strategy

Key success case studies with details (please include: disciplines involved, grants/projects/papers that have evolved, key outputs in terms of science progress etc..)

Max 1 page.

What strategic opportunities have been highlighted through the network’s activities and how do they relate to the AMR initiative/ Healthcare Technologies Grand Challenge activities/ EPSRC Healthy Nation Outcome?

Max 1 page.

What opportunities have arisen as a result of this award that would otherwise not been possible or much harder to achieve?

Max 1 page.

1A. Past and planned events including 'plus funding'

Date	Plus funding? (Y/N)	Type of Event/Activity	Indication of event cost (£)

1B. Summary and Reflections of Past and Future Events/ Activities

Please complete one table for each of your top five most expensive events (not including plus funding) and one table for each of your top five most influential events (not including plus funding).

Activity

Date

Aim

Target Audience

Key Performance Indicators (KPI)

(i.e. number of people attending, audience type, number of institutions/disciplines represented, outputs (new collaborations, applications for 'plus' funds))

Relationship to 'pathway to impact' statement

Successes

Challenges

Summary

2. Summary and Reflections of future and present 'plus' funding
Please complete one table for each of your plus funded projects.
Project title
Date
Aim
PI's involved
Disciplines involved
Grant total
Flag any ethical considerations related to animal use and human participation
Impact plans
How was the project managed and monitored?
Successes (i.e. grants, papers, projects submitted or accepted)
Difficulties

Here we do need the details of papers etc. because of the indirect nature of the funding. These outputs can be linked to the BtG award on Research Fish but we want also to capture the link to actual researchers involved in each project.

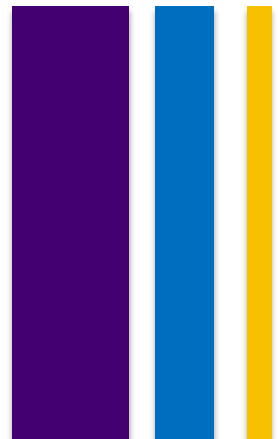
When?

- ■ ■ We will email the form to all PIs next week
- ■ ■ Please return by 2 December 2016
- ■ ■ If there are aspects we feel should be fed back either to the whole group, or to individual award holder we will do so in the new year.

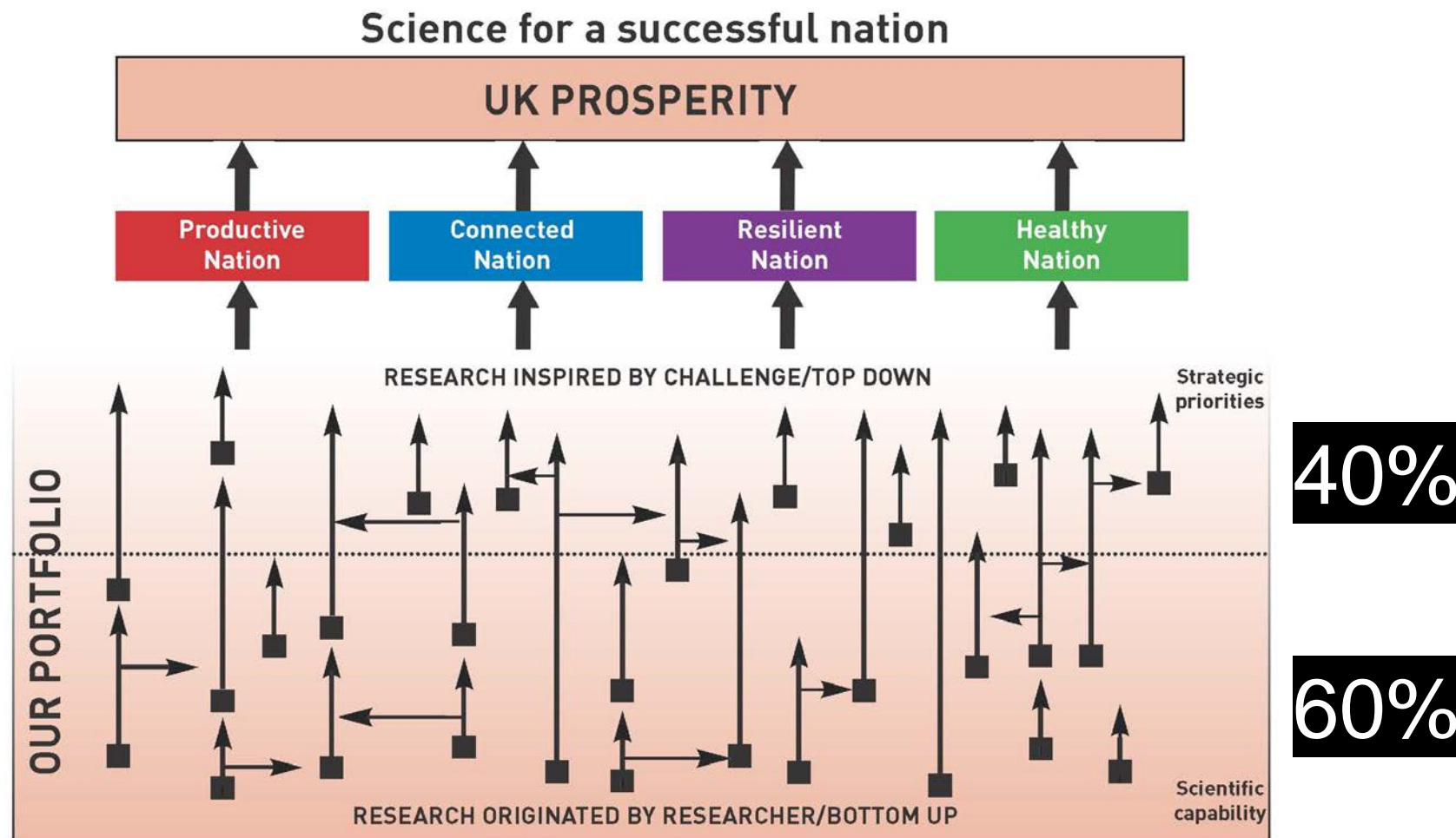




Funding



60% 'bottom-up', investigator-led ideas



- ■ ■ In the immediate future EPSRC will be investing more through bottom-up activity.
 - ■ ■ It is unlikely EPSRC will have calls in this area
 - ■ ■ Other Councils are leading calls where EPSRC could co-fund.
- ■ ■ This is an important area.
- ■ ■ You don't have to wait
 - ■ ■ If its novel EPS research that can contribute to tackling AMR you should apply, at any time, through standard mode



- ■ ■ Not expressing the novelty of the EPS and challenge of the science
 - ■ ■ Too much focus on the importance of the application
 - ■ ■ This is particularly true when the novelty is bringing to existing techniques/approached together in a novel way
- ■ ■ Not getting clinicians involved early enough to help frame healthcare relevant proposals
- ■ ■ Not taking advantage of ability to request resources for Pathways to Impact
 - ■ ■ Making sure impact will arise, arise more quickly, and bring benefit to the UK



- ■ ■ Healthcare Technologies Grand Challenge Strategy launched 2015
 - ■ ■ Accelerating Impact is a key strategy for EPSRC in particular in Healthcare related grants
 - ■ ■ Embed thinking about translation and impact **FROM THE OUTSET**
 - ■ ■ Researchers **do not have to do translation**
 - ■ ■ Its about preparing research for those that may take it up in the future
- ■ ■ What is the toolkit?
 - ■ ■ A spotlight on:
 - ■ ■ resources available to researchers
 - ■ ■ behaviours we want to encourage
- ■ ■ [Healthcare Technologies Strategy](#)
- ■ ■ [Toolkit Link](#)



