



# *EPSRC Funding for Engineering*

**Philippa Hemmings**

**Head of Process, Environment & Sustainability**

# Setting the context of future strategy

## The world is changing

It has never been more important to work together to deliver a healthy, sustainable and prosperous future for the UK

- Economic & political realities
- Government directions
- National research landscape
- International context

# Challenges and Issues for EPS Research

Research Field	World Ranking	Trend 96-05
Bioscience	2	↔
Business	2	↑
Clinical	2	↑
Environmental	2	↔
Humanities	2	↔
Pre-clinical	2	↔
Social Sciences	3	↑
Mathematics	4	↔
Physical Sciences	4	↑
Engineering	4	↔

## ■ Observations on the current portfolio

EPSRC funding 900 departments:

55% <£1M;

50% of DTA funds in 10 universities

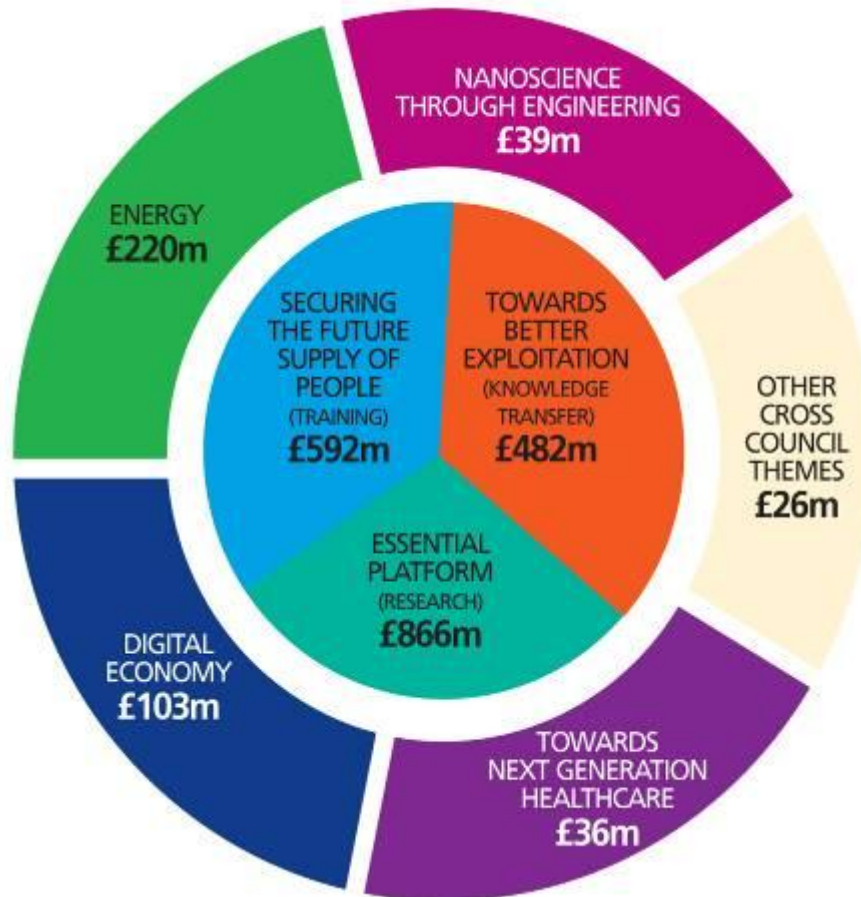
85 universities hold project studentships (but 50% in 10 institutions)

## ■ Challenge

International context and Drayson focus agenda

# Where are we now?

## EPSRC Delivery Plan 2008-11



Living with environmental change (£9M)  
Global threats to security (£6M)  
Ageing: life-long health and wellbeing (£11M)

# The current CSR features RCUK Cross Council themes

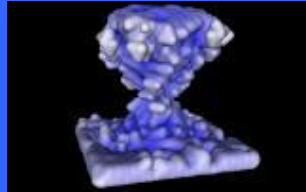


RESEARCH  
COUNCILS UK

## NANOSCIENCE THROUGH ENGINEERING TO APPLICATION

*EPSRC lead*

BBSRC  
ESRC  
NERC  
STFC  
MRC



## LIVING WITH ENVIRONMENTAL CHANGE

EPSRC  
BBSRC  
*NERC lead*

ESRC  
STFC  
MRC  
AHRC



## GLOBAL UNCERTAINTIES: security for all in a changing world

EPSRC  
BBSRC  
*ESRC lead*

NERC  
STFC  
MRC

AHRC



## ENERGY

*EPSRC lead*

BBSRC  
ESRC  
NERC  
STFC



## DIGITAL ECONOMY

*EPSRC lead*

AHRC  
ESRC  
MRC



## LIFE LONG HEALTH & WELLBEING

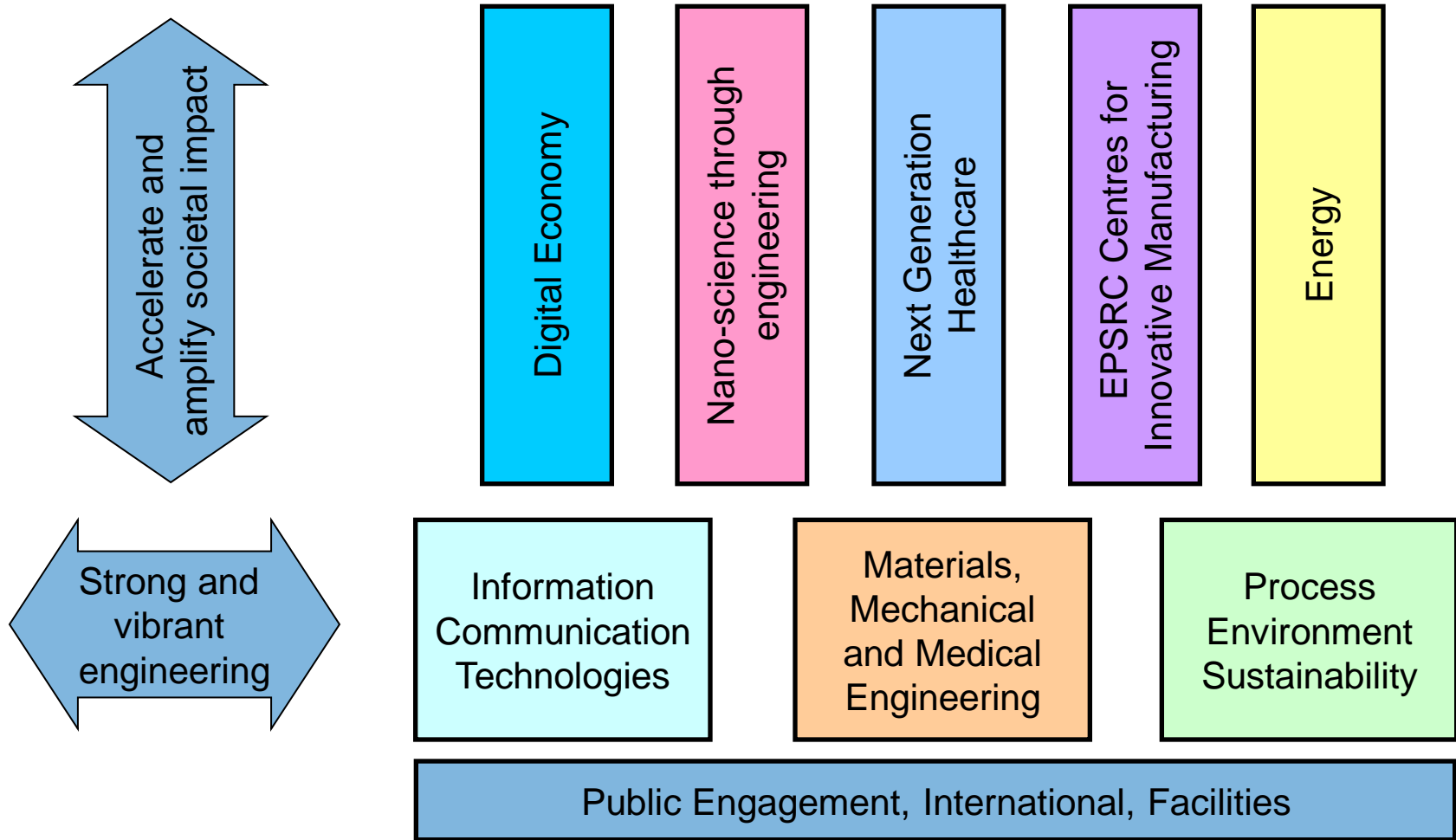
EPSRC  
BBSRC  
ESRC  
NERC  
STFC  
*MRC lead*  
AHRC



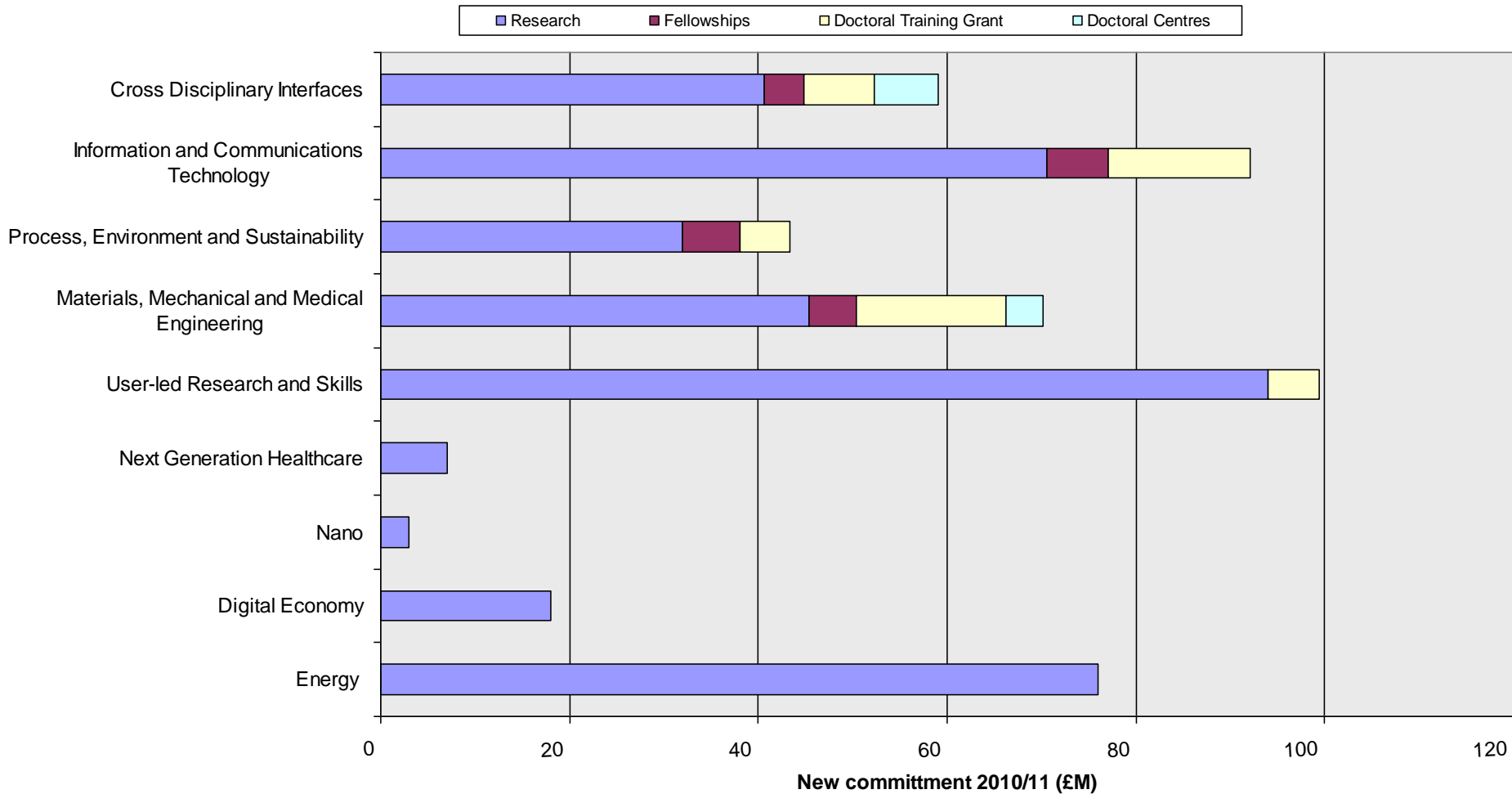
**EPSRC**

Pioneering research  
and skills

# EPSRC Support for Engineering



# Planned Commitment 2010/11: Engineering



# Our new strategic message

## The heart of discovery and innovation

We generate the fundamental knowledge and skilled people essential to:

- government
- business and industry
- other research organisations

## Science and engineering drive the global economy.

Engineering and physical sciences research is key to tackling grand challenges such as:

- energy security
- our ageing population
- crime
- economic resilience





# Three new strategic goals

## 1. DELIVERING IMPACT

- We will ensure excellent research and talented people can deliver maximum impact for the health, prosperity and sustainability of the UK.
- We will embed pathways to impact.
- We will promote excellence and impact and ensure it is visible to all.

## 2. SHAPING CAPABILITY

- We will shape the research base to ensure it delivers high quality research for the UK, both now and in the future.
- We will stimulate even more creativity and reward ambition.

## 3. DEVELOPING LEADERS

- We will commit even greater support to the world-leading individuals who are delivering the highest quality research for the UK.
- We will foster their ambition and adventure and help them to connect with the best, wherever and whoever they are in the world.

# EPSRC in a new Spending Period

**Delivering Impact**

Pathways to  
Impact

Marketing the  
Portfolio

**Shaping Capability**

Cross-Disciplinary  
working

Priorities and Opportunities

Green  
Technologies

High Value  
Manufacturing

**Developing Leaders**

**EPSRC**

Engineering and Physical Sciences  
Research Council



# Opportunities for Future support

## Shaping Capability

### RESPONSIVE MODE

#### Programme grants

- ❖ “Best with Best”
- ❖ Potential for transformation/step change

#### Platform grants

- ❖ Sustaining a group and building new capability
- ❖ Building on past EPSRC funding



# Opportunities for Future support

## Developing Leaders

### Fellowships

- ❖ Career Acceleration
- ❖ Leadership
- ❖ Pilot of Dream fellowships

### Challenging Engineering

### Policy Secondments

- ❖ Pilot with DEFRA



# Research Challenges identified in the Review of Ground and Structural Engineering

*“...the UK is entering a new era where it will face a number of difficult challenges.... The research community must establish a vision for what research is needed now and in the future.”*

- Sustainable construction and Infrastructure: Whole life cycle approach
- Resilient Infrastructure
- Monitoring and field investigation of existing infrastructure
- Novel materials and novel use of materials



# What else will shape future funding?

## (1) Balance of People 2009: engineering outcomes

### Postgraduate

- Tailor PhD experience and training to the individual.  
Promote DTA flexibility and diversity
- Need a balance between traditional PhD and Engineering Doctorate provision

### Early Career

- Support a range of approaches at early career stage
- Develop the Challenging Engineering scheme
- Promote take-up and success of EPSRC Fellowships
- Evaluate impact and achievements of EPSRC/RAEng Fellowships
- Closer engagement with Engineering Departments in early career support

### Established Career

- Introduce International Collaboration Sabbaticals(M3E)
- Pilot DREAM Fellowships (ICT/PES)



## (2) Portfolio Evaluation

- 2004 International review of Engineering Research
- 2008 International Review of Materials Research
- 2009 Review of Civil/Structural Engineering
- 2009 Healthcare Strategy Days
- 2010 Benchmarking Manufacturing Research
- 2010 RCUK Review of Energy
- 2010 Review of Mechanical Engineering
- 2010 Systems Engineering Theme Day



Table 2.1: PSA target metrics for the UK research base

Research field	World ranking	Trend 96-05	Highlights
Bioscience	2	↔	• UK increasing overall citation and highly cited share.
Business	2	↑	• UK very high on citation "productivity".
Clinical	2	↑	• Agile research base – second in seven out of ten broad research disciplines
Environmental sciences	2	↔	
Humanities	2	↔	
Pre-clinical	2	↔	
Social sciences	3	↑	
Mathematics	4	↔	
Physical sciences	4	↑	
Engineering	4	↔	

# Coordination across Engineering within EPSRC

## Strategy

- Engineering research training and careers
- Joint evaluations (e.g. People and Systems Theme Day)

## Potential new approaches

- Engineering SAT Missions (USA, Germany)
- Frontier Manufacturing: Resilient Economy

## Delivery

- Challenging Engineering (early research careers)
- RAEng/EPSRC Fellowships
- Engineering Platform Grants

## Relationships

- Engagement with RAEng
- Joint departmental visits
- Re-launched engineering newsletter

