EPSRC SUPPORT FOR STATISTICS

COPS 6 June 2013

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EPSRC Context

- Doing more with less (a target to reduce administration costs by 30% by the end of the Delivery Plan Period)
- Eight Great Technologies: Booklet written by the Science Minister (includes Big Data, Synthetic Biology, Robotics) https://www.gov.uk/government/news/600-million-investment-in-the-eight-great-technologies
- Industrial Strategies – Impact of UK Research on Growth: How will research feed in?
- Triennial Review of the Research Councils currently underway
- Next Spending Review
- Visiting Panels (Advice Streams & Peer Review)

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Key activities across EPSRC

- Refresh of CDT portfolio
- Securing extra capital funding
- Preparing the ground for future spending reviews
- Impact
- Managing volatility in our finances

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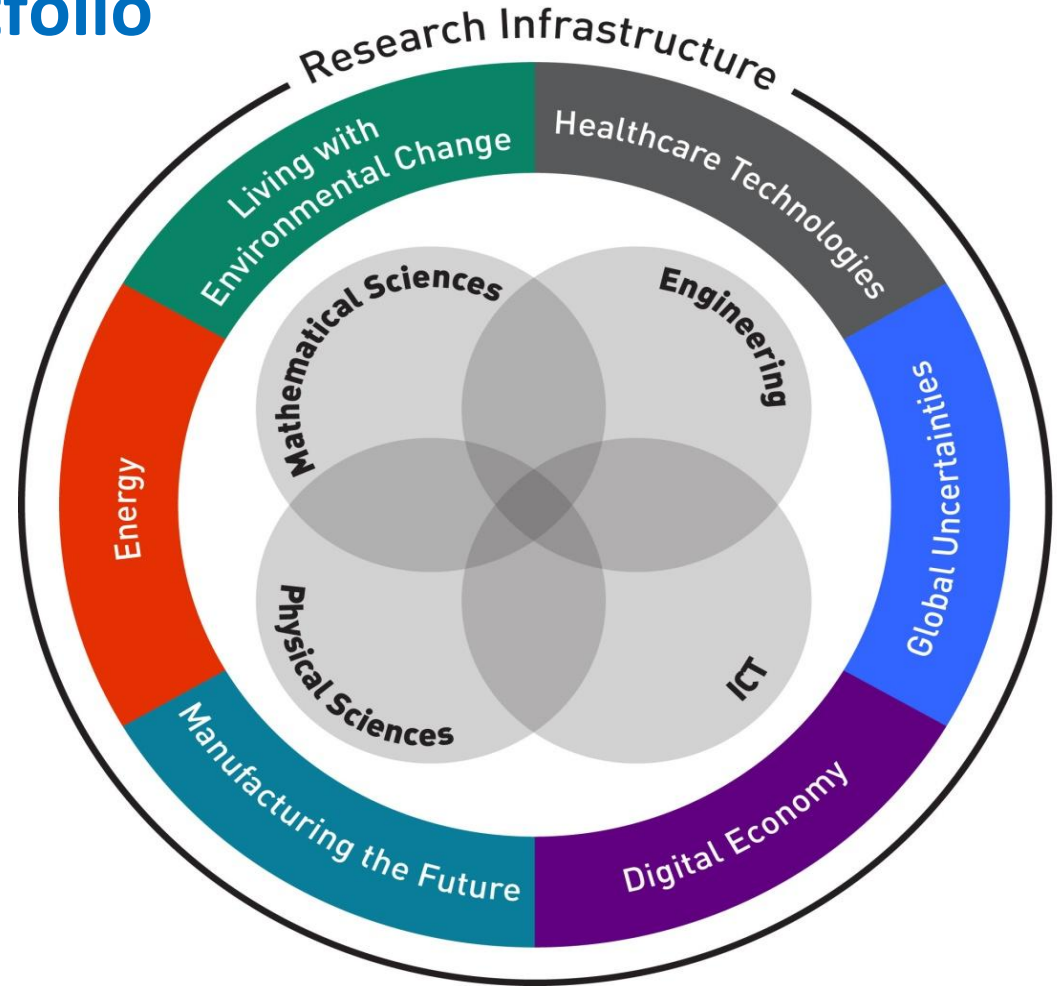
Our Portfolio



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A Reminder: EPSRC Strategic Priorities

Shaping Capability

- Ensuring we have the right people, with the right resource, in the right places to deliver the highest quality long-term research in areas where the UK leads internationally and where there is current or future national need;

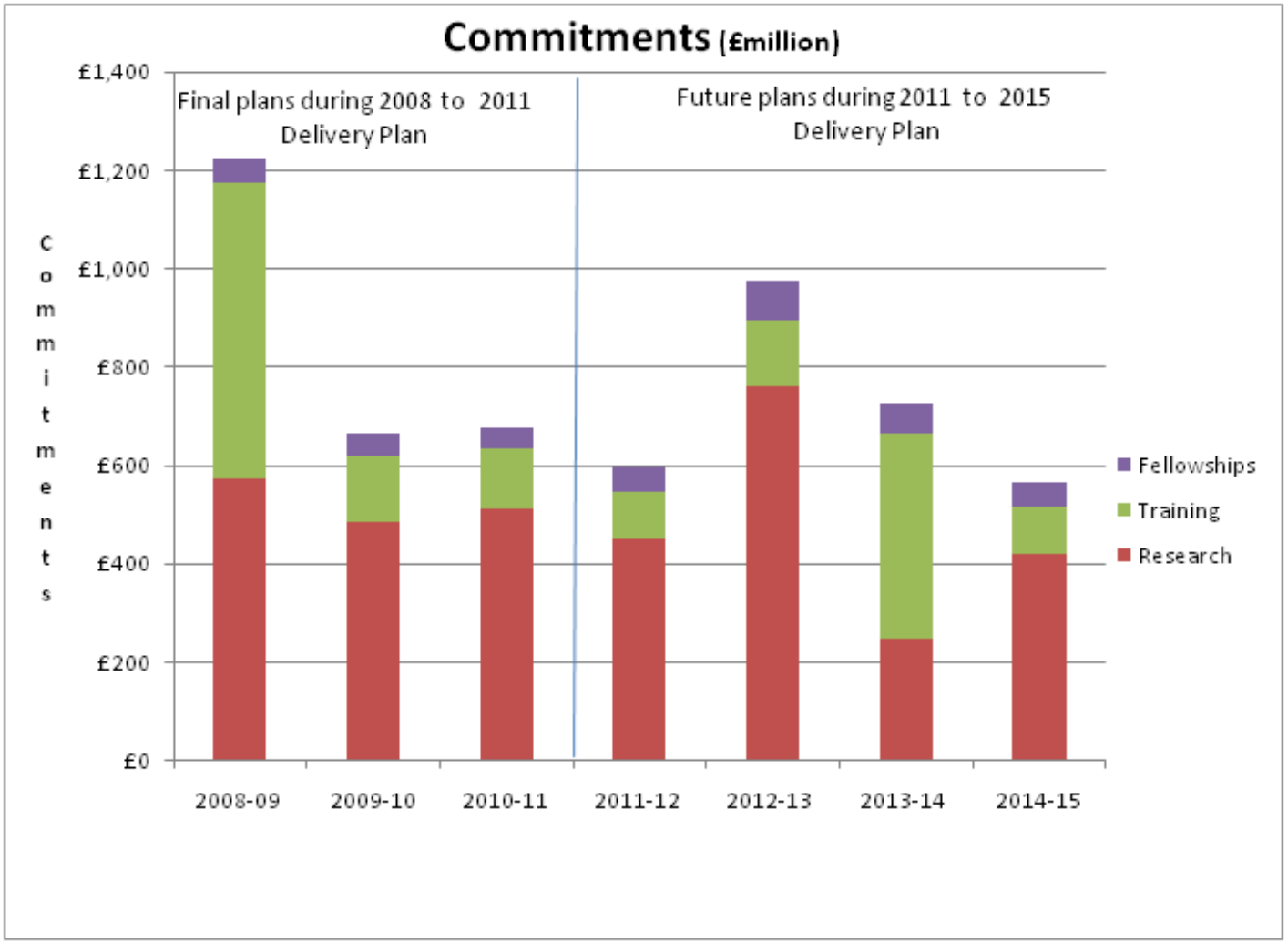
Developing Leaders

- Nurturing the visionary leaders who set research agendas and inspirational team leaders who act as role models;

Delivering Impact

- Embedding impact throughout our portfolio by creating an environment in which it arises naturally, in whatever form, from the knowledge base;

EPSRC Budgets 2008/9 – 2014/15



SHAPING CAPABILITY
&
CHANGES TO PEER REVIEW

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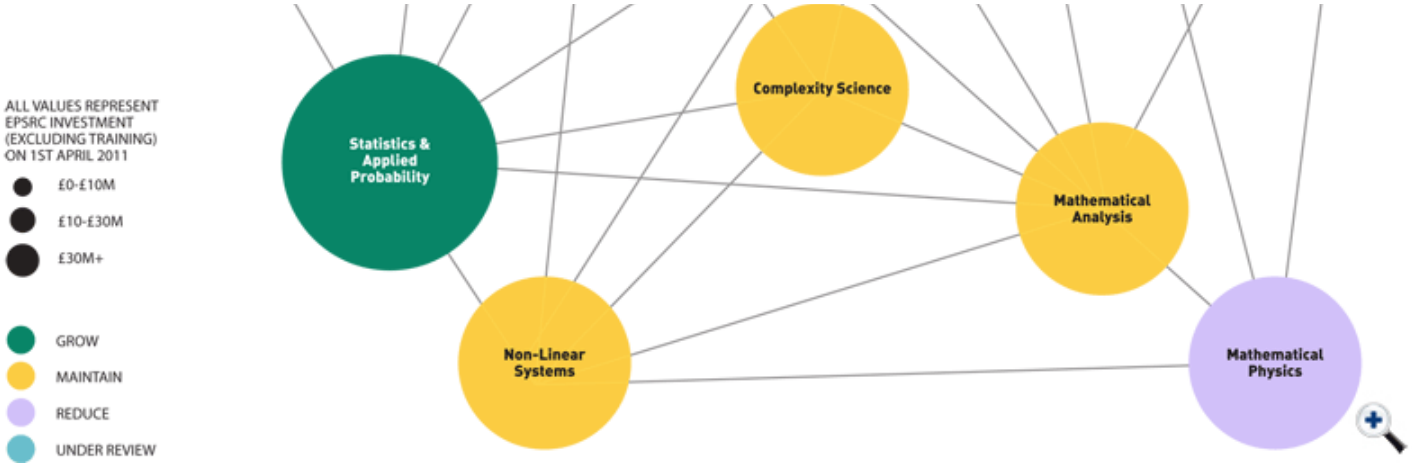
Developing the shape of the portfolio

Identifying the future shape of the portfolio

Quality	Importance	Capacity
International standing	Impact on UK economy	Size of EPSRC investment
Transformative or disruptive potential	Enable future development of emerging industries	Size and shape of non-EPSRC investment
Unique capability for UK	Contribution to societal challenges	User need
	Key to health of other research disciplines	

Mapping the portfolio – Mathematical Sciences

Reducing does not mean stopping!



Changes to Peer Review

- **Research quality remains pre-eminent** in assessing applications. We will only support applications that are deemed excellent as judged through peer review

- We have **introduced 'national importance'** as a criterion against which proposals will also be assessed by peer review but this criterion will not override research quality

- In deciding which of these areas within our budget we would wish to grow, maintain or reduce, there are **no research areas we will completely withdraw from funding**

- A research proposal which is considered outstanding can be funded in any area

- A proposal that has high national importance or which is in a growing area will not receive funding unless the research is also excellent

IMPACT OF MATHEMATICAL SCIENCES

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The impact of Mathematical Science Research extends across all aspects of the UK economy

Employment

Number of individuals in mathematical science occupations

2.8 m

Gross Value Added

Direct GVA associated with MSR

£208 bn

Productivity of individuals in mathematical science occupations (as measured by GVA per worker) is double the UK average

MSR is most embedded in research-led industries but its contribution to employment is also high in absolute terms in other sectors such as construction

Mathematical science occupation jobs as % of total employment in sector

- R&D: 80%
- Computer Services: 70%
- Aircraft & Spacecraft: 50%
- Pharmaceuticals: 50%
- Architectural Activities and Technical Consulting: 40%

Top 5 sectors for mathematical science occupations (absolute numbers)

- Computer Services: 347k
- Public Administration and Defence: 257k
- Architectural Activities and Technical Consulting: 213k
- Construction: 204k
- Education: 189k

MSR's contribution to GVA is largest in sectors in higher productivity sectors that also have a high employment or customer base

Direct MSR GVA contribution ....

- Banking & Finance: £27 bn
- Computer Services: £19 bn
- Pharmaceuticals: £16 bn
- Construction: £13 bn
- Public Administration and Defence: £12 bn

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Deloitte Report: Measuring the Economic Benefits of Mathematical Sciences Research in the UK

DEVELOPING LEADERS

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What does this include?

- Focused support for fellows at different career stages (changes introduced in 2011)

- Encouraging flexible use of research grant funding to support a range of research activities from exploratory workshops to large collaborative grants (funding for ICMS renewed in 2012 and for INI in 2013)

- Working with universities to ensure EPSRC postgraduate training is of the highest quality and prepares students for a variety of career paths, including support for CDTs and a cohort-based approach

Fellowship Priority Areas- Capability Themes

Thematic areas	Postdoctoral	Early career	Established career
Across all themes	**Complexity Science**	Applications not invited at this career stage	Applications not invited at this career stage
Mathematical Sciences	**Statistics & Applied Probability** **Intradisciplinary Mathematics** **New Connections from Mathematical Sciences**	**Statistics & Applied Probability** **Intradisciplinary Mathematics** **New Connections from Mathematical Sciences** **Maths/ICT interface**	**Statistics & Applied Probability** **Intradisciplinary Mathematics** **Maths/ICT Interface**
Engineering	Applications not invited at this career stage	Water Engineering; Complex Fluids and Rheology; Performance and Inspection of Mechanical Structure and Systems;	Water Engineering; Complex Fluids and Rheology; Performance and Inspection of Mechanical Structure and Systems;
Physical Sciences	Theoretical Physics	Catalysis; Quantum Technologies; Graphene and Carbon-based Nanomaterials; Physical Sciences Grand challenges;	Catalysis; Quantum Technologies; Physical Sciences Grand Challenges;
Information and Communication Technologies	Applications not invited at this career stage	Many-Core Architectures and Concurrency in Distributed and Embedded Systems; Towards and Intelligent Information Infrastructure (TI^3); Photonics for Future Systems; New and Emerging Areas in ICT;	Many-Core Architectures and Concurrency in Distributed and Embedded Systems; Towards and Intelligent Information Infrastructure (TI^3); Photonics for Future Systems; New and Emerging Areas in ICT;

Programme Grants

- Provide flexible funding to world-leading research groups to address major research challenges. Should be focussed around a coherent research vision.
- Fund a suite of related research activities which strongly interact
- **Not** just a large proposal or a set of standard proposals
- ‘Best with best’ – who are the key people to involve in terms of research standing/expertise?
- Do not need to be single institution

Support for Statistics

Some highlights:

Fellowships: 4 postdoctoral fellowships, 4 early career fellowships & 5 established career fellowships in statistics & applied probability (out of a total of 19 funded through the new framework to date)

2013 CDT Exercise: Full proposals invited for 2 CDTs with a focus on statistics and another involving statistics

Programme Grants: One in statistics (i-LIKE: Warwick, Bristol, Lancaster & Oxford) & one involving statistics (EQUIP: Warwick, Heriot Watt & UCL)

Also, additional funding for postdoctoral fellowships awarded to CRISM & SuSTaIn

We are planning on holding a review/strategy day in early 2013.2013

Activities Completed in 2012

- Maths/Manufacturing the Future joint workshop & Call for Proposals
- Maths/Healthcare Technologies sandpit and network
- Collaboration with NC3R
- UK-India workshop and on-going activity, working with the RCUK India Office & DST
- New approach to the DTG allocation exercise, incorporating strategic considerations, acting as a pilot for a potential new cross-EPSRC approach
- Review of current CDTs and identifying future CDT priority areas
- Economic Impact study commissioned from Deloitte

Total of £42M new commitment for mathematical sciences, £11M in partnership with EPSRC Challenge Themes

Coming up in 2013

- 2013 CDT Exercise - *underway*
- Mathematical Challenges for Environmental Change – *workshop being scoped*
- Opportunities for collaboration with India in applied maths – *call for proposals through ICMS to be issued shortly*.
- People Pipeline Project – *contract to be issued to collect a mixture of quantitative & qualitative information.*
- Interdisciplinary mathematics: Scoping potential new opportunities
  - *Mathematical Biology*
  - *Mathematics/Social Science interface*
  - *"Big Data"*

Mathematical Sciences Team

Philippa Hemmings	Theme Leader
Claire Tansley	Senior Portfolio Manager Complexity Science User Engagement
Vivienne Blackstone	Statistics, Operational Research, Mathematical Physics Fellowships
Laura Watkin	Pure Mathematics, Maths/ICT, First Grants
Maisie Wong	Applied Mathematics, Maths/Manufacturing, Mathematical Biology
Eileen Glover	Team Support

Mathematical Sciences Theme newsletter: Maths@epsrc.ac.uk

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