EPSRC & the Mathematical Sciences

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10 June 2011

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Pioneering research and skills

Summary of Recent Events

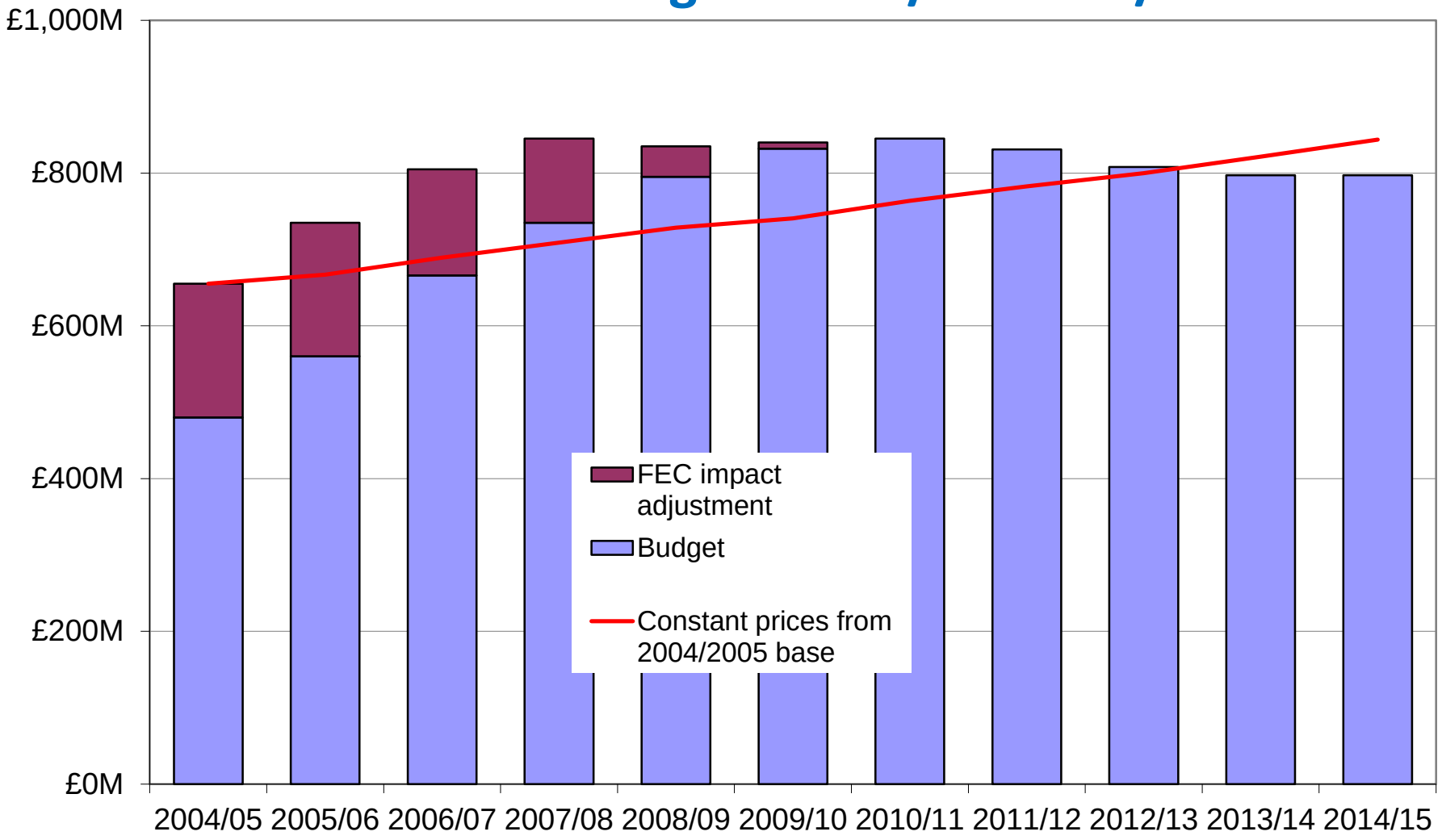
Strategic Plan published Spring 2010 setting out an ambitious new direction with 3 key goals:

- Shaping Capability
- Developing Leaders
- Delivering Impact

EPSRC will act as a **sponsor** of research and is also committed to significantly reducing its operating costs

Spending Review settlement for EPSRC is **flat cash** or approx 12% reduction in real terms over the spending review period 2011/12-2014/15.

EPSRC Budgets 2004/05-2014/15



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Planned Expenditure by Mechanism

	Resource	Baseline		Allocation by mechanism by financial year			
		2010/11 £M		2011/12 £M	2012/13 £M	2013/14 £M	2014/15 £M
Near Cash Programme Resource	Research grants	433		409	385	382	372
	Studentships	129		133	137	138	142
	Fellowships	51		44	44	44	46
	Multi-user council owned/sponsored facilities (HPC)	11		11	11	11	11
	International subscriptions	0		0	0	0	0
	Knowledge transfer activities (excluding ETI)	150		152	156	154	154
	ETI	7		15	17	19	21
	Programme operations	12		12	12	12	12
	Total	**793**		**776**	**762**	**760**	**758**
Near Cash Programme Resource Income	Co-funding	-16		-12	-11	-10	-8
	Earned income	-6		-4	-3	-2	-2
	Total	**-22**		**-16**	**-14**	**-12**	**-10**
Net Near Cash Programme Resource Expenditure		**771**		**760**	**748**	**748**	**748**
Programme Depreciation		10		11	11	8	7
Programme Resource Expenditure		**781**		**771**	**759**	**756**	**755**
Programme Capital Expenditure		49		46	35	25	25
Total Programme Expenditure		**830**		**817**	**794**	**781**	**780**

Protected: Studentships (CDT/DTG)

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Planned Expenditure by Theme

	Resource	Baseline	Allocation by mechanism by financial year			
		2010/11 £M	2011/12 £M	2012/13 £M	2013/14 £M	2014/15 £M
Near Cash Programme Resource	Manufacturing the Future	74	78	79	82	83
	Energy	104	109	109	109	112
	Digital Economy	24	26	26	27	27
	Healthcare Technologies	74	76	76	76	76
	Other themes (LWEC, GU)	18	17	17	17	17
	National capability	458	427	412	406	400
	ETI	8	15	17	19	21
	Programme operations	12	12	12	12	12
Net Near Cash Programme Resource Expenditure		**771**	**760**	**748**	**748**	**748**
Programme Depreciation		10	11	11	8	7
Programme Resource Expenditure		**781**	**771**	**759**	**756**	**755**
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Protected: Manufacturing the Future; Energy, DE, Healthcare.

Mathematical Sciences part of National Capability

Capital: – 50% reduction over 4 years.

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Our three Strategic Plan goals

Delivering Impact

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

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;

Transformative plans (1)

We will:

- Act as a **sponsor** of research, ensuring our investments focus on outcomes for the UK good and working more proactively to partner with the researchers we support;
- Make strategic funding choices based on **excellence and national need**, taking account of current capacity, shaping our portfolio in line with UK priorities and strengths;
- Provide our researchers with appropriate support and opportunities that fosters **creativity** and empowers them to undertake **ambitious** work;

Transformative plans (2)

Council has agreed:

- A **balance** between National Capability and Challenge Themes of **60:40**;
- EPSRC has a role to play in helping to **rebuild** the UK economy;
- Further **embed impact** so that universities deliver it as normal business;
- Emphasis on the role of research leaders;
- Priority given to PhD **quality**;
- Drive **efficiency** and **effectiveness**;

Making difficult choices

Our annual programme spend decreases in real terms by 2014/15. To meet our commitments requires difficult choices, including:

- **Maintaining funding for high priority research at the expense of the breadth and volume of research we support, through our approach to shaping the portfolio;**
- Protect our quality PhD provision in Centres and through DTGs and Industrial CASE by stopping our support of project students on research grants;
- **Stopping support for our own dedicated public engagement activity and embedding it in our research and training investments – building a PE portfolio more closely linked to the research we fund.**
- Simplifying our approach to Knowledge Transfer funding, embedding more activity in research grants and reducing academic focussed KT schemes.

And for Mathematical Sciences

International Review 2010 suggested Maths research is in good shape.
UK is 3rd or 4th in world terms based in citation data.

- High quality research flourishing in a wide range of universities
- IRM says that “diversity and distributedness” should be honoured
- But concern in community about EPSRC commitment to maths and perceived divergence between maths and EPSRC vision and agenda

Where is EPSRC currently?

- Following the publication of the Delivery Plan in Dec 2010 we are developing more detailed implementation plans – Manufacturing, Energy, Healthcare & Physical Sciences published April 2011, the next update (which will include Mathematical Sciences) is scheduled July 2011

- Extensive work has been undertaken to develop plans to shape capability. We have also developed and are due to implement in the near future a new flexible approach for the support of fellowships, encompassing support at different career stages, with shortened assessment times and more targeted support.

Shaping Capability

Analysis undertaken for the different themes & capabilities and the conclusions on how EPSRC could focus future funding and more effectively manage the current portfolio have been discussed with our Advisory Bodies. There have also been a number of iterations with EPSRC Council

Shaping Principles:

- Take account of Quality, Importance and existing Capacity (drawing on a rich & diverse evidence base)
- Ensure an integrated view across themes & capabilities (111 themes have been identified)
- Take account of the external context (“knowledge maps”)

Next steps:

Publish an updated landscape for EPSRC, identifying some initial areas to be shaped (“grow”, “maintain” or “constrain”) and possible strategies for doing so.

EPSRC Support for Statistics

Some facts & figures

- 49 current grants, with a total value of £24M covering statistics & applied probability
- The above includes support for 3 Science & Innovation Awards, strategic grants designed to build new, sustainable capacity
- £2M support for fellowships
- Three Taught Course Centres
- Two Centres for Doctoral Training
- And a significant number of PhDs (currently coding our portfolio)

Issues & Challenges for Mathematical Sciences & Statistics

Some are highlighted by the International Review, many strengths are recognized & the need for change is identified.

With respect to statistics:

"…*the situation in the UK statistics research community is of serious concern, the reasons for this are primarily structural, involving the age profile of statistics researchers, the unanticipated effects of large Science & Innovation Awards in statistics, and the position of statistics in school curricula"*

Following the Town Meeting in January, and publication of the finalized report, we are currently working on our action plan to be presented to EPSRC Council in the autumn.

Going Forward

- How can we maximise the opportunities for statistics , as widely as possible, within a limited resource base?
- How can we best build a robust evidence base that will enable us to shape capability and support current and future leaders?
- How can we demonstrate, especially to Government, impact and importance of support for research and postgraduate training in statistics?