



RCUK/UUK Review of the Impact of Full Economic Costing on the UK Higher Education Sector

**A report prepared for Research Councils UK
and Universities UK by a panel chaired by
Professor Alan Alexander FRSE**

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Preface

The importance for Britain's universities and for Britain's international competitiveness of sustaining a world-class research base cannot be overstated. The introduction of full economic costing (fEC)¹ demonstrated Government's commitment to ensuring that our position at the leading edge of academic research should be maintained in the long term.

This is a review of 'work in progress'. It demonstrates that the objectives of fEC are, in general, being met. It makes a number of recommendations that are intended to improve the operation of fEC and it shows that the principle of fEC was well-founded.

This report is the product of a year of intensive work both by the Review Panel that I have had the privilege of chairing and by the Officer Group that did most of the hard work of evidence and data collection which enabled the Panel to come to the conclusions and make the recommendations reported here. I am grateful to the members of both the Panel and the Officer Group for their commitment to the Review and for their willingness to find time for it in professional lives that are already pretty full. I have appreciated their wisdom, their energy and their unfailing good humour.

Gerry Lawson of RCUK and Chris Hale of UUK provided the Secretariat for the Review and balanced its demands well with their other duties. Their contributions to the Report have been outstanding, although the responsibility for content remains with myself and my colleagues on the Review Panel.



Professor Alan Alexander FRSE

Chair

April 2009

¹ In this report 'fEC', with a lower case 'f' is used to signify the process introduced by UK funders from 2005 onwards of reimbursing a proportion of the estimated full economic cost of research projects. Where Full Economic Cost (rather than costing) is intended, the abbreviation 'FEC' is used. On occasion the term TRAC-fEC is used – this refers to the detailed rules and procedures used in the version of TRAC (Transparent Approach to Costing) applied to research projects.

I. Executive Summary

The Review aimed to a) assess the impact of the revised funding arrangements for research on the sustainability of research in Higher Education Institutions; b) advise on changes that would enhance the delivery of sustainability; and c) propose any changes needed in the operation of the full economic costing (fEC) system. The definition of sustainability used in TRAC methodology was accepted:

“An institution is being managed on a sustainable basis if, taking one year with another, it is recovering its full economic costs across its activities as a whole, and is investing in its infrastructure (physical, human, and intellectual) at a rate adequate to maintain its future productive capacity appropriate to the needs of its strategic plan and students, sponsors and other customer requirements.”

Background to the introduction of full Economic Costing (fEC) in the HE Sector

Faster growth in project-related funding (including significant growth in income from the Research Councils and charities) than in the block grant of core research funds has historically put considerable stress on the sustainability of institutions' research activity and infrastructure. The absence of robust cost data had led many institutions to underestimate the costs of research and other projects, so that historically much research has been undertaken below cost.

From before the Dearing Report in 1997 [1] Government and HEIs have been concerned about sustainability, and a succession of reports and consultations [2-10], including the 2004 Science and Innovation Investment Framework [5], highlighted the problem. As a result, the Government agreed that the Research Councils should pay 80% fEC for projects they funded as from April 2006. The impact of this major change was to be reviewed after three years, and this report constitutes that review.

The Review looks widely at impacts across different aspects of sustainability in HEIs including the implications of fEC for interactions with Government, charity, business and European research funders.

The Review's overarching conclusion is that almost all measures of HEI sustainability have significantly improved during the current decade, with a major part of this increase being due to the introduction of fEC payments by Research Councils and other funders. The Review therefore recommends that fEC payments should continue on the current model, with a number of technical improvements and with clearer demonstration of sustainability monitoring and governance on the part of HEIs (Recommendations 1 & 2).

Physical and Financial Sustainability

The financial situation for UK universities has improved markedly over the current decade. The imbalance between project-research and core funding has been stabilised. Over the past six years (02/03 to 07/08) project-research funding has increased by 4.7% (8.0% for Research Councils) annually in real terms, and the Quality Related (QR) element of Funding Councils block research grant by 5.5%.

Not only has the ratio of 'project' to 'baseline' research stabilised, but the contribution to the full costs of project-research funding has significantly increased. This is particularly true for Research Council grants, but it is also the case for funding from Government, business, and to a lesser extent charities and the EU. fEC is still in its early days, and it has proved difficult to quantify the exact contribution that it has made to achieving a more sustainable research base in HEIs, but the message is a positive one.

While research funding has markedly increased, and most of the metrics used to measure financial and physical sustainability have recorded improvements, it is of concern that the Transparency Review for 2007/08 concluded that research makes an annual TRAC-adjusted deficit in excess of £2 billion. Operating surpluses declined since 2001-02 for the major research active universities but increased significantly in, There is a risk that the current recession and the consequential movement in exchanges rates, together with increases in HEI

salary and utilities costs, may jeopardise the gains in physical and human sustainability which have been achieved. Sustainability reporting should therefore be given greater prominence both internally in universities and across the HEI sector.

Transparency Review data has been collected for the past two years showing income and TRAC-adjusted costs by type of funding organisation. This data is extremely valuable, but the data could usefully be analysed looking at the impact of research intensity or HEI size on the recovery of fEC. It is recommended that Transparency Review data is published on a UK basis, averaged by TRAC Peer Review Groups (Recommendation 3).

There is no specific mention of HEI sustainability in the Science and Innovation Investment Framework Annual Reports for 2006, 2007 or 2008 or in the 2008 Innovation Report. Sustainability metrics could be given greater prominence in future reports (Recommendation 4).

The governance of sustainability within HEIs will continue to be important. There are many examples of good practice, but a strengthened and more consistent embedding of sustainability into governance processes is needed (Recommendation 5).

There is scope for HEIs to use their internal Trigger Metrics and Key Performance Indicators as supporting evidence within their annual Capital Investment Framework submissions to the Funding Councils (Recommendation 5).

The Review recognises that universities have put significant effort into producing Sustainability Frameworks and proposes that guidance should be given by the Funding Councils on the intended future use of these, and how they can be more effectively embedded within strategic planning and management processes (Recommendation 6).

The Review received comments from individuals and Learned Societies suggesting that more of the fEC uplift should be passed directly to the investigators who win the grants and contracts. The Review was clear, however, that estates and indirect rates are calculated on an institutional basis, and it is for HEIs to manage sustainability across all departments, while clearly explaining to academic staff the bases on which fEC is calculated and grant income is distributed.

In the conduct of the Review the issue has arisen of how the fEC and sustainability processes can drive efficiency within the system. UK HEIs already achieve outstanding output and impacts on relatively lower investment than competitors. However, it is proposed that the sector, together with the Research and Funding Councils, explore how further efficiency drivers can be incorporated into the process of operating and monitoring fEC, and how assurance can be provided that the fEC uplift is contributing to sustainability rather than increasing volume (Recommendation 7).

There are many issues surrounding the use of fEC for maintenance of facilities and equipment, the overlap of direct and estates costs with equipment access charges and resources from capital investment funds, and direct funding of equipment use. Clarification of these issues should be provided by the TRAC Development Group and RCUK (Recommendation 8).

Human Sustainability

Roberts' skills funding, QR funding, employment law and the Researcher Concordat (and in England the Funding Council Support for Rewarding and Developing Staff initiative) have all made significant contributions in recent years to the sustainability of human resources committed to research. Universities indicated that fEC is also contributing to this, particularly in providing greater flexibility to departments to provide support for development activities and bridging funding to retain staff between externally supported research contracts.

The Review notes the Concordat to support the Career Development of Researchers, and as part of its implementation it recommends that the possibility of developing metrics to better understand and monitor the sustainability of human resources be explored. This will be particularly important as the Roberts' skills' agenda evolves (Recommendation 9). To inform this, it will also be helpful to improve the consistency with which the HESA staff identifier is used to record staff movements.

Research Council and National Academy implementation of fEC

fEC has on the whole been introduced successfully by Research Councils and National Academies. The Review was particularly interested in the impact of fEC on proposals, and notes that post-fEC changes in the Directly Incurred costs and staff-hours requested were largely as expected.

The number of proposals to the Research Councils slightly increased following the introduction of fEC, and decreased significantly in 2008. There is no evidence that the decline in success rates, evident since before 2003, has been influenced by fEC.

The Review notes concerns that changes to TRAC rules may be over-complicating the system and reducing its transparency. A detailed list of comments and recommendations on the need to harmonise the interpretation of fEC rules by different Research Councils is being acted upon by RCUK (Recommendation 10), and comments are included in the report from the TRAC Development Group on TRAC issues raised by HEIs.

Government Departments

Most HEIs indicated that they recovered significantly less than 100% FEC from Government Departments and that major differences exist between and within departments. The Review has found that research funded by Government departments is increasingly placed using competitive contracts, and Transparency Review data for 2007/08 indicates that percentage FEC recovery may be in the region of 75%.

Central and local Government funding of research shown in HEI financial returns has increased by 3.5% annually in real terms since 2002/03. The Review recognises that Government departments operate in an environment which makes it difficult for them to record the FEC percentage paid. A recommendation is therefore made to HEIs to monitor FEC-recovery on each research contract and grant, and to use aggregate figures for different funder types as internal performance indicators (Recommendation 11).

Where HEIs are contracted as sole providers of research to Government departments, such research should continue to be supported at 100% FEC (Recommendation 12).

Charities

Twenty-three percent of project-research income is received from Charities, and the Review recognises the vital role that this funding plays for many university departments. Transparency Review data for 2007/08 indicates that across the UK HE sector around 60% FEC is being recovered directly from UK-based Charities.

The sustainability of this funding has been enhanced by the introduction of the Charities Research Support Fund in England and its equivalents in the devolved administrations. The principle behind this support is well established, but there is scope for greater transparency and coordination between Funding Councils and charities in the manner with which the uplift is calculated. There also needs to be clearer understanding of the level of 'top-up' funding needed to bring percentage FEC recovery on charity research grants close to that paid by Research Councils (Recommendation 13).

Charities have different policies regarding the degree to which they contribute towards some Directly Allocated components of fEC (for example investigator salaries). It is recommended that the Association of Medical Research Charities should maintain a website to summarise this information, including links to the grant rules pages of their members, and that individual charities should provide clearer information on the components of Directly Allocated costs which they are likely to support (Recommendation 14).

Business and industry

HEIs are increasingly using fEC costing data to inform the pricing of business and industry projects. Cost is not always the primary factor, however, and many institutions make informed judgements based on non-financial aspects, as well as the need to maintain sustainability. It is crucial that this continues and that the professionalism of staff involved in pricing and negotiating is enhanced to ensure that they are well equipped with appropriate commercial skills (Recommendation 15).

Transparency Review data for 2007/08 indicates that around 75% of fEC² is being recovered on contracts with industry. The Review recognises that there is a general concern among business and industry partners about the increasing costs of research in the UK. The CBI Inter-Company Academic Relations Group (ICARG) asserts that the UK is the 'most expensive country in world for Research Assistants'. These increases are being attributed to HEIs seeking to recover at least the fEC of research projects, and it is suggested that UK-based companies are placing an increasing proportion of their research budgets overseas. The Review proposes that this issue be looked at in more detail (Recommendation 16).

Europe and International

The Review notes that there is great interest world-wide in the UK development of TRAC-fEC, and the UK is seen as a leader in implementing policies to ensure a more sustainable research base.

Funding from the European Union provides 7.7% of total project-research funding, and funding from this source is growing at 6.7% annually in real terms. It therefore plays an increasing role in the UK research base. Despite recording a return of only 58% fEC on EU projects, HEIs obtain significant benefits from their involvement with European partners, particularly in building collaborations and networks.

The Review is encouraged by the extent to which the sustainability agenda is being promoted by the European Commission and European University Association. The UK should continue to stress the importance of sustainability and the need for better reimbursement in EU funded programmes.

The Review notes that Framework Programme 7 has a funding model which allows participants to be reimbursed at a percentage of their full costs, rather than direct costs with a fixed overhead as had been the case in previous years. This, in the longer term, has the potential to allow HEIs to participate on a more sustainable basis.

A derivation of TRAC has been developed to ensure that HEIs can take advantage of this if they wish to do so. However, due to Commission regulations this has become very burdensome. It is proposed that the Financial Sustainability Strategy Group and UUK lobby the Commission to reduce the burden of this model (Recommendation 17).

The Review recommends that the UK Research Office in Brussels and the FCO/DIUS Science and Innovation Network should keep UK funders aware of changes in the funding of indirect research costs in countries with significant research programmes (Recommendation 18).

² As indicated in the Preface: when a lower-case 'f' is used in fEC it indicates the process of 'full Economic Costing'; when fEC is fully capitalised it stands for Full Economic Cost. Note that this category is actually 'Industry and Other' in the Transparency Review. - See footnote to table 3.

2. Introduction

The introduction of full economic costing (fEC) and associated policies on sustainability has been a significant undertaking. Such change is not easy and the commitment that has been made by funders of research and HEIs themselves is beyond question.

The Review fully supports the aims and objectives of the sustainability agenda. A key issue, however, is whether the measures and policies that have been put in place to achieve a more sustainable research base are working as intended, and whether there are any issues that need to be addressed to ensure we continue on the right track.

The Review recognises that it is still relatively early days. Increased funding through the Research Councils began to flow only in 2006/07. Development and consolidation of TRAC has been ongoing, and additional resources through mechanisms such as the Charities Research Support Fund continue to grow in significance. Similarly, metrics to assess sustainability or research volume are not fully developed across the funding or HEI sectors. The Review therefore relied heavily on submissions from HEIs and relevant stakeholders in coming to a view on whether policies and process are effectively aligned and are working towards achieving a more sustainable research base in UK HEIs in the longer term.

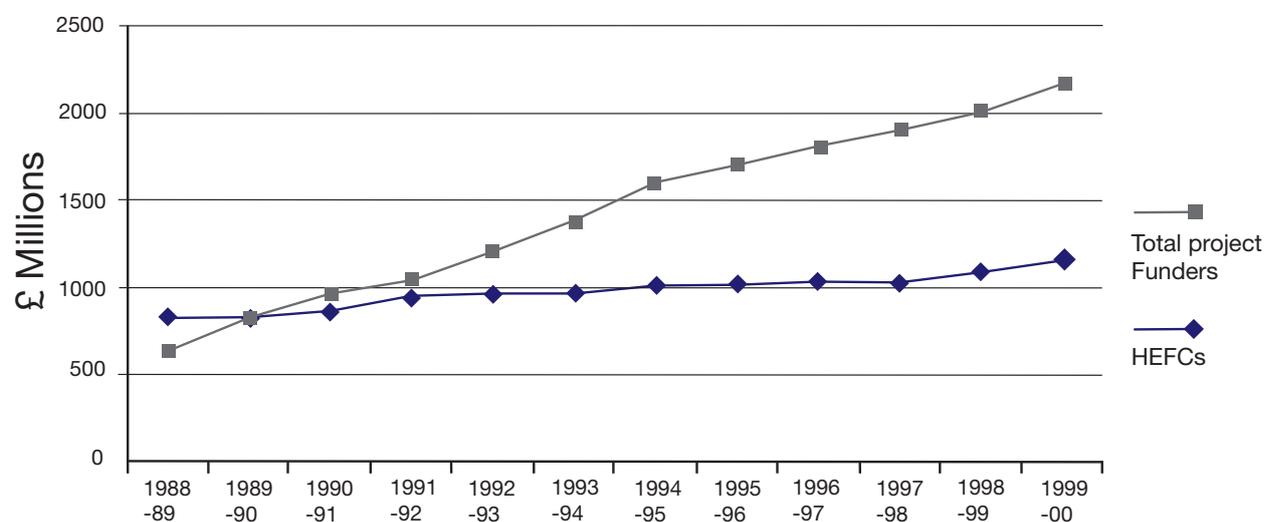
The issues involved are complex and not without their sensitivities. We hope that this report will provide a useful contribution to assessing the longer term health of the UK research base in our HEIs, and, equally important, to the UK's economic and social prosperity.

2.1 Background to the Review

Faster growth in project-related funding (including significant growth in income from the Research Councils and charities) than in the block grant of core research funds (Figure 1) has historically put considerable stress on the sustainability of institutions' research activity and infrastructure.

Contributing to this, the absence of robust cost data had led many institutions to underestimate the costs of research and other projects, so that much research has been undertaken at below its full economic cost. This caused serious questions to be raised over the future sustainability of the research base in the UK (Annex 2a).

Figure 1: Expenditure by Funding Councils and all project funders in the 1990s (cash terms) [10]



In response to these concerns the Transparency Review was established by the Government in order to develop a better understanding of the shortfall in funding across all activities, and to ensure a greater level of accountability for public funds. As part of this, the first TRAC (Transparent Approach to Costing) process was introduced, taken forward by the sector-wide Joint Costing and Pricing Steering Group (JCPSG) [11].

TRAC employs the principles of activity-based costing and allows all of the costs of the institution to be analysed and attached to activities. The approach is flexible and allows for the diversity of UK institutions.

Implementation of TRAC began in 1999 and the sector reported in July 2001, and then annually from January 2002. The annual reporting of costs at institutional level under TRAC [12] provided evidence that:

- research activity was in deficit (i.e. the costs incurred by institutions were higher than the funding they received);
- when the cost adjustments were added, nearly all institutions were seen to be in overall financial deficit, indicating that they were not able to invest adequately to support long-term sustainability.

This evidence base was supported by studies of investment needed to maintain the UK's HE science infrastructure. These showed a £2.7 billion shortfall in 2002 [13]. Government accepted these findings and provided additional public funding for research through the Science Research Investment Fund (SRIF). This provided capital investment to begin to redress the shortfall, together with new policies on full economic costing and management for sustainability. As part of the most recent spending round a report was prepared to assess the remaining backlog following SRIF etc. [14]. This informed development of the new Capital Investment Fund (CIF), which for the 2008-11 period has received an allocation of £1,086 million for the Learning and Teaching Capital Investment Fund and £1,276 million for the Research Capital Investment Fund [15].

Emerging from the Transparency Review, HEIs have now implemented the Transparent Approach to Costing (TRAC) methodology to establish the full costs of their research at project level and are using this information to help manage research activity strategically and to inform cost recovery and pricing strategies for all sponsors of research. This has been a major undertaking which required time and resource commitment by HEIs as well as significant cultural change at all levels.

For their part Government and other public funders of research have committed increased investment, without increasing the volume of research undertaken, in order to meet a higher percentage of the costs of research they sponsor. Significantly, the Research Councils have, from 2006/07, committed to pay 80% of the full economic costs of research they fund. Capital Infrastructure Funding from 2008/09 brings the total contribution to 90% FEC.

2.2 Conduct of the Review

The fEC Review was announced in March 2008 with the overall aim of "ensuring that the change to full economic costs has put universities on track to deliver long term financial sustainability in research".

The specific Terms of Reference were:

- to review the impact of the revised funding arrangements for research on the sustainability of research in Higher Education Institutions;
- to advise on changes that would enhance the delivery of sustainability;
- to consider, and propose if necessary, changes in the operation of full economic costs in the funding of research;
- to report to the Research Councils UK Executive Group and Universities UK by December 2008

The definition of 'sustainability' accepted by the Review is that used in the UK Science and Innovation Investment Framework [5]:

“An institution is being managed on a sustainable basis if, taking one year with another, it is recovering its full economic costs across its activities as a whole, and is investing in its infrastructure (physical, human, and intellectual) at a rate adequate to maintain its future productive capacity appropriate to the needs of its strategic plan and students, sponsors and other customer requirements.”

There has therefore been an attempt to collect information on both physical/financial and human/intellectual sustainability.

Members of the Review Panel were:

- **Alan Alexander (Chair), Member ESRC Council, Accounts Commission for Scotland (2002-2008), former Chair Scottish Water, Emeritus Professor of Local and Public Management, Strathclyde Business School**
- **Sir Leszek Borysiewicz, Chief Executive, Medical Research Council**
- **Stuart Ward, Corporate Services Director, EPSRC**
- **Norman Bennett, Finance Director, Queens University Belfast**
- **Anton Muscatelli, Vice Chancellor, Herriot Watt University**
- **Nigel Thrift, Vice Chancellor, Warwick University**
- **John Neilson, Director Research Base, DIUS**
- **Steve Egan, Deputy Chief Executive, HEFCE**
- **Ian Cooper, Director of Operations, Royal Society**
- **Nicola Perrin, Senior Policy Adviser, Wellcome Trust**
- **Mike Lant, Manager External Partnerships, Syngenta**

The Panel held meetings in June, October and March. The Review's completion date was extended to 29 April 2009 to allow consideration of the most up to date data.

Input was sought from HEIs, UUK, Learned and Professional Societies, Research Councils, the National Academies, Government Departments, research charities, industry via the CBI, the European Commission and the FCO/DIUS Science and Innovation Network. Input was also received in a number of face to face meetings including sector groupings, the CBI and via a number of dedicated discussions at conferences and seminars. The Review also drew on existing data through the Higher Education Statistics Agency (HESA) the Research Councils and the UK Funding Councils.

2.3 Structure of the Report

The report looks in Section 3 at physical and financial stability. It considers national data on research funding and differences with the 1990s, and the use of Trigger Metrics as sectoral indicators of sustainability. It considers quantitative data and subjective opinion submitted to the Review and the mechanisms in place for monitoring and governing sustainability at the institutional level. Section 4 considers human and intellectual sustainability, particularly whether existing quantitative information is adequate to monitor these factors. Section 5 considers the implementation of fEC by Research Councils and National Academies and whether the introduction of fEC caused any changes in the nature of proposals submitted and grants awarded.

Sections 6 to 8 consider the impact of the introduction of fEC on the nature of funding from the Government, charity and business sectors, and the degree to which recovery of FEC may be being achieved. Section 9 considers the recovery of FEC in the EU Framework 7 and examples of how indirect costs are charged in other countries.

3. Financial and Physical Sustainability

3.1 Introduction

One of the key objectives of the fEC and sustainability agendas has been to ensure that concerns over the physical and financial sustainability of UK HEIs are being addressed. This section explores the evidence collected by the Review in this regard. A key focus of this section is to take a high level view on the impact of additional investment that has been provided to support fEC and how associated policies for managing sustainability in HEIs are working. Specific issues relating to the operation of fEC for different funding sources are considered in later sections.

The Review has not specifically considered environmental sustainability. It noted, however that significant activity is taking place in this area, coordinated particularly through the Higher Education Environmental Performance Improvement Initiative (HEEPI) [16] and the Environmental Association of Universities and Colleges [17].

3.2 Investment in HE research and sustainability

Before examining the impact of fEC on HEIs and how they are managing sustainability, it is useful to consider the national data on trends in research funding over the last six years. Overall funding for HEIs has increased at 5.4% annually in real terms. Overall research grant and contract income (or 'project-research') has increased by 4.7% annually. Quality Related (QR) 'baseline' funding has increased by 5.5%, meaning that the ratio of 'project' to 'baseline' funding has declined slightly over the six-year period (Table 1). This contrasts markedly with the decade of the 1990s where this ratio increased from 1.0 to more than 2.0 at the end of the decade (Figure 1).

Table 1: Total UK HEI Income 02-03 to 07-08 (£billion – in real terms)

HEI Income (£billion 07-08 prices)	02-03	03-04	04-05	05-06	06-07	07-08	%change /yr
UK Funding body grants	6.90	7.24	7.53	7.99	8.28	8.51	4.3%
Tuition fees & education grants & contracts	4.28	4.54	4.71	4.94	5.58	6.25	7.5%
Research grants & contracts	2.96	3.02	3.12	3.32	3.48	3.72	4.7%
Other income	3.49	3.68	3.91	4.05	4.20	4.45	4.7%
Endowment & investment income	0.27	0.27	0.33	0.37	0.40	0.51	13.0%
Total	17.90	18.74	19.59	20.67	21.94	23.44	5.4%
QR element of FC Grants (07-08 prices)	1.32	1.41	1.43	1.59	1.67	1.71	5.5%
Ratio Project-research to QR	2.25	2.14	2.18	2.08	2.08	2.17	

Notes:

- Sources: Higher Education Statistics Agency and Funding Councils (2009) and Funding Councils.
- Percentage Annual Increment for each funding source is calculated using linear regressions over the 6-year period and expressing the mean annual increment as a percentage of the mean.
- 'Funding bodies' include grants from the Higher Education Funding Council for England (HEFCE), the Higher Education Funding Council for Wales (HEFCW), the Scottish Funding Council (SFC), the Training and Development Agency for Schools (TDA) and the Department for Employment and Learning Northern Ireland (DELNI).
- 'Tuition fees & education grants' includes all income received in respect of fees for students on all courses for which fees are charged. Where fees are waived in whole or in part, the income due though not received is included.
- 'Other income' includes income for services rendered to outside bodies, including the supply of goods and consultancies, and non-research income from residences and catering operations, grants from local authorities, health and hospital

authorities, release of deferred capital grants, income from intellectual property rights and other operating income (see HESA website for further details).

- f) 'Endowment income' includes income from specific endowment asset investments, general endowment asset investments, other investment income and other interest receivable.
- g) 'QR element' includes capability funds for HEFCE and DELNI. HEFCW also provides around £5.5 million a year for postgraduate research training (PGR) which is not included here.

Not only has the ratio of project-research to baseline QR support stabilised, but significantly greater recovery of indirect costs is taking place within the 'project-research' sector. Research Councils and the National Academies were awarded an uplift by Government rising to £200 million in 2007/08 to provide 80% fEC payments. In the 2008 Comprehensive Spending Review a further fEC uplift was confirmed of £187M for 2008/09, £274M for 2009/10 and £316M for 2010/11 [18].

This additional funding was provided on the basis that the contribution towards the full cost of research would increase, but that the volume of research would remain reasonably constant. Many changes are taking place in the cost of research grants however, and it is difficult to provide an accurate index of 'research volume'. Suggestions on how to improve sustainability metrics are made in subsequent sections.

The Government and devolved administrations have also made available to Funding Councils an addition to the mainstream QR grant to support charitable research funding. This is distributed to HEIs in proportion to the value of peer-reviewed grants which they receive from charities (Section 7). In England this QR additional element is often termed the Charities Research Support Fund³. It amounted to £180.0 million in 2007/08.

Table 2: Real-terms HEI income for 'research grants and contracts' from different funding sources (HESA Finance Returns – provisional for 07/08)

Funding Source	Income per funding Source 07/08 Prices (£million)						%annual change
	02/03	03/04	04/05	05/06	06/07	07/08	
Research Councils	935.6	924.3	1,000.4	1,136.0	1,187.2	1,358.2	8.0
UK Charities	744.7	767.0	756.1	768.0	791.0	825.8	1.8
UK Govt	520.5	579.2	611.2	610.2	625.2	639.3	3.5
UK Industry	293.8	274.4	262.9	271.4	298.6	296.1	0.9
EU+Govt	209.9	209.3	218.5	232.0	266.0	284.9	6.7
Other EU	39.1	36.2	37.0	42.6	47.3	46.2	5.1
Other overseas	148.3	159.1	163.4	181.8	205.2	217.3	8.0
Other sources	69.5	62.1	65.4	60.7	59.9	54.2	-4.1
TOTAL	2,961.5	3,011.6	3,114.7	3,302.8	3,480.4	3,721.9	4.7

Note: Percentage increases are based on the slope of the 6-year linear regression compared to the average. Data from HESA Finance Returns. Data prior to 02/03 is not available in this format. Adjustment to 07/08 prices is based on the Treasury GDP deflator.

During the current Spending Review period DIUS has introduced a new Capital Investment Fund for universities carrying out Research Council funded projects. This permanent funding stream replaces the temporary Science Research Investment Fund (SRIF) which has successfully completed its task of making good the backlog in investment in research infrastructure. The new fund will help Universities maintain their research infrastructure and avoid the backlog problem reoccurring. This fund will bring total support to HEIs to around 90% fEC [19].

Despite the sustained investment in the HE research base, data from the annual Transparency Review, collected by HEFCE on behalf of all the Funding Councils, shows a continuing deficit at a sector wide level. The overall deficit for UK HEIs rose, in cash terms, from £0.81 billion in 1999/2000 to £1.32 billion in 2004/05, but decreased slightly in 2007/08 to £1.28 billion.

³ Strictly speaking this is the 'Charity Support Element within QR', but 'Charity Research Support Fund' is in common use.

For research the deficit was £1.96 billion in 2005/06, £1.95 billion in 2006/07 and £2.01 billion in 2007/08. The Transparency review analysis by sponsor type (Table 3) shows that on average HEI's 'own funded' research, which includes contributions from QR, recovers slightly more than its costs; while incomplete recovery of FEC was taking place on postgraduate studentships (59%), Research Council grants (71%), Government Department contracts (75%), charity contracts (60%), EU projects (58%) and 'industry and other' contracts (75%). The over-recovery in the 'HEI own-funded' category amounts to £174M, and is used to support under-recovery in other areas of publicly-supported research (including charities).

Table 3: Transparency Review assessment of cost recovery in the UK HEI sector⁴

		Own Funded	Post Graduate	Research Councils	Research Other Govt	EU	UK Charities	Industry & other	Total Res	Total
2007-08	Total income (£m)	1975	551	1400	688	279	871	675	6438	2295.2
	Total costs (£m)	1801	928	1984	917	482	1442	901	8454	24228
	Surplus (deficit) (£m)	174	-378	-583	-229	-203	-571	-226	-2015	-1276
	%FEC Recovery	109.7%	59.3%	70.6%	75.0%	57.8%	60.4%	74.9%	76.2%	94.7%
2006-07	Total income (£m)	1919	506	1173	632	260	774	665	5929	21136
	Total costs (£m)	1756	811	1820	870	448	1285	891	7881	22544
	Suplus (deficit) (£m)	162	-305	-647	-238	-188	-511	-226	-1952	-1408
	%FEC Recovery	109.2%	62.4%	64.4%	72.7%	58.1%	60.2%	74.7%	75.2%	93.8%
2005-06	Total income (£m)	4115					1385		5500	19473
	Total costs (£m)	5380					2082		7462	20756
	Suplus (deficit) (£m)	-1264					-697		-1962	-1238
	%FEC Recovery	76.5%					66.5%		73.7%	93.8%

Note: 'Industry and other' includes organisations such as UK industry, commerce and public corporations, EU (individual country Governments), Overseas charities, Overseas industries and Other sources (See Annex 6 of page 9 of the TRAC guidance [20])

The Review has not been able to systematically examine the influence of HEI size, or level of research activity, on the rate of recovery of full economic costs. Some HEIs appear to achieve higher rates than others and there may be a correlation with size for some funder types. We recognise that this is a complex issue which the Review was not able to explore, but we think it would be valuable to understand the differences which may be related to differential HEI strategies, methodological issues, or different levels of efficiency. Analysis of Transparency Review data by TRAC Peer Group⁵ may cast light on this issue.

In summary the Review notes three encouraging trends in income and sustainability at the national level:

- at aggregate UK level, base-line QR funding is increasing at a real annual rate of 5.5% (02/03-07/08), which exceeds the annual increase in funding of project-research of 4.7%;
- an uplift rising to £316M pa by 2010/11 has been provided to the Research Councils and the National Academies to meet an 80% FEC contribution to grants and fellowships;
- Trigger Metrics show that almost all measures of HEI physical and financial sustainability have been improving since 2002/03.

⁴ This includes the return for financing and investment and the infrastructure adjustment, which are added to reported expenditure in institutions' audited financial statements. These adjustments provide an estimate of the full economic costs of institutions' activities. In the 2006-07 academic year, the value of these adjustments across the sector was 7.8% of audited expenditure, or £1,350 million, reflecting the extent to which full economic costs exceeded conventional financial costs.

⁵ TRAC Peer Groups were developed using the proportion of total income derived from research (using 2003-04 figures). Group A is the Russell Group plus two specialist medical schools, Group B comprises other HEIs with research income >22% total income, Group C comprises HEIs with research income 8%-21% of total income; Group D comprises HEIs with research income of 5-8% total.

One of the major goals of the Science and Innovation Investment Framework 2004-2104 was to 'ensure a financially sustainable level of activity by early in the 2010 decade, avoiding over-reliance on non-research income and under-investment in research infrastructures' [5]. This is also a DIUS Public Service Agreement (PSA) sub-target. The National Audit Office reviewed the DIUS PSA targets in 2007 [21] and indicated concerns on this sub-target. Specifically it concluded:

"The data system for supporting the measurement of this sub-target is not fit for the purpose of measuring and reporting performance against this sub-target. Whilst the Department has identified data sources, it has not established robust baselines or set any specific targets or defined success criteria for all aspects of the sub-target. As a result it will not be possible for the Department to accurately assess whether it has achieved the sub-target at the end of the PSA period."

The Review notes that the DIUS response to this criticism focused on the use it would make of Trigger Metrics, and the fact that since these metrics are based on standard HESA returns they can provide an effective baseline back to 2001/02. This reinforces the Review's recommendations that Trigger Metrics should be more widely reported and used in the sector (Recommendation 5).

3.3 Impact of investment in sustainability at institutional level

So far we have looked at the aggregate national investment that has flowed to support the sustainability agenda. It is of course important to examine whether this is having the desired impact at institutional level.

Most HEIs reported to the Review that they are on a more sustainable trajectory and that the additional investment that has flowed from fEC is having a positive impact. Although, at the time of the consultation, fEC affected only 50-60% of Research Council grants it appears that the fEC 'uplift' has contributed significantly to both financial and physical sustainability, and that building maintenance and equipment shortfalls are being made good. Larger and more research-active HEIs were clearer about these benefits. HEIs also reported that their 'adaptive capacity' had increased as a result of fEC, although many responses mentioned the threat to sustainability of increasing staff salaries and utilities costs (Annex 3a).

Few HEIs were able to provide quantitative evidence on these trends, and fewer than 10% of the respondents mentioned that they made any use of sustainability 'Trigger Metrics'.

3.3.1 Trigger Metrics

Trigger Metrics were developed in 2005 and are based on standard data in HESA Finance, Staff and Estates returns. They consist of 15 main metrics and a number of variants (Annex 3b), and are reported on biannually to the Research Base Funders Forum. The June 2006 Funders Forum report noted concerns over the long-term sustainability of 13 institutions, or 8% of the total number of HEIs [22]. The bullets below update the June 2008 report [23], with 2007/08 data for metrics related to the HESA Staff and Finance returns. Metrics needing the 007/08 Estate Management Survey (metrics 10-14) cannot yet be calculated. A full report on Trigger Metrics will be produced by the Funding Councils for the Funders Forum meeting in July 2009:

- TRAC adjusted operating surplus/deficit (metric 1) reached an average deficit of £9.2 million per institution (around 7% of mean income) in 2006/07, but this improved to a deficit £8.0 million per institution in 2007/08.
- Underlying net operating surplus before exceptional items (metric 2) has held reasonably constant since 2002/03 at an average of £1.3 M/institution in real terms, but increased significantly in 07/08 to around £3.0 million.
- Gearing ratios – i.e. long term borrowing/total general funds (metric 3) - are staying relatively constant but show the smaller research-active institutes (Group B⁶ ratio for 07/08 is 0.78) are more exposed to borrowing than the larger institutions (Group A ratio for 07/08 is 0.43).

⁶ These are the same groupings as developed by the quality assurance team which undertook the TRAC benchmarking exercises as part of the process of moving to full economic costs for research projects. These groups were determined by level of funding council and research council income in 2002-03, with groups A and B being the most research intensive.

- Liquidity (metric 4) shows an improving situation. The average institution could cover 62 days of expenditure in 2002/03 and this rose to 85 days in 2007/08.
- Total income per academic FTE⁷ (metric 5) was £177,800 per academic in 2007/08, and this has risen by 3% annually in real terms since 2002/03.
- Research income per academic FTE (metric 6) averaged £41,750 in 2007/08, and has risen by 2.6% annually in real terms since 2002/03.
- Externally sponsored research (metric 8) averaged £23.1M per institution in 2007/08 and increased at 4.2% per annum in real terms since 2002/03. Group A institutions averaged £111.4 M and increased by 5.3% annually in real terms since 2002/03.
- Mean capitalised expenditure on equipment (metric 9) shows a 4.6% annual increase in real terms between 2/03 and 07/08 - to around £3.87M per HEI. For Group A HEIs the increase was 6% and the average annual spend in 07/08 was £13.1M per HEI.
- Capital expenditure (metric 10) was around 10% of income, with Group B institutions being slightly higher.
- Expenditure on repairs and maintenance per HEI (metric 11) showed little change with time (£3 M sector average and £10 M for Group A), and remained constant at around 2.5% of income.
- The proportion of buildings space which is in 'poor' condition (metric 12) declined on average from 35% to 30% over the 5-year period to 06/07, despite the fact that the mean estimated cost to upgrade buildings in poor condition to 'good' condition has increased significantly.

3.3.2 Capital Investment Framework

In England and Wales entitlement to funding from the Capital Investment Fund depends on satisfactory completion of a Capital Investment Framework by HEIs [24]. This framework examines whether HEIs are approaching capital investment in a strategic and integrated way, and whether they have assessed the levels of investment necessary to ensure that their physical infrastructure is sustainable in the longer term. Quantitative evidence is requested to support responses to the following questions.

- Does the institution have the physical infrastructure to meet the needs of students and staff and to deliver the institution's mission?
- Is infrastructure planning at the institution integrated within strategic and operational planning processes, with projects subjected to option appraisal to ensure that they cover operating and capital costs?
- Does the institution have an up-to-date ten year infrastructure strategy which is costed and affordable, at least for the early years?
- Has the institution been through a systematic process to identify how much needs to be invested annually in infrastructure? Is the institution investing at this level; if not how and when will the identified level be reached?
- Are infrastructure assets being utilised effectively?
- Is infrastructure management aligned with the goal of reducing environmental impact and conserving biodiversity? If there is room for improvement what action is being taken?

The Funding Councils provide HEIs with a set of data to assist them completing the 'supporting statements' for these questions. Metrics relate to investment levels, condition and functional suitability, affordability, revenue generation, and space efficiency [25]. They are mainly drawn from HESA financial and estate management statistics, and are similar to the Funding Councils Trigger Metrics. There is scope for clearer

⁷ Academic staff have been taken as those with an FTE of 40% or more, on lecturer or equivalent grades and higher, and with permanent contracts. Academic FTEs represent all academic staff with an FTE of at least 25%, employed during the reporting year, and whose primary cost centre is returned as academic.

integration of these CIF metrics within the Trigger Metrics and Annex 3b makes a comparison of the two sets of data.

There is an annual review of the CIF metrics as part of the single conversation process with HEIs [26]. This provides an early warning if levels of investment dip or the condition of the estate shows signs of deteriorating. The purpose is to avoid any build-up of under-investment, as has happened in the past. If this monitoring raises concerns the Funding Councils can withdraw CIF approval and the HEI will be required to provide more detailed programme and project level information. CIF is therefore a light touch regime, based on the progress made by the HE sector over the past decade in managing its capital investment. Annual monitoring is essential for this confidence to be maintained.

In Wales, arrangements for capital funding are broadly similar to those in England, with some differences in monitoring procedures. There is additionally a requirement for institutions to submit capital investment strategies.

In Scotland, the scrutiny arrangements for capital funding are being reviewed [27]. Currently, HEIs are required to provide an annual estates strategy update and three year expenditure forecast. They also provide expenditure reports at the end of the year confirming how they have spent their formula capital allocations. HEIs should also have a sustainability policy that takes account of SFC guidance on sustainable development and is linked to their estate strategy.

3.3.3 Maintenance of Facilities

Several responses to the Review noted that TRAC Estates and Major Facilities Rates include depreciation costs, but that guidance is not sufficiently clear on whether institutions or departments running the facilities should use these funds to accumulate equipment replacement budgets.

Arrangements are in place to avoid double costing of depreciation on equipment funded through projects. Replacement value depreciation is included within equipment charge-out rates to research projects, even on equipment which has already been fully depreciated, or fully paid for within the Directly Incurred element of a grant. However, this depreciation element 'should' be deducted from depreciation charged in Estates rates. Depreciation on any equipment provided through a capital grant (e.g. SRIF or CIF) will be charged to a project funder, irrespective of whether it was the original purchaser of the equipment.

The introduction of Small and Major Facilities Rates has caused significant complications within the TRAC-fEC process, and has been implemented in widely different ways across the sector⁸. It is important to understand the interactions between capital infrastructure grants, depreciation payments in directly allocated element of fEC, and equipment charges which are included in the directly incurred elements of fEC. The impact of these changes in TRAC-fEC should be understood both from the point of view of funders and of the HEI sector. It is recommended that the TRAC Development Group, the Funding Councils and RCUK should undertake an assessment of the nature of facilities depreciation and access charges and how these relate to both capital grants and equipment maintenance costs. It is noted that the Wakeham Review of Physics also came to the conclusion that the role of fEC income streams in equipment maintenance requires to be investigated.

".. the Review believes it is essential that institutions maintain these facilities by appropriate use of the appropriate income streams. The Review has not been able to investigate this in detail at the level of each institution, but it is important that fEC streams are used to support facilities as well as buildings. It is hoped that the current RCUK review of the implementation of fEC will provide further insight."

A separate issue in the Wakeham Review (Recommendation 13) related to the potential double counting of QR and Research Council provision of facilities.

".. an investigation into the balance between QR and RC funding in supporting physics infrastructure should be completed so that it is clear to the entire community what amounts are being spent in total on which branches of science. The Review does not advocate a redistribution of the funding (as noted in the report, there are logical reasons for this), merely transparency."

⁸ Fifty six of the 125 HEIs (i.e. 45%) required to complete the annual TRAC process have separated their facilities rates from estates rates. These HEIs have identified a total of 1,260 facilities across MRF and SRF categories, or an average of 22.5 facilities per HEI.

It is noted that DIUS intends to address this Recommendation by convening a working group involving RCUK and the Funding Councils “to identify comprehensive and consistent data on public expenditure on the main areas of research”.

3.4 Management and governance of sustainability

3.4.1 Management

As well as providing additional resource, a key part of the fEC agenda was the development of policies for managing sustainability at institutional level. It is the responsibility of the governing body to inform the relevant Funding Council of anything that threatens the sustainability of the institution. It is therefore important to understand how this has been embedded within HEI management and governance processes. If additional investment is not supported by changes in the way resources are managed then the sustainability agenda risks being undermined.

Institutional responsibility for sustainability is now embodied in the Financial Memorandum between an institution and its Funding Council [28]. Institutions need to do five things to manage their research on a sustainable basis as part of a long-term strategy. These are:

- establish and recognise the FEC of research;
- manage the research activity strategically;
- secure better prices for research;
- improve project management and cost recovery;
- invest in the research infrastructure.

Box 1: Example of allocation of funding from fEC-grants

When an award is made (e.g. from a Research Council), the directly incurred costs (e.g. RA salaries, equipment, consumables, travel) are deducted from the total. The remaining distributable income is then shared between:

- the Centre
- the School
- the PVC Incentive fund

For standard research grants (as opposed to some fellowship and other non-standard awards) that involve centrally funded PIs, the income distribution is made on a 65% (Centre), 25% (School) and 10% (PVC Incentive) basis. If the PI / Co-PIs on the grant are School funded then the directly allocated PI costs will be awarded to the School before the remaining income is distributed.

The PVC incentive fund is used to incentivise future research. At present, 80% of the 10% that is deducted is awarded back to the PI / Co-PIs in order to provide an incentive. The money is transferred into their ‘Staff Development Accounts’ (SDA) and can be used to support future research in a way they choose. It is possible to make a case to take a proportion of this funding as an additional salary payment but this is not encouraged and is generally not requested by staff. The money is transferred to SDAs annually in arrears and needs to be approved by the Head of School to make sure that there is no overspend on other grants etc that needs to be taken into account.

The remaining 20% of the 10% PVC incentive allocation from each award is kept in a single ‘pot’ to be used by the PVC Research to incentivise research within the University. Potential uses of this fund (once it is of a sufficient size) are to fund small pilot projects necessary for future grant applications, fund meetings with collaborators who are working on a large multi-centre bid, provide bridging funding for research staff for short periods between grants, etc.

Responses to the survey of HEIs undertaken by the Review suggest that institutional, departmental and project management practices have evolved significantly in response to the sustainability agenda. For example, it is clear that the previous practice of managing for 'accounting breakeven', including an element of depreciation, has been replaced by detailed project analyses, financial headroom calculations, risk/contingency analysis, and planned growth in infrastructure. Research Offices at the medium to large universities give significant help to Principle Investigators in costing applications, and most now have internal processes to vet proposals and ensure quality and financial viability.

HEIs also seem increasingly to be monitoring staff-resource commitment at a departmental level. 'Workload management' is frequently mentioned and some HEIs indicate that their departments use timesheets to verify the actual expenditure of time. HEIs with access to this type of data were able to report, for example, that time spent on Research Council grants could be 'up to twice the amount estimated in the proposals'. Others made statements such as 'as fEC becomes more established the need to monitor staff time charged to grants will become more routine' and 'internal procedures are in place to recharge staff time to research projects based on the actual salary and time spent'. While this time monitoring may happen internally very few HEIs agreed that timesheets should be made available to external customers. However, if an acceptable method of costing time could be developed, it would operate as a driver of efficiency.

A significant number of HEIs mention that central or departmental Research Information Systems are being introduced which collect overall information on application rates, success rates, staff time, financial contribution (the difference between contract value and directly incurred costs) on applications and awards. Sometimes these Current Research Information Systems (CRIS) are also linked to output databases. There are moves in Scotland, for example, to coordinate the Current Research Information Systems of a number of HEIs in readiness for the Research Excellence Framework [29].

As part of the Funding Councils sustainability monitoring process, mentioned in Section 3.3.1, Sustainability Frameworks were requested from HEIs by the Funding Councils in October 2005. They were intended to set out how far and on what basis the leadership of the institution consider that the institution is on a sustainable trajectory. The fEC Review, with agreement of the Funding Councils, requested a sample of

Box 2: Example of allocation of funding from fEC-grants

University finances are managed on the basis of nine income-earning Units - eight academic Schools, plus our Catering, Residencies & Conferences Department. All income received is distributed immediately to the Unit responsible for earning it. Equally, all Central Costs are ultimately allocated to these nine units. Each Unit is managed on the basis of the Contribution it is required to deliver at the year end (i.e. the difference between its total income and direct costs). Once the year has been concluded the final Central Costs (Indirect, Estates ,etc) are then allocated to each unit, on the basis of a TRAC methodology using a range of agreed cost drivers. Depending on how well the targeted overall Contribution matches their share of Central Costs, a particular School may end up in either surplus or deficit. The impact this approach has on research activity is therefore as follows:

- In the course of the year, research grant/contract income is allocated 100% to the relevant School and is used to support the directly-incurred and directly-allocated costs of the research.
- The monthly management accounts identify a Contribution from the research activity. This is added together with the Contributions made from all other activities so as to determine the overall Contribution achieved. This overall figure will include the impact of research-related indirect costs incurred within the School.
- The year-end allocation of Central Costs includes the standard TRAC "Teaching", "Research", "Other" breakdown. Consequently, specific surplus/deficits can be separately calculated for each School's overall research programme. Further analysis permits a breakdown to determine the financial strength of individual research groups. Where sustained losses are identified recovery plans are required to be put in place.

frameworks from a number of HEIs. On the whole these appear to have had a positive impact. However, as noted in a previous report to the Funders' Forum it is unclear how embedded these are and there is considerable variation in the quality and scope of the Strategies. The Review sees value in revising these frameworks with a greater focus on how they can become an integral part of the strategic planning and management of an institution.

Unsurprisingly, the Review has found a wide range of resource allocation models that manage and distribute the additional resource to support fEC, from those where all grant funding is passed to the department for distribution, to those where it is almost entirely retained centrally. It is not the purpose of the Review to specify how HEIs should manage their resources, although Boxes 1-4 present a range of practices for illustrative purposes. They do not show "best practice" and the Review would not recommend for example, that part of the fEC uplift could be used to enhance PI salary. There are other more sustainable mechanisms for HEIs to incentivise successful research teams. What is vital is that institutions are able to implement appropriate metrics to record the effect that fEC has on ensuring the sustainability of their research base.

3.4.2 Governance

The Review was particularly interested in the level within institutions at which sustainability is 'owned' and, in particular, in the extent to which the Governing bodies of institutions are involved in the oversight of sustainability. Around 10% of HEIs mention that they use some of the Key Performance Indicators recommended by the Committee of University Chairs (CUC) [30]. The Review recommends that more Governing Bodies of HEIs could engage with this initiative, and it may be worthwhile commissioning a study of the actual metrics used to monitor sustainability in each HEI.

One of the two 'super' KPIs recommended by the CUC was 'Institutional Sustainability', and a number of supporting metrics were suggested for inclusion within this. Similarly metrics were suggested as indicators of 'financial health' and 'physical infrastructure'.

A project to implement the 'CUC KPI Guide' was initiated in partnership with nine pilot institutions. This reported in June 2008 [31] and indicated that 89 of the 100 HEIs responding to the project survey were reviewing their performance data in the light of the CUC Guide, and confirmed that the Guide's recommended monitoring process was robust enough to be appropriate in all cases, if institutions interpret and adapt it flexibly. The Review therefore recommends that Funding Councils encourage HEIs to develop their own KPIs, and embed these metrics and/or Trigger Metrics in their Sustainability Frameworks.

Another resource which may be useful in developing wider sustainability KPIs is the 'Sustainability Framework Tool' developed by the International Federation of Accountants with assistance from the UK Chartered Institute of Management Accountants (CIMA). This offers a range of methods to evaluate the economic, social and environmental achievements of businesses [32].

Box 3: Example of allocation of funding from fEC-grants

When an award is made (e.g. from a Research Council) the funding is allocated in line with agreed procedures, and is agreed with the Principal Investigator (PI) as part of project set up onto the University's financial management system and post award databases. Allocation takes place as follows.

1. Directly Incurred costs. The first allocation is 100% of directly incurred costs (research assistants, travel, consumables etc) and exceptional costs (studentships / equipment >£50k). These costs are charged directly to the specific research project and PI's receive regular reports on the financial position of the project. Real-time reports for research projects are also available to PI's via the university intranet.
2. Directly Allocated Costs (technician time and equipment). 100% of any School- based directly allocated costs (non PI) are charged directly to the project.
3. Directly Allocated Staff Costs (PI/CI time). As a means to incentivise and reward Schools for the recovery of DA staff costs the University operates a policy whereby 50% of PI/CI(s) costs

included in the grant application are returned to the associated School. Funds are allocated as a direct addition to the School's budget for the forthcoming year. Spending is at the discretion of the Head of School. Time allocations are also scrutinised to provide assurance that there is no contravention of the Research Council's standard hours conditions.

4. Estates and Indirect Costs. The remainder of an award is treated as a contribution towards indirect costs and overheads. This is allocated to Schools annually in the Resource Allocation Model, as contribution from research grants and contracts, over the life of the research project. The gross allocation is 100% of amounts estimated to be earned in the year. This total projected contribution from research grants and contracts forms part of the School's overall projected income within the RAM and hence part of the overall funding available for distribution by the University. A number of Institutional items are top sliced, for example:

- Central Research Infrastructure Fund (CRIF) assists with infrastructure support for both building refurbishment works and equipment purchases, in support of strategic research development. It is funded through pro-rata reduction of Schools' income from the Funding Councils 'charity QR support' and the contribution from external research grants and contracts. The allocation is currently divided between buildings and equipment on a 70:30 basis.
- Contribution to the Academic Support Sector is applied to income generated by each School to fund the academic support sector - in 2008-09 this rate was 33.9%.
- Central Research Support Funds. A contribution of around 3% of income generated by each School is contributed to support a number of institution-wide initiatives such as internationalisation, start-up packages for academic staff, training for contract research staff and a fee scholarship scheme.

Conclusion. The process is relatively straightforward and not unduly time consuming. Particular emphasis is given to the set up and the associated budget allocation process for each new grant and award. The capture of accurate information at this stage drives the subsequent allocations and distributions in respect of externally funded research. The approach is transparent and ensures that PI's, Heads of Schools and other interested parties can trace 100% of the funding received.

3.4.3 Efficiency

The TRAC system is useful in monitoring and recording costs, but it does not contain any obvious efficiency drivers. HEIs are in receipt of an increasing amount of public resource through fEC-TRAC process, and it is right that they are able to record that this resource is used for the purpose of increasing sustainability rather than for other purposes like supporting new research volume. It is also desirable that they can demonstrate that the resource is being deployed efficiently. In the absence of a strong regulatory framework one way of achieving this would be to publish the indirect and estate costs of institutions as a way of encouraging a form of 'comparative competition'. This is a controversial area, as making this commercially sensitive information available could have the unintended consequences of reducing an HEI's ability to negotiate higher prices from commercial partners or increasing chargeout rates from those currently making lower charges. Fair comparison of rates is further complicated because many HEIs have separated the costs of facilities from their estates rates.

The Review recognises these difficulties and recommends that a short-term working group be established to recommend how assurance on the use of the fEC uplift and on the efficiency of cost-control in charge-out rates can be obtained.

Box 4: Example of allocation of funding from fEC-grants

FEC has enabled the institution to invest in a number of innovative supporting actions for researchers, including a Seed Fund competition that offers initial financing for new research ideas, with the clear objective of enabling our faculty to subsequently apply for larger-scale external funding.

The Seed Fund scheme works as follows:

- 50% of PI fEC income is put into the Seed Fund budget annually.
- The Seed Fund operates on the basis of an open call for proposals with permanent members of faculty free to submit proposals in any field or interdisciplinary initiative. The scheme welcomes applications from both junior and senior members of faculty.
- The prime criterion for award of Seed Fund support is that the support will allow the applicant to develop research grant proposals for submission to external funding bodies.
- Preference is given to projects that are innovative and likely to secure further external funding within a realistic timeframe from funding bodies which award grants through a peer review process.
- Pilot studies are eligible for support provided larger-scale funded follow-up research is likely. Seminars, conferences and workshops will only be funded (or part-funded) where a convincing case is made that they make an essential contribution to the proposal.
- Collaborative bids may be submitted with faculty in partner institutions, but these bids will not be funded unless the partner institution also agrees to fund at the same level as the institution.

The remaining 50% of the PI fEC income is returned to the academic departments and research centres which earned it, for their discretionary use on research.

3.5 Conclusions

The Review's overarching conclusion is that the overall financial health of the HE sector is improving following substantial additional investment in the current decade. In relation to research, much of this investment has been provided to cover more of the costs of publicly sponsored research. At the same time, HEIs now have better costing tools and are more proactive in how they manage sustainability. There remains, however, a need to demonstrate the efficiency with which new resources are being deployed.

The Review concludes that significant improvements have been made in the financial and physical sustainability of individual HEIs. This has been demonstrated by Trigger Metrics, by significant real-terms increases in baseline- and project-research funding, and by assurances from most funders and HEIs that the percentage recovery of FEC on project-research has significantly improved from pre- 2005 levels. It notes, however, that the apparent TRAC-adjusted deficit on research recorded by the Transparency Review increased in 2007-08 to more than £2 billion at a time of significantly greater and apparently more sustainable funding for research. There may, however, be issues regarding the attribution of research time and Return for Finance and Investment⁹ in Transparency Review calculations which require to be revisited.

While most measures of HEI financial and physical sustainability are improving satisfactorily, concerns remain about the manner in which sustainability is monitored at a national and institutional level, particularly when increasing costs risk eroding the gains achieved by introduction of fEC. From 2005-06, the Transparency Review collected both TRAC-adjusted research costs and research income; and from 2006-07 this data has been recorded separately for a number of sponsor types. This additional information is very valuable, but it

⁹ Currently the book value of tangible fixed assets minus deferred capital grants and the revaluation reserve multiplied by 5.75% minus interest payable. Plus total costs before taxation minus restructuring costs multiplied by 2.85% (http://www.jcpsg.ac.uk/guidance/revisions/annex15.doc#_Toc140487265)

is currently published only as high-level national averages. In order to highlight important trends within the sector, it is recommended that the Funding Councils should publish Transparency Review averages by both sponsor and TRAC Peer Group.

To ensure that financial and physical sustainability is given sufficient attention across the HE Sector, and is effectively monitored and managed, the Review makes the following recommendations:

1. The principle of providing additional investment in support of fEC while not building volume is a sound one, which is having a positive impact on the sustainability of the HE research base. This principle should continue to underpin the sustainability agenda.
2. The governance of sustainability should be strengthened throughout the HE sector.
3. Funding Councils should continue to strengthen the methodology used in the collection of Transparency Review statistics and consider publishing annual averages for TRAC Peer Groups.
4. DIUS should make greater use of Trigger Metrics and Transparency Review statistics in the Annual Reports on the Science and Innovation Framework (2004-2014), including reporting on progress towards the SIIF Goal of 'ensuring a financially sustainable level of activity by early in 2010 decade, avoiding over-reliance on non-research income and under-investment in research infrastructure'.
5. The review recognises the valuable contributions that sustainability frameworks, trigger metrics and the capital investment frameworks have had in promoting, incentivising and monitoring sustainability. It is recommended that these processes are now brought together to increase their impact and avoid duplication. Institutions should be encouraged to utilise appropriate KPIs to provide evidence of sustainability while reflecting the diversity of the sector.
6. A future Funding Council report to the Funders Forum on HEI Sustainability should comment on lessons learned from existing Sustainability Frameworks and give guidance to HEIs on their future revision and use, within the context of 'streamlined reporting' and the HERRG Concordat.
7. The Review concluded that an improvement is required that more clearly demonstrates the fEC contribution to the sustainability of the research base and which encourages efficient use of the funds. A working group should be established (with representatives of the Research Councils, the Funding Councils and UUK) to recommend to FSSG and DIUS: a) a light touch mechanism to provide reassurance about how fEC funding is used and how it contributes to sustainability; b) procedures to improve the transparency of the variations in the charge out rates between organisations, which might include the publication of such rates. The group should be required to report in no more than six months.
8. The TRAC Development Group, the Funding Councils and RCUK should examine issues relating to the accumulation of resources for maintenance and replacement of facilities and equipment. This should include examination of the use of depreciation in directly incurred and directly allocated costs, and any potential overlap of equipment access charges, QR, capital investment funds, and additional funding for infrastructure and equipment from other sources.

4. Human and Intellectual Sustainability

4.1 Introduction

Although human and intellectual sustainability is underpinned by sustainable finances and infrastructure, the Review felt it important to examine this dimension separately in order to understand what the impact of fEC has been and to see if there are any particular issues that needed to be addressed.

4.2 Identifying the Effect of fEC

Most HEIs reported to the Review that additional investment associated with fEC and sustainability is helping to improve the career development of researchers. However, it is clear that there are several other drivers in this area such as Roberts' skills funding [33], employment law, the new Researcher Concordat [34] and the Funding Councils grant for "Rewarding and Developing Staff in Higher Education" [35]. It is therefore difficult to assess the specific impact of fEC.

Many HEIs say that they have comprehensive HR strategies which embrace permanent and temporary staff, covering issues such as career development, succession planning, performance management, recruitment and retention. Procedures have been implemented to improve the career development of staff, including competency frameworks, annual appraisal meetings, career-pathway programmes, 'development centres', funding for study leave, training and retraining programmes (Annex 4a).

One identifiable benefit of the implementation of fEC, however, appears to be improved planning of staff time. Also, the additional investment to support sustainability has allowed institutions greater financial flexibility to prioritise staff development, create bridging funds or introduce informal 'buy-outs' of the teaching time of researchers. Flexibility in the use of incentive funds enabled by fEC is widely reported to allow staff to bid for training, travel, start-up funds and bridging grants. Training is also provided to support staff in proposal writing. HEIs differ significantly in their employment of staff on fixed-term posts, but it is likely that policy is driven by factors other than fEC.

Box 5 The Concordat Support the Career Development of Researchers has been signed by 16 Organisations and is supported by another 21. It has 7 Principles.

- Recognition of the importance of recruiting, selecting and retaining researchers with the highest potential to achieve excellence in research.
- Researchers are recognised and valued by their employing organisation as an essential part of their organisation's human resources and a key component of their overall strategy to develop and deliver world-class research.
- Researchers are equipped and supported to be adaptable and flexible in an increasingly diverse, mobile, global research environment.
- The importance of researchers' personal and career development, and lifelong learning, is clearly recognised and promoted at all stages of their career.
- Individual researchers share the responsibility for and need to pro-actively engage in their own personal and career development, and lifelong learning.
- Diversity and equality must be promoted in all aspects of the recruitment and career management of researchers.
- The sector and all stakeholders will undertake regular and collective review of their progress in strengthening the attractiveness and sustainability of research careers in the UK.

4.2.1 Concordat to support the career development of researchers

The Review notes the new Concordat (Box 5) which outlines a framework, underpinned by a set of ambitious principles, to strengthen the attractiveness and sustainability of research careers.

The Concordat will act as a focus for developments in this area and is being supported by a dedicated implementation process with oversight from across the sector and research funders. Sustained support for sustainability and fEC will no doubt assist with successful implementation of the Concordat. Implementation of the Concordat presents an opportunity to examine the issue of human and intellectual sustainability in more detail, and the Researcher Concordat Strategy Group would seem well placed to take this on as part of their activities.

4.2.2 Staff sustainability

Possible metrics related to staff sustainability and monitoring of the Researcher Concordat include: retraining budgets, policies for fixed-term appointments, availability of post-doctoral bridging grants, policies for part time working, inclusion of enhanced salaries and stipends in grant proposals; cost of staff as a percentage of total cost; staff turnover, absence and vacancies against plans; staff age, skills and diversity profile; expenditure on staff development and training; pensions liabilities – funding coverage; and staff satisfaction indexes (surveys¹⁰, complaints and appeals).

The Funding Councils reported to the Research Base Funders Forum in 2008 on the status of research staff in the UK [36]. They analysed HESA data on subject area, salary and terms of employment to categorise staff into grades and reports on metrics such as: total academic staff, percentage of academic staff who are researchers, percentage of researchers who have fixed-term contracts, and an analysis of these three categories of staff by 'subject area'. This report highlighted a decrease in numbers of contract research staff of 4316 between 2003/04 and 2006/07, matched by an increase in permanent research staff of 5177 in the same period. In 2006/07, 9150 researcher staff with permanent contracts represented 20.6% of total researchers in the UK. (Annex 4b) The report highlighted that, in order to track movements of individual staff, action was needed to improve the consistency of use by HEIs of the HESA 'Unique Staff Identifier'. This recommendation was echoed by the Vitae 2009 Policy Forum [37], and has been emphasised in fora concerned with collection of data for the Research Excellence Framework.

RCUK produces annual reports on the health of academic disciplines [38] and the status of researchers [39] for the Research Base Funders Forum. The health of disciplines report matches supply-side data from HESA staff and student returns with demand-side surveys of business needs for skills in different disciplines. The status of researchers report monitors trends over time in the employment of researchers, impacts of legislation, and links between HR staff returns and sector wide surveys of staff and students.

4.2.3 Intellectual sustainability

In relation to intellectual sustainability three factors were mentioned by respondents.

- The expanding role of Institutional Repositories and the part these play in disseminating peer-reviewed and other publications. fEC funding has included the establishment costs of repositories, and open access publication costs can be included in the DI component of Research Council grants;
- The sustained research excellence demonstrated in the Research Assessment Exercise (RAE) 2008;
- The new bibliometrics measures and 'esteem metrics' being developed for the Research Excellence Framework – including that, with 1% of the world's population, the UK produces 9% of publications and accounts for 12% of citations and 13% of the most highly cited papers; that the UK is second only to the US in relative citation impact rankings in seven of the ten priority research fields and in terms of citation impact is ahead of the US in health, biology, environment and physical sciences ; and that UK scientists, on average, receive about 10% of internationally recognised science prizes [40].

¹⁰ E.g. the Postgraduate Research Experience Survey, the UPA SelfAssessment tool, the Careers in Research Online Survey (CROSS), and the Athena Survey of Science Engineering and Technology (ASSET).

4.3 Conclusions

The Review notes the feedback it has received on the positive contribution that the fEC and sustainability agenda has made in this area. fEC is contributing positively to a wider set of initiatives that are aimed at strengthening the career development of researchers. The Review therefore recommends that:

9. **HEIs should continue their support for staff development activities, and should continue to develop ways to monitor implementation of the Concordat to Support the Career Development of Researchers, and 'Roberts' skills funding activities'. A subset of these metrics may serve as Trigger Metrics for 'staff sustainability', to be used alongside those for financial and physical sustainability.**

5. Research Council & National Academy funding

5.1 Introduction

Grants and contract income to HEIs from Research Councils and National Academies combined was £1,358 million in 2007/08, or 36.5% of total 'project-research' income. Over the previous six years this increased at 8.0% per year in real terms. This is the most rapid increase (equal with 'other overseas') in funding of the eight project-research funding sources identified in Table 2. Much of the additional funding has been provided to support the sustainability of the research funded in UK HEIs. Annual TRAC statistics suggest that around 71% of fEC was recovered from Research Councils in 2007/08, an increase from 64% in 2006/07 (Table 3).

It is therefore entirely reasonable for the Research Councils, and indeed HM Government, to want reassurance that this additional resource is having the desired impact and that mechanisms for implementation of fEC, and for assessing its impact, are sound. As noted in Section 3, it is clear that institutions are generally on a sustainable trajectory. The additional funding is starting to make an impact and the desired changes to management and strategy are being made. This Section considers specific issues relating to the impact of changes in Research Council and National Academy funding to support this agenda.

5.2 Implementation of fEC by the Research Councils

From 2004 onwards a version of TRAC, called TRAC-fEC, was available to allow institutions to calculate full economic costs at project level, and to set the price for grants made by the Research Councils. From September 2005 Research Councils funded grants on the basis of these calculations, and covered 80% of the estimated Directly Incurred, Directly Allocated and Indirect Costs (Box 6). Implementation of this has required significant effort both within the sector and at the Research Councils. Figure 2 gives an indication of the breakdown of total grant and fellowship spending in 2007/08 by fund category.

Box 6 - Explanation of TRAC – fEC Costing

All costs on research projects are classified in one of three ways, reflecting the degree to which they can be linked to a particular project.

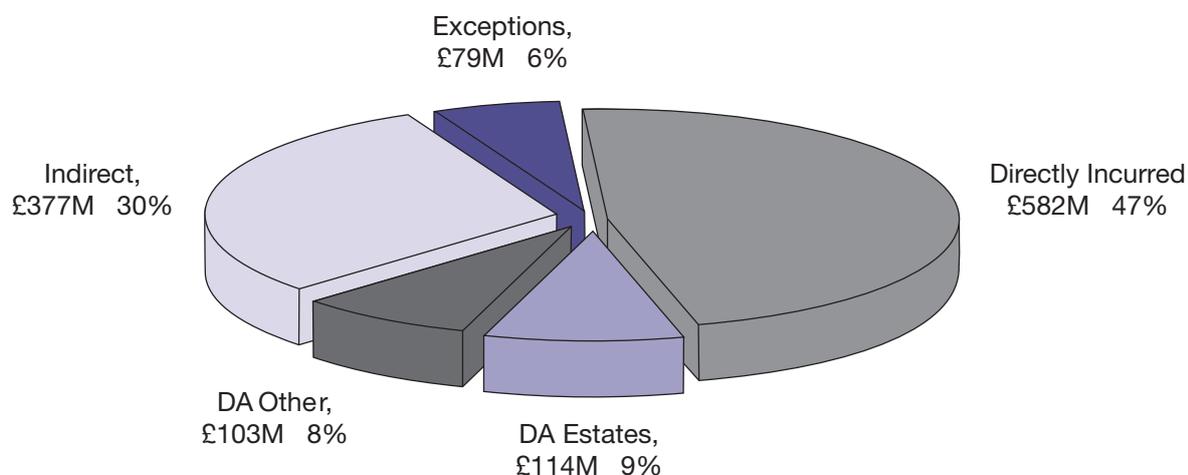
Directly Incurred Costs – include all expenditure represented by an invoice or timesheet that can be charged to an individual project. It includes research assistants salaries, payments to PGR students, consumables, technicians and research equipment. If staff are not wholly engaged on a single project they should complete project-level monthly timesheets. Actual staff charge-out rates are applied to this time calculated using actual salary or pay-band averages.

Directly Allocated Costs - include costs allocated to projects using estimates, including the costs of academic staff time, estates, 'pool' and infrastructure laboratory technicians, and charges for the use of major research equipment or facilities. None of the staff in this category are required to complete timesheets. Estates costs are charged on a £ per staff FTE basis.

Indirect Costs are general overheads allocated to projects, including the support time (cost) of academics, clerical and administrative staff, non-staff costs in academic departments, central services including library resources, estates costs for central services, gross return for financing and investment, including interest and restructuring costs. Indirect costs are charged on a £ per FTE basis.

(See Annex 9a for further information)

Figure 2: Proportion of total grants and fellowships paid to Research Organisations by each of the 5 fund categories in 2007/08.



5.2.1 The HEI perspective

Effect on fEC on proposals

There is little consensus on changes in the number and type of research proposals being submitted to Research Councils following the introduction of fEC. Around a quarter of HEIs felt they were submitting more proposals, another quarter indicated that were submitting fewer proposals than pre-fEC, but that these were 'bigger and better' than before. The remainder felt there had been no long-term change in the number of submissions. Research intensive universities stressed the vital importance of RC grants, and the additional impact they had through their effect on RAE/REF scores. (Annex 5a).

The perceived dip in investigator time included in applications to RCs following the introduction of fEC seems to match that recorded in RCUK statistics (Section 5.2.2). However, HEI Research Offices and Research Councils have worked hard to persuade academics that research excellence is still the primary criteria for success.

Many institutions, certainly the most research-active ones, have introduced systems of mentoring, internal peer-review and administrative support to assist in the preparation of fEC-proposals. Faculty or Institutional Research Offices have much greater visibility of preliminary and submitted proposals. Research Offices report that they are working hard to ensure that researchers include adequate time estimates in their proposals, and that this recovery of staff costs 'goes a long way to covering the costs of the missing 20% fEC'¹¹.

No respondents indicated that their staff were overestimating time involvement in research proposals, and some thought they could be underestimating by as much as 50% to keep proposal costs within bounds. Few HEIs were able to form an opinion on impact of fEC on success rates, although many recognised that these had been dropping since before the introduction of fEC.

Implementation of fEC by the Research Councils and National Academies

HEIs responded overwhelmingly that the introduction of fEC had been successfully managed by the Research Councils and National Academies, with good communication and phased implementation. However, a large proportion of responses also indicated that the TRAC-fEC system had become more complicated than initially envisaged, particularly because of the introduction of different categories of technician and the option of extracting major and small facilities from the calculation of Estates costs (Annex 5a).

¹¹ Government stresses that the introduction of CiF brings fEC recovery to 90%

Most HEIs use specialist software for calculating TRAC-fEC costs and almost universally report that departmental and project planning has been greatly facilitated, with staff at all levels now fully aware of the true cost of conducting research projects.

A number of issues regarding the implementation of fEC by Research Councils were raised. These are listed below, if they were shared by at least five HEIs:

- absence of a clear mechanism to include equipment depreciation and replacement costs;
- absence of fEC on studentships (particularly project students);
- only 80% recovery on equipment and non-payroll costs which had to be paid at 100% levels;
- indexation by RCs to the GDP inflator and not the RPI;
- confusion over whether and for how long e-publication costs were supported;
- an expectation from RCs that Institutions should contribute from their own resources to the cost of large block grants – and that this is contrary to the spirit of fEC;
- price capping of some schemes is encouraging under-bidding for staff time;
- perceived inconsistencies in the way that Councils apply 'exceptions' (paid at 100% FEC) in payments for contracts and services external to the HEI;
- inability to recover fEC on knowledge transfer activities;
- differences between Councils in the procedures used to cost and review applications of larger collaborative proposals.

These are valuable comments and RCUK is proposing a number of changes and harmonisation steps to address them (see Annex 5c).

Currently, HEIs are required to record the full cost of research charged to a project in their Final Expenditure Statement (FES). These tend to match very closely the total grant allocation and the breakdown between Directly Incurred, Directly Allocated and Indirect costs agreed for the grant: yet many submissions to the Review indicate that Directly Incurred staff time on projects is very regularly overspent and that this is not recorded in the submitted FES of the project. The Review however notes that from 2009 there will be a requirement for HEIs to compare actual research time, based on annual TRAC, with the forecast time charged to RC contracts for directly allocated academic staff at an institutional level.

Five key questions, common in submissions, were more relevant to the TRAC Development Group than RCUK, and were passed to them for response (see Annex 5d).

- Whether aggregate sector (dispensation) rates can be applied to a larger number of universities?
- Whether consolidated, clear and accessible guidance on TRAC can be produced in the near future giving particular clarity on the treatment of facilities and technicians?
- Whether development of an equipment replacement budget can be included within TRAC methodology?
- Whether there is any intention to publish individual indirect and estates rates, or at least averages and variance for each TRAC Peer Review Group?
- Whether Time Allocation Schedules will continue to be required, especially at a time when many HEIs have developed workload modelling tools and could provide the teaching/research/other split from these?

5.2.2 The Research Council perspective

RCUK has been monitoring of the impact of fEC on proposals and grants and has focused on three questions.

- What changes have there been in the way that HEIs cost proposals – i.e. costings for staff categories (investigator, assistant, other) and non-staff resources?
- What changes have there been in the value of awards compared to proposals: are there differences in 'cost-reduction' which can be related to Council, thematic area or scheme?
- What changes have there been in the volume of proposals and funded grants and can success rates be correlated to other factors like costs, funding mode or thematic area?

The main conclusions were:

- The average Principal Investigator (PI) effort fell from 11 hr/wk pre-fEC (Oct 04-Jan 05) to 5.5 hr/wk following the introduction of fEC (Jul-Dec 06) then regained 11 hr/wk once fEC had settled in (Jan 08 – Jun 08). Co-Investigator (CI) time during the same time periods fell from 7 hr/wk to 3 hr/wk before regaining 7 hr/wk. In the second half of 2008, however, both PI and CI time declined again (Annex 5e – Figure 1).
- The total volume of resources awarded in Directly Incurred costs in the half-yearly monitoring intervals since August 05 was very variable, but increased by an average of 5% per 6-month interval for Investigator and Research Assistants/Technicians. Non-staff costs increased at 1.6% per interval (Annex 5e – Figure 2).
- Success rates by number have declined steadily from an average of 45% in Nov03 – Jan 04 to an average of around 20% for 2008. Over the same period, success rates by value declined from 40% to around 18%¹². For both measures, average rates in 2007 and 2008 have not shown the declines evident in previous years (Annex 5e-Figures 3 & 4).
- Numbers of proposals declined from a peak of 14,000/year in 2007 to around 8000 in 2008. (Annex 5e – Figure 5).
- The average value of a Research Council grant varies considerably over the intervals used for RCUK monitoring, but over the past 3.5 years it averaged £209,000 and was increasing at 9.6% per 6-months interval in cash terms (Annex 5e – Figure 6).
- No significant difference was found between the relative proportions of TRAC fund headings (see Figure 2) in successful and unsuccessful applications (Annex 5e- Figure 7).

5.2.3 RCUK Quality Assurance and Validation

RCUK initiated a Quality Assurance and Validation project in early 2007 to gain assurance on the implementation of TRAC in UK universities and to validate the rates used on Research Council applications. Fifty HEIs were visited during 2008, with each visit taking three days and detailed reports being produced for the Institution. Results are available on the RCUK website [41], with a summary in Annex 5f. Implementation of TRAC rules appears to have been satisfactory, with an average of eleven recommendations for improvement made per institution. There was no evidence that Institutions were consistently overcharging: indeed a number of institutions are likely to increase their cost rates as a result of the QAV visit.

A significant issue identified was the variation between institutions in terms of support for TRAC Managers by senior institutional managers. In about half of the institutions visited support was limited. There was a real concern that many institutions saw TRAC purely as a way of ticking boxes, with no use for internal monitoring/decision making. There was scope for senior management to be more engaged with and supportive of front-line TRAC staff. Evidence indicated that there was greater reliability of data in HEIs

¹² These are average figures across all 7 Research Councils. Rates for individual Councils can be found on their websites via <http://www.rcuk.ac.uk/aboutrcuk/efficiency/demand/successrates/default.htm>

where there was greater internal use of the data. Some HEIs were using TRAC more widely as a data verification tool. It was therefore important to share information on the wider use of TRAC.

5.3 Implementation of fEC by National Academies

The introduction of fEC by the National Academies has had a number of implications both for the Academies and for applicants and award holders. The initial introduction of fEC, while smooth and efficient, resulted in a significant increase in administrative workload in the early stages and a continuing increase in the volume of enquiries related to fEC and eligible costs.

In some instances (although not across all Academies) there has been a reduction in the volume of awards, directly as a result of the introduction of fEC and the higher costs associated with each award. The Academies have also noted that during this period there has been a significant increase in the number of applications received and, although this may not be directly attributed to the introduction of fEC, it has led to a further reduction in success rates for applicants.

The Academies have noted that there is significant variation in the sums requested by universities to cover indirect and estate costs. Despite the undoubted compliance with TRAC, there needs to be greater transparency in the methods used to calculate these costs. This would allow a more competitive approach to calculating costs, thereby reducing variation between HEIs and ensuring value for money. It should also sustain the volume of research funded.

Some awards provided by the Academies are supported from charitable income and therefore do not include indirect and estate costs. The Academies indicate that some universities appear to persuade researchers to prioritise submitting applications which incorporate the fEC, rather than those that do not, and that feedback from researchers whose awards do not include fEC suggests that they are not treated equally within their departments. The Academies suggest that this inequality of treatment can become particularly evident where funding schemes receive income from both public and charitable/private sources and, as a consequence, some awards under the same scheme are paid on the basis of fEC and some are not. The Review notes these issues but accepts that HEIs have to make informed decisions about participation in such schemes, balancing their requirement to manage sustainability against the advantages to be derived from these awards.

5.4 Conclusions

HEIs commented favourably on way that Research Councils handled the introduction of fEC, but noted that recent changes in the fEC rules (for example over facilities and technicians) had complicated the system considerably.

There have been above inflation increases in the Directly Incurred costs of Research Council grants, particularly for non-staff costs. The average value of a grant (including directly allocated and indirect costs) is increasing at almost 10% per 6-month period. The average of Principal-Investigator and Co-Investigator time claimed in proposals halved in the eighteen months following the introduction of fEC. Then rose to pre-fEC levels and declined again in 2008. The number of proposals slightly increased following the introduction of fEC, but significantly declined in 2008. There is no evidence that the decline in success rates, evident since before 2003 has been significantly influenced by the introduction of fEC.

A detailed list of issues related to the implementation of TRAC-fEC have been passed to RCUK and to the TRAC Development Group, and their responses are included in Annexes. One recommendation is made in this Section:

10. RCUK should report on progress towards the harmonisation of Research Council grant rules and procedures on their website, and how this relates to commitments made in signing up to the HERRG Concordat.

6. fEC and Government Departments

6.1 Introduction

Research income to HEIs from Government Departments (i.e. in addition to public funding received through the Funding or Research Councils) is significant. In 2007-08 it amounted to £638 million, or 17% of total 'research project' income. Over the previous six years increases averaged 3.5% annually in real terms, a rate lower than the average for all project-research funding sources of 4.7% (Table 2). The Annual Transparency Review for 2007/08 suggests that around 75% of FEC is recovered from Government departments (Table 3).

Statistics on total Government research spend are collated by Government departments themselves in returns for the Office of National Statistics, and are published as "Science Engineering and Technology Statistics" on the DIUS website [42]. The most recent information relates to 2004/05, and gives a total gross expenditure of £9,629 million of which 25.4% was spent internally by Government labs and Research Council institutes, 40.2% was spent with HEIs (£3,868M), 26% with primary industry, 6.3% overseas and 2.1% other.

This funding clearly makes an important contribution to supporting the UK HE research base, and so will have implications for its sustainability. For this reason, in 2004, as part of the fEC developments, HM Treasury wrote to the then Office for Science and Technology to clarify the position on research supported by Government departments (Annex 6a). The letter reiterates the basic principle that Government Departments (excluding the NHS) – along with other purchasers of research produced by universities under contract - should expect to pay 100 per cent of the full economic costs of the research they commission from universities.

In exploring this area evidence was limited, so we have relied primarily on input from HEIs and from those Government departments which engaged with the Review. Nonetheless, this input provided a series of consistent messages.

6.2 The HEI perspective

Almost every institution that responded to the Review cited problems with the level of FEC received from Government bodies (Annex 6b). We received reports of significant variation both between and within Departments, and HEIs differ widely in their estimates of the degree of recovery of FEC from Government. Only a small number of HEIs provided a quantitative estimate of this recovery: ranging from 50-100%, with most in the region of 60-70%. Many respondents indicated that FEC recovery from Government departments was a now a metric that they monitored.

The exception granted to the Department of Health was recognised, but several HEIs claimed that FEC recovery in this area was below 80% (the level of FEC paid by the Research Councils), particularly in the case of National Institute of Health Research (NIHR) funding which is seen to channel grants through Health Trusts, with the Trusts keeping the overhead and passing on only the direct costs to university teams that do the research.

Competitive tendering was thought to be more common than in the pre-fEC era. It is often used with a fixed cap, and bidders tend to offer more time and outputs within this cap than TRAC-fEC costing would permit. Inner city HEIs with high estates and indirect costs are concerned that when full FEC is paid their rates will appear uncompetitive.

Others suggest that, while grants placed directly by departments may be paid at close to 100%, many departments place the bulk of their research spend through statutory or non-statutory agencies (or sometimes charities) and these pay less than FEC. Some departments tend towards the Research Council 'standard' of paying 80% (or sometimes 80% on staff and indirect and costs and 100% on equipment).

In part, the problem may be that the original policy relating to Government bodies and fEC was ambiguous, and poorly communicated. A suggestion was made that the then DTI had initially acted as a 'whistleblower' and intervened with other departments to ensure that 100% FEC was paid. Without adequate metrics it is clearly difficult to fulfil this role.

Research supported by Government bodies seems to be the main area where a significant number of universities suggest they are either reviewing or pulling out of activity.

6.3 The Government department perspective

The Review was concerned by the response received from the sector in this area, so felt it important to ensure input was received from Government departments. The substantive responses that were received in the call for evidence show that while all departments recognise the needs of HEIs to meet a large proportion of their true costs they all operate through competitive tendering mechanisms in which value for money is a major criterion and where HEIs themselves set the level of overhead. Most large departments (e.g. MOD, Home Office, DT, DFID) operate through consortia or 'Framework Agreements' where the project partners provide a range of research or consultancy services over a defined period. These consortia spread the risk, competence and skills of research contractors. Universities are usually partners in these consortia, but it is difficult to identify the extent to which FEC is being charged.

Several departments were concerned that fEC had caused the volume of their contracted research to decrease, although were unable to quantify this effect. The NIHR estimated that fEC may have increased their costs by around 23% - based on payment of 80% FEC. The Food Standards Agency provided evidence that over the past four financial years the number of new projects they have commissioned annually has fallen by 35%, while the average cost of each newly funded project has increased by 38%.

While some departments maintain their right to request evidence of the assumptions used to calculate FEC, there was no evidence of any department challenging them. Most accept that TRAC methodology is being followed, and rely on competitive tendering to control prices. The worry was expressed that 'there are no real pressures in fEC or TRAC for cost saving and increased efficiency in HEIs'.

Several departments mention that paying fEC causes them to have higher expectations that universities will be more 'businesslike' and timely in their delivery of contracted outputs. A number of departments (and this happens with industry, too) mentioned that academics are offering their services privately, or as spin-off companies, at lower cost than going through the University and charging fEC.

Overall, departments stressed the need to treat HEIs identically to commercial or Public Sector Research Establishment (PSRE) tenderers and to guarantee value for money for Government and the taxpayer. They have little quantitative evidence on the impact of fEC, but did not have their budgets increased by Treasury in order to meet the 100% FEC expectation.

6.4 Conclusions

Little firm evidence was available from HEIs or Government departments on the degree of recovery of FEC from Government grants and contracts, but the Funding Councils 2007/08 Transparency Review indicates that overall FEC recovery may be around 75%.

The Review is however concerned that many departments remain uninformed about the Government policy of paying 100% FEC in cases where a single tender or grant award applies. More needs to be done across Government to make departments aware of the sustainability agenda and the Government commitment in this area. Any reduction in current levels of FEC recovery by HEIs from competitive tenders will significantly undermine progress towards long-term sustainability.

The Review therefore makes the following recommendations:

11. Universities should monitor the percentage recovery of FEC from the project-research funding sources reported to HESA and use these as internal KPIs. These are in large part already submitted to HEFCE in Annual TRAC Returns. Publication by the Funding Councils of average percentage FEC recovery by funding source would alert the community to any trends that jeopardise sustainability.
12. When Government departments are funding research at HEIs, other than through competitive contracts where prices will be set according to market and other factors, they should continue to provide this funding on the basis of paying 100% FEC. In bidding for competitive research contracts, HEIs should formulate their bids with the aim of recovering 100% FEC, unless considerations related to the potential value of intellectual property, or other strategic reasons, justify recovery at a lower rate in a specific case.

7. Charities

7.1 Introduction

Research income to HEIs from charities in 2007/08 was £826 million, or 22.2% of all 'research project' income. Over the previous 6 years this increased annually by around 1.8% in real terms (Table 2), compared to the average increase for all project-research funding sources of 4.7%. The Transparency Review returns for 2007/08 suggest that around 60% of fEC was recovered from UK Charities (Table 3), without taking into account the Funding Councils' charity research support funding.

7.2 The HEI perspective

Most institutions encourage applications to charities as part of their balanced portfolio, but recognise the challenges that the current level of reimbursement presents (Annex 6b). The introduction of fEC has made HEIs, departments and individual teams more aware of the internal subsidies provided to charity research. Some HEIs indicate that they may ask academics to focus first on applications to Research Councils, and this concern was confirmed in discussions with the Russell Group and in a survey conducted by the Nuffield Foundation. Monitoring and management of budgets has certainly increased since fEC was introduced.

There was unanimous support for the Charities Research Support Fund (CRSF), and its equivalents in Scotland and Wales, and support for its having a more transparent method of recording the charity grants upon which it is based. Several HEIs suggested that it should be paid to all departments which gain charity research funding, not just those scoring 4 or more in the previous RAE¹³. The time delay between achieving a grant and the relevant increase in their QR element was up to 30 months, and could be shortened.

Responses from Scotland suggested that methods and grant information used to calculate the charity-related increase in QR awarded to departments is less transparent than in England.

Many HEIs state that the capital support provided by charities makes a very positive contribution to their infrastructures.

7.3 The charity sector perspective

Charities are flexible partners with HEIs and other funders in their approach to research funding. They maintain the clear principle of funding the directly incurred costs of research on all awards, but do not generally fund indirect, estates and support costs. However they do meet many other costs, including infrastructure, buildings and equipment costs where this meets their wider goals. A range of examples of these mechanisms and innovative partnerships are given in Annex 7a.

The Review received excellent submissions from medical charities, and a number of non-medical charities. The Association of Medical Research Charities (AMRC) surveyed its member charities during summer 2008 to assess their approach to fEC. Around 50% of respondents indicated that they would pay some Directly Allocated costs (as defined by TRAC methodology), for example costs of research involving animals. Members had different policies regarding payment for Principal Investigator (PI) time: around 25% of respondents would consider paying for PI time as a Directly Allocated cost (if justified and related to the project); while approximately 70% would pay for PI time as a Directly Incurred cost, for example on a Fellowship scheme. Most of the other charities would not, in principle, fund PI time.

Many charities keep good records of the TRAC-fEC cost of applications to them. The Wellcome Trust for example indicates that the average breakdown of proposals is 56.1% Directly Incurred (DI), 15.9% Directly Allocated (DA) and 28% Indirect. While Wellcome will generally meet only the DI component, their payment of animal house costs and other flexible funds increases their contribution to 58.6% of fEC overall.

¹³ This change has now been announced for 08/09 at least in England.

For fellowship grants the contribution may be as high as 65% FEC. Charities also meet professorial salaries in universities across the UK.

Charities recognise the importance of sustainability within the UK universities and believe that the introduction of fEC has enabled good progress to be made towards this goal. While they believe that sustaining general university infrastructure is not their responsibility, the major charities do make substantial contributions to research infrastructure through a range of initiatives.

The charity sector strongly supports the introduction of the Charity Research Support Fund and its equivalents in the devolved administrations. Charities believe this is essential to maintain the volume of high quality research conducted in UK universities and for ensuring long term sustainability. Charities urged action to secure the future of these funds; to increase awareness of them among researchers; and to create greater clarity on mechanisms for their distribution.

7.4 The Funding Council perspective

7.4.1 England

The Science and Innovation Investment Framework announced in 2004 that Government would provide an additional element of QR funding to support charity research funding in universities in England. The Government was explicit about the type of research that would be supported:

- research should demonstrably contribute to the enhancement of the research base or in some other way provide a public scientific good;
- the sponsor should have a published research strategy;
- research supported should be only of the highest quality, and funders should demonstrate that they have appraisal systems in place which ensure that only high quality research is funded.

Funds are allocated by HEFCE in England based on "Research Activity" returns made by HEIs¹⁴. The return made in December 2008 will determine allocations in 2009-10. Amounts allocated in 2006-07, 2007-08, and 2008-09 were £135.5M, £180.0M and £184.9M respectively¹⁵ and will be £194M in 2009-10¹⁶.

7.4.2 Scotland

For 2008-09, the support element for charity funding was distributed as part of the Main Quality Research Grant. There was a two stage distribution of the main grant, namely:

- The first stage involves distributing the funds between the units of assessment (or subject areas) based on indicators of the quality, volume of research-active staff and cost of research for each area. At this stage, £14.7 million of the total grant was distributed pro-rata to the charitable income earned by each unit of assessment;
- The resultant totals are then distributed to HEIs as part of the second stage distribution, based on the indicators of quality, volume of research-active staff, research assistants, postgraduate research students, research income and income from charities in those departments which are eligible to receive funding within each unit of assessment (or subject area).

From 2009-10, the Scottish Funding Council will introduce a single stage model for its Research Excellence Grant which will enable the more accurate targeting of resources. The allocation of resources will be based on a departmental rating which reflects volume of research-active staff, quality and cost plus other activity

¹⁴ http://www.hefce.ac.uk/pubs/hefce/2008/08_29/ The HESA Finance Returns for 2007/08 have separated 'competitive' and non-competitive charity grants from both UK and EU sources. The competitive component can be used to calculate eligibility for charity support fund payments in 2011/12. This avoids the need for HEIs to make a separate 'Research Activity Survey' submission and is a welcome simplification.

¹⁵ <http://www.theyworkforyou.com/wrans/?id=2008-12-15b.242774.h>

¹⁶ <http://www.hefce.ac.uk/research/funding/charities/>

indicators, including charity income. An additional weighting will be given to charity income as part of a movement towards reflecting the full economic cost gap.

In the Scottish funding model, the main volume indicator of research-active staff takes into account charity funded staff so this will also contribute to meeting the charity funding gap.

7.4.3 Wales

In Wales an additional £3M was provided by the Welsh Assembly Government in 2007/08 to help meet the FEC of charity-funded research. This funding is allocated within QR in proportion to research income from UK charities in those Units of Assessment which qualify for QR. The sum will be uprated annually in line with the rest of the QR grant. In addition, UK charity income is used as a minor volume measure within the QR funding formula. In 2008/09, a further £5M of the total QR funding is driven by that minor volume measure.

7.4.4 Northern Ireland

In Northern Ireland, the Department for Employment and Learning created a new Support Element for Charities Research Income commencing Academic Year (AY) 2006/07. The maximum funding available (in totality to both HEIs) was £3.33M for AY 2006-07 and £4M for AY 2007-08 and following. From AY 2006-07 the Department ceased counting research charity income as one of the minor volume measures in allocating mainstream QR.

7.5 Conclusions

Around 22% of UK project-research income is received from charities, and this plays a vital role for many university departments. The 2007/08 Transparency Review suggests that around 60% of FEC may be being recovered on research grants from charities. It has not been possible to verify this figure with formal data from charities themselves. However, it should be noted that preliminary data from medical charities, at least, indicate a lower average recovery¹⁷; the Charity Research Support Fund (CRSF) uplift announced by HEFCE for FY 08/09 is £184.95 million, based on eligible Charity income recorded in the HEFCE Research Activity Survey for 06/07 [43] of £615.75 million. Assuming 60% FEC recovery, this converts to a full economic cost of £1,026 million, and indicates that the CRSF support may contribute an additional 18% of FEC. This may bring the total FEC recovery from charity research grants to around 78%. It should be stressed that data for charity income and expenditure from the Transparency Review are very preliminary. Income may, for example, include 'infrastructure funding' grants which are not included in the calculation of eligibility for CRSF support.. HEIs, Funding Councils and charities are encouraged to work together to strengthen understanding of the percentage recovery of FEC on charity research grants across the Sector, and in each country. An innovation was introduced in the 07/08 HESA Finance Return requesting income from peer-reviewed charity grants (which are eligible for Funding Councils charity research support) separately from non peer-reviewed grants. This data now includes European Charities. HEIs are encouraged to monitor their percentage recovery of FEC from charities closely, and to emphasise to staff that, taking into account Funding Councils support, this type of funding provides overall cost recovery similar to that available from Research Councils.

Charities have different rules regarding which elements of fEC they are able willing to pay for – particularly regarding investigator time. There are major differences too in the methods used in each UK nation to calculate 'uplift' in the various charity research support funds. These differences cause confusion to HEIs, and there is scope for greater harmonisation and clearer presentation of the rules.

¹⁷ The Wellcome Trust has calculated its average contribution to be 58.6% of overall fEC, CR-UK quotes average provision of 50-60%, while a snapshot survey by the Association of Medical Research Charities in summer 2008 indicated an average contribution of just below 50%. Given the diversity of the sector, a robust average is difficult to obtain; however the Wellcome Trust has estimated that approximately £100 million would be needed from the CRSF to take funding for their grants to 80% of FEC. With the CRSF now standing at £194m this indicates a possible shortfall..

The Review therefore makes the following recommendations:

13. The Review recognises the widespread support for charity research support funds and encourages the Funding Councils to ensure that the mechanisms for calculating these funds are transparent. The Review recommends that there needs to be a clearer understanding of the level of 'top-up' funding needed to bring percentage fEC recovery on charity research grants close to that paid by Research Councils. The charity research support funds are crucial to ensure that charitable funding in HEIs is sustainable, and Government should work with the Funding Councils and charities to achieve this.
14. The Association of Medical Research Charities should maintain a web-site which summarises overall approaches to payment of fEC in the charity sector and provides links to the detailed financial rules of their members. Charities are also encouraged to clarify the published versions of their rules regarding eligibility of directly allocated costs.

8. fEC and UK Industry and Commerce

8.1 Introduction

Research income to HEIs from industry and commerce as recorded in the 2007/08 Finance Returns to HESA was £296 million or 8.0% of all 'project-research' income. Over the previous 6 years this had increased by 0.9% per annum in real terms (Table 2). This is the slowest rate of increase of the major project-research funding sectors, with the average increase for all funding sources being 4.7% annually. Annual Transparency Review data suggests that an average of 75% FEC is recovered by HEIs on contracts with the 'industry and other' sector (Table 3 – but, as indicated in the table note, this sector contains sponsor types in addition to 'industry').

Larger figures are recorded in the HEFCE Higher Education Business Community Survey [44]. The seventh survey indicated that UK HEIs received £2.64 billion from business and community interaction in 2006-07, and this was a 17% increase from the 2005-06 survey. Within this total, £507million was recorded as 'collaborative research income', £242M 'consultancy income', £91M 'equipment and facilities income', and £227.3M 'regeneration and development income'.

8.2 The HEI perspective

The majority of HEIs indicate that they regularly use TRAC-fEC to calculate the cost of a project prior to negotiating with business and industry partners. The price agreed upon is determined by a number of factors, including fit to the departmental research strategy, in-kind contributions from the business, whether a long-term relationship exists with the business and whether the HEI retains intellectual property.

A large number of institutions have clear policies and guidance on pricing for business and industry partners, with management arrangements for agreeing participation. Often the institution will seek to recover its costs, though where it sees there is a strong value or market position it may price above this. Conversely, where it is in the strategic interests of the institution to undertake the work, but the price is below costs many institutions will take this on. Many institutions stated that, while there are general institutional and departmental guidelines on pricing, most decisions will take place on a case by case basis.

HEIs seldom provided quantitative information on the proportion of FEC recovered from businesses, however the majority of respondents indicate that the introduction of fEC, and clearer pricing rules, has enabled them to move away from a 'low price culture', and to have more control over which contracts should be accepted.

There was no clear view of the impact of fEC on HEI income from business and industry. It was suggested that few businesses will pay 100% FEC and the 80% norm provided by Research Councils is more common. A perception was reported to be held by some commercial sponsors that the university system is paid for by the tax payer and therefore research should be priced below cost. Despite this, many institutions seemed keen to move business and industry partners away from discussion of the cost to discussion on the value of the work. It was suggested that further work to communicate the fEC/sustainability agenda to industry would be useful.

There is no firm evidence that significant numbers of research contracts being lost to overseas competitors, though many institutions suggested that this 'threat' had become part of the rhetoric of a number of commercial partners. A number of institutions expressed concern that there is a now a perception that fEC is making the UK uncompetitive.

It was suggested that while fEC has created some tensions with larger commercial funders, the situation with SMEs may be even more difficult.

8.3 The business perspective

The CBI Inter-Company Academic Research Group (ICARG) indicated that their members place great importance on the UK maintaining a healthy and sustainable HE research sector. They clearly felt that good links between universities and business underpins competitiveness. However, for many companies the impact of full economic costing is felt to have been an increase in costs which has constrained growth or caused a decline in their research engagement with UK universities. The UK was seen by ICARG to be 'most expensive place in the world to fund a post-doctoral researcher'.

ICARG felt there was a need for more transparency in how university costs are calculated, as the costs which some universities seek to attribute to a single researcher often bear little relationship to the value. They suggested that the lack of transparency in the calculation of 'indirect' and 'directly allocated costs' makes it hard to judge the validity of the TRAC-fEC process. In at least some cases, it seems that these costs are derived in a manner which makes them much higher than would be expected in a business environment, where business pressures impose a tighter discipline on overheads and other costs.

In determining the level of overhead to be charged, universities should take account of the non-financial contributions from the industrial partner, and the 'in-kind' contribution of business to research projects sponsored by Research Councils should be collated more systematically by RCUK¹⁸.

ICARG also commented that HEIs should note that payment of fEC brings with it greater expectations of business-like and professional delivery of outputs. As one member expressed it:

"It must be noted that while universities were still relatively good value for money then we would accept some poorer performance (in terms of delivery of precisely what was expected) amongst the broader set of activities that we funded. When we have to pay what is described as FULL cost then we expect FULL delivery. This means that we intend to negotiate and impose much more strictly the terms of the contract. Universities typically do not have the capacity or experience, and are certainly not accustomed to such ways of working. They seem to have little flexibility to negotiate more complex deals that balance the value on both sides."

ICARG also indicated that many of their members are looking overseas for research solutions, and that some companies which previously had to justify taking research overseas and now having to justify why the research should stay in the UK. Their summary recommendations were:

- Government must ensure the climate for business-university engagement remains competitive on an international basis;
- Government should make a clear statement of policy that the main objectives of Government support for university-business interaction are improvement of the knowledge base and increased economic impact, rather than generating extra funding for universities;
- Government and public funders should make a statement of clarification, reminding Universities that pricing need not be on a basis of 100% of FEC, but is a matter for strategic decision;
- the basis of calculations should be more transparent. For example, the rationale for the choice of average versus marginal costs must be made clear and open to discussion where appropriate.

8.4 Conclusions

The Review notes the concerns of business about increasing costs, and their call for a streamlined and well defined negotiating process and more business-like delivery of outputs. It also notes that many schemes exist to support research with industry, but that it is often difficult to quantify the degree of support provided by Government to business, and by business to HEIs through their provision of 'in-kind' support.

¹⁸ RCUK has recently launched a portal to help researchers and businesses find funding for knowledge transfer opportunities. Activities are summarised under the headings of collaborative research; collaborative training; people exchange; and commercialisation/ development [41].

The Review also notes claims from HEIs and CBI-ICARG that business is increasingly placing its research overseas. This trend was stressed by ICARG representatives when the Chair met with them in November 2008, but there appears to be no verifiable evidence and the effects of recent changes in exchange rates are unknown. The Review therefore suggests that a research project to quantify the degree of UK research investment overseas and the main reasons for this would be advantageous, not only to the HE sector, but also to UK Trade and Investment and the FCO/DIUS Science and Innovation Network. Both these organisations aim to make overseas companies and agencies aware of the strengths of UK Research and Development.

The Review therefore makes the following recommendations:

- 15. To facilitate contract negotiation with business, HEIs should a) develop a clear and explicit formulation of the factors to be taken into account when making decisions on the pricing of research which is funded by business or Government, and b) implement an appropriate level of delegated authority for negotiators.**
- 16. Research should be conducted to examine the degree to which UK industry is contracting research overseas, and the degree to which research at UK universities is being contracted inward by overseas-based companies. This study would examine the reasons for these flows and for any trends that can be discerned in them. Such research should be eligible for support from the key departments concerned (FCO, BERR, DIUS) and ESRC, and involve parties such as UKTI which is responsible for overseas promotion of UK's attractiveness as a location for R&D.**

9. European and International perspectives

9.1 Introduction

The sustainability of research in UK HEIs has important European and International dimensions. As we operate within an increasingly global context investment and contribute to the creation of a European Research Area it will be vital that this is not at the expense of the sustainability of the sector. In this section we explore the role and impact of European funding mechanisms and policy on achieving sustainability in the UK, and attempt to develop an understanding of developments in the UK within a wider international context.

9.2 The European Perspective

9.2.1 Funding from EU sources

Research income to HEIs from the European Commission in 07/08 was £285 million or 7.7% of all 'project-research' income. Over the previous 6 years income from these sources to HEIs increased at 6.6% annually in real terms (Table 2). This compares to an average annual increase for all 'project-research' sources of 4.7%.

In terms of funding received from Europe, the Framework Programme, currently in its seventh iteration (FP7), is the main supranational source of research funding. Framework Programmes play a relatively small but important role in the UK research base. Evidence developed by UUK and HEFCE shows that HEIs obtain significant benefits from involvement in Framework Programme projects particularly in building and sustaining collaborations and networks. There has been a steady increase in the resources available through the Framework Programme and the UK is noted for being particularly successful in its involvement.

Historically the Framework Programme has been a cost sharing activity, though the Review notes that regardless of this the levels of reimbursement in previous programmes have been relatively low. During the development of FP7, lobbying by the UK directly and through the European Universities Association (EUA), stressing the importance of sustainability, has resulted in a higher rate of reimbursement rate for FP7 projects. This should help ensure that UK HE participation in FP projects is more sustainable.

A report for UUK and HEFCE in 2006 [45] estimated that 55-60% of reimbursement was achieved in FP6. The Transparency Review data for 2007/08 (Table 3) indicated an average recovery is still around 58%. Thus it appears that the cost recovery using the 'Full Cost' method in FP7 is broadly similar to that achieved with the 'Additional Cost' method used in FP6. FEC recovery may rise in future years as the proportion of projects managed by HEIs within FP7 increases.

As noted in the UUK-HEFCE report, and reinforced through the feedback the Review received to its survey of HEIs, although there is now a higher level of reimbursement for FP7, UK universities will still need to clearly understand why they wish to be involved in specific EU research projects, and have a clear view of the match between their research strategy, and the benefits brought by engagement with European partners. In the longer term, policies relating to research funding and sustainability across dual support will impact on the level of EC funded work which universities can undertake.

9.2.2 TRAC-EC FP7

The Review notes that the Framework Programme 7 has a funding model that allows participants to be reimbursed at a percentage of their full costs, rather than direct costs with a fixed overhead as had been the case in previous years. This, in the longer term, has the potential to allow HEIs to participate on a more sustainable basis, particularly if the mid-Term Review of FP7 implements a bigger differential between the default rate and that awarded to those HEIs which are able to accurately record their full costs.

A derivation of TRAC (TRAC EC-FP7) has been developed over the last two years in close cooperation with the European Commission to ensure that HEIs can meet EU requirements and take advantage of this approach if they wish (Annex 9a). However, due to Commission regulations this has become unnecessarily burdensome, and many HEIs indicated that it would not be cost effective for them to move to the new approach.

The Review welcomes this work and believes that it is in the longer term interest of the UK HE sector to engage in EU programmes on a full cost basis. However, it is proposed that the financial Sustainability Strategy Group and UUK continue to lobby the Commission to reduce the burden of this model.

9.2.3 EU policy on sustainability

The Review is encouraged by the extent to which the sustainability agenda is being promoted by the European Commission and other key sector bodies such as European University Association. Indeed, the new approach to costing and reimbursement in the Framework Programme has been developed as a deliberate attempt on the part of the Commission to provide incentives to universities to enhance their costing systems and thereby make a contribution towards a more sustainable research base. Much of this has been informed by developments in the UK.

The Review wrote directly to the Director General for Research seeking views on the sustainability agenda. The Commission reiterated its support for the development of TRAC EC FP7, and stressed the need for a financially sustainable research base (Annex 9b). The Commission also advised the Review of two very relevant studies which it was co-funding.

A study conducted by the European Universities Association on 'financially sustainable universities' reported in December 2008 [46]. This made a number of recommendations including the need: a) to work towards a more coordinated understanding of terminology, while recognising that accounting methods and legal requirements will remain different in the member states; b) to recognise the diversity of data management and financial systems EU universities and to provide incentives for best practice in the introduction of Full Costing; and c) to encourage a sector-wide approach to Full Costing,¹⁹ with funders, Government and HEI organisations working together to develop best practice nationally and internationally.

A second study was commissioned by the EU to look at the "impact of external project-based research funding on financial management in universities" [47]. This reported in February 2009, and made the overarching recommendation that Full Costing should be introduced routinely in all of Europe's universities, assisted by funding rules which incentivise universities to introduce accounting systems which are capable of implementing Full Cost calculations and assurance. Abridged recommendations were as follows.

1. Financing of university infrastructure underpins universities' ability to maintain research excellence and competitiveness.
2. In allocating core funding member states need to be clear about the purpose of the funding and recognise the cost of maintaining existing infrastructures as well of that of bringing them to a globally competitive standard.
3. Member States have a responsibility, together with the European commission, to contribute to the sustainability of the university-based research sector. Both should ensure that this objective is one of the principles underpinning all the research programmes they fund.
4. Research activities should not be supported in the same way as procurement. Procurement requires the definition of all kinds of detailed input descriptions. Research activities should be supported and funded by focusing on their contribution to the production of knowledge.
5. Universities should adopt Full Costing methodologies appropriate to their national legal requirements as a key tool for sustainable development.

¹⁹ 'Full Costing' in the European sense does not include 'return for finance and investment' (which contains an element for risk and profit) and 'net infrastructure charge' as used in the UK 'full economic costing' – see Annex (9b).

6. Excellence in research and management go hand in hand: sound financial management is a condition of informed strategic decision-making to help universities develop long-term research excellence.
7. The Commission should reward best practice and encourage the adoption of Full Costing. The FP7 transitional flat rate can be used as an external driver to ensure this. Appropriate support at a national level should be provided to universities to facilitate their transition to Full Costing.
8. As part of the mid-term Review of FP7 the Commission and Member States should review the ability of universities to identify the full costs of their research and should promote the sharing of best practice and mutual learning.
9. Where such an exercise has not yet been undertaken an assessment of the current state and competitiveness of university research infrastructure (both human and physical) in individual Member States will be necessary to identify priority areas for investment.

The report further identifies a need for external competitive funders to “coordinate their conditions and requirements.” It suggests “the Commission acts as a moderator and catalyst in this area to facilitate a discussion to identify best practice for co-financing, cost reporting and accountability requirements.”

9.3 The international perspective

The Review felt it important to explore the international dimension to develop a sense of whether developments in the UK were part of a wider trend. In the conduct of this Review it has not been possible to undertake an extensive analysis, further work may be required on this, but the following gives a flavour of the approach to payments on indirect costs in other countries. Information was provided by the RCUK Research Office in Washington, by the FCO/DIUS Science and Innovation Network and also by the Allen Consulting Group of Australia [48].

Annex 9c summarises the situation regarding payment of indirect costs in the USA, Canada, Australia, New Zealand, Japan, Singapore, Ireland, Netherlands and Sweden.

Only in the UK, USA and to a lesser extent in Canada and the Netherlands are indirect costs determined in ways which reflect the cost structures of individual institutions. In the other countries a single indirect cost rate applies, and is usually calculated as a percentage of the allowable direct costs (which may or may not include time for the Principal Investigators). This percentage varies considerably. In Canada it is roughly 25%. In the USA it varies greatly but averages around 45%. In Germany it is 20% for the German Research Foundation (although this may increase to 40%) and 10% for the Federal Ministry of Education and Research. In Ireland its 30% for lab-based research and 25% for desk based research. In Japan the overhead is 30% for Government grants, and this is usually applied by universities on commercial contracts. In Singapore its 20%. In Australia neither of the main funders of competitive grants pays indirect costs (apart from small equipment and facilities grants) or principal investigator salaries, although it is recognised that this had led to severe underinvestment in infrastructures, and a report titled ‘Venturous Australia’ [49] is recommending the introduction of Full Costing – possibly with an underpinning 50% flat rate for HEIs who do not wish to introduce fEC [48].

Government funding agencies in these countries are generally very interested in the UK experience with fEC, and it is recommended that RCUK and the FCO Science and Innovation Network continue to monitor developments in the calculation and payment of indirect costs in major research nations. A project has recently been approved by the FCO for RCUK, UUK, DIUS and the Chinese Academy of Sciences to compare indirect costing methods in China and the UK.

9.4 Conclusions

The Review welcomes the move toward introduction of a form of TRAC which can be used with Framework 7 projects, but feels there is still some way to go in terms of reducing the burden of this on the sector. It also notes that national funding agencies are increasingly working together on bilateral or multi-lateral research funding programmes. This cooperation would be greatly enhanced by moving towards a common European method of funding indirect costs and maintaining HE sustainability.

- 17. UUK and the Financial Sustainability Strategy Group should work to reduce the burden of TRAC EC FP7 on the sector.**
- 18. The UK Government, HE agencies and bodies such as UUK should continue to ensure proactive dialogue and engagement with the European Commission and Parliament on the sustainability agenda.**

10. Recommendations

	Page
1. The principle of providing additional investment in support of fEC while not building volume is a sound one, which is having a positive impact on the sustainability of the HE research base. This principle should continue to underpin the sustainability agenda.	20
2. The governance of sustainability should be strengthened throughout the HE sector.	20
3. Funding Councils should continue to strengthen the methodology used in the collection of Transparency Review statistics and consider publishing annual averages for TRAC Peer Groups.	20
4. DIUS should make greater use of Trigger Metrics and Transparency Review statistics in the Annual Reports on the Science and Innovation Framework (2004-2014), including reporting on progress towards the SIF Goal of 'ensuring a financially sustainable level of activity by early in 2010 decade, avoiding over-reliance on non-research income and under-investment in research infrastructure'.	20
5. The review recognises the valuable contributions that sustainability frameworks, trigger metrics and the capital investment frameworks have had in promoting, incentivising and monitoring sustainability. It is recommended that these processes are now brought together to increase their impact and avoid duplication. Institutions should be encouraged to utilise appropriate KPIs to provide evidence of sustainability while reflecting the diversity of the sector.	20
6. A future Funding Council report to the Funders Forum on HEI Sustainability should comment on lessons learned from existing Sustainability Frameworks and give guidance to HEIs on their future revision and use, within the context of 'streamlined reporting' and the HERRG Concordat.	20
7. The Review concluded that an improvement is required that more clearly demonstrates the fEC contribution to the sustainability of the research base and which encourages efficient use of the funds. A working group should be established (with representatives of the Research Councils, the Funding Councils and UUK) to recommend to FSSG and DIUS: a) a light touch mechanism to provide reassurance about how fEC funding is used and how it contributes to sustainability; b) procedures to improve the transparency of the variations in the charge out rates between organisations, which might include the publication of such rates. The group should be required to report in no more than six months.	20
8. The TRAC Development Group, the Funding Councils and RCUK should examine issues relating to the accumulation of resources for maintenance and replacement of facilities and equipment. This should include examination of the use of depreciation in directly incurred and directly allocated costs, and any potential overlap of equipment access charges, QR, capital investment funds, and additional funding for infrastructure and equipment from other sources.	20
9. HEIs should continue their support for staff development activities, and should continue to develop ways to monitor implementation of the Concordat to Support the Career Development of Researchers, and 'Roberts' skills funding activities'. A subset of these metrics may serve as Trigger Metrics for 'staff sustainability', to be used alongside those for financial and physical sustainability.	23
10. RCUK should report on progress towards the harmonisation of Research Council grant rules and procedures on their website, and how this relates to commitments made in signing up to the HERRG Concordat.	29
11. Universities should monitor the percentage recovery of FEC from the project-research funding sources reported to HESA and use these as internal KPIs. These are in large part already submitted to HEFCE in Annual TRAC Returns. Publication by the Funding Councils of average percentage FEC recovery by funding source would alert the community to any trends that jeopardise sustainability.	33

12. When Government departments are funding research at HEIs, other than through competitive contracts where prices will be set according to market and other factors, they should continue to provide this funding on the basis of paying 100% fEC. In bidding for competitive research contracts, HEIs should formulate their bids with the aim of recovering 100% fEC, unless considerations related to the potential value of intellectual property, or other strategic reasons, justify recovery at a lower rate in a specific case. 33
13. The Review recognises the widespread support for charity research support funds and encourages the Funding Councils to ensure that the mechanisms for calculating these funds are transparent. The Review recommends that there needs to be a clearer understanding of the level of 'top-up' funding needed to bring percentage fEC recovery on charity research grants close to that paid by Research Councils. The charity research support funds are crucial to ensure that charitable funding in HEIs is sustainable, and Government should work with the Funding Councils and charities to achieve this. 38
14. The Association of Medical Research Charities should maintain a web-site which summarises overall approaches to payment of fEC in the charity sector and provides links to the detailed financial rules of their members. Charities are also encouraged to clarify the published versions of their rules regarding eligibility of directly allocated costs. 38
15. To facilitate contract negotiation with business, HEIs should a) develop a clear and explicit formulation of the factors to be taken into account when making decisions on the pricing of research which is funded by business or Government, and b) implement an appropriate level of delegated authority for negotiators. 41
16. Research should be conducted to examine the degree to which UK industry is contracting research overseas, and the degree to which research at UK universities is being contracted inward by overseas-based companies. This study would examine the reasons for these flows and for any trends that can be discerned in them. Such research should be eligible for support from the key departments concerned (FCO, BERR, DIUS) and ESRC, and involve parties such as UKTI which is responsible for overseas promotion of UK's attractiveness as a location for R&D. 41
17. UUK and the Financial Sustainability Strategy Group should work to reduce the burden of TRAC EC FP7 on the sector 46
18. The UK Government, HE agencies and bodies such as UUK should continue to ensure proactive dialogue and engagement with the European Commission and Parliament on the sustainability agenda. 46

II. List of Annexes

Available on RCUK website (www.rcuk.ac.uk/review/fec)

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12. References

1. Dearing, R. National Committee of Enquiry into Higher Education. 1997; Available from: <https://bei.leeds.ac.uk/Partners/NCIHE/>
2. DES. White Paper on the Future of Higher Education. 2003; Available from: <http://www.dcsf.gov.uk/hegateway/strategy/hestrategy/foreword.shtml>
3. HEFCE. Monitoring Institutional Sustainability. Circular Letter 28/2005 2005; Available from: http://www.hefce.ac.uk/pubs/circlets/2005/cl28_05/
4. HM Treasury. Investing in Innovation: a strategy for science, engineering and technology. 2002; Available from: http://www.hm-treasury.gov.uk/spend_sr02_science.htm
5. HM Treasury. Science and Innovation Investment Framework 2001-2014. 2004; Available from: http://www.hm-treasury.gov.uk/spending_sr04_science.htm
6. OST. Regulatory Impact Assessment for Dual Support Reform. 2004; [6]. Available from: <http://www.berr.gov.uk/files/file17796.doc>
7. Royal Society. Submission to OST Consultation on the Sustainability of University Research. 2003; Available from: <http://royalsociety.org/displaypagedoc.asp?id=11457>
8. Universities UK. Submission to OST Consultation on the Sustainability of University Research. 2003; Available from: <http://www.universitiesuk.ac.uk/PolicyAndResearch/PolicyAreas/Documents/Research/dualres.pdf>
9. Wellcome Trust. Submission to OST Consultation on the Sustainability of University Research. 2003; Available from: http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtd002782.pdf
10. HM Treasury. A Cross-Cutting Review of Science and Research. 2002; Available from: http://www.hm-treasury.gov.uk/spend_ccr_science.htm
11. JGPSG. Joint Costing and Pricing Steering Group. 2005; Available from: <http://www.jcpsg.ac.uk/>
12. JGPSG. Seventh and Final Annual Report. 2005; [11]. Available from: http://www.jcpsg.ac.uk/downloads/archive/reports/JCPSG_Seventh_Annual_Report.doc
13. JM Consulting. Study of Research Infrastructures. 2002; Available from: http://www.hefce.ac.uk/Pubs/RDreports/2002/rd01_02/
14. JM Consulting. Future needs for capital funding in higher education: A review of the future of SRIF and learning and teaching capital. Report to HEFCE 2006; Available from: http://www.hefce.ac.uk/pubs/rdreports/2006/rd17_06/
15. HEFCE. Capital Investment Fund. 2008; Available from: http://www.hefce.ac.uk/pubs/hefce/2008/08_04/
16. Anon. Higher Education Environmental Performance and Improvement. 2009; Available from: <http://www.heepi.org.uk/>
17. EAUC. The Environmental and Sustainability Champion. 2009; Available from: <http://www.eauc.org.uk/home>
18. DIUS. Supplementary Evidence to the HoC Select Committee on Innovation Universities Science and Skills following following oral evidence session 20th Feb 2008. Memorandum 38. 2008; Available from: <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmdius/215/215we45.htm>
19. DIUS. Allocations of the Science Budget 2008/09 to 2010/11. 2007; Available from: http://www.dius.gov.uk/reports_and_publications/~media/publications/URN07114
20. JCPSG. Consolidated TRAC Guidance. 2009; Available from: <http://www.jcpsg.ac.uk/guidance/about.htm>

21. DIUS. Response from DIUS to Questions of 3 March 2008 from the House of Commons Innovation, Universities, Science and Skills Select Committee. 2008 Memorandum 10]; Available from: <http://www.publications.parliament.uk/pa/cm200809/cmselect/cmdius/51/51we11.htm>
22. Scottish Funding Council. Monitoring the financial sustainability of UK HEIs. 2006; Available from: <http://www.berr.gov.uk/files/file31812.pdf>
23. Scottish Funding Council. Monitoring the financial sustainability of HEIs. 2008; Available from: http://www.dius.gov.uk/docs/FF_Trigger_Metrics_report.pdf
24. HEFCE. Capital Investment Framework. 2009; Available from: <http://www.hefce.ac.uk/finance/fundinghe/capital/cif/>
25. HEFCE. Capital Investment Framework - Submission Form. 2008; Available from: http://www.hefce.ac.uk/pubs/circlets/2007/cl21_07/cl21_07a.doc
26. HEFCE. Single Conversation Accountability Process for HEIs. 2008; Available from: http://www.hefce.ac.uk/pubs/circlets/2008/cl15_08/
27. Scottish Funding Council. Joint Future Thinking Taskforce on Universities - SFC Response. 2008; Available from: <http://www.scotland.gov.uk/Topics/Education/UniversitiesColleges/16640/hetaskforce/JFTTSFCresponse>
28. HEFCE. Model Financial Memorandum between HEFCE and institutions. 2008; Available from: http://www.hefce.ac.uk/pubs/hefce/2006/06_24/06_24.pdf
29. Miller, A. Research Excellence Framework and Research Information Systems: how Scotland's HE institutions can work together 2008 RKT/08/42]; Available from: http://www.sfc.ac.uk/about/about_committees_papers/RKT_committee/rktc_papers_26sept08/RKT0842.pdf
30. CUC. Report on the monitoring of institutional performance and the use of Key Performance Indicators. 2006; Available from: http://www.shef.ac.uk/cuc/pubs/KPI_Booklet.pdf
31. CUC. CUC Report on the implementation of Key Performance Indicators: case study experience. 2008; Available from: http://www.shef.ac.uk/cuc/pubs/CUC_Report.pdf
32. IFAC. Sustainability Framework Tool. 2009; Available from: <http://web.ifac.org/sustainability-framework/overview>
33. RCUK. Researchers what is the situation. RCUK report to the UK Research Base Funders Forum 2007; Available from: <http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/publications/rwitsar07.pdf>
34. Anon. A Concordat to support the career development of Researchers. An Agreement between the Funders and Employers of Researchers in the UK 2008; Available from: <http://www.researchconcordat.ac.uk/documents/concordat.pdf>
35. HEFCE. Rewarding and developing staff in higher education. 2007; Available from: <http://www.hefce.ac.uk/lgm/hr/reward/>
36. HEFCW. First Annual Report on Research Staff - covering the period 2003/07. Report to the the Research Base Funders Forum 2008; Available from: <http://www.dius.gov.uk/~media/publications/FundersForumResearc%20Staff2008>
37. Vitae. Vitae Roberts Policy Forum - progress in building the evidence base. 2009 January 2009; Available from: <http://www.vitae.ac.uk/policy-practice/58161/Vitae-Roberts-Policy-Forum-2009.html>
38. RCUK. Health of Disciplines Annual Report. 2008; Available from: <http://www.rcuk.ac.uk/aboutrcuk/publications/policy/hod.htm>
39. RCUK. Researchers - what is the situation? 2007; Available from: <http://www.rcuk.ac.uk/aboutrcuk/publications/policy/researchers.htm>
40. Evidence Ltd. International comparative performance of the UK research base. Report to DIUS 2008; Available from: http://dius.ecgroup.net/files/75-08-R_on.pdf

41. RCUK. Quality Assurance and Validation of TRAC. RCUK Assurance Unit 2009; 75]. Available from: <http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/documents/qavreport.pdf>
42. DIUS. Science, Engineering and Technology (SET) Statistics. 2009; Available from: http://www.dius.gov.uk/science/science_funding/set_stats.aspx
43. HEFCE. Research Activity Survey. 2008; 19]. Available from: http://www.hefce.ac.uk/pubs/hefce/2008/08_29/08_29.pdf
44. HEFCE. Higher education-business and community interaction survey. 2008; Available from: <http://www.hefce.ac.uk/econsoc/buscom/hebci/>
45. Consulting, J. Study to identify the costs of EU framework programme projects to UK higher education institutions 2006; Available from: <http://www.universitiesuk.ac.uk/PolicyAndResearch/PolicyAreas/Documents/Research/EUFrameworkProgrammesFullReport.pdf>
46. European Universities Association. Financially sustainable universities: towards full costing in European universities. 2008; Available from: http://www.eua.be/fileadmin/user_upload/files/Publications/Financially_Sustainable_Universities.pdf
47. Herlitschka, S. Diversified funding streams for university-based research: impact of external project-based research funding on financial management in universities. Expert Group Report 2008; 74]. Available from: <http://www.kowi.de/Portaldata/2/Resources/fp/eg-report-external-funding.pdf>
48. Allen Consulting Group. Recognising the full cost of university research. 2008; 74]. Available from: http://www.innovation.gov.au/ScienceAndResearch/policy/research_training/Pages/recognising_full_cost_university_research.aspx
49. Anon. Venturous Australia - report on the review of the national innovation system. 2008; Available from: <http://www.innovation.gov.au/innovationreview/Pages/home.aspx>

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