

Transparent approach to costing

An overview of TRAC



JM Consulting Ltd

Prepared for the Joint Costing and Pricing Steering Group

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Executive summary: introduction to TRAC

1. This document provides a non-technical introduction to TRAC (in Section A), and a summary of the main features of TRAC (in section B). This is intended to be helpful to those in higher education institutions and elsewhere who are not directly responsible for implementing TRAC, but who need a high-level understanding of what TRAC is, why it is being implemented, and its costs, benefits, and implications for their work.

What is TRAC?

2. TRAC is the Transparent Approach to Costing. Since 2000, TRAC has been the standard methodology used by the 165 higher education institutions (HEIs) in the UK for costing their main activities (Teaching, Research, and Other core activity), and it is increasingly informing the public funding of higher education.
3. While it followed naturally from work done in the higher education sector in the 1990s, introducing TRAC was a government requirement. It was developed in 1999 as part of the Government's Transparency Review. It was piloted during academic year 1999-2000, and implemented, progressively, from 2000-01. The dual-support reform of Research funding in 2003-04 has given further impetus (and new costing requirements) to TRAC, and further implementation work now in hand by institutions will continue for several years (until about 2008).
4. TRAC is not a single costing method, nor does it involve prescriptive standard requirements. HEIs in the UK are very diverse, as are the activities to be costed, and the uses of such cost information. Much academic activity poses inherent challenges for costing – think, for example, of defining the differences between research and scholarship and teaching; or the complexities of costing heritage buildings; or of knock-for-knock arrangements with the NHS in medical schools.
5. The strength of TRAC is that it is broad and flexible enough to accommodate all these challenges, and that it allows HEIs a good deal of discretion about the precise methods they use. Crucially, it does not require a much greater administrative burden, which 'full commercial costing systems' could, nor does it require academic staff to complete timesheets. At the same time, TRAC has been accepted by Government and the major public funders of Research and Teaching (chiefly the Funding Councils and Research Councils) as an appropriate and robust method for costing in higher education. Much of the funding of research is now based on TRAC costs (known as full economic costs – fEC).
6. TRAC could also be seen as a collaboration between HEIs and their principal stakeholders and public-funding bodies. The success of the sector in implementing TRAC, and the support of the Treasury for TRAC has benefited all institutions both directly in terms of their funding, and indirectly through the confidence it has engendered in Government.
7. As David Westbury, Chair of the Joint Costing and Pricing Steering Group, notes in his foreword, universities and colleges are not primarily businesses, but they must be business-like in the way that they use their financial, physical and human resources. Not least because they employ considerable public funds, and costing is a requirement of Government.

Costs, benefits and implications of TRAC

8. The information which TRAC has provided on the full long-term costs to institutions of their main publicly-funded activity has informed the funding of research, with over £1bn of additional funding being provided by the Government to make the UK's research base sustainable (that is, to make existing volumes of research more secure, not to increase volumes). Notably, from 2005, the Research Councils will fund research projects at 80% of the TRAC full economic cost and this is significantly higher funding for the same work than the previous basis of 'direct costs plus 46%'.
9. More generally, TRAC has contributed to the current policy interest in the sustainability of higher education, especially by highlighting the inadequate investments being made in infrastructure for Teaching and Research. The Government has provided extra capital funding, and all institutions are now required to take account of the full costs of their activities in their planning and management. Better cost information is of benefit to management decision-making, not least by informing price negotiations.
10. TRAC has introduced some new processes and activities in institutions that sit alongside existing accounting and project management systems. The most notable (from an academic's perspective) are the requirements to allocate academic staff time, and to build up the cost of research projects on a full economic cost basis.
11. Time allocation has been the most contentious issue, but is essential if HEIs are to know where their academic staff effort is being directed, and if they are to plan how these costs can be funded. The TRAC time allocation approach offers alternative options to HEIs, and does not require the use of timesheets. The process of costing research project grants has built on previous Research Council requirements, and the new procedures should not, if efficiently organised, prove onerous. However, academic principal investigators will need additional support and training in the early days of the new system.
12. Institutions also have to allocate non-staff costs (such as space and libraries) using robust methods, and develop their own charge-out rates for space and major facilities, and for residual indirect costs. They have to maintain records on the new FEC basis, and to quality assure their own internal TRAC systems. There is also a new external quality assurance (QA) process.
13. A cost-benefit analysis of TRAC has been discussed by the Higher Education Regulation Review Group (HERRG). This suggests that the cost of implementing TRAC for a typical large multi-faculty research university is £400,000-500,000 per annum over a few years, chiefly in central administrative departments. (The figure is uncertain due to the flexibility allowed in TRAC. Some institutions will implement TRAC as part of a broader strategy for improved management information and resource allocation, others may treat it more as a stand-alone system.) Such a university will also now see increased research funding resulting from full economic costing at an annual level of at least 10-20 times this administrative cost. Costs (and benefits) will be significantly smaller for other types of institution.
14. HERRG agreed that 'despite the burdens of implementing this new system, TRAC had delivered significant benefits to the higher education (HE) sector'.

Core principles

15. TRAC has to satisfy a number of different objectives and stakeholders, and be applicable across all activities carried out by a large and diverse group of institutions, with a minimum of additional administrative effort. TRAC has had a broader impact on the HE sector than just as a costing method.
16. This breadth and flexibility is a great strength, but it can make TRAC appear more complex than a less flexible or comprehensive system. Much of its apparent complexity flows from the multiple activities and streams of accountability of HEIs, and the links between costing and funding (or pricing) for publicly-funded Teaching and Research.
17. Different people may not all have the same things in mind when they refer to TRAC. And it will be perceived differently in different institutions. This Overview should help those not involved with TRAC on a daily basis to understand what TRAC is (and is not), and its implications for their institutions.
18. TRAC will need to continue to evolve. The methods used to cost Teaching, and post-graduate research students, for example, may need to be further developed if funding of those activities is more closely linked to costs.
19. However, the core of TRAC, underpinning all its development, is a firm set of rather simple principles and processes. The most important principles are:
 - materiality
 - costs are fair and reasonably stated
 - flexibility and choice of methods
 - consistency of costing treatment
 - a system that can be audited .
20. Ten high-level 'costing standards' define the processes that must be used to prepare annual TRAC costs. These were given in the Transparency Review report in 1999, and have remained essentially unchanged. To these have been added two new high-level requirements (fEC costing of research projects and annual reporting of income). These are all described by a set of minimum requirements.
21. The way in which TRAC is implemented is important. Every HEI has a TRAC project manager who has typically attended briefing and training sessions; has been involved in benchmarking with peer institutions as an aid to TRAC implementation; and has access to a regionally-based self-help group, and national helpdesk, as well as to the TRAC guidance. The guidance has evolved significantly since the first Volume was produced, but it is now all consolidated into a single searchable web-based guide for those involved in implementation of TRAC.
22. TRAC has shown itself to be a robust and useful tool. This is due to a great part to the great assistance which has been provided by those in the pilot and other HEIs who have worked with the JCPSG in developing the guidance, and also by the, government departments, and other stakeholders who have all contributed to the current status of TRAC.

An overview of TRAC: the transparent approach to costing

Foreword

Although universities and colleges are not primarily businesses and should focus particularly on their academic teaching, learning and research, they must also be business-like in the way that they use their financial, physical and human resources. This responsibility is increased because they employ considerable public funds. Their underlying business processes must therefore be appropriate and robust. Costing is one of these core business processes as it allows the consumption of financial resources to be linked to the activities and outputs of the institution.

The Transparent Approach to Costing, TRAC, grew out of the Transparency Review, July 1999 and the work of the Joint Costing and Pricing Steering Group. It employs the principles of activity based costing, but applies them in a way that is appropriate to the complex activities and culture of a higher education institution. TRAC allows all of the costs of the institution to be analysed and attached to activities in a fair and reasonable way. The approach is flexible as it respects the diversity of UK institutions and it is both comprehensive and holistic, being appropriate for all activities and all institutions. TRAC has a firm set of principles and processes, yet it allows discretion in the way that these are implemented so that the outcome for any particular institution can be appropriate, proportionate and yet robust and consistent with the whole of the sector.

Costing is not an end in itself, but it is a key enabling tool for management in the higher education sector. It has four principal objectives:

- a) to provide consistent and robust information about the cost of activities to assist institutional planning and management;
- b) to provide a basis for the pricing of activities, particularly those that are publicly funded;
- c) to meet the requirement for accountability, particularly for the use of public funds, when the institutional portfolio includes a complex mix of activities;
- d) to provide at both institutional and national level an appropriate and comprehensive cost model to guide investment for the future.

TRAC meets these disparate requirements through a common costing and data platform and common processes and systems in so far as this is possible. In the planning and development of TRAC, the Joint Costing and Pricing Steering Group has ensured close liaison and dialogue with the higher education sector, piloting and updating where required. TRAC is widely regarded as fit for purpose and effective. It has received endorsement by Government including by the Treasury as an appropriate solution to H.E costing problems. This has, in turn, created growing confidence in the higher education sector itself, in the Funding and Research Councils, and in government departments. The data from the TRAC process has led directly to improvements in funding streams to ensure the long-term sustainability of the key activities of Teaching and Research, and in particular to the reform of the dual-support system and the pricing of Research and related activities.

TRAC itself will continue to evolve as the higher education sector itself evolves.

Professor David Westbury OBE
Chair, Joint Costing and Pricing Steering Group

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Introduction

This is a high-level introduction to the Transparent Approach to Costing (TRAC) and an overview of what is involved for higher education institutions (HEIs) who have to implement it. It is designed to be helpful to senior academics and managers in HEIs who need to understand the principles, scope and implications of TRAC for their institutions, but do not need to know all the details. It also provides a useful introduction for others new to TRAC, e.g. in Research Councils, Funding Councils, research-funding charities, government departments, and research organisations which may need to understand the costing methods now used in higher education.

There is in addition a set of comprehensive guidance for use by those in HEIs who are responsible for implementing TRAC. The guidance is available on the webⁱ, and it will probably also be issued as a CD-ROM in a few months' time.

This overview is in two sections:

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References to background and supporting material are given at the back of the Overview. These include a PowerPoint presentation covering the background to TRAC and its requirements.ⁱⁱ

Section A. General overview

Introduction – what is TRAC?

1. TRAC (the Transparent Approach to Costing) is the standard method now used for costing in higher education in the UK. TRAC developed out of work by the Joint Costing and Pricing Steering Groupⁱⁱⁱ and was introduced after the Transparency Review in 1999 – a government policy study overseen by the Science and Engineering Base Co-ordinating Committee.^{iv} After five years of implementation (finishing in 2004), TRAC is now being consolidated and extended to cover full economic costing at project level.
2. The development of TRAC has been the responsibility of the Joint Costing and Pricing Steering Group (JCPSG) – an HE sector body which has been supported by consultants – J M Consulting Ltd. Further information is available on the JCPSG web-site.^v
3. TRAC includes two separate but related costing processes:

Annual TRAC: an annual retrospective attribution and reporting of costs.

Since 2000-01 all UK HE institutions (about 165) have attributed costs from their audited financial statements to activities at an institutional level. This is primarily a public accountability process and leads to annual reporting by institutions of the costs of Teaching (split into publicly-funded and non-publicly-funded), Research (similarly split), and Other core institutional activity. Institutions report in January each year, based on the accounts for the previous year (so in January 2005, they reported costs based on 2003-04 accounts data).

From January 2006, the Funding Councils require that the annual reporting at an institutional level will include income as well as costs. Institutions will, in effect, report their surplus and deficit position on each of the five activities listed in the previous paragraph.

The annual TRAC process can also provide management information for internal use, including results by department, and costs per student. It also calculates the indirect cost rate, the estates charges and charge-out rates for other directly allocated costs such as research facilities and technicians. These are then used when costing research and other projects on an fEC basis.

TRAC fEC: the forecasting and accounting for full economic costs at a project level. From 2005 all institutions are calculating the fEC of each research project, on a reliable and comprehensive basis. This is then used to set the price for grants made by Government (the Research Councils and other government departments [OGDs]) and informs the price on projects for other sponsors.

The fEC of a project is made up of directly incurred costs, directly allocated costs, and indirect costs (the latter two types of cost use the rates produced from the annual TRAC process). This classification determines how they are recorded and validated. Directly incurred costs are recorded on the basis of actual expenditure. Directly allocated and indirect costs are recorded on the basis of standard costs established at the time of project approval.

4. TRAC is a holistic approach, producing costs of Teaching, Research and Other activities. The initial focus of TRAC fEC is on research projects and there is

detailed guidance in this area because the public funding of Research is now based on fEC. At present, there is not this level of detailed guidance for costing Teaching programmes.

TRAC and sustainability

5. The Government has accepted TRAC data which showed a significant underfunding on publicly-funded research. This evidence base was supported by national studies of infrastructure carried out in 2001 and 2004.^{vi} The 2002 and 2004 spending reviews awarded more money for research, both recurrent (quality-related [QR] and the science budget) and as capital through the Science Research Investment Fund. Institutional responsibility for their sustainability was a condition for this, set out in several government documents and embodied in the Financial Memorandum between an institution and its Funding Council.^{vii}
6. During 2003 and 2004, the Office of Science and Technology (OST) carried out a review and reform of the dual-support System,^{viii} at the same time working with other major funders (OGDs, charities, industry) to improve the sustainability of the HE part of the UK research base.^{ix} As a result of this work, institutions will now prepare project applications to Research Councils and OGDs on a TRAC fEC basis, and those sponsors will pay a higher percentage of fEC.
7. These are major changes which will immediately (from 2005) improve the cost recovery for every research-active HEI. Equally significantly, they are changing the climate under which research has been subsidised by institutions to an unmanageable extent, while public funders had been experiencing little pressure to pay the real costs of the work they fund.
8. There are wide implications and benefits for institutions. Research Council funding is not the only area where institutions need to improve their cost recovery. They also need to change the low price culture and make a convincing case to charities and other funders. The principles of using fEC to manage institutional sustainability apply to all activities.
9. Teaching equally demands a full cost approach in the context of setting fee levels (where these are not fixed by the Government). TRAC fEC guidance focuses on the costing of externally-funded Research, but can as well be applied to institution-own-funded projects and to Other projects (e.g. consultancy). The principles and approaches can also provide the fEC of Teaching courses or modules. HEFCE will be using TRAC to inform its teaching funding method. In time, Research Councils may use TRAC to inform the funding of postgraduate research (PGR) student activity.

What sustainability means

10. Sustainability can be defined along the following lines:

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 customers' requirements.

Another way to express this is to say that the institution needs to do the activity today in a way which will not threaten its ability to do it in future.

11. The reference to future needs suggests that what is needed is 'adaptive' capacity, i.e. sustainability is not about preserving current activities indefinitely but rather about preserving the right sort of capacity (changing over time) to carry out the activities that are necessary in the future.
12. Institutions need to do five things to manage their research on a sustainable basis. 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.
13. This must be done as part of a long-term strategy for the institution. As part of this institutions will need to realign their resource allocation models in order to ensure that these do not give perverse incentives, and that information from these and from TRAC costing systems do not conflict.
14. Further information on managing for sustainability was given in a section in the original TRAC fEC Manual, now available as an extract.^x
15. The Funding Councils will monitor institutions' ability to manage themselves sustainably. The metrics used in this might include trends in the financial health of the institution, the productivity and quality of staff, the level of investment in equipment and buildings, and the reduction in the size of the backlog maintenance required.
16. Implementing these processes is a significant challenge for many institutions. They need to introduce some relatively well understood business techniques, but to do it in a way which respects the nature of the academic process and does not threaten the conditions which make a research unit, academic department, university, college or other academic institution successful – and different from a commercial business.

Benefits and costs of TRAC

17. TRAC was originally a regulatory requirement on the HE sector. Its primary purpose was about accountability for public funding, and about reassuring the Treasury that any additional funding provided for higher education could be used properly. However, TRAC was developed by the JCPSG and in close consultation with institutions, with the specific intention of being useful to HEIs to inform decision making as well as meeting the accountability requirements.

18. TRAC provides robust data not only to sponsors, to inform their pricing, but also to institutions to allow them to make better informed decisions about what activities to do, at what prices. This improves institutions' ability to manage themselves sustainably.
19. The benefits of TRAC are generally considered to greatly outweigh the costs. The benefits are of several kinds:
 - a. Many institutions needed better cost information in 1999, and some had been involved in other costing initiatives before TRAC. It would have been wasteful for several different costing methods to be developed in the sector. HEIs have all benefited from the advice, consultancy and support provided by the JCPSG, and also from having a common method available to them that is accepted by Government and other funders as a basis for research and other contracts.
 - b. A number of institutions use TRAC data as a key part of their management processes and believe it helps them to manage their institutions more effectively.
 - c. TRAC has been used as the basis for a number of studies of the costs of teaching (e.g. of Initial Teacher Training, of National Health Service-funded health professions, of different modes of study and of widening participation) and all of these help to inform Government about the future resource needs of the sector. TRAC is being considered as a method of providing cost-based information to inform HEFCE's teaching funding method.
 - d. The funding for Research under the dual-support system has increased substantially as a direct result of the evidence of deficits on Research funding revealed by TRAC.
 - e. TRAC also provided the clearest evidence of HEIs' need for additional cash to invest in infrastructure. While the incidence of backlogs was well-known, TRAC has provided the first generally-accepted quantification of the additional levels of spending required.
 - f. More generally, the fact that the sector has implemented TRAC has been important in building government confidence that HEIs can manage additional funding if it is provided.
20. The total new money that has come into the sector for research, which would not have been provided without TRAC, will be well in excess of £1bn a year by 2007-08.^{xi}
21. Overall, TRAC has added to the regulatory burden on HEIs, but they would have to invest in better costing anyway. By implementing TRAC so successfully, the sector has gained additional funding; greater understanding of its costs and therefore greater control over the management of its business; and ultimately its ability to ensure the sustainability and autonomy of its institutions.
22. An overall cost-benefit analysis has been done by the JCPSG as part of its assessment of the regulatory burden of TRAC.^{xii}
23. The ongoing annual costs for HEIs are typically of the order of £100,000 per annum for 'annual' TRAC and, for HEIs carrying out significant volumes of

research, £300,000 per annum for TRAC fEC. This will vary, depending on the approach adopted by institutions, and on the state and flexibility of their existing systems and processes. Over time, these processes will become embedded into normal institutional management.

24. Most of this cost is accounted for by time of administration staff (usually in finance or research services). Time from academic staff is also included in these estimates, but the burden on individual academics is very low. The main impact on academic staff is:
 - a. all academics have to complete a time allocation schedule at least three times over a three-year cycle (some institutions do this differently, by using one-week 24-hour diaries for a sample of academics selected on a statistical basis). This is a light-touch but robust method of collecting time at a high level on work done on the core activities of Teaching, Research and Other activities; and by research sponsor group.^{xiii} It also provides data on time spent in support of Research or Teaching (for example, writing and reviewing research proposals). Support activities facilitate core activity, but are included as part of the indirect cost rate as they cannot be charged directly to a Teaching programme or Research project.
 - b. all principal investigators have to plan and cost the resources needed for research projects. They were already doing almost all of this, but they now need to forecast the academic time required robustly. The other new data required to build up the fEC of a project (academic staff salaries, estates and indirect cost charges, charges for research facilities and technicians, and inflation) can be provided and calculated automatically by research costing systems, once fully implemented. Methods of doing this vary by institution.
25. In practice: (a) should not take more than an hour a year; (b) was arguably always a requirement of Research Councils and some other funders, but is involving some additional time for many academics, until they become familiar with the more complete costing methods now used.
26. There have also been one-off costs in implementing TRAC for institutions. These are harder to estimate as they depend on how far institutions were already interested in costing, and whether they chose to implement TRAC as a stand-alone requirement, or as a part of their management information strategy.

Annual TRAC - public accountability at sector level

27. The first TRAC process was introduced after the Government's 1998 spending review, as a means to improve accountability for public funding. The Transparency Review report in 1999 recommended the costing methods to be used to meet government requirements. Implementation began from autumn 1999. Pilot universities were involved in testing the new methods, and there was a phased implementation. The whole sector reported for the first time in July 2001, and then annually from January 2002.
28. The main features of TRAC, recommended in the Transparency Review, and with implementation complete by 2005, were:

- use of activity-based costing and analysis of all institutional costs (as reported in the financial statements);
 - accounting for use of academic staff time (through either a diary sampling method or in-year time allocation schedules);
 - use of robust cost drivers to attribute library and space costs and all other support or indirect costs to activities;
 - representation of the costs of investment and risk through the TRAC cost adjustments for infrastructure and the cost of capital employed;
 - calculation of indirect cost rates for Teaching, Research and Other; and calculation of charge-out rates for Research in the areas of estates, major research facilities and laboratory technicians.
29. The TRAC guidance describes the main costing standards to be achieved by each institution. Underpinning all these is the principle of materiality and a 'fair and reasonable' view of costs – this is not an audit approach and institutions are not staffed to undertake heavy administrative processes. TRAC aims to avoid undue precision (or 'spurious accuracy' given the nature of academic processes), and to minimise the burden on institutions while achieving necessary accountability. Robustness is important and there are both internal and external quality assurance processes within TRAC that are described below.
30. The implementation of annual TRAC was significantly complete by 2005. Many institutions are now using TRAC data internally for costing, pricing, and financial management. For some, this has been as much a culture change as an accounting development – it is part of a trend in many institutions to accept that they are 'business-like' organisations with a mixed portfolio of finances and activities, and a need for better costing tools.
31. During 2003, an independent review of TRAC was carried out by the Financial Reporting and Activity Costing Group (FRACG).^{xiv} This concluded that the TRAC methodology was robust and fit for purpose at an institutional level. FRACG also recommended some improvements to the overall accountability mechanism associated with TRAC which have been implemented.

TRAC fEC – full economic costing for Research and other projects

32. During 2003 and 2004 the Office of Science and Technology led a reform of the dual-support system for higher education research.^{xv} Under dual-support institutions receive:
- a block grant of core research funds from the Funding Councils (called quality-related funding or QR, allocated on the basis of the Research Assessment Exercise[RAE]) that they use for some of their own blue-skies research, and to develop and maintain infrastructure for research that is carried out for external sponsors in the 'public scientific good';
 - a second stream of project-related grant funding from the Research Councils.

33. The latter had covered only the direct costs of projects (excluding academic investigators' time) plus a contribution to infrastructure costs. Over many years, faster growth in project-related funding (including significant growth in income from charities, the EU and industry) than in the block grant has put stress on institutions' cost recovery on research, and thus on the sustainability of their research activity and infrastructure.
34. Coupled with this, the absence of robust cost data had led many institutions to underestimate the costs of research and other projects, so that even commercial research and consultancy, for example, has often been sold to the private sector at below cost. This has been called the 'low price culture' in higher education.
35. From 2005 the Government is providing additional funds for the recurrent costs of research supported by the Research Councils. These are to be used to make this research more sustainable – not to increase volumes of activity.
36. To give effect to this policy, HEIs applying for future research grants from public funders now have to identify the fEC of carrying out the project in question, including an appropriate share of all infrastructure costs and of the cost of capital employed. Funding is either at 100% of fEC (the normal case with non-competitive research funded by government departments),^{xvi} or 80% of fEC (from the Research Councils^{xvii} where the dual-support arrangements are in place). For most projects this is a significant increase over the former price. It is the Government's intention that Research Councils will move to paying close to 100% of fEC by the start of the next decade, thereby further freeing up institutions' own research funds.
37. Funding for competitive projects and for commercial work for industry (market-priced) is not affected by this, but a better knowledge of the costs helps institutions to avoid inadvertently subsidising work which should at least be at 'full cost'. Institutions need to plan to make a surplus on their commercial or contract research work, as part of their balanced portfolio. It has never been allowable to subsidise such work from public funds, but institutions have been reminded of these responsibilities through the Financial Memorandum under which they operate with the Funding Councils.
38. Institutions implemented TRAC fEC during 2004 and 2005. The main changes detailed in the guidance are that institutions now have to:
 - a. forecast/estimate academic staff costs robustly at project level – typically a Research Council funded project lasts three years and involves a mix of different types of principal investigator, co-investigator, etc.;
 - b. allocate costs directly to projects for space; major research facilities such as ships, telescopes; and technicians - using charge-out rates derived from the annual TRAC process;
 - c. attribute support costs to projects using a robustly calculated indirect cost rate, expressed as £ per full time equivalent (FTE) academic or research member of staff.
39. These three new elements of cost, plus the directly incurred costs that have always been identified (research assistants, consumables, equipment purchases etc), make up the fEC of a research project. These costs are profiled over the life

of the project, and adjusted for pay increments and inflation. This provides the basis for the cost-based price (e.g. 80% or 100%).

40. If the funding is less than 100% of fEC, the institution has to be aware of its own financial contribution and to ensure either that it has sufficient public funding to subsidise 'scientific public good' research; or that the research project is of sufficient strategic interest to justify subsidy through any other funds that it has available. HEIs do not have to account publicly, at a project level, for these subsidies, but they should be able to reassure themselves that across their portfolio of activities, taking one year with another, they have the funds available.
41. Other requirements for project costing remain as before, in particular the need to record and account for directly incurred costs (research assistants, consumables etc) in an auditable manner. There is no need formally to account for the actual time spent on projects by academic staff – other evidence of time spent such as records of meetings, laboratory notebooks etc., that are a standard part of project management, are all that is needed. Similarly, there is no need to monitor actual use on a specific project of any of the estates and other directly allocated costs. Academic staff costs and directly allocated costs are charged to projects at the standard costs originally estimated, and do not change throughout the project (unless there is a significant change to the programme of work).
42. Overall, TRAC fEC has been a more significant implementation task for institutions than annual TRAC. It is also being phased in over five years – 2004 to 2009. Institutions which have very large numbers of research projects are generally making major changes to their financial and research systems to be able to estimate and record the fEC of projects.
43. The methods in TRAC fEC could also be used for costing Other projects, such as consultancy. However, this is for institutions to decide; they are therefore free to apply the TRAC principles as appropriate.

Impact of TRAC on academic staff

44. Most of annual TRAC is effectively invisible to academics. It is a post-hoc attribution of costs done by each institution's finance department. However, the largest single cost for all institutions is academic staff, and the finance department needs a robust method to allocate academic staff time between the five activities recorded by TRAC. This can only be obtained by asking academic staff to provide data themselves.
45. Therefore, for most academics annual TRAC introduced a rather visible, but minimally burdensome, new requirement – to complete a simple set of time allocation schedules every three years. This is important not only for the annual institutional return, but to allow the institution to calculate an indirect cost rate and estates charges for Research. Without accurate time recording of this sort, institutions are unable to identify and then recover their full costs.
46. TRAC fEC is much more visible to all academics who apply for research grants. They now have to understand that research incurs costs greater than direct marginal costs, and how to use their institutional systems which will apply it to their project applications. They need to be more aware of TRAC; and of the full range of resources required to carry out the research; and they need to

understand how the institutional rates are used in costing their projects. They need some briefing and support. In particular, they need to consider carefully how to estimate their time robustly, to ensure that they do not under-charge and therefore under-recover their costs, that research sponsors are being charged the amount of time for the work that is actually required, and that they are not being over-committed. There is little information currently available on this in institutions, and it will take time for estimating processes to become robust. But this is a TRAC requirement.

47. In reality, TRAC fEC imposes very little extra work on academic staff. They have to estimate the time and resources required for research projects as part of applying for public research contracts. And they have to keep track of their directly incurred costs and progress of the work during the lifetime of projects. But they should be doing this already – it is a requirement of the Research Councils. The main extra work associated with TRAC fEC is for central finance staff, and this extra accountability burden is justified by the fact that institutions will receive a larger amount of public funding for the same volume of research.
48. The Research Councils have also made significant changes to their processes and systems. An important part of these is the Peer Review process. Academics need to adopt some new methods as they review project bids prepared on an fEC basis. In particular, they need to consider whether the levels of resource estimated for the work (academic staff time, the research facilities being used) are appropriate. They also need to consider value-for-money issues if there is a ‘tie-breaker’ between two otherwise equal bids, once academic, quality, and other criteria, have been satisfied.

Implications for research sponsors in the public sector

49. Sponsors outside the public sector, or those who commission contract activity (not research) will continue to fund this on a basis other than fEC – perhaps using market or negotiated prices - as they currently do. HEIs will, however, be able to negotiate from a more informed position, knowing the fEC of the proposed work.
50. Research sponsors in the public sector are required to follow government policy on how they price and fund research. An explanation of government policy is given by the Office of Science and Technology.^{xi}
51. These public sector sponsors who are now pricing on an fEC basis need to understand TRAC sufficiently to allow them to work through the implications for their own calls for bids and funding mechanisms. It does not require a comprehensive knowledge of TRAC (and should not therefore necessitate reference to the detailed TRAC guidance).
52. Sponsors of research in the public sector need to:
 - consider the implications for their budgets of (generally) the increased funding that is now requested on each research project. This may require a review of the volume of research they commission;
 - review each of their schemes to ensure that where they involve a grant for research work, they allow institutions to bid on an fEC basis, compliant with

TRAC. Research Councils, for example, have had to re-design a number of their schemes which did not allow institutions to bid on an fEC basis;^{xviii}

- understand TRAC at a level that will enable them to ask institutions for appropriate information (on applications and throughout the project) and to make decisions at project application on the basis of that information. They need to understand:
 - the type of academic and research staff who can be included in the costings (almost all);
 - whether fellowships are costed and funded on an fEC basis;
 - how support time of academics is accounted for (in the indirect cost rate);
 - whether institutions can prepare costs that total less than 100% fEC (they can't – although they can agree prices that are less than 100% fEC);
 - whether indexation is included (it is);
 - how indirect costs and estates costs are charged (using robustly calculated indirect cost rates and estates charges, but expressed in a variety of ways, depending on the method selected by the institution – see below);
 - that for a time HEIs with more effective accounting systems will have the potential to identify more costs as direct costs, thereby reducing their indirect cost rates, so that it will be, at the margins, more difficult for funders to compare 'like with like';
 - how TRAC avoids double-charging, for example: for equipment that was originally funded on research grants; for equipment funded through the Science Research Infrastructure Fund; for staff who already charge 100% of their time to a fellowship; for maternity pay of academics;
- amend their calls for applications; their processes for reviewing applications; and their terms and conditions of grant;
- consider quality assurance and validation issues.

Quality assurance and validation of TRAC

53. The Government has accepted that TRAC is a robust costing method. TRAC specifies standards, principles and conventions that must be used when costing in HEIs, based on audited accounts of institutions; and has defined sets of minimum mandatory requirements to ensure that costs are fair and reasonable, and are calculated in a consistent manner across the sector. The conclusions of the FRACG review confirm this.
54. The QA and validation processes included in TRAC (covering both annual TRAC and TRAC fEC) include:

- internal verification of data (e.g. time allocation) and validation and testing of cost drivers; reconciliations, reviews and tests for reasonableness; audit trails; methods to avoid double-charging;
 - internal audit review of methods, planned on a risk-based approach, but including a full systems audit; with an institutional committee confirming compliance;
 - requirements to supply information for benchmarking on a comparable basis, and to justify indirect cost rates and estates charges that are above the upper quartiles of the sector.
55. Additional quality assurance was provided through an external QA process carried out in 2004-05 that focussed on annual TRAC and the readiness for TRAC fEC. Every institution was visited by an external QA team who assessed the robustness of their TRAC methods and examined a self-certification pro forma and benchmarking information provided by the HEI. If significant issues were identified then institutions had to address these before they could apply their own indirect cost rates and estates charges to publicly-funded research projects. If they can not address these then they have to apply default charge-out rates set by Government.
56. In addition, Research Councils use 'dipstick testing' to help satisfy their accountability requirements. Other research sponsors have started to participate in this established process.
57. Institutions need to be reassured that there is a level playing field, and that other HEIs' costs are as robust as their own. And funders need to know that they can rely on the TRAC costs as a basis for funding.
58. External QA processes will continue in the future to provide this reassurance. A major review of this was commissioned by the Research Councils and Funding Councils in 2005. This will join up all of the various strands of QA activity that currently take place and that should take place, to meet the probity requirements of sponsors, and institutions' own needs.

In conclusion

59. TRAC is a complex process, with a ten-year implementation period, which has to satisfy a number of different objectives and stakeholders, and to be applicable across a large and diverse group of institutions, with a minimum of additional administrative effort. Because of the way it has influenced funding and institutional management, TRAC has had a broader impact on the HE sector than just as a costing method. Different people may not all have the same things in mind when they refer to TRAC. It certainly will be perceived differently in different institutions. So far, TRAC has proved flexible and robust enough to accommodate all these needs, while also being sufficiently rigorous and challenging to move practice forwards in the sector. But there is much work still to do.
60. Some would prefer TRAC to look simpler, but much of the apparent complexity in the guidance comes from the multiple activities and streams of accountability that HE institutions are subject to (for example, they have to account for publicly-funded teaching, and enterprise activity as well as research, and they are funded

for each activity from a mix of public and private sources; they may also own other buildings such as museums and churches).

61. There are also some inherently difficult costing issues in higher education which include (but are not limited to): medical schools and the knock-for-knock relationships with the NHS; distinguishing research and scholarship; costing complex heritage estates and multi-user facilities with no market value; and accounting for the time of academic staff who often work well outside any standard working week and on multi-task activities (such as supervising PGR students) which cannot easily be categorised as just one of Teaching or Research.
62. Overall, TRAC can be relied upon to provide robust costs for a number of different purposes. These include: to show probity of funding, to estimate project costs, to inform pricing, to inform decision-making in institutions. But whilst TRAC produces robust cost information, it does not dictate the decisions to be made. Those decisions should not normally be driven by cost factors alone, or even primarily. Academic and strategic considerations should set the context and guide decisions; costs should just be used to help inform this process.

Section B: Key aspects of TRAC

1. This section gives more detail on the TRAC methods that institutions have introduced:

Annual TRAC reporting

- time allocation
- cost adjustments
- attributing other costs
- estates
- income allocation

Establishing the rates

Building up project costs

- estimating staff time
- applying indirect and estates rates

Recording and validating the costs

2. TRAC is a generic (or holistic) costing approach that can cover all activities of institutions – Teaching, Research and Other. However, in respect of TRAC fEC, there are currently only detailed requirements for costing Research because the public funding of this is now based on TRAC costs. The later parts of Section B therefore summarise requirements for costing research projects, but not Teaching programmes. In the future, there may also be requirements in respect of Teaching.

Annual TRAC: time allocation

3. Staff costs make up 60-70% of total costs for most institutions and many of these costs relate to academics who are carrying out a wide range of tasks. Staff time needs to be attributed to activities, using a robust method, which then allows costs to be attributed. For some staff this is relatively easy (for example staff who work in a research office, research assistants and research technicians can all be allocated to Research; Teaching-only academics, or those who work in learning support services can be allocated to Teaching).
4. There has been much debate about the appropriateness and practicality of attributing academic staff time to activities. There is a genuine difficulty that much academic activity is inter-related (Teaching, Research, and scholarship all overlap to some degree) and that many academics do not work 'normal' hours. But of course the same is true of other creative professional activities.
5. A few academics may still perceive that having to account for their time is unreasonable, and some may claim it is burdensome. However, Imperial College introduced an academic time allocation programme before TRAC existed, and many academics accept this is a part of normal business management.
6. TRAC allows a range of methods to be used, as long as they meet the requirements for robustness: all academics must provide information covering all periods of a year, within a three year cycle. Information must be recorded by

activity, including by the main research sponsor groups (Research Councils, OGDs, charities, etc.) but not by individual programme or project.

7. The most common time recording methods are a one- or-two week diary completed by all academics on a 24/7 basis, planned through statistical sampling techniques; or three-to-six in-year time allocation schedules, covering a whole year, completed by all academics. Some institutions have increased the frequency of the recording cycle or the detail being recorded for their own internal purposes.
8. Whilst there may be continued debates about the methods to be used, the TRAC approach to academic time recording continues to provide robust data in all institutions. This data can be relied on both for the annual reporting of costs and for the calculation of rates. It also provides, at the level of sponsor group, the time actually spent on research projects across the institution as a whole, which can be used to validate the estimated time that is being charged to projects.

Annual TRAC: cost adjustments

9. The costs covered by the annual TRAC process include the costs in the institution's financial statements, plus two cost adjustments:
 - a. An infrastructure adjustment for buildings. Institutions' financial statements already include depreciation, but this could have been calculated on either a current cost or historical cost basis. The infrastructure adjustment ensures that depreciation in all institutions is stated on a current cost basis. This helps to ensure the costs of maintaining and replacing capital infrastructure for buildings are included. However, there is no infrastructure adjustment for equipment. Nor are any costs included that would address outstanding backlog maintenance or poor fitness-for-purpose issues. Therefore TRAC under-estimates real costs.
 - b. The cost of capital employed. This provides a margin for use in redevelopment, restructuring or investment. It takes account of both interest and risk.
10. The infrastructure adjustment and the cost of capital employed adjustment were reviewed by FRACG, and they were considered to be conceptually sound.

Annual TRAC: attributing other costs

11. The cost attribution done in the annual TRAC process relies on the classification of costs as direct or support. Direct costs are those that relate specifically to a programme or project (or small group of projects). Support costs are shared between many activities or projects. These terms are very strictly defined, and are the same as those used in TRAC fEC.
12. Directly incurred costs on TRAC fEC (research assistants, consumables etc.) are attributed directly to Research in the annual TRAC process. Support costs, identified as such in the annual TRAC process, are used to calculate the charge-out rates for application in TRAC fEC.

13. Support costs are made up of estates costs (including the costs of research facilities and laboratory technicians) and indirect costs. The latter comprises:
 - central services departments such as finance, registry, planning, library and learning facilities, information technology, staff and student facilities, secretariat, central management;
 - academic departments' support staff and costs;
 - the support time of academics;
 - the cost of capital employed.
14. Activity based costing principles are used to attribute these costs to academic departments and to activities. Detailed costing models are maintained by institutions' finance departments for this.
15. Each type of cost is attributed using appropriate cost driver/s. These might include staff and student headcount or FTE, perhaps weighted; records of usage informed by surveys and other information; head of department estimates; records of who purchased the item and for what purpose (e.g. books); and all other costs. This provides a total indirect cost for Research (and for Teaching, and for Other) that is the basis for the indirect cost rate for Research.

Annual TRAC: estates costs

16. Space or estates costs are the second most significant individual element of cost for institutions.
17. Institutions maintain a record of the use of each room or group of rooms by academic department and by activity (Research, Teaching, Other). Space use is then weighted to reflect the different costs of building, maintaining and operating each type of space. This produces a total cost of maintaining and operating the estate (including the infrastructure adjustment) attributed to each of Teaching, Research and Other activities. Estates costs are further analysed by type of department (laboratory and non-laboratory).
18. The estates costs of Research, identified separately for laboratory and non-laboratory departments, provide the basis for the estates charge-out rates.

Annual TRAC: income allocation

19. FRACG recommended that income be reported alongside costs in the annual TRAC report. This was implemented by the Funding Councils during 2005, with the first reporting of income in January 2006 (2004-05 data).
20. Income is attributed to each of the five activity categories in TRAC, using common methods. This provides a surplus or deficit on each activity.
21. Because some of the income attributed to publicly-funded activity is actually provided from non-public sources (fee income is the main example of this), a

separate analysis of publicly-funded Teaching income and publicly-funded Research income is also given.

Establishing the rates

22. Annual TRAC produces costs that can be used to calculate charge-out rates for Teaching, Research and consultancy (Other) activities. There are detailed requirements for the calculation of charge-out rates for Research, and the same principles can be followed for Other activities. There are, at present, no detailed requirements specifying how charge-out rates for Teaching should be calculated.
23. Four sets of charge-out rates are calculated for Research:
 - one institutional indirect cost rate for Research;
 - at least two estates charges for Research – for laboratory and non-laboratory departments;
 - at least one rate for laboratory technicians;
 - rates for each major research facility.

(The last two sets of charge-out rates are to be applied at least from February 2008. Until then, these costs could be included in the estates charge-out rates.)

24. The indirect cost rate for Research is calculated by taking the total indirect cost for Research divided by the FTE number of research and academic staff working on Research (i.e. all researchers' time including the Research time of academics – the time that they would charge to research projects - but excluding support staff such as technicians). This produces an institutional indirect cost rate for Research, expressed in terms of £ per academic/research staff FTE. PGR student numbers are also included in the denominator (bottom line) of the equation, but weighted to reflect their different demand on, and use of, services. A review of the weightings used is to be conducted in 2006.
25. For estates, institutions can choose how many and what type of charge-out rates to adopt but they must be then applied consistently. As a minimum they must use two Research estates (laboratory and non-laboratory) rates per academic/research staff FTE. They could alternatively use different rates for different types of department within these two discipline groups, or for different types of staff, or use a mixture of rates and planned usage (square metres at a cost per sq m for a given time) on each project.
26. Rates must also be calculated for laboratory technicians; and for each major research facility such as animal house, specialised glasshouse, etc.
27. Rates are calculated on 1 February of each year and apply for the following 12 months. They are indexed for two years when used to calculate the first year's costs of a project (i.e. rates calculated on 1 February 2006 are based on 2004/05 costs, so two years' indexation is applied to arrive at the 2006/07 prices which are then used to cost project bids prepared in 2006/07. Rates are benchmarked regularly, and institutions must be able to justify rates above the upper quartile of

the sector. Default rates must be used if QA processes identify that the institution's methods are not sufficiently robust.

Building up project costs: estimating academic staff time

28. The time and costs of research assistants (RAs), research fellows, and other staff who are working solely and specifically on a single project are estimated, as they always have been.
29. Research Councils have always required academic staff time to be estimated for each project application but, as this was not costed or funded, the estimates were not consistently or robustly prepared by institutions.
30. Academic staff time is now part of the fEC of a project – irrespective of who is or was deemed to be ‘funding’ that academic, and irrespective of their type of contract. Investigators, co-investigators and any other academic staff working on or managing the project are included. Where an academic is to work on the research project but already has all of their time charged to another project (e.g. a fellowship), or is not in receipt of a salary from the HEI (e.g. an emeritus Professor), then their time, but no costs, is charged to the subsequent project.
31. Academics need to estimate the number of hours that are likely to be required for the project robustly (building up, over time, a knowledge and experience of good forecasting techniques). They should estimate the actual number of hours that are necessary, up to a maximum of 1650 hours per annum for one individual on one project. This time can then be profiled equally over the funded life of the project (or differently, if an institution wishes). A salary rate per hour is then applied to the hours charged, to produce a total salary cost on the project and per annum. The hourly salary rates can be calculated using that individual's salary (including ‘on-costs’ such as employers’ National Insurance and pension costs), or using an appropriate pay banding (to preserve anonymity of staff salaries). Estimated pay increments are then added. All salary costs are indexed.
32. 1650 hours a year is considered a fair estimate of the working year of an academic for costing purposes. Whilst based on 37.5 hours a week (an underestimate of actual working hours), it is also based on 44 weeks a year (an overstatement of the actual weeks and days available). Overall, 1650 is therefore fair and reasonable for both institution and sponsor to use, and this should prevent any over- or under-recovery of academic costs. A reconciliation (at a high level) with annual TRAC data that shows what academic costs have actually been incurred on Research Council activity overall, compared to the costs being charged to projects (and funded), is to be done each year to confirm this.
33. The TRAC methodology does not require academics to prepare project-level timesheets. However, they need to be able to show evidence that they have actually worked on the project. They also need to be able to certify, if asked, that the project has (very broadly) required the amount of time originally estimated, but they do not have to show time records for this.
34. Because academics are not required to keep project timesheets, the funding of academic costs on projects is based on the original estimate, and Research Councils will not allow virement of funds into or out of this cost heading. This is irrespective of whether the staff spend more time than originally planned (for

example if an RA leaves early and the Principal Investigator spends more time than was built into the costs approved on application).

Building up project costs: applying the indirect and estates cost rates

35. Charge-out rates for indirect costs, estates costs and other directly allocated costs are established as part of the annual TRAC process.
36. These are generally shown as an annual rate per FTE academic/researcher. These are applied to the FTEs of the academic and research staff (not technician or secretarial staff) working on the project. Estimated hours on the project are converted to FTEs using the standard 1650 hours a year.
37. Indirect costs are charged to each project in this way, using an institutional indirect cost rate.
38. Estates costs may be charged to projects using a number of different bases. These may or may not be expressed as an annual rate per researcher FTE.
39. Because of this variation in methods of calculating rates, the Research Councils are asking only for the total indirect cost and the total estates cost to be shown on applications, not the rates themselves.
40. Other charge-out rates are applied to projects – notably for major research facilities and for laboratory technicians.
41. Indexation should be applied to all costs estimated on a project. Indexation is part of fEC.
42. Charges made to projects using standard rates need not be updated (to reflect actual usage or actual costs) during the project (although they will be increased by inflation as part of general indexation). Therefore, sponsors pricing research on an fEC basis will not generally increase or decrease the total level of funding to reflect changes during a project's life, unless that represents a significant change to the programme of work, or unless there is an underspend of directly incurred costs.

Recording and validating the costs

43. Research assistants, other dedicated staff, travel and subsistence, consumables, equipment purchases and other costs incurred specifically for a project are called directly incurred costs. These are estimated on project application, but actual costs are recorded on each project cost record during the project life. These records are robust and validated: expenditure records must be auditable, and this includes timesheets for technicians and other staff dedicated to research work but who are working on more than one project.
44. The Research Councils allow virement of costs within the various types of directly incurred costs (up to the original award limit or actual expenditure, whichever is lower).

45. However, funding for directly allocated and indirect costs is based on the original estimates. There is no requirement for institutions to keep records of actual spend or usage. The validation of these costs and resource levels at an institutional level is a key part of the QA and validation processes.

Sources of further information

- ⁱ The consolidated TRAC Guidance can be found on <http://www.jcpsg.ac.uk/guidance/>
- ⁱⁱ a presentation that provides an introduction to TRAC can be found in Annex 2 of the Guidance.
- ⁱⁱⁱ see, for example, Management Information for Decision Making: Costing Guidelines for Higher Education Institutions. JCPSG, July 1997. Published by the HE Funding Councils.
- ^{iv} Transparency Review of Research – Report to the Science and Engineering Base Co-ordinating Committee commissioned by the Joint Pricing and Costing Steering Group: J M Consulting Ltd, June 1999.
- ^v <http://www.jcpsg.ac.uk>
- ^{vi} Study of Science Research Infrastructure, undertaken by J M Consulting Ltd for the OST, December 2001. <http://www.ost.gov.uk/research/funding/underinvest/sosri/chapter1.pdf>
- ^{vii} e.g. Investing in Innovation 2002; The Future of Higher Education 2003.
- The text of the Financial Memorandum for institutions in England can be found on HEFCE's website www.hefce.ac.uk
- ^{viii} the Government's continued commitment to the dual support system was given in ministerial letters to Heads of HE Institutions in November 2003 and January 2005; available from OST's website <http://www.ost.gov.uk/research/dualsupport.htm>
- ^{ix} there was also a separate, parallel project for the non-HE part of the publicly-funded research base. The main report was entitled PSREs and the Science Base: A policy for sustainable trading and joint strategic investment in PSRE infrastructure, available at http://www.ost.gov.uk/research/psre_sustainability.htm
- ^x further information on managing sustainability was provided in the original TRAC Guidance Manual Volume III, replicated in Annex 4 of the Guidance. Also refer to notes from workshops on sustainability held in November/December 2004, see Annex 5 of the Guidance.
- ^{xi} this funding includes the Science and Research Infrastructure Fund (£500m p.a.), Quality-Related funding from the Higher Education Funding Councils (increased from 05/06 and 07/08 by a total of £480m p.a. in England, with funds provided for proportionate/equivalent increases in Scotland, Wales and Northern Ireland), funding from Research Councils (increased from 05/06 and 07/08 by a total of £200m p.a., with no increase in volume), and charity partnership funding (£90m p.a. from 07/08). This excludes additional income that will be receivable from better cost recovery and more appropriate pricing on Other Government Department or industrial projects.

^{xii} Assessment of the Regulatory Burden of TRAC (by J M Consulting), March 2005.
<http://www.icpsg.ac.uk> (in Resources/Letters section)

A Regulatory Impact Assessment for fEC is also available at
<http://www.ost.gov.uk/research/dualsupport.htm>

^{xiii} the seven TRAC research sponsor groups are: institution-/own-funded research; Research Councils; OGDs; charities; EU; overseas/industry/commerce; PGR training and supervision

^{xiv} Financial Reporting and Activity Costing Group report to the Higher Education Funding Councils in England, Scotland, and Wales. HEFCE 26/2003. July 2003.
http://www.hefce.ac.uk/pubs/circlelets/2003/c126_03

^{xv} Dti; the Sustainability of University Research: A consultation on reforming parts of the Dual Support System. OST, May 2003. <http://www.ost.gov.uk/policy/universityresearch.pdf>

^{xvi} <http://www.ost.gov.uk/research/dualsupport.htm> - in particular the Revised Pricing Guidelines for non-Research Council projects

also see HM Treasury letter dated 13 February 2004: University research: Costs to government departments, available at Annex 3 of the Guidance.

^{xvii} pricing based on 80% of fEC is being followed by the Research Councils, the Royal Academy of Engineering, Royal Society, British Academy and the Department of Health NHS Research and Development Programme. The 80% covers all research projects funded through grant, with the exception of project studentship costs (funded at stipends plus tuition fees) and the purchase of equipment (funded at 80% up to a £50k threshold, and at 100% above this threshold). Refer for example to the Research Council funding arrangements described on: <http://www.pparc.ac.uk/jes/DualSupport.asp>

^{xviii} Research Council schemes which were not TRAC-compliant included those which had previously paid replacement teaching costs; only paid travel and subsistence (no staff time); funded very large surveys that were sub-contracted by an institution; co-funded with industry; required a 50% contribution from the institution; funded research centres, units, and national facilities; funded knowledge transfer or services (but called it research); and so on.



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