

# Preparing a 'Full Economic Costing' Budget for a JISC Research and Development Proposal

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## Principles of TRAC and FEC

JISC now requires full economic costing (FEC) budgets when it invites UK HE institutions to submit research and development proposals and bids through a JISC Circular. While budgeting for direct project costs is relatively straightforward, FEC budgets require a particular approach to allocated, indirect, and overhead costs based upon the Transparent Approach to Costing (TRAC) processes of Higher Education Institutions (HEIs).

The two key concepts of a FEC budget are that:

- Staffing is converted to "Researcher Full-Time Equivalents" (RFTEs), and
- Allocated and indirect costs are based upon institutional charge-out rates (calculated using TRAC) per RFTE.

A FEC budget considers all costs to fall within three categories, and the preparation of a FEC budget involves establishing the costs within each of these categories in turn:

- Directly incurred,
- Directly allocated, and
- Indirect.

The official source of advice on the Transparent Approach to Costing (TRAC) and full economic costing (FEC) is the Web site of the Joint Costing and Pricing Steering Group (JCPSG):

<http://www.jcpsg.ac.uk/guidance/index.htm>

<http://www.jcpsg.ac.uk/downloads/guidance/Overview.pdf>

The JCPSG acronym for full economic costing is "fEC", but I will use "FEC" in this document.

The following guidance assumes a "typical" JISC R&D project, involving "creative work undertaken on a systematic basis in order to increase the stock of knowledge of man, culture and society, the use of this stock of knowledge to devise new applications, and covering the activities of basic research, applied research, and experimental development."<sup>1</sup> It does not apply to JISC services or consultancy activities, where rates may differ.

### ***Directly Incurred (DI)***

Directly incurred (DI) costs are items or services incurred or purchased specifically for a particular project. *They would not be incurred if the project did not take place.* As well as Research Assistants they include consultancy fees, travel, subsistence, equipment purchase, and direct costs for activities such as dissemination and evaluation. They may also include technicians, other support staff, and consumables where these are specific to the project. Some features of the DI costs in a FEC budget are that they:

- Are charged to projects on actual cost.
- Must have a record of actual usage by the project or a proof of expenditure.
- Can be vired, that is, limited transfer between DI fund headings is permitted when accounting for spend. For example, a proposed budget may specify two PCs as equipment and two Research Technicians for two months each as staffing. When the project actually gets going, it may be that an existing PC is found to be available for the work, only one PC is purchased, and that one of the Research Technicians can therefore be employed for three months instead of two by viring part of the equipment budget to the personnel budget.

DI costs are charged on the basis of actual salaries and actual time: either the full cost of a salary is charged to a single project, or actual salaries are attributed to several projects on the basis of project-level timesheets.

Where DI costs relate to research personnel salaries or wages, the amount of time spent by DI research personnel is expressed as the number of "Researcher Full-Time Equivalents" (RFTEs). For example, two RAs each employed full-time for 3 months means each is 0.25 RFTE, so together this yields 0.5 RFTE.

### ***Directly Allocated (DA)***

Directly allocated (DA) costs are related to a particular project, but are not solely identified with that particular project. *They are costs which would otherwise be incurred anyway, whether or not the particular project being proposed actually takes place.* Examples of directly allocated costs on projects include investigator time/costs, technicians (other than DI technicians) and pool technicians, estate costs (buildings, electricity, etc), and major research facilities. Some features of the DA costs in a budget are that they:

- Are charged to projects on a standard charge-out rate, based on estimated usage. The charge-out rate(s) used are based upon TRAC, are specific to the individual institution, and are provided by the institution's Finance Office or equivalent.
- Do not require a record of actual usage by the project.
- Cannot be vired.

It may be that Research Assistants, Research Fellows, and post-graduate researchers (PGRs – PhD students) work on a number of projects, often alongside a Principal Investigator. They would normally be classified as DA costs rather than DI cost.

Where DA costs relate to research personnel, such as the investigators, the amount of time allocated to the project by DA research personnel is expressed as RFTEs. For example, if the Principle Investigator is budgeted to spend one day per week on a year-long project (0.2), and the Co-investigator half a day per week (0.1), this yields 0.3 RFTE in total.

Estates costs are allocated to the project on the basis of the total project RFTEs (counting DI and DA research personnel), using the relevant institutional standard “Estates” charge-out rate. Note that there are at least two “Estates” rates, one for laboratory-based projects, and one for non-laboratory projects. Also note that from early in 2008 there will be two laboratory rates, one for “pool” technicians and one for “infrastructure” technicians.

Post-graduate researchers (PGRs) may also work on the project, and their time allocated to the project is also counted into the RFTE, but at a discounted rate. If the project uses the laboratory Estates rate, then 80% of the PGR’s time is used for the DA RFTE calculations. If the project uses a non-laboratory Estates rate, then 50% of the PGR’s allocated time is used for the RFTE count in the DA calculations. For example, a PGR may be allocated three days per week to a year-long laboratory-based project, and so their DA RFTE is 80% of  $0.6 = 0.48$ .

The JCPSG Web site gives more detail on the costs covered by the “Estates” category, but they include the usual office accommodation, maintenance, heating, lighting, and office equipment costs.

### ***Indirect***

Indirect costs are not directly related to any one project or activity, but are a necessary part of the overall institutional costs of undertaking its activities. These costs are attributed to projects based upon the project total RFTEs. Some features of the indirect costs in a budget are that they:

- Are charged to projects on a standard estimate made pre-award. The charge-out rate used is based upon TRAC, is specific to the individual institution, and is provided by the institution’s Finance Office or equivalent.
- Do not require a record of actual usage by the project.
- Cannot be vired.

Where PGRs have been included in the DA costs, their RFTE contribution is also discounted when calculating their indirect costs. 20% of the PGR’s allocated time is used for the RFTE count in the Indirect costs calculations. For example, a PGR may be allocated three days per week to a year-long project, and so their contribution to the RFTE count used for Indirect calculations is 20% of  $0.6 = 0.12$ .

The JCPSG Web site gives more detail on the costs covered by the “Indirect” category, but they include institutional administration and management, the library, and so on.

### ***Example FEC budget***

I illustrate the discussion of FEC budgeting with an example budget for a hypothetical proposed project which will run for 18 months.

It is important to note immediately that the 18 month project is budgeted across two JISC financial years. All budgets presented to JISC need to show their costs broken down by JISC financial year stated in the bidding document (either April – March or from August – July), and not according to some other breakdown such as “project years.”

The overview of the example FEC budget is shown in Table 1.

**Table 1. Example FEC budget overview**

<b>Directly incurred costs</b>	<b>Yr1</b>	<b>Yr2</b>	<b>FEC £</b>
<b>Personnel</b>			
Staff	40,515	49,441	89,956
Consultants	8,000	6,688	14,688
<b>Equipment</b>	6,900	600	7,500
<b>Travel &amp; subsistence</b>	3,200	2,508	5,708
<b>Dissemination</b>	1,400	4,598	5,998
<b>Evaluation</b>	600	1,881	2,481
<b>Other</b>	6,900	784	7,684
<b>Total incurred</b>	<u>67,515</u>	<u>66,500</u>	<u>134,015</u>
<b>Directly allocated costs</b>			
Personnel	7,922	8,279	16,201
Estates (RFTE 1.39 yr1, 1.55 yr2)	16,933	19,824	36,757
<b>Total allocated</b>	<u>24,855</u>	<u>28,103</u>	<u>52,958</u>
<b>Indirect costs</b>			
Services (RFTE 1.39 yr1, 1.55 yr2)	53,338	62,445	115,783
<b>Total FEC</b>	<u>145,708</u>	<u>157,048</u>	<u>302,756</u>

## JISC’s current approach to proposal budgets

The Research Councils base their awards on 80% of FEC, as do sponsors such as the Royal Academy of Engineering, Royal Society, British Academy, and the Department of Health NHS Research and Development Programme. JISC takes a different approach, and does not offer a standard funding rate at the time of writing. Instead, JISC requires “any benefits to the host institution should be taken into account when considering their costings”. A proposal to JISC requires you to identify the amount you are asking JISC to contribute, and the amount your institution will contribute, towards the FEC of the project, as illustrated in the example of Table 2. (Please note that the figures shown in the example budget do not represent guidelines or guidance. The institutional contribution has been set at an illustrative 40% here, and it would require justification in the proposal itself.) JISC assessors consider the “value for money” being offered by a project, and this assessment is more a reflection on the actual contribution requested from JISC rather than on the percentage amount of such contribution relative to the total FEC.

**Table 2. Example budget contribution**

	yr1	yr2	FEC £	
<b>Total FEC</b>	<u>145,708</u>	<u>157,048</u>	<u>302,756</u>	
<b>JISC contribution</b>	87,425	94,229	181,654	60%
<b>Institutional contribution</b>	58,283	62,819	121,102	40%

## **Constructing the FEC budget**

Table 3, Table 4, and Table 5 illustrate the construction of the DI, DA, and indirect costs for a FEC budget.

### **Notes on example DI costings**

Personnel costs refer to named persons, identify exact salary spine points, and include pension and NI costs in gross salary costs. In the example, researcher A.N. Other starts three months into the project, and is therefore allocated 0.50 RFTE in the first year.

Salary costs are indexed in the second year by showing an increment of one spine point for both RFs. In addition, the salaries have also been indexed on the assumption of a 4.5% pay award effective from the start of year 2 of the project. In the example, researcher A.N. Another leaves the project after 8 months in year 2, and is therefore allocated 0.67 RFTE.

Consultancy costs and commissioned work costs are illustrated in the example budget. Note that there is no RFTE calculation against the work of Prof J. Bloggs, since his day rate is assumed to take care of all his overhead costs.

In the example, consumables costs are budgeted as DI. This is fine if such consumables can be auditably traced back to project usage, otherwise they should be regarded as included in the estates charge-out rate in the DA section of the budget.

**Table 3. Example DI costs**

**Directly incurred costs**

	<i>Mnth</i>	<i>Util</i>	<i>Spine</i>	<i>Gross</i>	<i>FEC £</i>	<i>RFTE</i>
<b>Personnel year 1</b>						
A.N. Other (RF)	6	100%	30	32,411	16,206	0.50
A.N. Another (RF)	9	100%	30	32,411	24,309	0.75
Subtotal yr1					40,515	1.25
<b>Personnel year 2</b>						
A.N. Other (RF)	9	100%	31	34,900	26,175	0.75
A.N. Another (RF)	8	100%	31	34,900	23,266	0.67
Subtotal yr2					49,441	1.42
<b>Consultancy year 1</b>						
	<i>Days</i>	<i>Grade</i>		<i>Rate £</i>	<i>FEC £</i>	
Professional photographer	10	1		400	4,000	
Prof Joe Bloggs (Consultant)	8	3		500	4,000	
Subtotal yr1					8,000	
<b>Consultancy year 2</b>						
Professional photographer	6	1		418	2,508	
Prof Joe Bloggs (Consultant)	8	3		523	4,180	
Subtotal yr2					6,688	
<b>Equipment year 1</b>						
	<i>Qty</i>			<i>Unit £</i>	<i>FEC £</i>	
Camera & accessories	1			600	600	
PC & software	2			1,500	3,000	
Laptop & software	1			1,800	1,800	
Server & software	1			1,500	1,500	
Subtotal yr1					6,900	
<b>Equipment year 2</b>						
Software licences	1			600	600	
Subtotal yr2					600	
<b>Travel &amp; subsistence</b>						
	<i>Person-days</i>			<i>Rate £</i>	<i>FEC £</i>	
<b>Travel &amp; subsistence year 1</b>						
UK meetings	8			200	1,600	
European meetings	2			800	1,600	
Subtotal yr1					3,200	
<b>Travel &amp; subsistence year 2</b>						
UK meetings	6			209	1,254	
Overseas meetings	1			1,254	1,254	
Subtotal yr2					2,508	
<b>Dissemination year 1</b>						
UK conference	2			700	1,400	
Subtotal yr1					1,400	
<b>Dissemination year 2</b>						
UK conference	2			732	1,463	
European conference	2			1,568	3,135	
Subtotal yr2					4,598	

<b>Evaluation year 1</b>			
Interim workshop		600	<u>        </u>
	Subtotal yr1		600
<b>Evaluation year 2</b>			
Final workshop		1,881	<u>        </u>
	Subtotal yr2		1,881
<b>Other year 1</b>			
Reference materials (manuscripts, books, articles, etc)		5,000	
Recruitment advertising		1,200	
Consumables		700	<u>        </u>
	Subtotal yr1		6,900
<b>Other year 2</b>			
Consumables		784	<u>        </u>
	Subtotal yr2		784
	<b>Total incurred yr1</b>		<u><b>67,515</b></u>
	<b>Total incurred yr2</b>		<u><b>66,500</b></u>

## Notes on example DA costings

DA personnel costs are characteristically for named investigators. John Smith works on the project ½ day per week, while Gareth Jones works on it for 3 hours per week. Their RFTEs are therefore 0.08 and 0.06 over the 9-months in years 1 and 2.

The total RFTEs of the DI staff (the RFs) and the DA staff (the investigators) are 1.39 in year 1, and 1.55 in year 2. Given the institutional charge-out for estate costs of £12,226 per RFTE in year 1 and £12,776 in year 2, the DA estate costs are £16,933 and £19,824.

**Table 4. Example DA costs**

### Directly allocated costs

	<i>Mnths</i>	<i>Util</i>	<i>Spine</i>	<i>Gross £</i>	<i>FEC £</i>	<i>RFTE</i>
<b>Personnel year 1</b>						
John Smith (PI)	9	10%	50	59,467	4,460	0.08
Gareth Jones (CI)	9	8%	49	57,697	3,462	0.06
	Subtotal yr1				<u>7,922</u>	0.14
<b>Personnel year 2</b>						
John Smith (PI)	9	10%	50	62,143	4,661	0.08
Gareth Jones (CI)	9	8%	49	60,293	3,618	0.06
	Subtotal yr2				<u>8,279</u>	0.14
	<b>RFTE</b>			<b>Rate £</b>	<b>FEC £</b>	
<b>Estates yr1</b>	1.39			12,226	16,933	
<b>Estates yr2</b>	1.55			12,776	19,824	
	<b>Total allocated yr1</b>				<u><b>24,855</b></u>	
	<b>Total allocated yr2</b>				<u><b>28,103</b></u>	

## Notes on example indirect costings

Given the institutional charge-out rate for indirect costs of £38,511 per RFTE in year 1 and £40,244 in year 2, the indirect costs are £53,338 and £62,445 respectively.

**Table 5. Example indirect costs**

<b>Indirect costs</b>	<b>RFTE</b>	<b>Rate £</b>	<b>FEC £</b>
General services yr1	1.39	38,511	53,338
General services yr2	1.55	40,244	62,445
<b>Total indirect yr1</b>			<b>53,338</b>
<b>Total indirect yr2</b>			<b>62,445</b>

## Some considerations

- Personnel costs are based upon a “standard” working year of 1650 hours; or 220 days a year at 7.5 hours per day; or 44 weeks a year at 37.5 hours a week. This standard working year of 1650 hours is to be used even when staff are formally contracted for different hours (e.g. 44 hours a week for clinical posts, or 35 hours a week for academics).
- Academic and research staff on the project should be named where possible, or a grade included with reference to the use of pool staff or where staff will be recruited.
- The budget should also include and name all Fellows, emeritus professors, visiting staff from industry, clinicians and clinical academics, as appropriate, irrespective of whether they are paid a salary through the HEI, and irrespective how much of this salary is sponsored or funded (or by whom). It is important to identify all relevant expertise being provided to a project so that JISC can better understand the nature of the project. However, it is usually unnecessary to include anyone with less than 0.05 RFTE allocation (ie anyone with less than approximately 2 hours per week involvement).
- Post-graduate research (PGR) students (ie PhD and MSc/MEng) who are allocated to the project have their time discounted for the purposes of RFTE calculations. There will be two different RTFE values, one used as the Estates costs multiplier (where the PGR RTFE is 80% or 50% depending on laboratory or non-laboratory work), and a separate value used as the Indirect costs multiplier (where the PGR RFTE is 20%).
- Academics’ time should include all the time required to manage the project, undertake the work, and supervise the project staff. However, it should not include any activity that is categorised by TRAC as “Support”: training or supervising of research students, drafting and redrafting proposals for new work, supporting bids to external bodies, quality assurance activities (e.g. related to the RAE), refereeing papers, or scholarship/professional development such as advancement of knowledge and skills related to research, advising government departments or committees, professional bodies, or agencies in relation to research matters, institutional and departmental committee work, or publicity for research facilities and opportunities.
- Pay increments for staff should be included if relevant (usually for RA and RF staff). These could be based on one spinal point increase each year.

- Both pay and non-pay costs and the charge-out rates for estates and for institutional indirect general services should be indexed for future years to allow the costs to be expressed in future year's prices. Usually these indices include cost of living/inflation increases for costs and rates, and expected national pay award rises applied to DI costs and to salary bands of DA salary costs.

(Note that the UK Research Councils' practice at the time of writing is different. These Councils require budgets to be based on costs at year one price levels only without cost of living or inflationary adjustments to any costs or charge-out rates, and the Councils then use their own indexing methods to estimate costs and rates for future years.)

- A variety of charge-out rates may be used in a FEC budget. There is one institutional indirect cost rate for Research, but the DA cost rates may involve two estates charges, one for laboratory and another for non-laboratory departments, and in addition there may be different rates for each major research facility involved in the project.
- At the time of writing, HEFCE has identified default charge-out rates for certain institutions, illustrated in Table 6 and found at <http://www.hefce.ac.uk/finance/fundinghe/TransparencyReview/rates0708.pdf>

**Table 6. Default charge-out rates**

<b>TRAC default cost rates for 2007-08</b> <i>Rate per RFTE) £</i>	
<b>Default rates – for non-HEIs and for HEIs with dispensation</b>	
Indirect cost rate	34,500
Laboratory estates rate	10,700
Non-laboratory estates rate	6,200

- While institutions calculate their own rates based upon TRAC, these rates are benchmarked regularly, and institutions may be asked to justify rates above the upper quartile of the sector. <http://www.hefce.ac.uk/finance/fundinghe/TransparencyReview/rates0708.pdf>  
Upper quartile rates are illustrated in Table 7 at the time of writing.

**Table 7. Upper quartile charge-out rates**

<b>Upper quartile sector rates for 2007-08</b>	<i>Rate per RFTE £</i>
Indirect cost rate	38,800
Estates: laboratory and clinical	12,600
Estates: non-laboratory	7,400

- Charge-out rates for indirect costs, estates costs, and other directly allocated costs are applied to the RFTEs of the academic and research staff only, and not to technician or secretarial staff working on the project.
- The example budget ignores pennies and provides costs to the nearest £. When such rounded values are accumulated in a spreadsheet, errors can arise in the last digit of totals (and can also arise even if pennies are included due to less obvious roundings in calculations). It is usually necessary to round values as soon as they are used or calculated in the spreadsheet, and to then only use these rounded values in constructing totals.
- It is probable that your institution uses specialist FEC budget costing software, and it is probable that you will need support, if not approval, from your Finance Office to submit an FEC proposal to a funding body. There are currently two major aspects of a JISC FEC budget which your Finance Office may not be familiar with.

(1) Unlike the Research Councils, JISC does not offer a standard 80% contribution to FEC. Finance Office software may well assume 80% contribution, and you may have some difficulty in persuading it to provide figures on some other basis.

(2) Unlike the Research Councils, JISC expects yearly indexation of the budget figures. Again, Finance Office software may well assume the Research Councils' position that there should be no indexation because the Councils provide their own, and you may have some difficulty in persuading it to provide appropriately indexed figures.

## **Some technicalities**

As in any complex system, ambiguities and inconsistencies arise and need correction or interpretation. These are some examples chosen from

<http://www.jcpsg.ac.uk/resources/bufdg/trac/guidancereview2006.doc>

as at the time of writing. They illustrate the need for academics and research staff to obtain specialist advice and final budgetary approval from their institution's central finance department.

- If an individual works offsite for six months or more in aggregate during a project then no estates rate should be applied for that period of time.

- When specific items required by a project can be separately identified and justified they should be budgeted as DI. Most projects do not need significant, or vastly different, quantities of office consumables, and these should usually be budgeted as part of indirect costs. This would generally apply to photocopying, printing, postage, general transport costs, stationery, computer consumables, telephone costs etc.
- In general ethics committees will be incorporated into the indirect cost rate, if carried out before the funding approval. However, if the ethics approval is carried out after funding approval (which is required by some ethics committees) or it is a charge by an external ethics committee, then it will be DA. If it also relates to a single project it could be DI, but there would need to be an audit trail, including an invoice for the external ethics committee's charge.
- DA staff pay should include any likely increases resulting from pay modernisation etc. However, promotions and performance related pay for DA and DI staff should only be included in project cost estimates where they are reasonably certain (not 'just in case').
- The exact details of charging for the time of technicians remains subject to detailed and pernicky rules.

## Some tips

Your project proposal and budget will be scrutinised by JISC and its appointed assessors. The major criterion for the budget is that it provides value for money.

- In making a judgement about value for money, assessors will look more closely at the amount of the JISC contribution than at its percentage in relation to the total FEC. On the other hand, it is likely that your institution will focus more on approaching the "expected" 80%, and this leaves you with the sometimes uncomfortable task of squaring these two different points of view. One approach is to explain that JISC generally funds work in areas in which the institution is (or should be) already involved and for which it is probably already substantially (if not fully) funded – infrastructure development, enhancement of teaching and learning using technology, and so on – and so it is not reasonable to expect the overheads of such activities to be double-funded.
- Because there is not any focus upon a specific percentage contribution in a JISC FEC budget, you are much freer to construct a proposal with far wider involvement from academic partners (which is usually attractive to JISC), and have this involvement represented as institutional contribution in the budget.
- Assessors will review the RFTE charge-out rates used in your budget with knowledge of the sector-wide benchmarks, so there is little to be gained by deflating the budget overheads with artificially low charge-out rates for estates and indirect costs.
- JISC and its assessors are mindful of the need for viability and sustainability of projects and project outcomes, and are unlikely to view artificially low budgets as value for money in the long term. Proposals

which show total DI costs higher than the requested JISC contribution, for example, are likely to receive sceptical scrutiny.

- A requested JISC contribution of around 125% of DI costs typically yields an institutional contribution of around 45% of FEC, other things being equal, and is illustrated in Table 8. This “cost plus” approach to determining institutional contribution may represent an acceptable compromise in a number of institutional settings.

**Table 8. Example 'Cost plus' calculation**

	<b>£</b>		
<b>Total incurred yr1</b>	<b>67,515</b>	25%	84,394
<b>Total incurred yr2</b>	<b>66,500</b>	25%	83,125
JISC contribution yr1	84,394		
JISC contribution yr2	83,125		
Total JISC contribution	<u>167,519</u>	55%	
Institutional contribution yr1	61,314		
Institutional contribution yr2	73,923		
Total institutional contribution	<u>135,237</u>	45%	

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<sup>1</sup> Frascati Manual 1994: available from HMSO, ISBN 926414142029