TRAC Case Study

Academic Time Allocation

Statistical Method

February 2017

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Note:

This document has been prepared by a group of institutions to outline how they have approached the subject of academic time allocation. The TRAC Development Group has agreed to include this case study as a source of reference alongside the TRAC Guidance, but is not responsible for its contents.

1   Introduction

The TRAC Development Group (TDG) released streamlined TRAC guidance in August 2014 and this has subsequently been updated for the new accounting standard, Financial Reporting Standard (FRS) 102. The TRAC guidance explicitly states the requirements that should be achieved in order to produce a compliant TRAC return. The TRAC guidance also sets out examples of procedures that institutions could follow to achieve the TRAC requirements. In order to keep the TRAC guidance 'streamlined' and flexible, the guidance does not provide detailed worked examples to inform TRAC practitioners seeking to establish new processes or refine existing systems.

To support the development of TRAC more widely, and to complement the TRAC guidance, TDG are keen to share examples of processes that institutions have introduced to meet the TRAC requirements for areas that are considered to be more complex or difficult to address. The theme tackled by this case study is the statistical method of academic time allocation within TRAC models.

References in this case study relate to TRAC guidance version 2.1 (current at time of publication). Any changes in future versions of the guidance will be recorded in the Change Log, Annex 1.1a.

1.1   How to use this TRAC case study

This case study illustrates one example approach taken to fulfil the TRAC requirements for collecting academic staff time in the TRAC model through the use of a statistically based time allocation model. It is intended to provide a level of detail beyond the methods described in the TRAC guidance to aid users in understanding and developing their TRAC method.

The case study does not represent a 'TRAC Requirement' and institutions are under no obligation to adopt the practices outlined in the case study. It aims to be a source of reference that institutions may find useful in reviewing or redesigning their TRAC processes.

The TRAC requirements relating to attribution of academic time allocation data are provided at the following locations in the TRAC guidance:

- Costing standards – Attribution of academic staff costs to activities (1.2.3.3)

- Costing standards – Review and development of the institution's TRAC model (1.2.3.7)

- Time allocation methods (3.1.4.17 to 3.1.4.26)

1.2   Aim

This case study reviews the statistical approach to academic time allocation. It explains:

- the overall approach,

- the data collection and analysis process,

- reviewing the data for reasonableness; and

- inputting to the TRAC model

A well designed and tested academic staff time allocation process, whether it be a traditional 'Time Allocation Survey (TAS)' or workload planning model, is integral to ensuring staff costs are accurately allocated to TRAC activities (Teaching, Research, Other and Support), and underpins the credibility of the TRAC model and the TRAC results. It also provides valuable data for other uses in the institution. However this is only true where an institution refines its methods and communicates with staff the importance of returning accurate information.

Conducting and participating in a time allocation survey is a time-consuming process. The TRAC Development Group commissioned a report in 2012 that analysed time allocation methods across the sector. The report[1] provides insights and practical suggestions about how to reduce the burden associated with time allocation methods. Three key messages arising from this research are as follows:

- automation of time allocation methods should reduce administration burden and improve data quality
- reasonableness checks should be completed by academic and finance staff
- better communication with academic staff about the purpose of TRAC and how TRAC data is used by Government should reduce resistance to participate.

This case study presents the approach taken by University X to design a time allocation system that reduced the burden of collecting data across a large research intensive institution. A statistical approach was deemed most appropriate for its circumstances.

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[1] www.hefce.ac.uk/funding/finsustain/pubs/

2   Understanding the TRAC requirements

In order to produce robust time allocation cost drivers, institutions must establish systems to capture academic and research staff time data across all TRAC activity categories with sufficient granularity. TRAC requirements give institutions flexibility about which methods are most effective for their own purposes – typically a time allocation survey or a workload planning system.

The first step is to determine whether any academic and research staff costs could be attributed directly to a core TRAC activity. For example, where possible, the costs of Research Assistants to should be allocated directly to Research and Teaching Fellows to Teaching where they are 100% dedicated to that activity. The costs of all other academic and research staff that deliver a range of activities should be allocated using the percentage of time spent on TRAC activities while employed by the institution, captured through the time allocation or workload planning process.

There are three approaches to time allocation that are commonly used in the sector:

- **In-year time collection** – all staff complete at least three schedules covering the whole year, at least once every three years.

- **Statistical collection** – a statistician designs a statistically-based collection of time allocation returns. The collection process typically requires that either samples of staff or samples of weeks, or a combination, are selected each year. The design of the method should provide results that are representative of a 12-month period for the institution as a whole. The results are reviewed by a statistician to ensure that a statistically valid result is achieved that is representative for the institution as a whole at discipline level.

- **Workload planning / allocation model** – institutions have a proactive workload planning process for the allocation of staff time to activities during the year. The plan is agreed by each academic member of staff and their line manager at the start of the year, and jointly signed off at the year end.

The Role of the Statistician

The role of the statistician is twofold, assessing system design (pre and post collection) and data validation. Written evidence of Statistician input and sign-off of results must be retained for audit (See section 3.1.4.26 of the TRAC Guidance).

At University X, the statistician advised that in order to obtain assurances about the statistical validity of the overall results, a return rate of between 50% and 75% at department level would be required (3.1.4.25 of the TRAC Guidance).

Whichever time allocation collection approach is adopted, it should be a robust method that provides credible information for use in the attribution of academic staff costs to TRAC activities. It is acceptable to use different time allocation methods across the institution, but only one approach should be used within each academic department.

3   The approach to Time Allocation Survey following a statistical method

For the purposes of this case study, University X has adopted a statistical approach to surveying academic time (see section 3.1.4.26 of the TRAC guidance).

A report from the University's human resource (HR) system is used to identify the academic staff that should participate in the TAS. At University X, accessing the 'HESA[2] Academic Employment Function' helps determine whether staff are to be included in the survey. Staff that have an employment function of 'Teaching only' or 'Teaching and Research' within the HESA data are surveyed in the TAS. Additionally those staff assigned a 'Research only' employment function who are not wholly funded by a Research Grant are included.

> **Identifying the survey sample**
>
> Once the academic population is identified, the statistician designs an approach that is expected to deliver a statistically representative result (in line with current TRAC guidance).
>
> The Time Allocation Survey (TAS) for these staff is carried out by the University's Planning Office and coordinated by an Administrative Officer and a temporary assistant, consuming approximately 0.5 full-time equivalent (FTE) per annum in total.
>
> Note – at University X, the Planning Office liaises with the colleagues in the Finance Department responsible for the TRAC Return in respect of the consolidated TAS results.

At University X, all selected staff are asked to complete the survey for a randomly selected week, as advised by the statistician in the design of the model. The survey covers all weeks of the year except for a week at Christmas when the University is closed.

Due to the number of academic staff at the University, there are approximately 30 academic staff[3] completing a survey each week of the year. The volume and frequency of collection will not be the same for other institutions and the advice of a statistician should be followed.

The sections below summarise the flow of activities undertaken through:

- the data collection progress

- reviewing the TAS results for reasonableness

- using the TAS data in the TRAC model.

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[2] Higher Education Statistics Agency.

[3] The sample selected is informed by input from a statistician to deliver a statistically representative result. The sample size required to produce a statistically valid result differs from one institution to another, therefore statistical expertise should be sought in each case to design a system that is representative of the institution.

4   The data collection process

At University X, time allocation data is collected from the academic staff via an online survey form. Using an automated or online system increases efficiency, enables data collation and extraction and makes it easier to follow up outstanding returns.

Collecting the data

At University X, each survey participant is sent an email the two weeks before their allocated week which asks them to complete the survey and assigns them a unique personal identification number (PIN).

This PIN is then used by each participant to log in to their own TAS form. The PIN assigned to each academic is only usable for two months following the survey week, but chasing begins three weeks after the target week through automated reminder emails sent directly to the participant.

Participants are asked to provide details of the actual hours they spend on each activity, not a percentage of time.

Once the participant has completed the survey form for their given week, the form can be submitted securely.

Once the form is submitted the hours recorded for each activity are converted into percentages automatically.

TRAC requirements establish that time allocation survey data does not have a look-back period of greater than six months (ref 3.1.4.25 of the TRAC Guidance). University X has established a method that collects data over a shorter window to help improve accuracy and reduce administration.

Chasing outstanding time allocation data returns can be time consuming. At University X, chasing is automated through the use of reminder emails sent out to non-respondents fortnightly (total of three reminders) and additionally, if response rates fall below the minimum level (ranging between 50% and 75% per department, as advised by the statistician when developing the model), the Head of Department is notified.

5 Reviewing TAS results for reasonableness

5.1 Background

The TAS survey at University X is carried out each week of the year; an annual snapshot of the data is extracted to represent the University financial year for costing purposes. Performing a full rolling survey every year is in excess of TRAC requirements but is considered by University X to produce more robust data by enabling analysis and reasonableness testing to be completed each autumn by referring to other datasets that are already produced (financial and non-financial) that cover the same period. It also enables the process to become embedded in the institution, rather than being a periodic activity which academic staff can find it harder to relate to.

When the collection for each financial year is closed, the data is 'sense checked' and cleaned ahead of more in-depth reasonableness checking. At University X, reasonableness checking is undertaken through four phases.

5.2 First stage reasonableness checking

First stage reasonableness tests and corrections to the data are completed by the Administrative Officer responsible for TAS. This typically includes:

- Elimination of 'zero hour' returns (due to annual / sick leave etc.) from the raw data, and then the individual results are grouped into 'discipline groups' (groups of departments that have similar activity profiles).

- Liaising with the finance department to exclude any results for staff that are directly funded by a research grant, because direct research grant staff expenditure is excluded from the academic pay cost total to which the TAS data is applied (to avoid double counting).

- Removing time on teaching reported for Research Institutes within the University (occurring as a result of being grouped with other departments where teaching activity exists).

- Reconciliation back to HR reports that established the initial population (to ensure that all eligible submissions are included).

- Corroborating individual submissions with participants where data appears either incomplete, or not in line with departmental expectations (e.g. a high percentage of time to 'Teaching' perhaps for a week where undergraduate students are off campus).

5.3   Second stage reasonableness checking

For the second stage, the TAS data, showing the proportion of total academic time across each TAS category, is issued to Heads of Department for reasonableness testing. They are asked to review and confirm whether the data fairly represents the split of academic activity in their department / group of departments and whether this can be used to apportion academic salary costs for TRAC. Records are kept of responses and any proposals for high level adjustments are followed up as necessary.

It is not uncommon for the time allocation information to be out of line with the expectations of senior managers. It is important that effort is spent by the TRAC Oversight Group to ensure that the time allocation collections provide information that reflects the actual activities undertaken. This enables the credibility of the TRAC data and charge-out rates for publicly funded research projects.

5.4   Third stage reasonableness checking

The third stage of reasonableness checking at University X brings back the statistician, who reviews the outcome of the survey and concludes whether the collection was robust and the data is representative.

If the statistician concludes that the survey was not robust, the data cannot be used for TRAC. Reasons for a statistician concluding this would typically be a result of insufficient time allocation responses being received. It could also be that the responses received are skewed to certain parts of the University, and therefore do not provide a representative sample. In these circumstances the TRAC Oversight Group would then work with the statistician to enhance the survey method (for example, increasing the sample size, frequency of collections, etc.) and update procedures for the next collection period.

Once reasonableness testing is completed the data is passed to colleagues in the Finance Department for input to the TRAC model.

6   Using the TAS data in the TRAC model

Once the validated time allocation data is received by the Finance Department, the data is put into a format that can be input to the University's TRAC model as a cost driver. TAS data is used both as raw data and weighted data (see section 3.1.4.24 of the TRAC guidance) at different stages of the process.

> **Weighting the time allocation data**
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> Each participant's return is weighted by FTE so that the results for part-time staff do not carry the same weighting as those for full time staff.
>
> Additionally, at University X, a three-year weighted average for each discipline group is calculated by combining the current year data with that from the preceding two years. The current year receives a weighting of 3, the previous year 2 and first year is weighted at 1.
>
> As advised by the statistician, grouping by discipline group and weighting more recent data higher helps to improve the statistical validity of the result.

In the TRAC model at University X, the TAS data informs:

- academic salary cost apportionment (weighted by FTE and pay level)
- academic FTE (weighted by FTE only).

The final stage of reasonableness checking is completed at when updating TAS data in the TRAC model. The TRAC manager applies the new TAS data to last year's costs and FTE to understand the impact of the new TAS results on existing cost data for:

- the allocation of TRAC expenditure to activities, including research sponsor type
- full economic cost rates for research.

This analysis is produced so the TRAC Oversight Group can review whether there is any material impact on TRAC results at department / discipline group level. At this stage the group may choose to investigate further for particular departments.

If data at department level is considered not to be robust, the TRAC Oversight Group can implement a high level adjustment. If it chooses to do so, a record of why this has been done and what corrective action will be taken to address the relevant issue is retained.

The TRAC Manager then updates the TAS data within the new TRAC model ready to complete the TRAC submission.

7   Glossary of terms

Reference	Definition
Academic department	In the context of TRAC guidance this refers to an academic management unit. The costs of academic departments are assumed to include an allocation of central service costs, estates costs and sustainability adjustments unless the context clearly says otherwise. This management unit might actually be a department, school, group of departments with similar patterns of activities, institutional cost centre, subject area, or 'intermediary operating centre'. Depending on the costs being allocated, it might include research units or trading units.
Academic Full Time Equivalent (staff)	The full time equivalent of academic staff time.
	Where used as the denominator in the indirect and estate rates calculations, the Research FTE value is calculated as:
	• the proportion of academic staff FTE spent on research (using the percentage research time of academic staff)
	• the staff FTE dedicated to research (research assistants and fellows)
	• a proportion of the postgraduate research student number.
Annual TRAC	Submission of an Annual Transparent Approach to Costing (TRAC) return is a requirement for all UK HEIs in receipt of grant funding from the UK HE funding bodies.
Central service department	A unit within the non-academic structure. These areas are referred to in various ways, e.g. as administrative services, professional support functions, support directorates.
Discipline group	This is one of the cost groupings required under the annual TRAC process. The subject types are:
	• clinical subjects
	• laboratory-based subjects – including studio, fieldwork, laboratory
	• non-laboratory subjects – also called classroom-based or generic subjects.
Financial year	In a higher education context the financial year is the accounting period 1 August to 31 July. It is also referred to as the academic year.

full Economic Cost or fEC	This term refers to the inclusion of the sustainability adjustments (detailed in TRAC guidance section 3.2) with the expenditure reported in the consolidated financial statements. The fEC principle should be applied to the costing of research grant proposals. The Research Councils pay a fixed percentage (80% for most fund headings) of the fEC, which includes an attribution of the cost of academic staff time, and the institution's facilities, estates and indirect costs. It is important for institutions to understand the full costs of the research they carry out on a sustainable basis, recognising the need for appropriate investment in research infrastructure, including buildings, facilities, and staff.
FTE	Full Time Equivalent
HESA	Higher Education Statistics Agency. HESA collects a range of data every year UK-wide from universities, higher education colleges and other differently funded providers of higher education. This data is then provided to UK governments and higher education funding bodies to support their work in regulating and funding higher education providers. www.hesa.ac.uk
HESA academic cost centres	Cost centres are used to return staff, finance and student numbers to HESA (and student numbers to the Higher Education Students: Early Statistics survey).
HESA data	Annual statistical returns including Staff, Student, Estates Management and FSR.
Institution	Higher education institution (HEI). In this context this means a university or higher education college funded by a Funding Council.
In-year	This is a term used in relation to the time allocation survey. It is referring to a method of time allocation whereby a minimum of three returns are received from individual academic staff during a year to identify how they have spent their time across the TRAC categories.
Look back period	This term is used in the time allocation process (TRAC guidance section 3.1). It refers to the amount of time an academic has to recall what they were doing during that period in order to complete their time allocation return.
NPFT	Non-publicly funded Teaching.
O	For TRAC, 'Other' activity category (see section 1.3 for full definitions)
PGR	Postgraduate Research student.
PGT	Postgraduate Taught student.
PFT	Publicly Funded Teaching.
R	For TRAC, 'Research' activity category (see TRAC guidance section 1.3 for full definitions).
S	For TRAC, 'Support' activity category (see TRAC guidance section 1.3 for full definitions).

T	For TRAC, 'Teaching' activity category (see TRAC guidance section 1.3 for full definitions).
TAS	Time Allocation Survey.
TRAC	Transparent Approach to Costing.
TRAC Oversight Group	The management group that oversees the development and implementation of TRAC and approves the TRAC and fEC results annually.