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## **Technical and research support in the modern laboratory**

Technical and research support staff form an important part of research teams, though they attract relatively little attention in discussions of research policy. Their role has changed somewhat in the last two decades. So, too, has the way in which technical support is provided.

This document is a summary of the key findings and recommendations of a longer report that documents these changes and makes recommendations about the future provision of technical support. It was prepared by a working group chaired by Sir John Horlock, FEng, FRS, and has been endorsed by the Council of the Royal Society. The full report is available from the Royal Society.

The report is based on analysis of the available statistics, interviews with 74 individuals in 27 organisations including universities, Research Council institutes and other relevant organisations, 47 written submissions from a variety of individuals and organisations, and a seminar at which our emerging findings were presented to 24 invited participants. We are grateful to all those who contributed to the study.

### **Broad trends**

Technical and research support in research laboratories is provided by a variety of individuals whose duties include a wide range of tasks. We have concentrated on three main groups: (i) traditional technicians, (ii) scientific support staff (including experimental, technical and scientific officers) and (iii) postgraduate research assistants. Important aspects of technical support are provided also by a category of 'other' staff, and in some circumstances by postdoctoral research associates. We refer to groups (i) and (ii) as 'core' technical support staff.

Since 1980, numbers of university-funded academic staff have shown a slight overall increase, and numbers of externally funded academic staff (mostly on short-term contracts) have grown dramatically. In parallel with this, there has been a substantial decline in the number of 'core' technical support staff - long-term university-funded technicians and scientific support staff by 28% during the 1980s.

These trends reflect, in essence, two broad complementary trends: sustained pressure on overall levels of funding for Science Base research, and a marked shift towards more short-term, project-based funding from sources other than the Funding Councils<sup>Error! Bookmark not defined.</sup>. Additional and important contributory factors are the pressures arising from the Research Assessment Exercise and the rapid growth in student numbers, which affects not so much the numbers of technicians in the system as the amount of time they can allocate to research.

Technical and research support has also been seriously affected by changes in the internal dynamic of the research process, notably the increasing sophistication of experimental techniques and equipment and the increasing use of computerisation (e.g. simulation often partially replacing experimental work).

## **Role of technical and research support staff**

In a culture increasingly dominated by short-term contracts, it is vital to plan for continuity of technical support skills at departmental level. We believe that continuity of the following skills is particularly important:

- specialist design and manual skills needed to build research equipment that is not commercially available;
- advanced technical skills required to operate and maintain large, complex pieces of equipment and associated facilities such as electron microscopes;
- knowledge of the local set-up, which can save considerable time and effort in research;
- the ability to evaluate products and services in order to assume the role of 'intelligent customer'. This is important in a research environment that is increasingly seeking to buy in products and services previously provided in-house;
- effective laboratory management and safety.

## **Responses**

Universities and Research Council institutes have responded in a variety of ways to the impact of these trends. They have, for example: secured additional funds from new sources; sought to control costs (there is some feeling that the technical support function has borne a disproportionate share of cost-saving initiatives); restructured departments to seek economies of scale; centralised services such as workshops, photography, animal houses etc; sought increased efficiency in the deployment of technical support staff by assigning them to major research groups or to teams based on particular functions, rather than to specific projects or to individual researchers; and outsourced a wide variety of services.

Such responses have enabled universities and institutes to keep going. However, some of them carry a significant cost in the long-term for the creativity and the effectiveness of the Science Base. We therefore conclude that **there must be no further reduction in technical and research support**. In particular, the numbers of 'core' technical support staff must be maintained. We consider there is a real danger that any further reduction in numbers would lead to a reduction in the quality of UK scientific research (and indeed in teaching, because of the work of technicians in support of teaching).

Maintaining the level of technical and research support is at one level a matter for senior academics (pro-vice-chancellors, deans and heads of departments). But at another, it is a matter for those responsible for the health of the UK Science Base for funding bodies, to whom we address the next three recommendations.

First, we recommend that **the Funding Councils consider, with the charitable bodies in particular, how the existing funding levels for 'core' technical and research support staff can be protected.**

Second, we commend the approach of the MRC<sup>Error! Bookmark not defined.</sup> in its move towards longer-term support of major research groups. While we are strongly of the view that conventional three year, project related grants should continue (indeed they are a vital part of UK research funding), **we consider that there should also be room for the new MRC type of funding** (by the other Research Councils), **to provide more stability for 'core' technical and research support staff.**

Third, we recommend that **the Funding Councils review the implications of the Research Assessment Exercises in relation to our major recommendation for increased stability of funding for technical and research support staff.** Departments must not try to maximise their RAE performance by eroding the technical and research support staff cadre any further.

## **Career development and training**

To achieve the objective of establishing and maintaining a 'core' group with relevant expertise requires a career structure and training for all levels of technical and research support staff.

Many traditional technicians and scientific support staff are covered by the grade classifications of the 1989 Blue Book, whereas postgraduate research assistants are usually on academic-related scales. We are strongly of the view that **a more integrated approach to career prospects and training of all technical and research support staff is required.** This should involve:

- (i) **Revision of the Blue Book**, to reflect the changing role of technical support staff. This is a matter for CVCP in discussion with the trade unions.
- (ii) **A new approach to technical training** for university support staff, possibly through a regional or even national educational ladder, that is explicitly technical.
- (iii) **The introduction of university training courses** for technical support staff, to supplement those available in technical colleges and further education colleges.

It is likely that the overall provision of technical and research support will continue to include a considerable body of postgraduate research assistants on short-term contracts. Such staff are entitled to have their career prospects and training fully considered. The CVCP and the main funding bodies (including the Royal Society) published a Concordat last year describing agreed principles of good practice in the management of short-term contract research staff. Those employing postgraduate research assistants should consider how to apply those principles to their own situations, so that all technical and research support staff are effectively managed and are enabled to contribute fully to the research effort.

## **Health and safety**

Finally **we must express our concern at the bureaucracy that has grown up in relation to health and safety.** In no way would we wish to de-emphasise health and safety, but we have experienced the growth of paperwork associated with

regulation in this area. Much of this bureaucratic load has fallen on technical and research support staff, and this has inevitably reduced their support activity and the overall output of high quality UK research. We recommend that **Government institutes a review of this bureaucracy, along the lines of the DTI efforts in reducing red tape for industry.**

A copy of the full report can be purchased from the Royal Society, from Publications Sales priced at £12.50 (telephone 0171 451 2645).

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## **Footnotes**

<sup>1</sup>We refer to the Higher Education Funding Councils for Universities in England, Wales, Scotland and Northern Ireland as the Funding Councils. They are separate and distinct from the Research Councils.

<sup>2</sup> The MRC has developed new forms of responsive mode longer-term funding for universities including Centre Grants and Co-operative Group Grants. The former are to support multidisciplinary, research-centre environments in partnership with universities whereas the latter are aimed at establishing a critical research mass usually within a single university.