

# **Evaluation of *Knowledge and Innovation Reforms***

Submission from

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## **Introduction**

This submission is in four sections. The first part discusses the impact on the sector of *Knowledge and Innovation (K&I)* and the consequent changes. The second part addresses implementation issues of the RTS and IGS that have severely impacted on Deakin University. The third part addresses the *Key Consultation Questions* raised in the Issues Paper on the DEST website. The final section addresses other outstanding issues.

## **1. Impact of *Knowledge and Innovation***

### *General comments*

The intentions of *Knowledge and Innovation* were generally accepted by the sector when the paper was released. In fact the paper would have been accepted without the sweeping statements on poor performance of the sector and the contrived ‘need for reform’ case that lacked hard evidence. However the implementation of performance-based funding in accordance with the principles in *Knowledge and Innovation* has fallen so far short of the principles and intentions that it is impossible at this stage to identify improvements related to the funding principles.

The value of performance-based funding as a way of achieving change and improvement is well known. The intention of the IGS is good, and the intention to increase the flexibility of universities in research management is welcome. The RTS is also based on sound principles. Provided the implementation problems can be eliminated, the new funding processes could offer significant improvements over earlier processes.

Major problems with implementation of the IGS and RTS include

- the ‘starting position’ of a university in the funding cycles, which was arbitrary in many cases and did not reflect recent performance; given the way the formulae work this can be a permanent disadvantage;
- the time lag between improved performance and its recognition in the data input to the formulae, which seriously reduces the impact of performance-based funding;
- the flawed implementation of the RTS which, far from being “readily intelligible to researchers, institutions, students and the wider community”, has led to outcomes that in many cases are counter-intuitive with better performance linked to lower funding and lower performance being rewarded;
- the funding caps, introduced with the stated intention of preventing large drops in funding but which have actually prevented improved performance from being rewarded.

*Summary in the DEST Issues Paper*

Appendix A of the Issues Paper provided by DEST summarises the *Knowledge and Innovation* reforms, and it is convenient to look at the impact of *K&I* under those headings.

**(i) A strengthened Australian Research Council (ARC) and an invigorated national competitive grants system.**

This was widely applauded by the sector. Unfortunately the restructuring of the ARC has not gone as smoothly as was hoped, and the ARC has been very difficult to deal with while their restructuring has taken place. A new problem has emerged. A major advantage for the sector in the earlier structure, when almost all the senior positions were held by university staff on a part-time basis, has become apparent: the informal communication paths created by these part-time positions were very effective. The growth in full-time ARC positions has eliminated most of the informal communication; the ARC is less informed about university issues and problems, and there is a strong impression that they are less interested in them.

The ARC used to have a strong interest in research training, both at doctoral and post-doctoral level. The focus has moved much more to excellent research, which certainly deserves attention but not at the expense of neglecting the interests of research students and Early Career Researchers. The latter are being badly affected by ARC changes, such as those restricting the number of concurrent grants that a user can hold, that are reducing the opportunities for mentoring.

**(ii) Performance-based funding for research student places and research activity in universities, with allocative formulae and transitional arrangements designed to ensure that all universities are able to compete effectively under the new arrangements**

As discussed elsewhere, the funding principles set out in *K&I* have given rise to little concern. However the implementation of the principles has been flawed, so that the actual funding has not reflected the principles. The allocation formula has the right components apart from the element linked to Commonwealth-funded HDR load, which provides a feedback path that can reduce the stability of the allocative mechanism. This is discussed further in part 3, below. The use of research publications has problems with it, but publications are an important output measure that should be retained unchanged until a satisfactory mechanism for incorporating an assessment of quality is devised.

The advantages, if any, of the RTS are completely masked by the badly flawed implementation which has re-distributed research training funds in ways that are often bizarre. Administrative complexity has increased alarmingly in institutions and also in DEST, with no apparent benefits.

RIBG is essentially unchanged. This is an important contribution towards research infrastructure in universities, and must be continued.

**(iii) The establishment of a broad quality verification framework supported by Research and Research Training Management Plans**

The preparation of Research and Research Training Management Plans, which later became Research and Research Training Management Reports, has demanded much additional work by institutions. The purpose of these documents has not been clearly defined by the guidelines, which have demanded little performance data that are not already available in other data collections or in the public domain.

It is not clear whether the basic idea of RRTMRs was good but got lost in the implementation process, or if this is an unnecessary administrative burden on universities. It is difficult to see how these Plans or Reports have added value to research management. It is relevant to the future of these reports that the reporting and accountability now routinely required by many university governing bodies is probably more effective than RRTMRs and certainly receives more scrutiny.

#### **(iv) A collaborative research programme to address the needs of rural and regional communities**

The financial assistance available through this program – some \$16m in all over three years – is negligible, and most of the eligible institutions opted out of it in favour of other strategies. The \$10m assistance through the ARC schemes was ephemeral from the start, since significantly more than this was already flowing to the regions through ARC schemes. The \$2m a year to assist 13 universities avoid “a deterioration in its research funding from its starting position” is less than 0.2% of the total funding affected by *K&I*!

## **2. Implementation issues and Deakin University**

### *Deakin's starting position in the new process*

The funding processes have a high degree of feedback, with funding in a year being strongly influenced by the funding history. This makes the outcomes very sensitive to where an institution enters the process. Deakin University had 545 HDR students prior to the introduction of the new process, and received 301 HECS exemptions a year. The 301 HECS exemptions, which came about through an opaque and non-intuitive process bearing little relation to research training activity or success in the University, suddenly became the ‘correct’ number of HDR students in the new scheme and Deakin entered the funding cycles with a major handicap. Since the funding caps restrict improvement in funding to no more than 5% of the total received in the previous year, this effectively locked Deakin at this level until 2005 regardless of performance.

### *Time lag between performance and reward*

In the implementation of the principles, too much account has been taken of the need avoid fluctuations in funding. This is an important practical matter for institutional planning, of course, but it has dominated the implementation to the extent that the funding reflects more of funding history than performance. To damp out fluctuations performance data are averaged over two years so that, for example, funds distributed for 2003 are based on average performance in 2000 and 2001. This time lag, approaching the time to complete a higher degree by research, separates performance from reward.

We suggest that to strengthen the reward for better performance only the most recent performance data should be used in the formula, rather than averaging performance over several years. Increased fluctuations in funding driven by fluctuations in performance, which can cause problems when funding falls, can be handled by the mechanism to replace capping, discussed below.

### *Misapplication of capping*

Capping was introduced to limit variations in funding, but this is a peculiar indirect approach. The institutions in difficulty are those where there is a sharp *reduction* in funding from the previous year, but rather than address this directly the peculiarly Australian solution was adopted of attacking the tall poppies – those who are doing better – by preventing significant *increases* in funding for other institutions. The result is that increased funding justified by performance is restricted while corresponding falls in funding are not. Making the cap relative to past performance is also perverse, ensuring that institutions with a low starting-point in the funding cycle are held at that level until the capping is lifted. The effect of this in the case of Deakin University has been disastrous: just looking at funding for 2003 without considering the cumulative effects of previous years Deakin's IGS funding for 2003 should be 141% of that for 2002 and the RTS funding should be 110% of that for 2002. In both cases funding for 2003 was restricted to 105% of that for 2002 by the caps.

A much better process than capping is to apply a funding *floor* rather than a funding *cap*. A simple way to achieve this would be to prevent any institution's funding from dropping below,

say, 90%, of that for the previous year, using funds withheld for this purpose from the formula distribution. This would require a simple two-stage iteration that is far less complex than, for example, the current RTS process.

### 3. Key Consultation Questions

This section provides comments against the questions raised in the DEST Issues Paper. It consists of the Questions section of the Paper, in the small font, with responses and comments inserted in the larger font.

#### Evaluation Context:

- Are the funding principles for research (excellence; institutional autonomy and responsiveness; student choice; linkage and collaboration; and transparency, contestability and accountability) still relevant?

The principles are generally unexceptional.

- Should the existing principles be amended in any way?

The principle of institutional autonomy, which is an important element in maintaining diversity in the research system, can only be maintained if institutions have discretionary funds for research. The development of national research priorities and associated conditions on national funding councils has the potential to restrict this autonomy. The principle in *K&I* should be reaffirmed, and an intention to maintain some condition-free research funding to institutions stated.

The principle of *student choice* as stated in *K&I* is very one-sided in favour of students. A student should indeed be able to approach the institution of their choice with a proposal for a research project and supervision arrangements, but there must be support from the institution before the project goes ahead at that institution.

- Are there new principles emerging which should be taken into account?

#### Overarching Issues for Performance-based Funding:

- Has the introduction of performance-based funding reforms had the desired effect of implementing the goals outlined in *Knowledge and Innovation*?

Not reliably. As noted elsewhere in this submission, unsatisfactory aspects of the implementation, rather than the principles, are leading to funding for some institutions not reflecting their performance.

- Do the *Knowledge and Innovation* reforms encourage the attraction and retention of high-performing research staff?

There have been too many changes to the system to assess this at this stage.

- Do the *Knowledge and Innovation* reforms allow the possibility of an individual institution's markedly improving its funding position in a reasonable time (say 5 years) by good research management?

No. As noted elsewhere in this submission, the combination of funding caps, the time lag between actual performance and when it appears in the input to the formulae, and the lag introduced by averaging performance over two years is making this time much longer than 5 years. Deakin University in particular has been very badly treated by this process, with just the cumulative effect of the capping being many millions of dollars.

- Has beneficial concentration of research effort occurred?

Research concentration, with corresponding benefits, has occurred in many universities but most of these were working on this for years before *K&I* (e.g. Deakin University) and it cannot be asserted that *K&I* has made much difference.

- Does the Knowledge and Innovation package and its implementation at the institutional level encourage the development of pockets of international level research activity at the majority of universities?  
International level research activity has always been the goal of good research management – it is the only standard against which to judge research. There is no evidence that *K&I* has led to growth in research at the ‘international level’.
- Are the current block funding formulae encouraging universities to move in the directions laid out in *Knowledge and Innovation*?  
Performance-based funding is well established as an effective way of achieving better performance in the parameters that drive the funding. As would be expected, *K&I* has had effect to the extent that the flawed implementation has allowed.
- What changes should be made to the formulae for current performance-based block funded schemes?  
Outcomes of the formulae are for many universities counter-intuitive.  
Changes are needed to achieve what *K&I* said would happen:  
The processes for allocating funds for research and research training should be competitive in nature, as simple as possible to administer, and be readily intelligible to researchers, institutions, students and the wider community.
  - Should the formulae be simplified and, if so, how?  
The implementation process must be corrected, so that the intentions of *K&I* quoted above are achieved.
  - Should the double weighting for national competitive grant funds be restored?  
The current uniform weighting in the formula is satisfactory. NCG funds should be recognised as based on the most effective assessment of researchers and research outcomes, but this is already achieved by the link to RIBG, and the indirect link to other schemes such as ARC Centres of Excellence and LIEF where success generally reflects the involvement of ARC past winners.
  - Should the research publications element be removed from the formulae?  
This element should be retained. Since the publications element was included in performance-based funding, well before *K&I*, there has been a marked growth in research output across the sector. This element is also important in giving recognition to the humanities and social sciences areas that feel marginalised by the weight given to the research income element.
  - Should the research publications element of the formulae include quality measures?  
It is impossible to argue against this in principle. However the cost of such measures in money and time is likely to be significant, and any move in this direction requires care. Efforts should be made to devise quality measures with administrative costs in proportion to the funds distributed by this element, and these measures should not be introduced until a process satisfactory in all aspects has been developed.
  - Should performance in block funding mechanisms be measured at university level or at department/faculty level or areas of research strength?  
The *K&I* principles emphasise the importance of institutional diversity and flexibility. There is a risk that this would be lost if the national focus is on performance of departments or research strengths. The best way to recognise areas of research strength is through centres of excellence programs and individual research grants.
  - Should Australia adopt an RAE-type mechanism to allocate block funds?  
Not yet, if at all. The RAE is still evolving, and there is little evidence that it has brought about changes in line with the *K&I* aims. A particular problem is emerging with the RAE as the number of 5-star ratings continues to increase.

- Should there be an increased proportion of research funded through granting councils?  
One cannot argue against additional funding for granting councils in principle. However bringing this about by a transfer from institutional grants will lead to major problems such as loss of institutional flexibility and autonomy, inability to fund HDR projects, and inability to help early career researchers develop research careers. The ARC has shown no interest in the first two of these issues, and its attempts to address the last mentioned have been ineffective.
- Should granting councils be funded to allow them to cover the full cost of the research that they support?  
There are several issues with the operation of the granting councils that can only be addressed with additional funds, but the choice of which particular issues should be tackled depends on the level of additional funding provided. Arguably one of the worst features of the ARC and NHMRC grants schemes is the low success rate, which is well below the accepted minimum level of about 35% where peer-review schemes start to work effectively. If and when additional funding becomes available, increasing the success rate to at least 35% should take priority over funding researchers salaries.
- Should the incentives for universities to collaborate with outside bodies be strengthened?  
Adequate incentives exist now, but some impediments should be removed. One is the expectation in many collaborative funding schemes that participant institutions can make substantial contributions to the projects: a more realistic attitude to the ability of institutions to contribute is needed
- Are the requirements for universities to contribute funds to collaboratively funded programs leading them to inadequately support other research projects?  
Yes, and the requirements also restrict the number of collaboratively funded projects.
- Should universities be required to account for how they use research funds in a more detailed way than presently?  
Accountability should be in terms of the aims of the project, in the same way that deliverables are the basis for assessing performance in a contract. However this approach requires that the project is funded at the level sought, or a reduced set of objectives is negotiated if it is funded at a lower level than requested. It is difficult to see value in requiring a more detailed breakdown of expenditure, but increased focus on outcomes would have value.
- Should the 5% capping of institutional gains through the RTS and IGS continue?  
No. The problem to be addressed is a fluctuation in performance leading to a sudden drop in funding, and this should be tackled directly via a funding 'floor' rather than a cap. Capping is a peculiarly Australian approach – fix everything by attacking the tall poppies – that has nothing to recommend it. This is addressed elsewhere in this submission.
- How useful is the HERDC, including categories under which data are provided?  
An important use for national data is in benchmarking – nationally in the international arena but particularly between Australian institutions. The current collection should be critiqued from this perspective, and the areas and categories adjusted where improvements are possible. The collection provides the data for the resource allocation processes, which remains necessary as long as performance-based funding continues, but this is a subset of benchmarking activity.
- Are there more viable data alternatives for the system as a whole?  
Most research offices use a much bigger set of performance indices for internal purposes than those collected nationally. However the present elements of the national collection, subject to review as suggested in the

previous point and subject also to the eventual development of suitable quality measures for publications, are adequate for most purposes.

A case can be made for data that enable issues to be tracked over time, but this is complex and difficult to coordinate. For example, much was made in the work leading to *K&I* about the progress (or lack of it) of HDR students through the system and the claimed high drop-out rate. Many of the claims made were claims only, and impossible to verify in the absence of data identifying particular student cohorts. Thus many of the drop-outs from masters degrees turned out not to be drop-outs at all but students who had transferred their enrolment to doctoral programs without completing the masters degree.

- Have the current arrangements given sufficient encouragement to universities to support the activities of early career researchers, or those who are seeking to re-establish research careers?

ECRs need substantial assistance to establish a research career, and the need for help has grown over the last decade or so as demands for teaching and other activities have increased through the squeeze on funds. *K&I* has done nothing to improve the lot or prospects of ECRs. There is little that can be done nationally. Supporting ECRs who by definition have a limited performance record involves assessing potential, which can only be done within institutions. One of the strongest arguments for discretionary funding through institutional block grants is that this is the only funding available to start up and nurture the ECRs that we need to form the next generation of researchers.

It is worth noting that the current ARC practice of limiting the number of concurrent grants held by a researcher has virtually eliminated mentoring of ECRs in ARC grants, whereby an experienced researcher and an ECR combine in an application. By the time the experienced researcher has funded his or her own research activities there is no capacity to join in additional grant applications in a mentor role.

### **Research Training Scheme (RTS):**

- Has the RTS succeeded in encouraging a focus on the quality of student supervision?  
Probably, but it is only one factor in a growing focus on the quality of supervision that started 15 years ago.
- Has the allocation method had the desired effect of placing research students into research environments which provide the best research training and research infrastructure support?  
Some universities are focusing research students in areas of research concentration, but this is not particularly new and relates more to the growing emphasis on research concentrations prior to *K&I*. Whether this move has led to better research training is much harder to determine, and it is too early yet to try.
- Has the RTS succeeded in concentrating research training in areas of excellence?  
This is difficult to determine at this stage. The RRTMRs could perhaps have provided information on this, but in the main the wrong questions have been asked in the RRTMR guidelines (e.g. concentrating arbitrarily on the traditional discipline areas rather than on each institution's areas of excellence).
- Have the funding arrangements provoked a shift in students between masters and doctorates?  
Probably not – a shift has been apparent for at least 15 years. Much of the change follows changing attitudes in business and industry, where it is now recognised that the additional time for a doctorate over a masters degree delivers a much better outcome.

- Should the time allowed for a full-time student undertaking a doctorate be increased from four to five years?  
4 years effective full-time is sufficient for doctorates. However the full 4 years is needed and the standard scholarship duration of 3.5 years is inadequate. Too many students are running out of financial support at the critical stage of writing the thesis.  
There is significant support for a proposal to increase the time for masters degrees from 2 years to 3 years.
- Has the use of similar formulae by institutions to internally allocate funding produced any undesirable side effects?  
Many institutions – possibly more than university staff realise – allocate funds internally using approaches that differ from the national formulae and suit their circumstances better. This is a matter for individual institutions, and funding relativities within an institution cannot be blamed on the national process.
- Has there been any impact on part-time and mature age students?  
No impact has yet been seen at Deakin University, where half the students are part-time and the average age of doctoral students is 40. Impact, if any, has been small and will only become apparent after a long stable period.
- Has there been any impact on granting leave of absence, suspending candidature or allowing students to change from full-time to part-time study?  
There has been no impact on these matters at Deakin University.
- With regard to the formula for the RTS:
  - Is it too complex?  
The implementation is too complex and the results unpredictable and non-intuitive.
  - Should the separations pool mechanism be retained?  
No. From the outset it has been apparent that a process that seeks to administer 21,500 university places nationally at the level of a single place will be highly inefficient and difficult to manage.
  - Should funding adjustments continue to be made on a semester basis?  
No – this is further micro-management that adds to the administrative burden without adding value.
  - What changes, if any, should be made to the RTS formula itself?  
The formula is adequate to drive funding for research training. The link between performance and reward should be strengthened, and the cap on improved funding should be replaced by a floor limiting sudden drops in funding. These points are discussed elsewhere in this submission.
  - Should international research student completions be treated equally as local research student completions?  
Yes – completions provide a good measure of effective research training, and the institution that offers effective research training is the one that should receive the students. There is no basis for restricting the categories of research students that are counted in such a measure.
- What alternative approaches could be adopted to fund research training?  
While we generally support performance-based funding, it is difficult to see who has benefited from the introduction of the RTS. The most significant effect on students has probably been the reduction in the total number of HDR places. The most significant effects on institutions relates to the number of well-performing universities who have lost funds and a corresponding number of poor performers who have received additional funds. Thus on pragmatic grounds there is strong temptation to argue for a return to the previous system, where the matter was dealt with by people at profile discussions rather than by misapplied formulae.

However since the funding principles are widely accepted it is probably worth a further attempt at trying to implement them correctly. Unfortunately the limited time to prepare this submission does not allow for modelling new implementations, even though for the first time national data have been made available for the purpose.

### **Institutional Grants Scheme (IGS):**

- Is the IGS achieving its stated objectives of increasing institutions' flexibility and autonomy?  
We cannot speak for other institutions. However Deakin University is of the view that our flexibility and autonomy would have been increased if we have received the funding recommended by the formula, rather than the actual funds that have been severely constrained by the 5% funding cap.
- What changes should be made to the IGS formula?  
The HDR load element introduces an undesirable feedback loop into the overall funding process, and this should be changed. This link to research training in the IGS is odd: costs associated with research students should all be met through the RTS. The answer may be to change the balance of funding between the two schemes and eliminate this unsatisfactory parameter from the IGS formula.

### **Research Infrastructure Block Grants (RIBG) and related issues:**

- Is the use of different formulae for IGS and RIBG unnecessarily confusing? Should only one formula be used?  
IGS and RIBG fund different things. According to *K&I*  
The Institutional Grants Scheme (IGS) will support the general fabric of institutions' research and research training activities, and assist institutions in responding flexibly to their environment in accordance with their own strategic judgements.  
*K&I* is less specific about the purpose of RIBG, but according to the RIBG Guidelines (DEST, December 2002)  
The primary objective of the RIBG Scheme is to meet project-related infrastructure costs associated with Australian Competitive Grants.  
These purposes are distinct and sensible, and it is appropriate that they are funded on different bases.
- Should RIBG funds be directly attached to competitive grants? If so, how?  
This is critically important infrastructure funding and it must be available to the institution as an aggregated sum if it is to be used effectively, rather than to individual grantees.

### **Encouragement of strategic planning verification of research and research training quality at the institutional level:**

- Has this reporting requirement produced positive results by encouraging a more strategic approach?  
Deakin University adopted its current research strategies before *K&I*, and the results can be seen in performance from 1997.
- Is further streamlining of the Research and Research Training Management Reports (RRTMRs) appropriate?  
RRTMRs have proved of little value inside or outside the institutions. Their intended purpose was not made clear, and is unclear. The data collected were in the main reported before in other collections, or were in the public domain. The RRTMR has increased the work in institutions and in DEST, and has added no value to research management.
- What alternative approaches could be taken to meet the public accountability objectives of the RRTMRs?  
As noted above, public accountability requirements are met by other data collections, together with the surveys and reviews that are always in progress. Public accountability through institutional governing bodies has also increased markedly in recent years, and this is a more effective way

achieving a proper level of scrutiny, which is clearly beyond the capacity of DEST.

### **Regional Support Package:**

- Should the regional support package be continued beyond 2004, taking into account the role and contribution of regional universities to Australia's science and innovation system?

The regional support package guaranteed \$10 million to the regional institutions through ARC Linkage grants and \$2 million a year for three years to prevent their block grants falling below pre-*K&I* levels. The indications are that the assistance through the Linkage program has made little difference to regional success in the program; advice on this should be sought from the ARC and an assessment made.

A scheme to assist selected institutions to hold their block grants at or above a historic level can only have a finite lifetime as the 'reference' level for funding loses contemporary relevance. This element of the scheme should be discontinued. An approach for continuing assistance is suggested below.

- Should the eligibility criteria for regional assistance be reviewed?

The *Crossroads* review has taken a different approach to identifying 'regional' institutions. A common definition is needed.

- What alternative mechanisms for support (other than operating grant funding) should be considered?

Regional institutions do need proper recognition of their additional costs in all activities, and this is acknowledged in the *Crossroads* review. However assistance through biasing the outcomes of a national competitive grants scheme is not very satisfactory, and neither is maintaining funding at a historical level in a changing environment.

We suggest that a better approach would be to weight elements of the funding formulae to compensate for regional difficulties. For example non-NCG income could be weighted in the funding formulae by, say, 1.2 in recognition that local funding for research is more difficult to obtain in the regions.

### **Contestability of funding for the Institute of Advanced Studies (IAS) of the Australian National University:**

- What have been the benefits of this arrangement and what have been the impacts overall for the IAS?

Participation by the IAS in the last ARC grants round had a dramatic effect on the rest of the sector because of their high success rate. However the high success rate derives partly from the fact that, being new to the scheme, few of their researchers were affected by the restriction on the number of concurrent grants that can be held.

- What are the implications of these arrangements for the higher education sector as a whole?

The perturbation from the introduction of the IAS into these schemes is likely to fade over the next year or so, and the sector will adapt to the new arrangements.

## **4. Other issues**

### *HDR load in the system*

The implementation of *Knowledge and Innovation* has involved a deliberate reduction in the total number of HDR places funded by the Commonwealth. As this has been taking place the number of students in other categories has been increasing. This change in the university student environment has come about with no discussion of the strategy or its consequences. The balance

of student numbers is important and should be a matter of deliberate policy rather than just the consequence of other decisions. It is not clear whether the reduction in HDR places was formally part of the *K&I* reforms or the result of separate policy decisions, but in any event this is the appropriate time to consider what the balance should be.

In 2001 the HDR load represented about 5% of total student load, which is low in comparison with Australia's international competitors. The short time in which to respond to the present evaluation makes it difficult to present an argued case for an HDR component of a particular size, but we suggest

- the HDR load should be linked to the size of the total student load in the system by adopting a particular ratio;
- a working party with appropriate membership should be set up to develop a discussion paper on the size of the HDR component of student load, taking account of practices in competitor countries.

#### *Assessing performance in research and research training*

Acceptance of performance-based funding relies on general agreement on the performance measures used. Acceptance of the current measures is far from universal, with those from the non laboratory-based disciplines concerned about the high weight given to research income in the formulae. Further, the publications count is seen as an unsatisfactory substitute for a proper assessment of the quality of research output. HDR completions provide a valid output measure of research training, but the weighting of masters and doctoral degrees and the reference to discipline weights in the RTS have complicated this performance measure.

It is important for the health of the sector that attempts are made to find more acceptable performance measures that take proper account of quality but are economically feasible to implement.

#### *The balance between institutional block grants and other more directed competitive funding*

This is an important matter that needs more open and careful discussion than it has had heretofore. Both forms of funding are essential – the block grants because without them the universities cannot manage issues such as those around research training and early career researchers, and individual competitive grants to promote the quality of research by individuals and groups. While research funding is scarce the temptation to play with the funding balance is strong, but it is important that changes are not made before the full range of issues is examined. These include the importance and nature of research training in universities. Not all research is suitable for higher degree projects, the outcomes of which will have a lasting effects on careers – for example high risk projects and commercially sensitive projects are best avoided. Thus the range of projects supported by the granting councils is greater than those suitable for higher degree projects, and a proper balance of funding sources is needed to meet the needs of both research and research training.