GETTING TO GRIPS WITH RESEARCH & KNOWLEDGE TRANSFER

RESOURCES FOR UK HIGHER EDUCATION INSTITUTIONS

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for Higher Education

CUC
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FOREWORD

As the governance of universities and higher education (HE) colleges in the UK evolves, there are major implications for members of governing bodies: increasing expectations about how they undertake their role; a greater focus on measuring institutional performance with associated implications for information and strategy; coming to terms with an increasingly complex environment in which governance takes place; and so on. All this means that governors (particularly new ones) need to be well prepared for their roles and the challenges they face, so that they can contribute effectively to their boards from the outset.

To support governors in this challenge, a set of materials has been commissioned by the Leadership Foundation for Higher Education (LFHE) and the Committee of University Chairs[1] (CUC) to help governors get to grips with key areas of concern. Produced with financial support from the UK HE funding bodies (coordinated through Hefce), in 2009 five volumes were published on finance, risk, human resources, estates and audit. These were well received, and as a result a second series has been commissioned on: internationalisation; academic and student issues; and - this one - research and knowledge transfer[2].

In an easy-to-read format, this particular volume is intended to provide the core information that *all governors* need for a basic understanding of their responsibilities in relation to research and knowledge transfer. It *is not* intended to provide specialist information, although references to such material are provided.

To support the text there are quotations from various sources including governors[3], self-challenge questions, suggested activities, and critical incidents called 'governors' dilemmas'. The content and quotations - some provocative - do not represent any 'agreed' view of the topic, but are rather designed to illustrate different opinions, and to encourage self-reflection, debate, and critical thinking. Although we expect that readers will agree with most of what is written, we also hope that some things will be contested.

The material is intended to be used in different ways: as a learning resource for individual governors; by HEIs as part of their own in-house governor development activities; or as web-based material (see www.lfhe.ac.uk/governance). The text does not consider the broader issues concerning the overall responsibilities of governors and how their effectiveness might be determined. Readers interested in this should consult an earlier companion volume called 'Getting to Grips with Being a Governor'[4].

A note on terminology and diversity

As most governors know, governance in UK HE is complicated by the use of different terms for similar functions, so for simplicity some key terms have been standardised throughout all the volumes in the series. The terms 'governing body' and 'board' are used generically to include: the governing bodies of post-1992 HEIs; the councils of pre-1992 universities; and courts in Scotland. Similarly the word 'governor' is used to indicate a member of these

1 For details see www.lfhe.ac.uk and www.bcu.ac.uk/cuc
2 All these publications are available from www.lfhe.ac.uk/governance
3 The quotations have been obtained from a wide range of sources, including personal meetings with governors. Where the professional background of the source governor is known it has been provided.
4 Guild HE, (2006), Getting to Grips With Being a Governor, see www.lfhe.ac.uk/governance

different bodies, 'chair' is the term for the person who convenes governing body meetings, 'head of institution' is used for the vice-chancellor or principal, and 'executive' for members of the senior management team or equivalent. Finally, the abbreviation 'HEI' is used as the widely accepted shorthand for 'higher education institution'.

It is also important to recognise that the UK HE system is very diverse, and this means that some aspects of what is effective governance in one HEI may not necessarily be so in another. Moreover, different governors will have legitimately different views on many of the issues presented in this material, as will heads of institutions and other senior managers. It follows that if after working through the text important issues are raised for governors about practice in their own HEI (and we hope they will be), then they may need to obtain more detailed information from the clerk or secretary of their board or its chair.

Because HE is now the responsibility of the devolved administrations within the UK, another aspect of diversity is the need to recognise differences in governance arrangements in HEIs in England, Scotland, Wales and Northern Ireland. Where no separate discussion of the different jurisdictions occurs, readers can assume that the content applies to all four higher education systems.

How this volume is organised

To provide an overview for governors new to the topic, the two initial chapters consider the fundamental question of why research and knowledge transfer are important to HE, and summarises the national picture about how it is organised and funded. Chapter 3 then reviews how research quality is assessed and the future changes that are planned. Chapter 4 concentrates on the crucial issue of the financial sustainability of research (which has been getting a great deal of attention); and Chapter 5 looks in more detail at knowledge transfer. Chapter 6 then pulls the previous content together and provides an overview of the responsibilities of governing bodies in this field - so if governors only want to read one chapter then that is the one to choose! Finally, Chapter 7 briefly looks ahead and identifies some key future challenges for governors in this area.

Disclaimer

The inevitable disclaimer! Although every care has been taken to try and ensure the accuracy of the content of this material, if in doubt about a specific issue governors should always check with the clerk or secretary of their own board.

Happy reading!

Allan Schofield
Series Editor
Spring 2011

CONTENTS

TEN KEY ISSUES FOR GOVERNORS ON RESEARCH AND KNOWLEDGE TRANSFER

1 The future funding of research is likely to present major challenges to HEIs, and it is crucial that governing bodies are realistic in the review and approval of research strategies.

SEE CHAPTERS 4 & 6 ▶

2 Governing bodies must be clear about the scope and limits of their responsibility for research and knowledge transfer, but this should include appropriate oversight of the conduct of research governance.

SEE CHAPTERS 4 & 6 ▶

3 Governing bodies should receive regular reports about the achievement of the research and knowledge transfer strategy, at least annually.

SEE CHAPTER 6 ▶

4 Governing bodies need to take a proactive approach to ensuring institution-wide financial sustainability for research, and develop measures assessing the extent to which this is achieved[5].

SEE CHAPTER 6 ▶

5 Governing bodies need to ensure that research and knowledge transfer operate on a full economic cost basis and that satisfactory data is available to assess such costs.

SEE CHAPTER 4 ▶

6 Governing bodies need to ensure sound HR practice in relation to the recruitment, reward, development and review of the research workforce.

SEE CHAPTER 6 ▶

7 Governing bodies need to ensure that effective policies are in place concerning the application of intellectual property.

SEE CHAPTER 5 ▶

8 Governing bodies need to be realistic about the commercial benefits of knowledge transfer, and accept that in many cases social and community benefits may be more important.

SEE CHAPTER 5 ▶

9 Commercially oriented knowledge transfer brings with it potential risks and liabilities, and governing bodies need to determine their risk appetite and ensure that effective governance is in place.

SEE CHAPTER 5 ▶

10 The future environment for research and knowledge transfer will become much more volatile, and governing bodies will need to devote more scrutiny to it than previously.

SEE CHAPTER 7 ▶

5 Based on the recommendation of the 'Wakeham Report': Universities UK/RCUK, (2010), Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions, at www.universitiesuk.ac.uk/Publications

1. WHY ARE RESEARCH AND KNOWLEDGE TRANSFER IMPORTANT IN UK HIGHER EDUCATION?

1.1 Such a seemingly simple question, whose answer might appear self-evident to all those involved in research in HEIs! However, this volume is being written at a time when research funding is subject to the most rigorous scrutiny, so the question raises issues of fundamental importance to higher education (HE). As a governor with "ultimate responsibility" for all matters in your HEI[6] it's essential you have a clear idea of why research and knowledge transfer are important if you are to be involved in approving and monitoring an institutional strategy in which they may play a central part. Moreover, some HEIs are successful despite being relatively inactive in these areas, so the place and importance of research and knowledge transfer cannot simply be assumed.

1.2 This chapter provides a brief overview of some of the key issues in understanding the importance of research and knowledge transfer, including: what is meant by the terms; how research has developed; the reasons why HEIs undertake research; and the link between research and teaching. It also notes the comments of those who are critical of the way that research occurs in some parts of HE.

What are research, scholarship and knowledge transfer?

1.3 The terms research and knowledge transfer, and the associated idea of scholarship, can be used in different ways, so it may be helpful to set out what they are typically taken to mean.

"When I became a governor I was amazed by the variety of research being undertaken in the university."

(EXTERNAL GOVERNOR OF A RUSSELL GROUP UNIVERSITY)

1.4 **Research** is generally about advancing the frontiers of knowledge, and a previous Research Assessment Exercise (see Chapter 3) defined research as original investigation undertaken to gain knowledge and understanding. While scientific and laboratory based models of research dominate much current policy, research in the arts, humanities and social sciences tends to follow a different approach, which is more commonly an individual (rather than a team) activity, and is often library or desk based. This means that cutting-edge research in these areas can often be done without substantial external funding. There are also other models of research, for example in the creative and practice-based disciplines.

1.5 **Knowledge transfer** includes a range of activity usually directed at producing practical outcomes, often - but not necessarily - stemming from research. These can range widely, but typically include: consultancy and services to industry; the exploitation of intellectual property - IP (for example through patents); the creation of spin-out companies; facilitating knowledge exchange; the development of science and technology parks; supporting technology applications in local businesses; and outreach work with the community. These last two make the point that not all knowledge transfer concerns income generation or commercialisation. Put together, all these activities are sometimes seen as providing the 'third leg' of academic activity. Amongst those who are professionally involved in this area, there is a debate about

6 See the CUC, (2009), Governance Code of Practice in the Guide for Members of Governing Bodies of UK Higher Education Institutions, at www.bcu.ac.uk/cuc The Guide sets out the definitive responsibilities of governors, and is not duplicated in this material but is cross-referred to where necessary.

which term is best used to describe this activity: knowledge transfer (the established term) or knowledge exchange. The former is used here simply because it is the more recognised description.

1.6 **Scholarship** is a widely used term, but may not be well defined. Generally it is the requirement for all academic staff to keep up-to-date and maintain an interest in existing sources of relevant knowledge. There is often a social dimension to scholarship, including active engagement with peers, and accepting academic norms and values. Scholarship in this sense is not the same as research - although it may be related to it in the humanities and arts. Many would argue that scholarship is a necessary underpinning to both good teaching and good research, but both are sometimes done without it.

SUGGESTED TASK

When considering HR strategies in your HEI, has the governing body addressed the question: 'what minimum level of scholarship might be expected of all academic staff?' If so, what was the answer?

A brief historical diversion

1.7 Governors may wonder how research came to occupy a central place in academic life, and it is a relatively modern development. At the turn of the twentieth century most UK academics typically engaged in scholarship and undergraduate teaching, but research as it is now understood was relatively rare. By contrast, German universities were developing scientific research, an approach then also adopted in the USA where the idea of research being central to universities became increasingly prevalent (at least in most of the larger private institutions). In Britain concern about German scientific strengths led to greater research investment (and the introduction of the PhD for research students), not just for military reasons but also to help stimulate economic growth.

1.8 An important step in UK research policy occurred in 1918 with the publication of the 'Haldane Report' which amongst other things recommended the establishment of autonomous research councils (since referred to as the 'Haldane principle') so that decisions about how to spend research funds could be made by those researchers directly involved. This has broadly remained in place until today.

1.9 The expansion of the UK HE system in the 1960s brought substantial investment in new institutions, each with funding for research, and many of the universities established at that time have now become successful research intensive institutions. By the 1980s most academic staff expected that they would undertake the joint roles of teaching and research, and one consequence was that a successful research reputation started to become the key factor in relation to academic staff appointment and promotion. By the late 1980s the need for greater selectivity of research funding was recognised, and the first Research Assessment Exercise (RAE) took place in 1987.

1.10 The decision in 1992 to create new universities from the previous polytechnics gave them potential access to research funding (although most of these 'post-92' HEIs had a relatively weak research base some non-funded research was undertaken). However, as the research budget was not substantially increased it was difficult for them to develop comprehensive research strengths, and most chose to concentrate on specialist areas of research (supported for a short while in England by modest special funding from Hefce).

1.11 Ten years later, the influential 'Dearing Report' on the future of HE recommended that a policy of research selectivity was essential, and that it should be strengthened in subsequent RAEs. However, Dearing noted that there was no support for research only universities, and that the link with teaching was fundamental to UK HE. Indeed, that Report emphasised the importance of enhancing the status of teaching to address the view that in some parts of the HE system "research is believed to be the only hallmark of a 'proper academic'"[7].

1.12 Since the Dearing Report there have been ever increasing moves towards greater selectivity in research funding, a position which persists today - see Chapter 2. The substantial focus on science, technology, engineering and mathematics (the so-called STEM subjects which require substantial infrastructure support over a lengthy time period) has further increased selectivity, as has the globalisation of research, with research intensive universities increasingly seeing their activities in international terms, forming research partnerships and often seeking funding from international sources. Moreover, research reputations are now assessed internationally, with global league tables reinforcing selectivity with every annual publication. Such developments add multiple layers of complexity to research management and governance (for more information see the separate publication in this series on internationalisation).

"Over the next 10-20 years, we expect to see major advances in our knowledge of the structure of the universe and of the matter and energy of which it is made. At the same time, we will know more about the Earth, its neighbours in space, the way it works and changes, and the impact that we have on it..... We want to help the UK to be at the forefront in this revolution, in order to be a world leader in innovation and become an even more prosperous and sustainable society."

RESEARCH COUNCILS UK: A VISION FOR RESEARCH 2003.

Why do HEIs undertake research?

1.13 Given the large investment in research in UK HEIs summarised in Chapter 2, asking why research is undertaken may seem surprising. But the answers may not be evident to everyone, and governors need to be clear why their own institution is pursuing research.

1.14 The Dearing Report is a useful place to take stock and identify why research has been important and one of the "defining purposes of higher education as a whole", although not "every individual or institution has to be actively involved in research"[8]. It noted four main reasons why HEIs undertake research:

- "To increase knowledge and understanding, and to help shape a democratic and civilised society.
- To inform and enhance teaching.
- To generate useful knowledge and inventions in support of wealth creation and an improved quality of life (including to serve the needs of the economy).
- To create an environment in which researchers can be encouraged and given a high level of training."[9]

1.15 Thirteen years on from Dearing, although all four purposes remain valid, times have changed. Spurred by the rapid growth of technology, globalisation, and the need for economic competitiveness there is now much greater emphasis on the third and fourth purposes, as is clear from Research Councils UK (RCUK) in setting out their vision statement in 2003[10] (see side box). Such changes have been spurred on by government policy and measures such as the UK Science and Innovation Investment

7 The National Committee of Inquiry into Higher Education, (1997), 'Higher Education in the Learning Society', HMSO London, page 177.
8 The National Committee of Inquiry into Higher Education, ibid, page 75.
9 The National Committee of Inquiry into Higher Education, ibid, page 165.
10 www.rcuk.ac.uk/aboutrcuk/publications/corporate/visionresearch.htm

Framework[11]. Overall expenditure on research in HE has grown rapidly in the past few years, accompanied by increased selectivity.

"The government's message is 'It doesn't matter how good you are, you are going to get less money because we are skewing funding into STEM subjects'. I think this is economically irrational."

SIR HOWARD DAVIES DIRECTOR OF THE LONDON SCHOOL OF ECONOMICS (SEE FOOTNOTE 12)

1.16 However, governors need to be aware that all these developments, and the selective research funding that has accompanied them, are not without their critics. For some, the problem is the concentration of research funding on STEM subjects at the expense of other areas, and the quotation in the side box[12] indicates the frustration that many in the humanities and social sciences feel about the dominance of science policy within the political arena. Of course, many other vice-chancellors would take a very different view.

1.17 A more radical view challenges not just the balance of research spending, but also the need for increasing investment in science at all. Consider the quotation in the side box taken from an article in the Guardian[13] berating the power of what it calls the 'science lobby', and arguing for more accountability in spending on science research. The article provoked a substantial reaction, some calling it anti-science, whilst for others - including some senior figures in HE - it was a reminder that public recognition of the need for increasing spending on STEM research cannot be assumed.

"A virtue of back-to-basics in public finance is that it might strip the cliches about 'vital for the nation's interest' from the log-rolling. Every lobby is going into action to defend its subsidies. Scargill's miners were nothing to what we shall see from the scientists, doctors, lawyers, farmers, sportsmen and, above all, generals...But science research is one lobby among many."

SIMON JENKINS, THE GUARDIAN, 24 JUNE 2010 (SEE FOOTNOTE 13)

1.18 Others have concerns that are still more fundamental, and see current competition for research funding changing the character of what being an academic has traditionally been, with a risk of creating an academic profession which for many staff separates teaching from research. From this perspective, the collegiality which has been the essence of much of HE is threatened by competition. Partially associated with this view is a concern that academics may be pursuing research topics which they believe have a greater chance of being funded, and this may indicate a move towards applied research and the increasing commercialisation of research outcomes - which can, of course, be a good or bad thing depending upon your point of view!

1.19 For others - particularly but not exclusively in the humanities and social sciences - it is the combination of globalisation and neo-liberal public policy that threatens the traditional nature and values of the university, and changes the way that research is both understood and conducted. As is clear from the quotation in the side box, some commentators see the whole nature of research as being threatened, and think that "the search for truth as a rationale for research in the university has been virtually erased"[14]. The extent of such criticisms is likely to vary widely both between institutions and across disciplines, but will probably be found - at least to some extent - in many research intensive HEIs.

"The domination of the market necessarily compromises freedom in both the conduct and outcome of research."

MARGARET THORNTON (SEE FOOTNOTE 14)

1.20 Of course, the process of managing and funding research involves setting priorities, and inevitably in making such choices some research reputations will be made and other research careers undermined, sometimes for reasons outside the control of the individuals concerned. Selectivity is bound to be contentious whatever its benefits, and because research is so much at the heart of HE it is inevitable that researchers

11 www.hm-treasury.gov.uk/spending_sr204_science.htm
12 Sir Howard Davies, cited in the Times Higher Education, 8 July 2010, page 11.
13 Jenkins S, (2010), Martin Rees makes religion out of science so his bishops can gather their tithe, www.guardian.co.uk/commentisfree/2010/jun/24/rees-makes-religion-out-of-science
14 Thornton M, (2009), Academic Un-freedom in the New Knowledge Economy, in Brew A and Lucas L, Academic Research and Researchers, Society for Research into Higher Education and Open University Press, Berkshire. (page 20)

who find opportunities squeezed - or who have no sympathy for the criteria by which priorities are decided - may have little confidence in the selectivity process. It follows that governors need to recognise that what to them may simply be the application of conventional 'real world' disciplines of 'good' management and governance, may - in practice - be much more contentious, and go to the heart of what some academic staff believe is the very nature of the university itself.

1.21 Of course, to some critics the value of much humanities and social sciences research is itself open to challenge. The quotation in the side box is from an article in the Times Higher Education, and questions the way that much humanities research is funded and undertaken[15]. The article inevitably provoked controversy - and was probably meant to - but the point for governors is that the case for research funding cannot be assumed, whatever the discipline.

"Most humanities 'research' is the self-indulgent pursuit of obscure hobbies that neither need nor merit funding, and produces only unsold, unread and arguably unreadable books."

CLIVE BLOOM,
TIMES HIGHER EDUCATION
13 MAY 2010
(SEE FOOTNOTE 15)

1.22 Such diverse concerns about aspects of research policy have inevitably spread into the public arena, fuelled by controversies over the robustness of research on global warming and numerous other topical issues. Accordingly in order to try and better communicate the benefits of research, the funding bodies and other interest groups have undertaken numerous initiatives to attempt to increase public understanding and confidence, most recently a new national 'Concordat for Engaging the Public with Research' launched in December 2010[16].

Research training

1.23 Many HEIs have a central role in the training of future researchers, and this is an area where the differences between subjects are particularly apparent. In science, research students usually work as part of a research team on topics linked to departmental projects and publish jointly with their colleagues and supervisors. In the social sciences and humanities they are much more likely to be working on individual topics of their own choice, although guided by the research interests of their supervisors.

Does research enhance teaching?

1.24 Finally in this chapter a brief note about the link between research and teaching, because although governors will have no involvement in the detail of how research in their HEI informs and enhances teaching, they do have an interest in ensuring that investment in research benefits teaching where this is claimed to be an institutional reason for the investment in the first place.

1.25 In fact, the evidence on how research enhances teaching is unclear, and the whole area is complex with multiple factors involved. Such an influence remains an important assumption in much of HE, but a direct favourable interaction between research and teaching may be difficult to identify and cannot be taken for granted. With the growth in student numbers and the rise of new technologies, many students are now taught by staff or in HEIs which are not research active, a trend which may be increasing with greater use of distance learning.

15 Bloom C, (2010), Money for Antique Rope, Times Higher Education, 13 May 2010
16 RCUK, (2010), Concordat for Engaging the Public with Research' at www.rcuk.ac.uk/per/Concordat.htm

"The evidence shows that there is no automatic relationship which implies that staff, departments, or institutions that are conducting excellent research will necessarily also be excellent at teaching."

REPORT COMMISSIONED BY HEFCE ON THE INTERACTION BETWEEN RESEARCH AND TEACHING (SEE FOOTNOTE 17)

1.26 A report commissioned by Hefce on the interaction between research and teaching[17] concluded that the evidence shows no automatic relationship that staff or departments that are excellent at research will necessarily also be excellent at teaching. However, there may be a correlation between the two because the attitudes and competences leading to excellence in research are often likely to apply elsewhere. Of course, it is difficult for less research active HEIs to teach very research dependent subjects, and there is also a question as to how satisfactorily HEIs with limited research activity are able to supervise postgraduate degrees.

1.27 Thus whilst high quality research has the potential to enhance teaching, all the indications are that for many HEIs other appropriate forms of advanced scholarship can have a similar effect - allowing for differences between subjects and mission. As a result, in many HEIs a successful student learning experience is underpinned by various forms of scholarly activity other than research.

1.28 The same report observed that HEIs take different approaches to identifying expected linkages between research and teaching. For example, some plan for research to have a direct impact on teaching (for example, through specifying research based teaching activities or assessment methods), whereas other HEIs may not plan such activities centrally, but simply provide the opportunity for research active staff to act as they wish, for example by introducing new modules to correspond with particular research interests.

SUGGESTED TASK

As a governor, do you know if this question has been asked in your institution, and if so what evidence resulted?

1.29 This attitude of 'minimal management intervention' is part of the culture in some HEIs, and recognises that linkages between research and teaching are both subtle and not easily amenable to action by management. However, the authors of the Hefce report concluded that "whilst we would not wish to threaten institutions' autonomy in this regard, we do consider that it would be good practice for all HEIs who claim that their teaching benefits from their research to examine their own evidence that this is the case".

Conclusions

1.30 So, behind the seemingly simple question 'why is research important?' there are numerous highly complex issues. Governors will not be involved in all of them, but do need to know enough to challenge constructively assumptions about the nature and value of research where it is necessary to do so. Given the pressures on future research funding, governing bodies have a particular responsibility to ensure that institutional research aspirations are realistic and sustainable.

17 J M Consulting et al, (2000), Interactions Between Research, Teaching and Other Academic Activities, at www.hefce.ac.uk/publications

Self-challenge questions

- How much do you know about research and knowledge transfer in your own HEI, and how much do you think you need to know as a governor?
- How crucial is research for the reputation of your HEI?
- Where does your institution appear in the various league tables on research, and is this a matter of concern?
- How does research enhance teaching in your HEI? If you don't know, does it matter?

2. RESEARCH FUNDING IN HIGHER EDUCATION: A NATIONAL OVERVIEW

2.1 This chapter gives a brief overview of how research in HE is supported nationally. It starts by summarising total research investment, then briefly explains the work of the main funders of research, and finishes with a short review of the implications of increasing concentration of research funding. The institutional implications of this are considered later.

2.2 In the UK there is a strong tradition of research in all subjects, and most of the UK's long-term, curiosity-driven and strategic research is carried out in HE. The introduction to a recent report on the future of UK research by Universities UK summarises the current position, and notes that "the strength of the UK university research base is well documented and widely accepted. The UK continues to punch well above its weight and our research remains the most productive and efficient of all the G8 countries. The UK has 14.4% of the most highly cited one per cent of papers (which places us second to the US overall, but ahead in clinical sciences, health sciences, biological sciences and environmental sciences). And crucially during the current economic climate, the UK offers the best value for money. We now rank first among the G8 nations on the number of citations in relation to public spend on R&D. The most recent RAE also demonstrated that we continue to produce many university departments of international and world leading status."[18]

National research funding

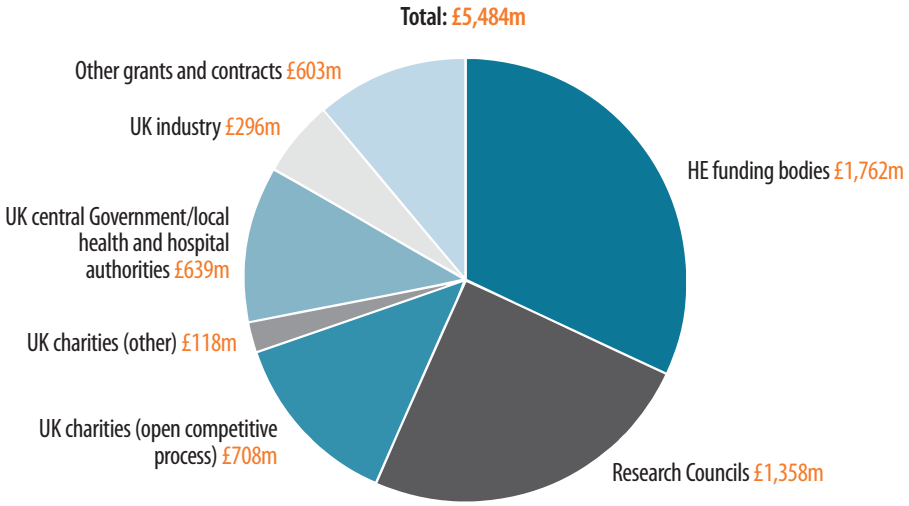
2.3 UK HEIs receive billions of pounds annually to fund research. This comes from four main sources, the role of each of which is summarised below:

- The research councils, who provide grants for specific projects and programmes on a competitive basis. The councils also make a contribution to the overhead costs of research, and from 2006 have paid 80% of the full economic cost (see Chapter 4).
- The four HE funding bodies, who provide block grants to support the research infrastructure – for example, building and IT costs. When combined with research council funding this is known as the 'dual support system' and is a distinctive feature of UK HE.
- Charities, who are important in funding medical research.
- Various other sources, including industry, the European Union and UK government departments.

[18] Universities UK, (2010), The Future of Research, at www.universitiesuk.ac.uk/Publications/Documents/TheFutureOfResearch.pdf foreword

2.4 The sources of research income to HEIs are as shown below:

FIGURE 1: SOURCES OF UK RESEARCH INCOME 2007-08[19]



2.5 Research council funding forms a substantial part of the UK government's science budget, and is administered through the Department for Business, Innovation and Skills (BIS). Funding was £3.45 billion in 2007-08, and at the Treasury's request the science budget has been ring fenced. The rest of the science budget is deployed either by BIS (and includes initiatives such as the Large Facilities Capital Fund and the Science Research Infrastructure Fund) or allocated to the Royal Society, Royal Academy of Engineering and the British Academy.

2.6 To date, the previous government and all main political parties have been committed to a policy of making the UK a competitive location for research, in the belief that support for science and innovation is central to international economic success (see the Science and Innovation Investment Framework 2004-2014[20]). Amongst other things, this Framework set a target to increase public and private sector investment in R&D as a percentage of gross national product from 1.9% in 2004 to 2.5% by 2014. However, the outcome of the 2010 Comprehensive Spending Review projects a reduction in the overall research budget when inflation and reductions in capital funding are taken into account, although with protection for STEM subjects.

Research council funding

2.7 There are seven research councils, all non-departmental public bodies established by Royal Charter. They are supported by Research Councils UK[21] (RCUK) whose mission is to optimise the ways that the councils work together to deliver their goals. RCUK is not a legal entity and its existence does not alter the governance of the individual councils, nor their accountability for public funds.

19 Source: Hefce, (2010), Guide to Funding: How Hefce Allocates its Funds, at www.hefce.ac.uk/pubs/Hefce/2010/10_24/Resources of Higher Education Institutions, HESA, 2007/08
20 www.hm-treasury.gov.uk/spending_sr04_science.htm
21 See www.rcuk.ac.uk

2.8 In summary, the seven research councils are:

The Arts and Humanities Research Council (AHRC) - see *www.ahrc.ac.uk*. Annual budget approximately £100M.
The Biotechnology and Biological Sciences Research Council (BBSRC) - see *www.bbsrc.ac.uk*. Annual budget about £450M.
The Engineering and Physical Sciences Research Council (EPSRC) - see *www.epsrc.ac.uk*. Annual budget approximately £500M.
The Economic and Social Research Council (ESRC) - see www.esrc.ac.uk. Annual budget approximately £181M.
The Medical Research Council (MRC) - see *www.mrc.ac.uk*. Annual budget approximately £704M.
The Natural Environment Research Council (NERC) - see *www.nerc.ac.uk*. Annual budget approximately £220M.
The Science and Technology Facilities Council (STFC) - see *www.scitech.ac.uk*. Annual budget approximately £500M.

2.9 The councils have common objectives, which are:

- Funding basic, strategic and applied research involving: project or programme funding to HEIs (as part of the dual support system); funding research in their own facilities (some of which are located in HEIs, some wholly owned, and others independent 'sponsored' institutes); and providing access to selected facilities for UK researchers (for example, through international subscriptions or the funding of national facilities).
- Supporting postgraduate training (PhDs and masters students and fellows).
- Contributing to economic competitiveness, the effectiveness of public services and policy, and the quality of life.
- Supporting science in society activities including enhancing public engagement with research.

SUGGESTED TASK

How important is research council funding for your own HEI, and what issues does it raise for the governing body?

2.10 Research council funding is allocated competitively, and is highly selective. To avoid making fruitless applications, HEIs and individual researchers have to be extremely realistic about the possibility of successful application given the time involved in making proposals, and grant application rates to the councils appear to be dropping. It follows that governors should not have unrealistic expectations of possible research council funding even in research-intensive HEIs.

Research funding from the higher education funding bodies

2.11 Funding through the four UK HE funding bodies constitutes the second leg of the dual support system, by which the funding bodies provide recurring annual 'block grants' to support the research infrastructure and enable HEIs to undertake research in keeping with their own mission and strategic priorities. Over 90% of research funding allocated in this way is distributed selectively, according to the quality of research measured and periodic quality assessment (see Chapter 3). In addition, the four UK funding bodies also fund some research through specific initiatives, for example in Scotland 'research pooling' takes place where the funding council awards funds to groups of HEIs to collaborate.

2.12 Called QR ('quality related') funding in England, Wales and Northern Ireland and the Research Excellence Grant (REG) in Scotland, a feature of this funding is the requirement that HEIs do not have to spend it in accordance with the funding bodies' method of calculation. In other words, as autonomous institutions HEIs are free to invest the money according to their own priorities. This flexibility of block grant funding is much valued by HEIs in that it can support the research areas most important to them, and they can integrate this funding into their own resource allocations systems.

2.13 Universities UK[22] summarises the benefits of QR funding as:

- Supporting the cutting edge of knowledge, eg by investing in strategic priorities or by developing new pockets of expertise.
- Sustaining responsive research in that the block grant approach allows HEIs to choose how the funding should be spent.
- Sustaining a world-class research environment where QR's flexibility allows it to be combined with other sources of funding.
- Developing people and skills through supporting postgraduate students, providing bridging funding to retain early-career researchers, and so on.

2.14 The formulae by which the four funding bodies calculate QR (or REG in Scotland) vary slightly, but all use a combination of factors including the quality of research, the volume undertaken, and the cost weights applicable to different subject areas[23]. The resulting funding constitutes the bulk of QR, but there are other elements. To take Hefce funding as an example, for 2010-11 overall QR funding was £1,436 million of which the main categories were: mainstream QR (as summarised above) £919m; research degree programme supervision £199m; charity support (see below) £184m; plus other smaller funding streams.

2.15 Governors will not need to know the detail of the formulae used by their relevant funding body, but they do need to be aware that the QR allocation is based on an explicit move towards identifying full economic cost (fEC). The implications of this for HEIs and governors is considered in Chapter 4.

2.16 The future of QR funding is a matter of speculation for two reasons: first, it is such a major element of research support that it is almost inevitable that it will be under continued scrutiny to ensure its effectiveness. Second, given future pressures on funding there may be proposals to abandon the dual support system and bring together QR and research council funding - although the in use now system appears to be supported by the current coalition government. Any changes would have major implications, and governors should expect a briefing at the stage of any national consultation.

Funding from charities

2.17 Governors are often surprised by the volume of charity research funding, but this is an established part of the UK HE landscape. Overwhelmingly such income supports medical, biological and life sciences research, and is based on competitive grants

22 Universities UK, (2010), World Class Research at www.universitiesuk.ac.uk/Publications/Documents/WorldClassResearch.pdf
23 Details of QR/REG funding calculations can be found on the funding body websites - see Annex A

covering direct research costs. Charities do not pay overheads or indirect costs, but the four funding bodies offset the loss of overheads through such schemes as the HEFCE charity support element (also called the charity support research fund). However, even with this support, overall HEIs are underfunded on a full cost basis when undertaking charity funded research (see Chapter 4).

SUGGESTED TASK

How important is charity research funding for your own HEI, and what issues does it raise?

2.18 Charity funding has grown very rapidly in the past ten years, and the 120 members of the Association of Medical Research Charities (AMRC)[24] funded £1.1 billion of research in the UK in 2009-10 of which approximately 85% was awarded to HEIs. The AMRC is a convenient source of information on medical and related charities.

2.19 There are several reasons for the increase in charity funding, although generalisations are made difficult by the dominant position of a small number of charities, most obviously the Wellcome Trust - the largest non-governmental funder of research which spends over £600 million pa, both in the UK and internationally[25]. However, growth in charity research support has typically been because of: increased activities by charities and larger levels of public donations (for example greater interest in bio-technology); greater proactivity by HEIs in seeking closer links with charities; and previous increases in stock market valuations which created opportunities for funding by charities with significant levels of investment.

2.20 Although charitable funding of research is hugely beneficial to many HEIs it does raise a number of issues for institutions, for example, there may be issues concerning a consistent interpretation of contractual matters (including IPR where some charities are more restrictive than others). Close collaboration between the funding bodies and the main charities has resolved many such difficulties, but this is an area where governors will be heavily dependent on the executive to ensure an informed approach to risk management.

2.21 Perhaps the major concern currently facing the HE sector is the future role of some charities in relation to any substantial reduction in research budgets as a consequence of the 2010 Comprehensive Spending Review. It has been argued that charities might take up any 'slack' in public research funding, but needless to say this would be highly controversial and resisted by both most HEIs and charities. Moreover, many charities are international and - in extremis - might consider funding research elsewhere. In any case, the financial downturn is also likely to affect adversely charity income. It follows that the availability of charity funding is likely to be a major issue for research intensive universities, and one which their governors will need to be aware of.

European funding

2.22 EU research income to HEIs in 2007-08 was £285M (7.7% of all project research income), and over the previous six years increased at 6.6% annually in real terms. The Framework Programme (currently in its seventh iteration - FP7) is the main EU supranational source of research funding, and plays a useful role particularly in building collaborations and research networks.

[24] See www.amrc.org.uk
[25] www.wellcome.ac.uk

2.23 However, European funding brings with it problems concerning the reimbursement of indirect costs (which in the past was relatively low but has now been increased under FP7 projects), and currency fluctuations as grants are paid in euros. Additionally some HEIs and individual researchers are critical of aspects of the operation of European funding, particularly the substantial volume of reporting which increases the accountability burden. As a result, a recent review by Universities UK and RCUK[26] concluded that UK HEIs need to be clear why they wish to be involved in EU research projects, and to understand both the benefits and drawbacks of such funding.

Research concentration: a brief overview

2.24 As noted, all national funding is highly selective and competitive, resulting in a growing concentration of research, although there is some diversity in particular subjects. These few paragraphs summarise the UK wide position, and the institutional implications of such concentration are set out in Chapter 4.

2.25 By way of example, in England the concentration of funding can be seen in Table 1, which shows total Hefce research grant allocations. The heavy concentration is immediately obvious (including the performance of the 'golden triangle' (Oxford, Cambridge and London); also obvious is that the eight HEIs receiving more than £50M pa are members of the Russell Group[27]. All eight have medical schools and benefit strongly from STEM funding. What the data does not reveal is a small number of specialist research institutes who are wholly dependent on research income.

TABLE 1: HEFCE RESEARCH GRANT ALLOCATIONS 2010-11[28]

HEI	MAINSTREAM QR FUNDING £	QR CHARITY SUPPORT £	RESEARCH DEGREE SUPERVISION FUND £	OTHER HEFCE RESEARCH £	TOTAL £
Oxford	78,698,130	29,920,612	11,295,040	6,122,045	126,035,827
Cambridge	78,697,712	19,172,303	13,085,028	6,887,888	117,842,931
UCL	63,232,422	23,102,532	12,843,615	9,799,689	108,978,258
Imperial	51,612,657	17,557,412	12,085,819	14,492,041	95,747,929
Manchester	58,673,239	11,077,125	10,464,036	4,403,052	84,617,452
King's London	34,076,818	10,740,832	4,089,223	10,782,190	59,689,063
Nottingham	38,640,891	2,909,631	7,262,121	2,786,516	51,599,159
Bristol	36,825,060	5,972,229	6,244,143	1,395,717	50,437,149
HEIs receiving £20M to £49M					12
HEIs receiving £10M to £19M					17
HEIs receiving £5M to £9M					19
HEIs receiving £1M to £4M					31
HEIs receiving less than £1M					37
HEIs receiving no research funding					6

26 RCUK/Universities UK, (2009), Review of the Impact of Full Economic Costing on the UK Higher Education Sector, at www.rcuk.ac.uk/cmsweb/downloads/rcuk/reviews/fec/fecreport.pdf

27 See www.russellgroup.ac.uk

28 The Table shows only English data but a similar pattern exists in the other jurisdictions. Source: Hefce, (2010), Guide to Funding: How Hefce Allocates its Funds, op cit

2.26 This pattern is confirmed by a report for Universities UK in 2009 on research funding[29], which (based on a study of six disciplines) concluded that over the 14 years from 1994 to 2007 research has become more concentrated in the most highly rated research units. For example, this analysis identified that the percentage of total research funding going to grade 5 and 5* academic units within the sample disciplines increased from 82% to 86% between 2001 and 2007 (for an explanation of these ratings see Chapter 3).

"The degree of research concentration is well illustrated by the way in which almost a quarter of the UK's research output in 2007 (measured as the percentage of UK research articles indexed by Thomson Reuters on the Web of Science) has at least one author based at one of the 'big four' research institutions - Cambridge, Oxford, University College London and Imperial College."

MONITORING RESEARCH CONCENTRATION AND DIVERSITY, UNIVERSITIES UK, 2009 (SEE FOOTNOTE 29)

2.27 However, there remains a substantial degree of diversity in relation to different academic subjects. Most HEIs have some research strengths, and it is misleading to suggest that the whole research base is concentrated in just a few institutions. A separate and more recent UUK publication on the future of research[30] concludes that "the spread of excellent, good and weak units is uneven at all levels. RAE2008 revealed small pockets of excellence in departments, sometimes in institutions, where most research was more modestly graded. Other data show that in most subject areas there are a few units with outstanding average performance, units which spread across the middle-ground of UK performance and are often above world average, and units which perform less well".

2.28 Although substantial advantages are claimed for this concentration of research in terms of supporting research excellence, the Universities UK report points out a number of potential drawbacks:

- It might reduce the overall spread of research and reduce the UK's ability to shift into new areas as opportunity arises.
- It might also reduce the healthy internal competition that underpins cutting-edge, innovative excellence.
- It could reduce the regional spread of activity, thereby reducing access to international research excellence for companies and the likelihood of regional growth through innovative spin-outs.
- It could lead to departmental closures in some HEIs.
- It could reduce the number of places where students are trained in an atmosphere of research excellence.

The internationalisation of research

2.29 Finally, the other key contextual issue relating to the development of UK research has been the rapid growth of internationalisation. A report by the UK HE International Unit[31] provides examples of the importance of internationalisation:

- The value of the UK's international research collaboration is equivalent to between 10-20% of the total UK science budget.
- 40% of research council grants have an international component.
- 50% of all UK PhD students are non-UK nationals.
- 40% of all UK research staff are non-UK nationals.

29 Universities UK, (2009), Monitoring research concentration and diversity: changes between 1994 and 2007 at www.universitiesuk.ac.uk/Publications/Pages/MonitoringResearchConcentration2.aspx
30 Cited in Universities UK, (2010), The Future of Research, op cit
31 UUK International Unit, 2008, International Research Collaboration at www.international.ac.uk/resources/International%20Research%20Collaboration%20Final%20Report%20%28locked%20pdf%29.pdf

2.30 From a governing body perspective the core message is clear: that the internationalisation of research is now a key aspect of success, and there is a need to ensure consistency between research and internationalisation strategies. (For more details of internationalisation see the separate volume in this series[32].)

Conclusions

2.31 The national move towards greater concentration and selectivity in research funding, coupled with the skewing of funding to the science research budget, has inevitably been controversial, and to some extent has divided the HE sector. There have clearly been institutional 'winners' (particularly the research-intensive universities in the 'golden triangle' of Oxford, Cambridge and London) and 'losers' (including research intensive HEIs in the non-STEM areas and those institutions seeking to maintain or grow research in selective areas of strength). The former generally claim that greater selectivity is inevitable if the internationally competitive research position of the UK is to be maintained, whilst the latter often feel that the research funding 'game' is at least partly rigged at the expense of the innovation that newcomers might provide.

2.32 Perhaps the most important message for governing bodies in HEIs is that a move away from greater research concentration is improbable, and therefore they need to be very clear that future research strategies are realistic and financially sustainable.

2.33 The other major challenge is that - taken overall - income from all the sources described above results in an under-funding of research (on a full economic cost basis) of approximately £2 billion pa, and the implications of this are considered in Chapter 4.

Self-challenge questions

- What have been the implications for your own HEI of greater selectivity in research funding?
- How is your HEI and the governing body preparing for the probability of even greater selectivity in the future?
- Do you know the breakdown of research funding from all sources for your institution, and what are the implications?

[32] LFHE-CUC, (2011), Getting to Grips With Internationalisation at www.lfhe.ac.uk/governance/publications

3. HOW IS THE QUALITY OF RESEARCH ASSESSED?

3.1 For 25 years assessing research quality has been one of the most contentious areas in UK HE. This has been for at least four reasons:

- Assessing the work of any researcher (whatever the mechanism) is a challenge to personal and professional reputation, to a future career, and to personal self-confidence.
- Agreeing the approach to assessment is difficult across a wide range of disciplines.
- Institutional reputation is at stake.
- Funding follows decisions about research quality.

Given such sensitivities, governors will understand why so many battles have been fought over research assessment!

3.2 Accordingly, this chapter provides a brief outline of how research is assessed, along with a short history of how the UK assessment system has developed. However, this system is in a state of change, and a new one is in the process of being adopted - the Research Excellence Framework - which is briefly explained.

SUGGESTED TASK

Before reading the rest of this chapter you might like to think about the challenges involved in research assessment, and how you would approach them.

3.3 Governors new to HE might wonder what the fuss is about: after all businesses make quality judgements all the time without complex systems in place. However, there are some real challenges:

- Developing an equitable approach, taking account of research from 'blue sky thinking' through to applied work.
- Taking account of subject differences, for example researchers in science typically write many short co-authored papers, whilst those in humanities write occasional single authored books.
- Taking account of the differing time scales over which research might be judged, when in some subjects the full value of research might not be realised for many years.
- Striking a balance between the work of a research team and that of a brilliant individual researcher.

3.4 Such factors raise hugely complex issues, but finding answers which serve as a legitimate way to assess research and then to fund HEIs on the results is what research assessment is all about.

The Research Assessment Exercise (RAE)

3.5 The acronym 'RAE' is probably one of the few that almost everyone knows in UK HE: an indication of its importance, and the controversies that took place in its implementation. For the majority of HEIs it has become the most important factor influencing research funding, and staff have spent a great deal of time preparing for it. The RAE[33] has taken place several times since starting in 1986, but in 2014 it will be replaced by the new Research Excellence Framework (REF) - see below. Governors need to be aware of the implications for their institutions.

[33] For a summary of the RAE and its development over time see www.hefce.ac.uk/research/ref/reform

3.6 By 1989 a pattern for assessment had been established resulting from the two initial RAEs based on:

- Assessment on the basis of numerous subject areas, with HEIs able to choose whether to enter research in the different areas depending on their own research strengths.
- Peer reviewed assessment based on a selection of research papers and outputs by the staff entered, using separate subject panels consisting of senior researchers in the fields concerned.
- Results published on a fixed point scale, with QR funding only available to HEIs performing well. The resulting scale points have changed over the years becoming ever more selective.

"It [the RAE] is almost a complete waste of time and money, and has become ridiculously complicated...Just bureaucracy gone mad."

GOVERNING BODY MEMBER ELECTED BY SENATE

3.7 Although broadly similar to those before, the 1992 RAE made some changes: the new post-1992 HEIs could enter; no funding was associated with the lowest quality rating; and HEIs no longer had to submit all staff. Choosing how many staff to enter became a crucial decision as it was the indicator of research volume, which along with the quality rating was the main determinant of funding. Therefore the decision whether to enter a smaller volume of highly productive research staff or a larger number of less productive ones had potentially major financial consequences.

"If we are honest with ourselves, the RAE has done some good and forced us to up our game. Would we have done it anyway? - I don't know, but what I do know is that our research is much stronger now than ten years ago."

PVC RESEARCH IN A RESEARCH INTENSIVE UNIVERSITY.

3.8 Following further RAEs in 1996 and 2001, the House of Commons Science and Technology Select Committee reported in 2002 that the RAE had resulted in positive effects, and had stimulated HEIs into managing their research more effectively including ensuring that funds were targeted at research excellence. The report proposed that a further RAE should occur in 2008, and this subsequently took place using the same main principles of assessment as previously.

3.9 The quality ratings used in the 2008 RAE by Hefce were on the following five point scale with an associated funding weighting:

- 4*: quality that is world-leading (funding weight 9).
- 3*: quality that is internationally excellent (funding weight 3).
- 2*: quality that is recognised internationally (funding weight 1).
- 1*: quality that is recognised nationally (funding weight 0).
- Unclassified: below national recognition (funding weight 0).

Different ratings were used in the other jurisdictions, and may be changed for 2011-12.

3.10 Now that the RAE has ended, it is possible to look back and judge its effectiveness. Clearly its major benefit (or drawback depending upon your point of view) has been - as intended - to support selectivity in research funding and thereby encourage excellence. However, there have been other consequences, some of direct relevance to governors. The main ones have been:

- *Cost.* The cost of the RAE has been significant, for example the 1996 one was estimated to have cost HEIs £27.3M (mainly staff time), and the value for money has been contested. Given future reductions in public funding, the cost of the REF is a significant issue in the mind of government.

SUGGESTED TASK

As a governor, looking back, did your HEI adopt an effective strategy in its submission to the 2008 RAE, and if not what were the implications - if any - for the governing body?

- *The effect on institutional behaviour.* The behaviour of some HEIs in investing in the preparation for the RAE has been contentious[34] with some being accused of over-investing uncritically for RAE submissions, when there was little prospect of achieving long term financial sustainability.
- *The danger of distorting research priorities.* All evaluation mechanisms distort, and some believe that an unintended consequence may have been that in some fields the RAE encouraged short-term, easily publishable research.
- *Under-costing research.* The drive for RAE success may have led to undertaking under-resourced projects.
- *Using the results of the RAE inappropriately.* There are obvious dangers in using RAE results for purposes other than those they were intended for - for instance, by international students as an inaccurate proxy for teaching quality, and so on.
- *The effect of the RAE on teaching.* An important issue is whether the pressures of the RAE damaged teaching quality. However, a Hefce study[35] found that there was no systematic evidence to support this, and that measures of teaching quality and student satisfaction did not decline during the RAE period.

The Research Excellence Framework (REF)

3.11 Subject to final confirmation, the REF is due to replace the RAE as the new research assessment mechanism throughout the UK[36] in 2014. It was first conceived by the previous government in a review of the Science and Innovation Framework . The REF will be overseen by the REF Steering Group, consisting of representatives of the four funding bodies.

SUGGESTED TASK

As a governor, what do you know about the new REF, and has your governing body been informed about it?

3.12 The REF will be a process of expert review, informed by indicators where appropriate. Expert sub-panels for between 30-40 units of assessment (UOAs) will carry out reviews, under the guidance of four main panels. HEIs will make submissions to each UOA, to be assessed by three elements:

- The quality of research *outputs*, and as in the RAE these will be assessed against international standards.
- The wider *impact* of research. This is a new aspect of assessment, and a pilot exercise ran in 2010 to test how it could be done, concluding that impact could be assessed in the disciplines tested[38].
- The vitality of the research *environment*.

Each funding body will determine the weightings of these three factors, but in England Hefce has announced that they will be: 20% for impact, 65% for output and 15% for the research environment.

3.13 It is intended that panels will produce a sub-profile for each of the three elements to be combined into an overall excellence profile, which will show the proportion of submitted work at each point on the current five-point scale (1* to 4* plus unclassified). The REF is intended to recognise a wide range of different types of research.

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34 See Thomas E, (2007), National Research Assessment in Higher Education, in Burgh H, Fazackerley A, and Balack J (eds), Can Prizes Still Glitter? The Future of British Universities in a Changing World, University of Buckingham Press

35 JM Consulting, (2000), Interactions Between Research, Teaching and Other Academic Activities, op cit

36 For information about the REF see www.hefce.ac.uk/research/ref

37 The Science and Innovation Framework: the Next Steps, (2006), at webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/bud06_science_332v1.pdf

38 Hefce, (2010), REF Impact PIlot Exercise at www.hefce.ac.uk/research/ref/impact

3.14 There will be two main processes for assessing quality - one for science and another for all other subjects - but it is intended that a unified set of quality outcomes will result. The approach for science subjects will be based on quantitative indicators, including bibliometric measures[39] of quality and impact, external research income, and postgraduate student activity. Research quality in the arts, humanities, social sciences, mathematics and statistics will be assessed through a light touch process, based on peer review and informed by statistical indicators as required.

3.15 During 2009-10 there was an extensive consultation process on the introduction of the REF (which many governors will have heard about), and a Hefce[40] report on the outcomes claimed that "there was widespread support in principle for including an element for the explicit assessment of impact within the REF", but also noted that "a significant minority of responses objected to our proposals for the assessment of impact".

3.16 However, amongst many researchers the REF is controversial, with particular concerns over three issues:

- The original intention to use bibliometric citation counts in non-STEM subjects. However, as relevant sub-panels can decide whether to use citation data this concern may have been addressed.
- How impact is to be assessed - perhaps the most contentious issue. Notwithstanding the pilot exercise, in some disciplines there is deep concern about the concept of 'impact' and its measurement, including the need to avoid a simplistic notion about causal links between research and impact, and even where such a link may exist the extent to which researchers can exert influence over its achievement. It has already been made clear that the REF aims to assess historical impacts, and will not attempt to predict future impacts.
- The implication for the accountability burden. The expectation of the REF is that accountability demands should not differ substantially from the 2008 RAE, and that as far as possible existing data from the Higher Education Statistics Agency (HESA) will be used plus available bibliometric information.

3.17 Further clarification will be provided on how the REF will be undertaken, and perhaps whether it will happen at all in 2014 given the public expenditure and timescale implications. As HEIs will wish to prepare well in advance, governors should expect to receive an update on the details of implementation, probably in 2011-12.

Quality assurance by research funders

3.18 In addition to the RAE/REF, most research funders have their own system of quality assurance, but although important to the researchers resulting data will very rarely be reported to governors - a possible exception being for very large research projects with major concerns about financial sustainability. Separately, RCUK operates an assurance programme which all funded HEIs have to engage with to assure that appropriate levels of funding have been provided, and that suitable audit arrangements apply.

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39 Bibliometric measures of assessing research involve identifying the number of times a research publication is cited by academic peers in their own research, the principle be ing that high quality research is likely to be frequently cited. The approach then uses so-called citation indices to measure the results.

40 See Hefce Circular 04/2010 at www.hefce.ac.uk/pubs/circlets/2010/cl04_10

Self-challenge questions

- How is your governing body informed about research quality?
- Has the new proposed REF been brought to the attention of the governing body?
- What effect do you think the REF might have on the research strategy of your HEI?

4. INSTITUTIONAL RESEARCH FUNDING

4.1 This chapter considers an issue at the heart of governing body responsibilities: the need to ensure financial sustainability for research. The issue is crucial to both HEIs and the HE sector as a whole for a number of almost self-evident reasons:

- To ensure a well-funded and well-managed research base.
- The need to address the existing under-funding of research of approximately £2 billion pa.
- To confront the challenges to investment in research arising after the 2010 Comprehensive Spending Review.

4.2 Institutional responsibility for financial sustainability is embodied in its financial memorandum, and the 2009 RCUK/Universities UK review of full economic costing (fEC)[41] concluded that governing bodies need to ensure five things to sustain research as part of a long-term strategy: establish and recognise the fEC of research; ensure that research activity is managed strategically; secure better prices for research; ensure improved project management and cost recovery; and invest in the research infrastructure.

"It is essential that the governing body of an HEI should assure itself that there is an institution-wide strategy for financial sustainability consistent with the chosen mission and that there are measures that assess the extent to which this is being achieved."

REPORT OF THE RCUK/UUK TASK GROUP ON FINANCIAL SUSTAINABILITY (SEE FOOTNOTE 42)

4.3 The same two bodies set up a task group to consider the implementation of their report (chaired by Sir William Wakeham, previously Vice-Chancellor of the University of Southampton), and this reported in 2010[42]. Governors - and particularly members of finance committees - are recommended to read this report, and the quotation in the side box emphasises the importance the Wakeham report gives to a governing body holding its executive to account for ensuring implementation of its recommendations.

4.4 There are a number of complex factors involved in understanding institutional research funding which are summarised below. After a short introduction, this chapter provides: an overview of how HEIs allocate resources for research; how fEC for research has been introduced (and the expectations falling on the governing body); the use of the TRAC methodology to provide better financial data; and the implications of charitable status on how research can be funded.

4.5 The starting point must be to acknowledge that the importance to governing bodies of ensuring financial sustainability in relation to research varies widely depending on the importance of research to the HEI concerned. On the one hand there are HEIs that are wholly dependent on research funding (usually specialist research institutes) and on the other those that have minimal research funding. For the former group much of the 'routine' financial scrutiny of a governing body may be indistinguishable from its role in ensuring financial health in relation to research.

Institutional resource allocation for research

4.6 Chapter 2 noted that QR funding (or research excellence funding in Scotland) is allocated as a block grant for HEIs to use as they wish. Internal resource allocation is the most powerful way to influence academic activity, and the block grant enables

41 RCUK/Universities UK, (2009), Review of the Impact of Full Economic Costing on the UK Higher Education Sector, op cit

42 Universities UK/RCUK, (2010), Financial Sustainability and Efficiency in Full Economic Costing of Research in Uk Higher Education Institutions, at www.universitiesuk.ac.uk/ Publications/Documents/FinancialSustainabilityAndEfficiencyInFullEconomicCosting OfResearchInUKHigherEducationInstitutions.pdf

funding to be allocated according to institutional strategies and priorities. This flexibility raises important questions for governors including:

- In practice, how does the internal resource allocation system for research support the research strategy (see Chapter 6)?
- Does the resource allocation for research result in realistic and consistent outcomes, and provide suitable incentives?
- To what extent is either teaching or research cross-subsidising the other, and is this planned or unplanned?
- Are fully costed overheads on research being achieved, and if not what are the implications?

4.7 Within HEIs there are broadly three approaches to allocating resources for research and governors should be aware which applies in their own institution:

- The first is for HEIs to allocate QR funding in a way which broadly reflects how the funding body calculates the grant (ie based on research volumes and quality). This may support the idea that there should be a direct link between departmental performance and funding received.
- The second approach is for HEIs basically to follow funding body allocations, but to adopt additional criteria which build in incentives to reflect institutional priorities. This has obvious benefits, but may be controversial, for example if some researchers feel that income they have 'earned' is being used elsewhere.
- The third approach is a much more managerial model whereby centrally determined strategic allocations are made to facilitate new research developments, not necessarily based on the existing pattern of activity. This approach has been common in some post-1992 HEIs that have been highly selective in developing research strengths.

"An institution is being managed on a sustainable funding basis, if taking one year with another, it is recovering its full economic costs across its activities as a whole, and is investing in its infrastructure (physical, human, and intellectual) at a rate adequate to maintain its future productive capacity appropriate to the needs of its strategic plan and students, sponsors and other customers' requirements."

RCUK/UUK (2009), REVIEW OF THE IMPACT OF FULL ECONOMIC COSTING ON THE UK HIGHER EDUCATION SECTOR (SEE FOOTNOTE 41)

Full economic costing and TRAC

4.8 A particular challenge for ensuring financial sustainability is the issue of cross-subsidy between teaching and research, and the HE sector has undertaken substantial work to develop an fEC approach to funding. There is now a requirement falling on all HEIs (and therefore their governing bodies) to move to fEC as a key element of financial sustainability, and Universities UK and RCUK have jointly adopted a shared view of financial sustainability which is set out in the side box[43]. An important principle behind fEC based research funding is that there should be no growth in the volume of research undertaken unless this is sustainably funded.

4.9 Of course, the issue of cross-subsidy is complex, and in practice, the most difficult item to attribute is academic staff time, particularly because of the overlaps between research, teaching and other activities. In some research-intensive HEIs a long held workload indicator was that typically 40% of staff time should be spent on research, 40% on teaching and the rest on other activities. Although such measures have generally faded away, their influence is still strong.

4.10 In order to provide data to support fEC, a standardised approach to identifying costs has been developed known as the Transparent Approach to Costing (TRAC)[44]. TRAC is intended to help HEIs and governing bodies understand their costs, particularly staff time. TRAC data should influence institutional pricing of research, although there is

[43] See RCUK/UUK (2009), Review of the Impact of Full Economic Costing on the UK HigherEducation Sector, op cit
[44] For details of TRAC see www.jcpsg.ac.uk and ww.Hefce.ac.uk/finance/fundinghe/trac/tdg

flexibility available to allow cross-subsidy, so long as public funds do not subsidise non-public activities. The separate publication in this series on finance describes how TRAC can be used more broadly in ensuring financial stability.

4.11 Guidelines exist to try to ensure data consistency in TRAC returns, and from 2010 TRAC returns will be assessed using a new RCUK quality assurance and validation process[45]. Governors need to assure themselves that TRAC data is robust, and as with other returns, they have a responsibility for oversight of data accuracy. The audit committee will have a role here. An evaluation by RCUK in 2008 highlighted areas where some HEIs had not applied TRAC correctly, so compliant data cannot be assumed.

SUGGESTED TASK

As a governor, have you received assurances about the accuracy of your institution's TRAC data? If not, why not?

4.12 Nationally there is a substantial commitment to ensure that TRAC produces the kind of data required for fEC, and a recommendation of a recent Universities UK report on the future of research[46] is cited in the side box. However, although TRAC is widely used, there has been criticism that its data is unreliable because academic time allocations are flawed. Although partly a methodological issue, it may also be an institutional one, in that commitment to collecting accurate data may vary.

4.13 In response to such criticisms, changes have been made to TRAC methodology in 2010-11[47], which for research will require:

- Better accounting for academic staff time spent on scholarly activity, in particular research without an external sponsor.
- Excluding from TRAC academic staff time on activities which do not support institutional mission (so-called 'personal research' will not be counted for TRAC purposes).
- Requiring all HEIs (as some do already) to calculate robustly research surplus/deficits disaggregated by sponsor type.

"The HE system needs to be stringent in building on TRAC to achieve sustainability. Universities should exercise greater oversight to ensure that investigators avoid taking on contracts that are not properly resourced."

THE FUTURE OF RESEARCH, UNIVERSITIES UK, 2010 (SEE FOOTNOTE 46)

4.14 A major outcome of developing TRAC and fEC data is a greater understanding of the challenges to financial sustainability caused by the under-funding of research. The costs of undertaking the total volume of HE research are estimated to exceed income by around £2 billion pa, with the overspend made up from other income and associated cross-subsidy. The following Table shows estimated surplus and deficits for the main sources of research income:

TABLE 2: TRAC RESEARCH INCOME/EXPENDITURE 2008-9 (£M)[48]

	HEI OWN FUNDED	POST-GRADUATE STUDENTS	RESEARCH COUNCILS	OTHER GOV'T DEPTS	EU	UK CHARITIES	INDUSTRY	TOTAL
Income	2,031	639	1,592	755	339	949	729	7,034
Costs	1,860	1,161	2,139	1,004	559	1,534	964	9,221
Surplus/deficit	171	-522	-547	-249	-220	-586	-235	-2,187
Surplus/deficit as % costs	9%	-45%	-26%	-25%	-39%	-38%	-24%	-24%

45 For details see www.rcuk.ac.uk/aboutrcuk/efficiency/qav.htm
46 Cited in www.universitiesuk.ac.uk/Publications/Documents/TheFutureOfResearch.pdf
47 TRAC Development Group, (8 March 2010), www.hefce.ac.uk/finance/fundinghe/trac/tdg
48 Universities UK, (2010), Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions, (page 12), op cit

4.15 Ensuring fEC has become important for a number of reasons:

- If research is being subsidised, it follows that any expansion risks even greater subsidy and long term financial viability.
- Without fEC there is a danger that HEIs will undercost research proposals in a bid to enhance performance in the REF.
- Subsidising research from teaching will be impossible given the need to demonstrate value for money in future student fees.
- fEC encourages HEIs to provide for ongoing infrastructure costs, which parts of the sector have been inclined to ignore.

4.16 A survey of HEIs undertaken by the Universities UK/RCUK review of the impact of fEC, suggested that management practice has improved in response to the fEC/TRAC agenda. For example, the previous practice of managing for 'accounting breakeven' has generally been replaced. Research offices within HEIs typically assist in costing applications, and most HEIs have internal processes to vet proposals and ensure financial viability. However, the study noted differences between HEIs on the rates of full cost recovery for research, and possible factors include: institutional size, the volume and nature of research activity, and how research is managed.

Financial sustainability and trigger metrics

4.17 The development of TRAC data has given rise to the growth of so-called comparative 'trigger metrics' for research, which are based on standard data in HESA returns. These are explicit performance indicators, and consist of 15 main items plus some variants, and are reported biannually to the Research Base Funders Forum[49]. A sample of these metrics includes: TRAC adjusted operating research surplus/deficit; gearing ratios; research income per academic FTE; etc. These potentially form valuable comparative performance indicators of the kind generally welcomed by governing bodies. Indeed, some HEIs have adopted some of these metrics into board level KPIs (see Chapter 6).

4.18 The 'Wakeham Review' of fEC cited above noted the potential value of these metrics for both HEIs and policy makers, and concluded that they have played an important role in developing a mechanism for understanding whether the sector is financially sustainable, and providing research funders with some level of reassurance.

fEC and charity funding

4.19 A specific issue for many HEIs is how the move towards fEC relates to research funding by charities. The national position concerning charity funding of research is described in Chapter 2, but - in summary - in 2008-09 around 22% of UK project research income was received from charities.

4.20 fEC has generally made HEIs more aware of the internal subsidies provided to charity research. The RCUK/Universities UK review of fEC[50] noted that total fEC recovery on charity funding may be around 78%, of which about 60% may be directly from charities and 18% from the funding councils charity support (CRSF). Although CRSF funding is welcomed by HEIs, and the funding bodies and some charities continue to work together to strengthen understanding of the percentage recovery of fEC on

[49] The Research Base Funders Forum brings together governmental and non-governmental funders of public good research to consider the collective impact of their strategies on the sustainability, health and outputs of the research base.

[50] RCUK/Universities UK, (2009),Review of the Impact of Full Economic Costing on the UK Higher Education Sector, op cit

research grants, it is clear that most charity research continues to be underfunded in fEC terms. A particular challenge for governing bodies will therefore be to continue to try and ensure greater financial sustainability in relation to charity research funding.

Funding research libraries

4.22 A small but challenging aspect of research funding is meeting the costs of providing library services to support research. Although much of this will not be of direct interest to governing bodies there is at least one area that is: the increasing costs of physical storage of little used library materials.

4.23 For research-intensive HEIs anxious to reduce costs, eliminating little used storage material has obvious attractions. To support this a national collaborative scheme exists (the UK Research Reserve), whereby research libraries can reduce the storage volume of print collections and rely on other libraries to provide material on the rare occasions that it might be required. The scheme operates through subscription, and although obviously attractive in principle, results in an interesting financial model in that participating research libraries are paying for access to materials which by definition are seldom required - a rarely encountered conception of value for money! Beyond the obvious need for governing bodies to require a reduction in storage costs, perhaps the main message for governors here (as in other areas) is that behind a seemingly simple problem (reducing library storage costs) is an issue of some complexity requiring professional advice, and on which librarians will have a strong view.

Immediate financial challenges for governing bodies

4.24 Clearly the financial environment post 2011 is going to be very difficult for many HEIs, and any contraction of the research budget will have major implications. As a result, a review of the research strategy is likely to be necessary in most HEIs. In this context it is important that governing bodies not only take account of the recommendation of the Wakeham report cited in paragraph 4.3, but also consider the other proposals that it made:

- That some HEIs and governing bodies need to use 'trigger metrics' data on financial sustainability more effectively.
- That in driving down costs the "greater intensity of utilisation of assets by HEIs should be encouraged, particularly the sharing of research equipment and facilities".
- That greater analysis is needed of TRAC returns, and that finance committees (or equivalents) should review year-on-year changes, including to fEC rates.
- That HEIs should drive down indirect research costs by an annual 5% reduction for three years from 2010-11.

SUGGESTED TASK

Has the management of your HEI brought the recommendations of the Wakeham Report to the attention of the governing body?

4.25 Clearly, in most HEIs the primary management responsibility for such challenges will rest with a combination of the finance director, the PVC responsible for research (or similar), and the central research office. However, the governing body will need to pay more explicit attention to such issues than in the past.

[36] QAA (Sept 2010). Audit of Overseas Provision, Malaysia. Overview Report at www.qaa.ac.uk

Self-challenge questions

- Does your governing body receive accurate fEC data on research costs, and what are the implications for its financial sustainability?
- What is the extent of cross-subsidy involving research in your HEI, including cross-subsidy with teaching?
- How well informed is your governing body to understand some of the financial challenges concerning the future funding of research?
- What is the condition of the research infrastructure in your HEI, and what investment is required?

A GOVERNOR'S DILEMMA 1:

Your HEI has an active research profile and receives substantial research funding. Although your governing body has formally approved the institutional research strategy it has never had a substantial discussion on the financial sustainability of research, and indeed how internal resource allocation for research is undertaken appears to be a mystery to the governors that you have informally asked. The main oversight of financial issues takes place in the finance committee (of which you are not a member), and although its minutes are presented to the full governing body, in practice only a few items ever get discussed, largely due to the pressure of other business. Looking at the minutes of the finance committee for the past couple of years you cannot see that it has had a major discussion about the financial sustainability of research. You wonder if the governing body is meeting its responsibilities for ensuring financial sustainability in this important area, but are not sure what to do. You certainly have no wish to be seen to undermine the governing body chair, the head of institution or the PVC research all of whom you have full confidence in, and moreover as this is a fairly specialist area you have no wish to embarrass yourself by asking a seemingly stupid question. What action might you take?

5. KNOWLEDGE TRANSFER

5.1 Expanding the role of HEIs in supporting knowledge transfer to business and the community is an increasing priority, and is a major policy expectation of government. However, it brings additional responsibilities for governing bodies, and important issues are raised in terms of knowledge transfer strategies, monitoring associated institutional performance, and a host of legal issues - not to mention obvious potential risks. This chapter summarises such issues, and provides references for governors who want to know more.

5.2 Knowledge transfer covers a wide range of activities:

- Collaborative research, including sharing facilities.
- Knowledge flow in many forms, for example brokering and networking, knowledge transfer partnerships, etc.
- Commercialisation typically involving the exploitation of an HEI's research. Common approaches are: spin out or start-up companies; developing science or technology parks; and paid consultancy. Such commercialisation is likely to be of direct concern to governors, and forms the bulk of this chapter.
- Support for local businesses or community engagement is a focus for many HEIs. Indeed a recent report on intellectual property by Professor Paul Wellings[51] highlighted that the social and economic benefits arising to society from HEI inventions may be greater than the direct financial returns to HEIs.

5.3 Space does not permit examples of knowledge transfer activities, but extensive illustrations and case studies are available for governors to consult. For example see a review by RCUK on 'Achieving Investment in Research Through UK Partnership'[52], or some of the other publications cited in this chapter.

5.4 Most HEIs active in knowledge transfer have established specialist units to provide advice to those concerned, and - where necessary - to the governing body. The range and size of such services vary, from those concentrating on a relatively narrow range of advice, to others that offer a broad range of integrated support. Institutionally there is no single 'correct' way of managing and governing knowledge transfer and commercialisation, and governors need to make a judgement about what works best in their own institution.

A national overview

5.5 Probably the most useful source of data about the national state of knowledge transfer is the Higher Education - Business and Community Interaction (HE-BCI) survey[53] published annually by Hefce. The latest one (2008-09) showed an increase in the overall exchange of knowledge between UK HEIs and other sectors of approximately 5.5% (from £2,812M in 2007-08 to £2,966M in 2008-09), despite economic conditions where GDP fell by 2%.

The University of Leeds has defined the criteria for its partnerships as follows:

"a) It should be explicitly contributing to the core academic mission of a faculty or the University ie it should align with our core mission of being a research intensive university that puts the relationship between learning and teaching at the heart of its approach to educating students.

b) It should be with an institution that has a

"Commercialisation is an area which is increasingly troubling me, and I don't think our Council has really got a grip on what is involved, or the potential risks we are incurring. It's on my list of things that need tackling next year."

CHAIR OF A UNIVERSITY FINANCE COMMITTEE

51 See www.bis.gov.uk
52 At www.rcuk.ac.uk/cmsweb/downloads/rcuk/publications/impactsfull.pdf
53 Higher Education - Business and Community Interaction Survey 2008-09, at www.hefce.ac.uk/pubs/hefce/2010/10_14

5.6 Not surprisingly, the data showed notable variation by both type of activity and institutional effort, and highlights include:

- Income from collaborative research rose by 5% and from contract research by 12%.
- The exploitation of intellectual property (IP) continued an upward trend with 2097 patent applications made by HEIs and 653 granted, although there is typically a long timescale between application and grant.
- Income from IP (excluding sale of shares in spin-offs) increased by 24%, as did the spending on the protection of IP by over 30% from £21 million to £28 million.

5.7 Despite such growth, income attributable to IP exploitation is a small proportion of revenue (£37M) and is concentrated in a minority of HEIs. In total, only 54 HEIs reported income from this source in 2008-09 and in only nine did it exceed £1M.

"I hate to think of the potential liabilities we are incurring out there [in the HEI], with deals being done all over the place that we know nothing about. We've had a couple of narrow squeaks over IP, and I imagine we may have a few more!"

FINANCE DIRECTOR OF AN HEI

5.8 Although there is a general perception that UK HEIs are poor at commercialising research outcomes, this view has recently been challenged in a comparative study with the USA[54]. This concluded that although US institutions play a greater role in regional and community development, some aspects of commercialisation are more developed in the UK, where HEIs have gone further in introducing knowledge transfer as part of promotion criteria.

5.9 To support knowledge transfer, HEIs receive financial support through their funding bodies. In England the Higher Education Innovation Fund (HEIF) provided £112M in 2008-09, allocated through a formula allocation to HEIs with 40% based on FTE academic staff numbers and 60% against defined performance measures (including income from business and non-commercial sources). In the 2010 Comprehensive Spending Review this was increased to £150M. In Northern Ireland, HEIF is administered by the Department for Employment and Learning and consists of two elements: 20% foundation funding split equally between the two universities and focused on strategic longer term planning, and 80% formula funding split on the basis of performance metrics. In Scotland, support is provided in two ways: through a knowledge transfer grant of £70K to each HEI, and a larger horizon fund on a targeted project basis. In Wales, the reconfiguration and collaboration fund promotes collaboration between HEIs (although this supports developments across the full range of activities not just research based knowledge transfer).

Intellectual property (IP)

5.10 IP is the output of creative endeavour with potential commercial use, and protecting IP rights (IPR) is a crucial part of ensuring that research outcomes can be used commercially. It includes patents for inventions, copyright, design rights and trade marks. All HEIs should have agreed IP policies, monitored by governing bodies[55]. Typically, most HEIs do not claim ownership of academic copyright, but increasingly do retain ownership of other forms of IP created by their employees. However, as research students are not normally employees any IP generated by them may belong to the student, unless a contract has been signed assigning IP to the HEI, and this is becoming increasingly common practice.

[53] Higher Education - Business and Community Interaction Survey2008-09, at www.hefce.ac.uk/pubs/hefce/2010/10_14
[54] PACEC, (2010), The Higher Education Knowledge Exchange System in the United States, at www.pacec.co.uk
[55] A useful source for information on IP is the Intellectual Property Office at www.ipo.gov.uk

5.11 Although patents are the form of IP most frequently encountered in the research environment, governors need to recognise that within HEIs there is also pressure to disseminate research outcomes freely in the public domain, for example there is a significant current debate about the benefits of 'open source' material.

5.12 Assessing the value of IP can be very difficult and most patent applications fail to generate significant (or any) revenue. As a result there is a danger of HEIs overestimating the potential value of IP, and a report for government on negotiations between HE and business[56] observed that HEIs may have unrealistic expectations about the potential scale of IP rewards. In practice (and with some notably successful exceptions), income from IP in HE tends to be very small in comparison with that from collaborative research, and even in the USA income from IP commercialisation typically only represents a fraction of the income of research universities. The costs of protection and enforcement may also be considerable and have an impact on potential profit.

SUGGESTED TASK

How does your governing body receive assurance that institutional practice re IP is satisfactory?

5.13 Whilst the probability that research will lead to a 'blockbuster' piece of IP that generates major revenues is generally small, the fear of passing up such major potential is often significant, with pressure from academics who want to ensure that appropriate incentives exist commensurate with their effort. Moreover, academics often derive kudos from patent grants irrespective of success.

5.14 There are a host of technical issues concerning IP that a governing body would need to seek advice about, but it does need to be confident that appropriate policies are in place, including robust financial, risk, and legal arrangements. IP is a very complex legal area and although some external governors may have experience of it in their own professional work, they should be careful of providing any advice and - in general - restrict themselves to an oversight role in this area, or a potential role conflict might exist. An occasional review of IP may also be a useful task for internal audit. At a minimum, governing bodies do need to know what IP practice exists in their institution, and how effectively it is operated.

Spin-outs and licensing

5.15 Spin-out companies are increasingly used by HEIs as a means of commercially exploiting IP. They are independent businesses and there are numerous reasons why HEIs might want to create them: to avoid conflict with charitable status (see below); to mitigate risk by creating independent legal entities; to create more flexible organisational structures than exist in typical academic departments; and to create an investment vehicle well understood by potential partners. Of course, spin-outs will often bring with them expertise that an HEI does not possess, and which would be expensive to obtain. A simpler alternative is to license a third party to invest in the IP concerned, with a proportion of income paid in return. This might be undertaken on an individual basis for each piece of IP, or increasingly through a broad agreement for multiple IP applications between an HEI and a third party. This has several attractions, not least that it brings expertise that an HEI may not possess.

[56] DIUS, (2007), Streamlining University/Business Collaborative Research Negotiations, at www.bis.gov.uk/assets/biscore/corporate/migratedd/publications/f/file41123.pdf

5.16 Not all spin-outs will succeed (indeed most probably do not), and not all research is suited to this type of exploitation. In addition to requiring staff with business acumen, many spin-outs will need investment beyond the capacity of an HEI to provide. Moreover, the provision of highly risk based investment is a very specialist area.

"The problem is that the SMT appear to think that you solve all your problems by creating separate legal identities. But if something goes wrong and you've got your name plastered all over the thing, you're still going to get stuck with all the backlash from the reputational fallout."

EXTERNAL GOVERNOR

5.17 Determining how revenue generated will be split between an HEI, the researchers and the investors can be complex, and there are no standard distribution models. Moreover, the ownership of IP cannot be assumed, and an HEI must ensure that it has legal title before considering exploitation. The original funders of the research might also have an interest in the return on their investment, but in practice this is difficult to achieve. Spin-outs are usually established on the basis of IP derived from a number of different research activities and it will often be difficult to determine which particular piece of IP makes the most significant contribution to success. In addition, investors and venture capitalists are generally reluctant to deal with multiple shareholders, hence a spin-out is more likely to be successful if all the equity is vested in a single source.

5.18 Although spin-outs have obvious potential advantages and may seem a relatively straightforward way for HEIs to operate commercial knowledge transfer activities, they are not without problems and issues for governing bodies include:

- HEIs may open themselves to substantial risk, notwithstanding separate legal arrangements, for example, over liability.
- Many - perhaps most - spin-outs are likely to become non-viable over time, perhaps with residual financial consequences.
- Irrespective of the separate identity of the spin-out, the founding HEI may continue to be at potential reputational risk.
- The professional infrastructure needed to support an innovation to spin-out stage is substantial and overhead costs may be high.
- In practice there may be potential conflicts of interest, for example, should HEI staff or governors be allowed to invest in or own shares in spin-outs, and should board membership of spin-outs be used as incentive for senior managers?
- Irrespective of a separate legal status, if spin-outs face serious difficulty a founding HEI may come under severe pressure from investors, whose appetite for legal action (and the size of their litigation pockets!) may be greater than those of the HEI.
- When combined with wholly and partly owned HEI companies operating standard commercialisation activities, there is a danger that a substantial number of spin-outs may lead to a complex organisational structure which does not easily fit with traditional governance in HEIs. The ways that governing bodies might address this are reviewed in the next chapter.

Charitable status and knowledge transfer commercialisation

5.19 As charities, HEIs have to comply with Charity Commission requirements, and there are defined responsibilities of governors in acting as charity trustees[57]. The regulator acting on behalf of the Commission is different in the four UK jurisdictions.

[57] For a useful summary of Charity Commission requirements see www.hefce.ac.uk/finance/charities

Commission requirements influence issues such as what research and knowledge transfer can be defined as charitable; what financial and other benefits can be obtained in furthering charitable aims; and how HEIs need to structure non-charitable research. This is a specialist area, and governing bodies require legal advice.

5.20 The British Universities Finance Directors Group (BUFDG)[58] has provided guidance that the majority of HE research is consistent with charitable status. However, requirements include that research must be on a useful subject, that results should be disseminated, and that research should benefit the public (with private benefit being only incidental). The BUFDG guidance addresses whether research involving a commercial partner can be charitable, and concludes that it can, the main barriers being possible limitation on dissemination and avoiding private benefit to the partner. If an HEI is simply paid to carry out research for a commercial partner this is unlikely to meet Charity Commission requirements.

5.21 Where there is doubt about the charitable status of knowledge transfer activities it is therefore generally wise to carry it out through a separate subsidiary. However, there are also Charity Commission rules on the relationship with subsidiaries, and particular issues arise over how the subsidiary should be funded and its financial stability. Spin-outs that are legally and financially separate ventures from the initiating HEI are usually the most straightforward vehicle to pursue commercial knowledge transfer, but complications may occur if an HEI has a high level of involvement in the operation of spin-outs, for example through substantial investment of 'public' money, through co-investment, or excessive governing body representation on a subsidiary board.

Science and technology parks

5.22 In recent decades, the establishment of science and technology parks across the UK has launched hundreds of technology and knowledge-based companies, strengthening the links between research and enterprise and supporting knowledge transfer. The United Kingdom Science Park Association (UKSPA)[59] provides information on science parks and innovation centres, and estimates that in 2008 there were 3094 tenant companies among the 72 parks in its membership employing 73,603 people. How parks are run varies, from single ownership by HEIs, local authorities or private companies to various forms of partnership.

5.23 In practice, there are different kinds of science parks:

- Those that have stayed close to the original idea of supporting HEIs and knowledge transfer and have therefore sought to attract primarily high-technology businesses.
- Innovation centres specifically geared towards the needs of SMEs, and which may provide a controlled environment for the incubation of new firms.
- More general industrial parks where businesses may gain advantage from being in close physical proximity. At a minimum this may involve the park simply selling space.

[58] See www.bufdg.ac.uk
[59] See www.ukspa.org.uk

5.24 A review of UK parks by UKSPA[60] concluded that the broadening of the original concept of science parks has to some extent devalued the idea, and that there is a need for the knowledge transfer aspects of parks to be re-emphasised to regain value in the market place. The study also noted that for many HEI owned parks the key benefits are often associated with the physical attributes of a park, although there is now increasing interest in the contribution that parks can make to a local economic development agenda.

5.25 It follows that governing bodies considering the desirability of new parks, or reviewing the effectiveness of current ones, need to be clear about the strategic rationale for becoming involved. Despite the fame of some HEI parks, not all have been a success, and several governing bodies have found themselves dealing with the consequences of poorly planned ventures established without adequate planning, risk assessment, or exit strategies. Commercialisation of this type poses specific challenges to HEIs, and the necessary experience may not exist to ensure either effective management or governance.

Consultancy

5.26 In most HEIs consultancy is a modest element of knowledge transfer, and typically only involves a governing body on matters such as: overall policy on consultancy; the implications of the charity regulations summarised above; the extent to which individual members of staff are permitted to undertake consultancy and the contractual and reward implications; determining how the name of an HEI can be used by its staff when acting as consultants; the conditions on which institutional property and equipment might be used; the potential liability of an HEI for consultancy undertaken by its staff; and how risks (including reputational ones) can be mitigated.

5.27 Most HEIs will have policies on such issues, and it will usually be important to ensure they are integrated into HR practice. Typically the opportunity for consultancy varies by academic discipline, and may be encouraged by HEIs as a way of increasing the overall remuneration package available to academics who are in demand in the market place. In some HEIs academics may be permitted to undertake up to one day a week of consultancy (or other outside activities) without seeking approval, and this is clearly a substantial hidden cost. Other institutions pursue more restrictive policies. As a result, transparency about consultancy arrangements is generally desirable, as this provides a realistic picture of institutional effort in this area. In any case, it is rarely in an HEI's interest to drive consultancy underground.

5.28 A particular issue which may grow in significance is the view of some charities about limiting the opportunity for the researchers they fund to undertake private consultancy which uses the results of funded research. If such restrictions become widespread, they may raise important contractual issues on the use of charity funded IP which will need to be clarified as part of initial contract negotiations.

[60] UKSPA, (2003), Evaluation of the past & future economic contribution of the UK Science Park Movement at www.ukspa.org.uk/ContentFiles/UKSPAEvaluation-ExecutiveSummary.pdf

Working with business and industry on knowledge transfer

5.29 The issue of how HE works with industry has been widely discussed in recent years, indeed some HEIs have explicitly adopted a strategic 'business facing vision'. Overall, conclusions vary on the state of HE business collaboration over research and knowledge transfer. Whilst there are, of course, very many examples of successful relationships, potential problems exist and there is a need for consistent good practice between HEIs and business in undertaking collaboration.

5.30 A useful study by the Council for Industry and Higher Education (CIHE) and the Centre for Business Research (CBR)[61] explored HEI-industry links and drew conclusions relevant to governing bodies. They noted the need for effective knowledge transfer policy to be based on practical evidence of what works and why, and the importance of clear institutional practices, particularly in building effective working relationships with collaborators and not just relying on contractual agreements.

5.31 The CIHE report also noted that businesses value the broad perspectives contributed by academics, and a significant result from the study was identifying the variety of the types of impact that HEI-business collaborations have on the research value chain. These extend far more widely than the traditional view, whereby a technology developed in an HEI is incorporated into a commercial product.

5.32 Whilst almost every HEI has its own strategy on collaborative research and knowledge transfer, the CIHE study concluded that the aims of such strategies were not always clear or well communicated, and consequently sometimes deployment was weak. In this context the DIUS report on HE-business research negotiations cited above concluded that a clear statement from a governing body and senior management stressing agreed aims and potential benefits would help those negotiating collaborative activities. It therefore formally recommends the policy in the side box.

5.33 Various guidance is available for HEIs and any companies that wish to undertake collaborative research projects, most notably a set of model agreements and documents known as the 'Lambert Toolkit' - available on the website of the Intellectual Property Office[62].

"Senior management in each university should issue clear policy statements setting out their aims for collaborative research relationships with industry, so that there are clear messages to academic staff and those staff negotiating on their behalf. This should ideally be endorsed by the university's appropriate governing body."

STREAMLINING UNIVERSITY/ BUSINESS COLLABORATIVE RESEARCH NEGOTIATIONS, DIUS, 2007 (SEE FOOTNOTE 56)

The costs of industry based knowledge transfer

5.34 Perhaps the main practical challenge to furthering HEI-business links over collaborative research and knowledge transfer is cost - an issue that has been receiving increasing attention.

5.35 A report by an Association of Medical Research Charities on working with industry sets down numerous practical guidelines for enhancing collaboration and knowledge transfer, and notes that the funding gap for translation from basic research to commercial application is widely recognised. There have been two main reasons for this: first, basic research is often too early or too high-risk to be pursued

61 CIHE, (2008), 'Universities, Business and Knowledge Exchange at www.cihe-uk.com/category/themes/key/collaboration
62 www.ipo.gov.uk/lambert

by industry or other investors, which may not see a technology as attractive until the risk has been reduced at 'proof of concept' stage. Second, for applications without large markets the commercial drivers may be too weak to encourage investment.

SUGGESTED TASK

As a governor, what is the evidence about the price competitiveness of your own HEI's knowledge transfer activities, and in what way is the governing body informed?

5.36 However, there is increasing concern that research and knowledge transfer in UK HE may be becoming less price-competitive, indeed the cost of sponsoring research in UK HEIs is now among the most expensive in the world[64]. This suggests that whilst HEIs must seek to recover fECs when there is the opportunity to do so, the non-financial benefits that accrue from business research collaboration must also be taken into account, for example access to proprietary materials or new technologies.

5.37 In trying to maintain this balance between ensuring fEC and other benefits of collaboration, the RCUK/Universities UK review of fEC[65] noted that an average of 75% of fEC is recovered by HEIs in contracts with industry. A majority of HEIs regularly use TRAC to calculate the cost of a project prior to negotiation, although some HEIs report that, while there are general institutional guidelines on pricing, many decisions will take place on a case by case basis.

5.38 In seeking data on the effect of fEC on commercial research pricing, the same report noted a general belief that few businesses will pay 100% fEC (particularly SMEs), and the 80% provided by research councils is more common. A perception reported from some commercial sponsors was that HE is paid for by the taxpayer and therefore research should be priced below cost. The report concluded that there was no firm evidence of significant numbers of research contracts being lost to overseas competitors, although some HEIs believe that this 'threat' has become part of the rhetoric of a number of commercial partners.

5.39 In the light of such comments the RCUK-Universities UK review called for a streamlined negotiating process between HEIs and partners and more business-like delivery of knowledge transfer outputs. To enhance good practice it made the two recommendations highlighted in the side box.

"To facilitate contract negotiation with business, HEIs should a) develop a clear and explicit formulation of the factors to be taken into account when making decisions on the pricing of research which is funded by business or government, and b) implement an appropriate level of delegated authority for negotiators."

REVIEW OF THE IMPACT OF FULL ECONOMIC COSTING ON THE UK HIGHER EDUCATION SECTOR, 2009 (SEE FOOTNOTE 65)

Self-challenge questions

- How does the governing body keep issues concerning all aspects of risk in relation to knowledge transfer under review?
- What is your institutional pricing policy in relation to knowledge transfer activities, and to what extent do you achieve full economic costs?
- Looking forward, what are the strategic challenges facing your HEI in relation to knowledge transfer?
- How systematic is your HEI in identifying and exploiting opportunities for knowledge transfer. and how is this reported to the governing body?
- How strong is the local and regional reputation of your HEI for knowledge transfer, and what might the governing body do - if anything - to enhance it?

64 Universities UK/RCUK, (2010), Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions (2010) op cit

65 RCUK/UUK (2009), Review of the Impact of Full Economic Costing on the UK Higher Education Sector, op cit

A GOVERNOR'S DILEMMA 2:

Although your HEI provides encouragement for academics to undertake knowledge transfer through a central support office, as a governor you think the activity might be more encouraged and better coordinated. Although the governing body is informed about the main commercial ventures, over the years as a governor you keep coming across various initiatives (including in one case a university company) that the governing body knew nothing about, and arrangements about IPR and similar issues seem to vary depending on who is involved. You wonder whether more consistent reporting procedures should be introduced, but some internal elected governing body members appear to favour the current flexible approach. You are also concerned about straying into management and operational issues, so you need to reflect on what reports the governing body should receive in this area. What is your answer?

6. GOVERNING BODY RESPONSIBILITIES FOR RESEARCH AND KNOWLEDGE TRANSFER

6.1 The preceding text raises numerous issues for governing bodies, and this chapter brings them together to give an overview of the main board responsibilities for research and knowledge transfer. Clearly, how these are undertaken will vary widely depending on the volume of research in any particular HEI. For research intensive universities much regular board business will involve oversight of the research environment, whereas for boards in mainly teaching HEIs research is likely to be an occasional topic and based on particular initiatives.

6.2 The main issues considered below are:

- The overall responsibility of governing bodies in this area.
- Research strategies and monitoring performance.
- The oversight of research governance.
- The HR implications of research and knowledge transfer.
- Risk in relation to research and knowledge transfer.
- Governing body structures for oversight of research and knowledge transfer.

Board responsibilities for ensuring the financial sustainability and full economic costing of research are set out in Chapter 4.

The overall responsibility of governing bodies for research and knowledge transfer

6.3 Responsibility for governance in this area is shared between the governing body and those responsible for academic governance (typically a senate or academic board and probably including a research committee). The separate volume in this series on academic matters explores in detail the division of responsibilities between these bodies, a discussion that is not repeated here.

6.4 Suffice it to say that the key principles are: that the governing body has ultimate responsibility for all matters in an HEI (subject to its own regulatory documents), but that the content, conduct, review, and publication of research is mainly a matter of academic governance, and raises important issues in the maintenance of academic freedom and free speech. In practice, therefore, the main responsibilities of governors will be limited to more corporate issues, but these are crucial in ensuring an appropriate research infrastructure (which is part of the new REF - see Chapter 3).

6.5 Governing body responsibility for knowledge transfer tends to raise different issues, and as noted in Chapter 5 includes ensuring suitably robust arrangements for IPR, spin-outs, and so on. It is essential that governing bodies are clear about their responsibilities in relation to the management and governance of any other entities involved including any commercial enterprises that have been established. Typical governance structures for doing this are summarised below.

Research strategies, monitoring performance and KPIs

6.6 As noted in Chapter 4, most HEIs have a research strategy that has usually - but not necessarily - been formally approved by a governing body. Where this has not been done, it is typically because governance arrangements make the senate/academic

board responsible for all academic matters, with no history of governing body involvement. Of course, all governing bodies will be involved in approving financial and associated strategies which provide the research infrastructure. Clearly, the future financial challenges facing research will almost inevitably mean more governing body involvement in approving and monitoring research strategies.

6.7 The four UK HE funding bodies do not formally require HEIs to adopt a research strategy. However, many of the large charities do, and the Association of Medical Research Charities requires its own members to adopt research strategies[66], not least because of the benefits from clarifying the basis of research collaboration and partnership that result.

6.8 In practice, research strategies tend to be of three kinds:

- A devolved approach, where strategy is set by academic departments although perhaps based on centrally agreed parameters. Many research-intensive HEIs work in this way, and adopt a 'light touch' strategy in which the role of the centre is to provide support and incentives.
- A centralised approach where HEIs have a more directive approach to strategy. While much of the responsibility for achieving this might rest with departments, in this approach HEIs tend not to leave enhancing research performance to local action, and have specific policies in place to achieve it.
- HEIs with a modest research profile who are seeking to develop it, typically adopt a targeted approach to investment into selected areas, which might include specific policies to support and develop staff for a research role.

6.9 To support the monitoring of research strategies, many HEIs have developed their own performance indicators (PIs), and their use has been encouraged by the CUC[67] with the major ones becoming KPIs. The CUC's suggested PIs were:

- Research outputs by appropriate measure.
- Research income, total, % and by type of sponsor.
- Research income per academic, by trend and by academic area.
- Numbers of research active staff.
- Cost recovery on research, by sponsor type.
- Success rates on research grant applications.
- Number of postgraduate students.
- Number of postgraduate awards.

6.10 For knowledge transfer, strategic PIs suggested by the CUC include:

- 'Other' income as % of total income.
- Proportion of academic time on knowledge transfer activity.
- Percentage of research income from commercial sponsors.
- Measures of exploitation of IP (spin-outs, patents, etc).
- Number and quality of strategic partnerships.
- Engagement with local and professional communities.
- Success of alumni, fund raising, and sponsorship activity.

SUGGESTED TASK

As a governor, do you know what your institutional KPIs are for research, and how can you be confident that they are appropriate?

66 www.amrc.org.uk/news-policy-debate_policies-positions-and-guidance_guidance
67 CUC, (2006), The Monitoring of Institutional Performance and the Use of Key Performance Indicators, at www.bcu.ac.uk/cuc/publications

"We recommend that HEI governing bodies take a more proactive approach in assuring themselves that there is an institution-wide strategy for financial sustainability, and that the HEI has developed measures that assess the extent to which this is being achieved."

'THE WAKEHAM REPORT' (SEE FOOTNOTE 68)

6.11 The CUC also suggested indicators for financial sustainability which are noted in Chapter 4. The RCUK/Universities UK Review of fEC (see Chapter 4) examined the extent to which research sustainability is 'owned' by governing bodies, and noted that only some HEIs reported using the CUC indicators. It therefore recommended that more governing bodies should adopt this approach. This proposal has recently been re-emphasised by the Wakeham Review[68] of fEC for research whose recommendation appears in the side box.

6.12 As in other areas, many governors in research-intensive HEIs will be interested in benchmarking performance, and some data is available to support this. International data is also available, although care needs to be taken in ensuring meaningful comparisons. The most obvious source of information is the Academic Ranking of World Universities (Shanghai Jiao Tong University Institute of Higher Education)[69]. Less well known - and only available to HEIs who subscribe - is the USA based service 'Academic Analytics'[70] which documents research performance in US universities.

6.13 Finally, one important - and often ignored - issue concerns ensuring that the research strategy is consistent with the other main strategies (eg learning and teaching, HR, etc), and that a board has not approved strategies which conflict or are mutually inconsistent. Although this seems obvious, in practice it is not quite so easy as the various strategies are often written and discussed at different times, so that inconsistencies may only become evident during implementation, and therefore not obvious to a board. This argues for a regular strategic review which considers all key strategies together rather than as separate processes.

The oversight of research governance

6.14 The responsibilities of governing bodies are not just strategic and financial, and another important one is the general oversight of effective research governance. This is a widely used term within the research community, and although there is no agreed definition it is usually understood to be the overall processes by which research is undertaken, its quality maintained, appropriate accountability ensured, and professional standards of behaviour and conduct displayed. Although this will be done through the processes of academic governance (most obviously the senate/academic board and often a research ethics committee), a governing body should ensure appropriate oversight, particularly of regulatory matters.

6.15 Some aspects of research governance raise particular sensitivities, for example in relation to medical research there are important ethical issues such as use of personal data, treatment of research subjects, need for informed consent, health and safety, access to research data and publication, and so on. Well established codes of practice cover such areas[71] and compliance will be expected by most research funders. Clearly a governing body will rely on others for primary oversight, but as with other regulatory areas it does need assurance that robust processes are in place and operate effectively.

68 Universities UK/RCUK, (2010), Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions op cit

69 See www.arwu.org

70 See www.academicanalytics.com

71 See, for example, The new RCUK Code of Good Research Conduct at www.rcuk.ac.uk/review/grc/default.htm and the advice provided by the UK Research IntegrityOffice at www.ukrio.org.uk

6.16 A failure in any of these areas may have implications for a governing body even where it is not initially involved, for example, major reputational risk may occur when the local (or still worse national) media get hold of a potentially damaging story - real or imagined.

6.17 One well recognised example of major sensitivity in this area concerns animal experimentation. Notwithstanding that all researchers in HEIs where this is undertaken will be expected to comply with very strict codes of practice, animal experimentation brings with it major security and public relations issues. If called upon to address such matters, a governing body may have to display effective leadership in supporting academic freedom and independence, whilst overseeing effective regulatory compliance and thus avoiding the potentially serious legal consequences.

6.18 Needless to say, in this area as in others the personal views of governors should not intrude in carrying out their corporate responsibilities, and any governor opposed in principle to animal experimentation (where this has been agreed through appropriate research governance processes) should probably not serve as a board member. Similar ethical considerations apply to some sources of funding for research, for example by tobacco companies.

The HR implications of research and knowledge transfer

6.19 Ensuring effective HR practice is a widely recognised board responsibility, and is the subject of a separate volume in this series. Therefore the following comments only apply to specific issues concerning HR for research and knowledge transfer, and three are briefly highlighted: developing research careers; ensuring research staff productivity; and the future recruitment of high quality researchers.

6.20 The HR landscape in relation to research has changed substantially in recent years, most notably because of new employment law in relation to the use of fixed term contracts. In the past, the short term contract nature of much employment for researchers has been the cause of particular concern in the HE sector, with a feeling that more needed to be done to ensure consistent HR practice to support research careers. For example, in some HEIs many young researchers believe that demands to undertake heavy teaching loads mean too little time is available to develop research at a crucial early stage in their careers.

6.21 In recognition of this problem, all the key HE research stakeholder bodies have agreed a Concordat to Support the Career Development of Researchers[72] and there is an expectation that HEIs will implement it and governing bodies oversee it. The Concordat sets out the expectations and responsibilities of researchers, their managers, employers and funders, and aims to increase the attractiveness and sustainability of research careers in the UK.

6.22 The Concordat consists of a set of key principles together with guidance on how they might be embedded into institutional practice:

[72] For details see www.researchconcordat.ac.uk

SUGGESTED TASK

As a governor, have you ever heard of the Concordat to Support the Career Development of Researchers, and if so does your governing body receive any kind of report on its implementation?

- Recognising the importance of recruiting, selecting and retaining researchers with the highest potential to achieve excellence.
- Researchers are recognised and valued by their HEI as a key component of their strategy to deliver excellent research.
- Researchers are equipped and supported to be adaptable in an increasingly diverse, mobile and global research environment.
- Researchers' personal and career development is clearly recognised and promoted at all stages of their careers.
- Researchers share the responsibility for and need to engage in their own personal and career development.
- Diversity and equality must be promoted in all aspects of the recruitment and career management of researchers.
- The sector and all stakeholders will undertake regular and collective reviews of their progress in strengthening the attractiveness and sustainability of research careers in the UK.

6.23 The RCUK/Universities UK review of the impact of fEC on research has re-emphasised the importance of the Concordat and has proposed that HEIs should continue their support for it and monitor implementation[73], including that governing bodies increase their use of metrics. This might include data on: retraining budgets; policies for fixed term appointments; availability of postdoctoral bridging grants; policies for part time working; and so on.

SUGGESTED TASK

As a governor, have you seen information which convincingly identifies the reasons for variable productivity amongst researchers in your own institution? If so, does the HR strategy tackle the issues identified?

6.24 A second important HR issue is to ensure the productivity of research staff, to determine why research productivity varies, and whether action needs to be taken to encourage greater productivity even in research intensive HEIs. Beyond generic HR issues and obvious factors such as access to funding, available facilities, and disciplinary differences, variations in individual research productivity may be influenced by a wide range of factors, including:

- Departmental organisation, support, and culture.
- Competing workload pressures and the varying personal priorities of researchers in meeting them (including commitment to teaching, the volume of postdoctoral supervisions, etc).
- Personal factors such as the extent of self-confidence and self-awareness in relation to research publication.
- Appropriate support in the development of research careers, for example through building networks for research collaboration.

It follows that when developing HR strategies care may need to be taken to avoid assuming that there are simple solutions to increasing research productivity, and that it is entirely the responsibility of the individual researchers to deal with issues for themselves.

6.25 Some evidence also suggests that gender issues may influence research productivity, leading to a need for governing bodies to take full account of equal opportunities and diversity. For example, one study[74] concluded that women researchers consistently publish less than men, with an obvious consequence for careers, and that in some

73 RCUK/UUK (2009), Review of the Impact of Full Economic Costing on the UK Higher Education Sector, page 23 op cit

74 Brew A and Boud D, (2009), Understanding Academics' Engagement with Research, in Brew A and Lucas L, Academic Research and Researchers, Society for Research into Higher Education and Open University Press, Berkshire. (page 192)

cases HEIs have been unwilling to address actively the discrimination that may result. Certainly one question for governing bodies (given their explicit duties in relation to equal opportunity) is to ensure that HR, equal opportunity and research strategies are integrated so as to avoid any charge of discrimination.

6.26 The third, and final, HR issue in this area is the future recruitment of high quality researchers. An overall analysis of HR development for researchers was published by RCUK in 2009 as a report on the 'Sustainability of the UK Research Workforce'[175]. This concluded that to date the recruitment and retention of researchers had not been a general problem for HEIs (although difficulties have existed in some subjects) and that staff turnover had been relatively low. However, the UK is increasingly dependent on the international recruitment of research staff - particularly those from Eastern Europe - which may have disguised any difficulties in research training for UK nationals.

6.27 So far as future recruitment is concerned, recent visa restrictions and the policy of the UK Borders Agency may limit the supply of qualified international researchers, and it also remains to be seen what effect any future reduction in research funding might have. As a result, some concerns have been raised about a future possible 'brain drain' among leading researchers.

SUGGESTED TASK

Does your governing body have a strategy for how your HEI is going to ensure a long term supply of suitably qualified senior research staff?

Risk in relation to research and knowledge transfer

6.28 Overall governing body responsibility for the oversight of effective risk management is generally well recognised, and all HEIs have risk processes in place. Some major risks in relation to research and knowledge transfer are self-evident and do not need elaboration, for example research projects involving significant capital expenditure or which may be publicly contentious. Conversely, much research is very low risk (for example, an individual humanities academic supported by a small grant), and may not even feature on any priority based risk assessment.

6.29 However, between these two extremes there may be significant risks in some aspects of research and knowledge transfer, and a governing body will need assurance that these are recognised within the existing risk strategy. There are probably four main kinds:

- Commercial and long term financial sustainability risks, which will typically be well understood by a governing body, particularly its external members.
- Legal risks of multiple kinds, for example, contract compliance and many aspects of commercialisation - including IP.
- Ethical and research conduct risks, where notwithstanding well recognised codes of conduct much potential risk is unlikely to be known to senior managers never mind a governing body, and may not feature in conventional corporate risk registers.
- Reputational risk which may manifest itself in various ways depending on the activities concerned and the public interest involved.

6.30 Such challenges are considered in the publication in this series on the governance of risk, but perhaps the main issue for governing bodies is that methods of risk assessment based on primarily financial or quantitative indicators may not always

75 RCUK, (2009), Sustainability of the UK Research Workforce, at www.rcuk.ac.uk?aboutrcuk/publications/policy/Sustainabilityresearchworkforce.htm

"The problem is that we don't have the right structure for overseeing all our commercial stuff. There are ventures all over the place, and we are trying to govern them through an old fashioned committee system that was designed for another purpose."

HEAD OF ADMINISTRATION OF AN HEI

highlight the true nature of potential qualitative risks. It follows that a regular review of risk issues associated with the research strategy is good practice, probably conducted by internal audit or the research support office.

Governance structures for research and knowledge transfer

6.31 Finally, what structures are typically available to governors to undertake their responsibilities in this area? So far as oversight of research is concerned, the main route is likely to be formal reporting by the senate/academic board coupled, perhaps, with occasional discussions which monitor strategy achievement. Structures beneath the senate/academic board tend to vary: in some HEIs there may be a single research committee whereas in others the function might be devolved to faculties or schools.

6.32 Within such a structure, matters from a senate/academic board tend to be dealt with in one of several ways:

- The governing body receives the minutes of the senate/ academic board and issues are raised as required.
- A short summary of senate/academic board issues is presented to the governing body (possibly accompanied by the minutes).
- No formal reporting mechanism exists but matters are presented to the governing body as necessary by the head of institution in his or her capacity as chair of the senate/academic board. At a minimum this may consist only of data on research income and major grant successes.
- An annual report on research (perhaps as part of a review of KPIs) often led by the senior manager or PVC responsible.

All these approaches have advantages and drawbacks and a governing body should ensure that the process used meets its requirements, and is not simply operated because of historical precedent or administrative convenience.

6.33 Governance structures for overseeing knowledge transfer are generally more complex, and usually closely related to issues of commercialisation. There are numerous legal and taxation issues (including the implications of charities legislation), and in practice the main governance structures underpinning knowledge transfer and commercialisation are:

- Governing bodies with a special committee, sub-group, or lead governor to oversee commercial ventures, for example, one HEI has a board 'Committee on University Companies', and another has a 'Business Ventures Group' which monitors investment in its commercial ventures and meets every six weeks.
- HEIs that place responsibility for commercialisation outside the main governance structure, and have a single focus for such activities, for example, an enterprise company with a separate board on which the HEI is represented.
- Governing bodies that take no special measures and deal with knowledge transfer through standard governing body routes, emphasising that control of commercial activities is primarily a management responsibility. This may involve reporting through a finance committee, or not involve the governing body at all.

6.34 All these approaches have strengths and drawbacks, and sometimes problems have been encountered because of a lack of active oversight by a governing body, and the incorrect assumption that no problems existed simply because they were not brought to its attention. This is dangerous practice, and - in extremis - may raise liability issues for governors.

6.35 Further afield, perhaps the most interesting innovation of commercialisation structures is the (unsuccessful) development of Melbourne University Private, an institution created to compete in trading activities with its parent institution. As might be expected, a whole host of issues resulted (and the reasons for the failure of the innovation are disputed), but it is an illuminating example of recognising the explicit constraints on commercialisation within an HE environment, and developing alternative structures.

6.36 There is also no common practice in relation to a number of more practical issues, for example, the role of members of a governing body and the executive in relation to membership of subsidiary company boards. Examples exist of HEIs where governors and the executive sit on wholly owned company boards in order to provide a link to the main governing body, and others where this is felt to be a conflict of interest with other externals being used. Remunerating board members of such companies can be controversial where it is not practised on the main governing body.

6.37 As the commercialisation of knowledge transfer grows in importance it is likely that the sector will see substantial changes in the way these activities are governed, with many HEIs adopting more private sector type approaches. Of course, there are numerous legal issues involved here, and any governing body considering changes to its structure of governance in this area would be well advised to obtain specialist legal advice.

Self-challenge questions

- On reflection, how effectively does your governing body meet its responsibilities for research and knowledge transfer?
- How often does your governing body discuss research, and is it done in a productive way?
- How does your governing body know that the processes of research governance in your HEI are working effectively?
- To what extent is HR practice in your HEI effectively aligned with research and knowledge transfer activity? Has your governing body ever discussed the consistency of the research and HR strategies?
- How effective are the governance arrangements in your HEI to support the commercialisation of knowledge transfer?

A GOVERNOR'S DILEMMA 3:

Although the governing body of which you are a member has formally approved the research strategy it did not have much time to discuss it, and was not encouraged to do so by the head of institution who argued that this was primarily an issue for the senate/academic board. However, you and several other governors are concerned to ensure that the strategy is realistic in the current financial climate, and avoids being over-aspirational.

You have raised the issue with the governing body chair, but she is slightly unwilling for it to be discussed at the next governing body meeting for fear of provoking a confrontation with the head of institution. Moreover, she asked you 'how are we to know what should be in the research strategy?' In thinking about what to do - if anything - you ask yourself the question: how can the governing body know whether the research strategy is unrealistic or not? What is your answer?

A GOVERNOR'S DILEMMA 4:

On the recommendation of the executive, a few years ago your governing body adopted a number of key performance indicators (KPIs) including a small number for research. These have been assessed on an annual basis and every year the research KPIs have been met. Initially you thought this was a sign of institutional success, but you are now starting to wonder if the indicators are challenging enough. You raised this casually with the PVC research who - in the nicest possible way - suggested that only those actively engaged in research were in a position to know what realistic indicators of research performance might be. You are not wholly persuaded of this argument, so what action might you take?

7. SOME FUTURE DEVELOPMENTS IN RESEARCH AND KNOWLEDGE TRANSFER

7.1 After the Comprehensive Spending Review (CSR) in 2010 the next few years will see major challenges for the future of research in UK HE. However, although financial issues will dominate, the other factors considered above will also be important, including: increased global competition; constant changes in technology with all the associated implications for scientific and medical research; and greater public and media interest, and - in some quarters - greater public scepticism about how science is conducted (for example the global warming debate).

7.2 Governors may look on as interested bystanders as government and the various stakeholder bodies and research interest groups formulate future national research policy, but they will be actively interested in the policy outcomes as these will be central to setting future institutional research strategy. Some of these policy questions have been set out in a recent report produced by Universities UK on 'The Future of Research'[76], and governors interested in a more comprehensive overview of future UK research might read it. Another useful document on a similar theme is the latest strategic vision of RCUK for the period 2011- 2015 which sets out a number of clear proposed priorities[77].

"Excellent research is expensive, but poor research is worthless. There are concerns that the UK system tries to do too much research, that the dispersion of resources across institutions is unbalanced, and that new arrangements are needed to support costly national and international facilities. A national reflection is required about the use of research resources."

UNIVERSITIES UK
THE FUTURE OF RESEARCH
(SEE FOOTNOTE 76)

7.3 From the UUK report and the other sources cited above, there are perhaps four key future challenges that are of direct relevance to governing bodies, and that all governors should watch out for. Each is very briefly summarised below.

Future funding and financial sustainability

7.4 The issues discussed in Chapter 4 are not repeated here, but clearly the major concern currently facing the research-active part of the HE sector is future funding. The relative protection of the science research budget (although without allowance for inflation) as part of the 2010 CSR has obviously been welcomed by those concerned, but elsewhere there will be significant funding reductions which are likely to affect the volume of research in many HEIs. Clearly, governors will need to be aware of, and take advice on, action required.

7.5 However, as discussed in Chapter 4, a crucial issue for governors is not only the state of national funding for research, but also the institutional financial sustainability of research. In this context the Wakeham Report[78] - with its recommendations for governing bodies to ensure greater effectiveness and efficiency in financial sustainability for research - is important reading for governors.

Continuing selectivity

7.6 The second future challenge of interest to governors is the inevitable continuation towards greater research selectivity. All developments point in this direction, and a

76 Universities UK, (2010), The Future of Research op cit
77 RCUK Strategic Vision at www.rcuk.ac.uk/Publications/policy/Pages/StratVision.aspx
78 RCUK/Universities UK, (2009), Review of the Impact of Full Economic Costing on the UK Higher Education Sector, op cit

SUGGESTED TASK

As a governor, are you confident that your governing body has the information it needs to consider and approve a strategy for research and knowledge transfer in the next few years?

reduction in research council funding is bound to lead to changes in the nature of grants being awarded. For example, in March 2011 Hefce announced that it had lessened the financial weighting given to research assessed in the 2008 RAE as 'internationally recognised' and redistributed funding to higher rated provision.

7.7 As a result, governing bodies will need to be clear that institutional research strategies (and associated internal resource allocation systems) are robust enough to support the difficult decisions that may be necessary about the future of particular research activities or groups that do not meet the challenge of greater selectivity.

7.8 One aspect of increasing selectivity - particularly in STEM research - may be greater attention to whether intensive research should continue to be undertaken alongside teaching in university departments or whether separate research institutes are a better approach. There are strong views here, and the Universities UK Future of Research report argues forcefully in favour of the current system, as would most governing bodies in the HEIs concerned. However, others take a different view, for example, an influential review in 2010 on the future role of technology and innovation centres commissioned by Lord Mandelson[79] questioned whether the current structures provided sufficient encouragement to underpin successful knowledge transfer. Clearly, any such moves would have major implications for the HEIs concerned.

Research partnerships and collaboration

7.9 As noted in Chapter 2, another future challenge for HEIs will be the growing need to build partnerships and collaboration as the basis of long term research activity. Such partnerships will not only involve HEIs, but also governments, research funders, and other stakeholder bodies. From a governing body perspective this has practical implications in at least two areas: internationalisation and knowledge transfer. So far as the former is concerned, perhaps the main challenge is for boards to recognise that for many HEIs internationalisation is no longer an optional activity (whose funding might be cut when times are hard), but rather a core element of successful research. Of course, how such internationalisation is funded is itself a challenge, but such costs are increasingly simply part of the overhead of 'doing business' if HEIs are to remain globally competitive in their chosen research fields.

Developing a future research workforce

7.10 Finally, governors will have a direct interest in ensuring a high quality research workforce, and although this will be widely recognised by governing bodies, the potential challenges should not be underestimated. As noted in Chapter 6, there are signs of future difficulties in this area, and there are fears of a possible 'brain drain' of experienced UK researchers whose services are in demand elsewhere. Given an increasing dependency on international researchers in some subjects, there are signs of future - but hopefully short term - challenges to their recruitment, because of recent visa restrictions. In this area, the main challenge for governing bodies is likely to be strategic, in trying to ensure that both research and HR strategies are successfully aligned.

[79] Hauser H, (2010), The Current and Future Role of Technology and Innovation Centres in the UK at www.bis.gov.uk/assets/biscore/innovation/docs/10-843-role-of-technology-innovation-centres-hauser-review

ANNEX A: SOME KEY INFORMATION SOURCES

There is a very large amount of information available on research and knowledge transfer, although relatively little on the implications for corporate governance.

Useful sources on the **operation and funding** of UK HE research can be found at the web sites of:

- The four UK HE funding bodies: the Higher Education Funding Council for England - Hefce at *www.hefce.ac.uk/research*; the Scottish Funding Council - SFC at *www.sfc.ac.uk*; the Higher Education Funding Council for Wales - HEFCW at *www.hefcw.ac.uk*; and the Department for Employment and Learning in Northern Ireland - DELNI at *www.delni.gov.uk*
- Universities UK at *www.universitiesuk.ac.uk*
- The Research Councils UK at *www.rcuk.ac.uk*

Details of how QR/REG funding is allocated can be found at:

- Hefce: How Hefce allocates its funds at *www.hefce.ac.uk/pubs/hefce/2010/10_24*;
- SFC: General Fund Grant Letter at *www.sfc.ac.uk/news_events_circulars/Circulars/2010/GeneralFundGrantLetter.aspx*;
- HEFCW: Explanation of QR Funding Method at *www.hefcw.ac.uk/policy_areas/research/ funding_research.aspx*
- DELNI: Quality Related Research Funding at *www.delni.gov.uk/index/further-and-higher-education/higher-education/role-structure-he-division/he-research-policy/recurrent-research-funding/quality-related-research-funding.htm*

Information on **charitable** research funding is not available from any single source, but the Association of Medical Research Charities is the most convenient source of information on medical and related charities at *www.amrc.org.uk*. There is also a useful web site on the implications of charity legislation run by Hefce at *www.hefce.ac.uk/finance/charities*

The best single source of information of the **internationalisation** of research and the implications for UK HEIs is probably the UK HE International Unit at *www.international.ac.uk*

With the changes to the methodology for **assessing research quality**, and the proposed introduction of the Research Excellence Framework, the best source of information is from the REF implementation unit based at Hefce at *www.hefce.ac.uk/research/ref*

Information on the **financial sustainability** of research and the adoption of **full economic costing** varies between the four UK jurisdictions, with detailed information available from the funding bodies. However, there have been two important recent reports with UK wide implications that all governors (particularly in research active HEIs) need to be aware of:

- RCUK/Universities UK, (2009), Review of the Impact of Full Economic Costing on the UK Higher Education Sector, at *www.rcuk.ac.uk/cmsweb/downloads/rcuk/reviews/fec/fecreport.pdf*
- Universities UK/RCUK, (2010), Financial Sustainability and Efficiency in Full Economic Costing of Research in UK Higher Education Institutions, at *www.universitiesuk.ac.uk/Publications/Documents/FinancialSustainabilityAndEfficiencyInFullEconomicCostingOfResearchInUKHigherEducationInstitutions.pdf*

So far as **knowledge transfer** is concerned there is no single comprehensive source of information, but relevant information includes two useful guides to IPR that governors may wish to consult:

- AURIL and Universities UK, (2002), Managing Intellectual Property: a Guide to Strategic Decision Making in Universities, at *www.ipo.gov.uk/managingipguide.pdf*
- AMRC, (2007), Working with Industry, at www.amrc.org.uk

For **business and industry links** there are many sources of information, with the best starting point for governors being the Hefce webpages devoted to the issue at *www.hefce.ac.uk/econsoc/buscom*
Since the Lambert Review of Business-University Collaboration in 2004 lots has been written on the topic, but the following three reports may be helpful for governors in raising issues of practical relevance about knowledge transfer:

- A Report on "Streamlining University/Business Collaborative Research Negotiations" commissioned by government, which reported to the Research Base Funders' Forum at *www.bis.gov.uk/assets/biscore/corporate/migratedd/publications/f/file41123.pdf.*
- A Report by the Council for Industry and Higher Education (CIHE) and the Centre for Business Research (CBR) on 'Universities, Business and Knowledge Exchange' at *www.cihe-uk.com/category/themes/key/collaboration*
- An AMRC study on working with industry which sets down numerous practical guidelines for enhancing collaboration and knowledge transfer at *www.amrc.org.uk/training--research-practice_working-with-industry*

Finally, on the **future of research** in UK HEIs, Universities UK have recently produced a short report which will be of interest to most governors: Universities UK, (2010), The Future of Research at *www.universitiesuk.ac.uk/Publications/Documents/TheFutureOfResearch.pdf*

ANNEX B: SUGGESTED ANSWERS TO GOVERNORS' DILEMMAS

Dilemma 1 (page 30)

This is a common dilemma in a specialist area, where other people seem to know much more than you do. Of course, you could just jump in and ask a question at a governing body meeting, but there are other - and perhaps better - ways of dealing with the issue.

To start with, you can be fairly sure that if there are things that you do not understand about aspects of research financial sustainability and associated internal resource allocation then other governors will not either, and so your first action might be to check informally with a few other governors to see if you have missed something. Of course your ability to do this will vary depending on how much contact you have with other governors: some HEIs encourage it, but in others there may be almost no contact between governors outside the formality of the occasional board meeting.

The next step is probably to ask the advice of the clerk/secretary of the governing body, and to clarify what information has - and what has not - gone to the governing body or its committees, and why this was the case. Depending upon the answer there may be a number of different issues arising with different solutions. At its simplest it might be that the indicators of financial sustainability for research (and moves to achieving full economic costs) have been 'buried' in a regular report of the finance director (FD) or an annual KPI review which have been discussed at the finance committee (or similar), but have never raised specific issues which needed to be highlighted at the governing body. If this is the case, all that may be required is for the clerk/secretary to discuss (on your behalf) whether a short report should be compiled by the FD and PVC research (or equivalent), and presented to the Finance Committee at a future meeting.

Of course, the matter may be more serious, and the absence of information might reveal either poor data management or an unfavourable financial position. Here the issue is obviously more delicate, and an informal discussion with the chair of the finance committee may be required, leading (hopefully) to the item appearing on a future agenda.

A further possibility is, of course, that your governing body has no history of discussing research issues in any detail, perhaps because it has always been felt to be a primarily academic matter, and in a previous and more stable environment financial sustainability of research has never really seemed to be an issue. If this has been the case, then a discussion on research sustainability may be a matter for the full governing body (perhaps as part of a research strategy review), and will need to be raised with its chair. As with all such 'first time' discussions this may be contentious, and there may be some academic members and senior managers concerned about whether this is a governing body issue at all, outside narrow financial matters. Clearly the views of the head of institution will be important in this regard, and if he or she is not sympathetic to further board scrutiny in this area, then the matter will need to be dealt with sensitively by the chair.

Dilemma 2 (page 39)

There are several issues in the dilemma and you need to be aware which is causing you most concern: there is a possible lack of information about current knowledge transfer activities; there may be concern about the robustness of operational systems (which, if true, would be an issue for management); or there may be weaknesses and a lack of accountability in how such activities are run (which is clearly a matter for the governing body).

If the latter, this can be challenging for several reasons: first, a good deal will depend on the culture of the HEI, and what is defined centrally and what left to devolved action. As a governor you may or may not agree with the current approach, but you clearly need to respect its origins. Second, there may not be any problem as such to address, rather a view that there is a potential for something to go wrong in the future or that there is untapped potential. If this is the case then it may be best for it to be tackled through the risk management process. Third, management and those actively involved in knowledge transfer may wish to maintain their freedom of action, and may be reluctant to encourage greater governing body involvement. In such circumstances, there is the almost inevitable tendency to leave such concerns to the next governing body effectiveness review (assuming it is a robust one), and indeed this may be a possible outcome.

If more urgent action is required, an agenda item at the governing body or finance committee is unlikely to be appropriate as time is likely to be constrained and preparatory work may be required. With the support of the chair, various actions might be taken: the senior manager responsible for knowledge transfer might be asked to review the situation and report (thus preserving management responsibility); the internal auditors might be asked to review aspects of the issue to see if they think there is a problem; it might be discussed at a governing body awayday either in scoping a management review or in response to it; or - depending on how a governing body works - a small board level task group might be asked to review the broader governance issues that are hinted at in the case study.

Dilemma 3 (page 48)

Perhaps the challenge is to decide what the word 'realistic' means in this context. It clearly does not mean determining the content of a research strategy in terms of what research should be undertaken, and governors should never find themselves in a position of wanting to make such academic judgements.

Rather 'realism' need to be seen in terms of:

- The desirability of research in relation to mission, and in non-research active HEIs the possible need of a governing body to avoid mission drift if the reputational lure of research becomes too great.
- The opportunity cost of developing a research environment at a time of overall financial challenge.
- The likelihood of being successful in receiving research funding given continued selectivity and competition.
- The need for full economic costing of research, and avoiding subsidising research from teaching and other income as some HEIs have done in the past.
- The potential risk to the institution by approving a research strategy which might be unrealistic.

In practical terms, addressing the dilemma in the short term will be difficult, particularly if the chair is not keen to have the matter raised and the head of institution is not supportive. Much may depend on the views of other governors, but unless there are other pressures on the institution and the governing body it is unlikely that many of your fellow board members will want to make an issue over the scrutiny of the research strategy, particularly in HEIs that are non-research active.

Dilemma 4 (page 48)

A common problem with KPIs is who sets them, and agreement of the targets involved. In a well run institution the KPIs will be stretching but achievable, and will have been proposed by the executive and accepted - after discussion and constructive challenge - by the governing body. Of course, the reality may be slightly different, and few experienced managers are going to set themselves targets that they cannot meet and - indeed - exceed, and governing bodies should understand this.

Probably the best way of dealing with the issue is to raise it as part of the overall governing body review of KPIs. In practice, assessing the rigour of KPIs for research is unlikely to be very different from assessing those for anything else, and it follows that your concerns may have implications for the whole way that your governing body approves KPIs and holds management to account. An initial discussion with the chair of the board is clearly called for, and much will depend on her or his view and those of other senior governors.

In many HEIs benchmarking data and other comparative information is often used to provide some way of getting an external perspective into the realism of KPIs in that the performance of peer institutions can be compared. The use of balanced scorecards and similar presentational devices to report findings is increasingly widespread. More information on setting KPIs is available in the CUC publication on this topic: 'CUC Report on the implementation of Key Performance Indicators: Case Study Experience' (at *www2.bcu.ac.uk/docs/cuc/pubs/CUC_Report.pdf*)

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