

Review of progress in implementing the recommendations of Sir Gareth Roberts, regarding employability and career development of PhD students and research staff

A report for Research Councils UK by an
Independent Review Panel
October 2010

Dedication to Professor Sir Gareth Roberts

This report is dedicated to the memory of Professor Sir Gareth Roberts, who passed away prematurely in 2007. As author of the influential report 'SET for Success' (Roberts, 2002), Sir Gareth set in motion a policy initiative that has provided £120 million of new government funding to support the skills development of research students and postdoctoral research staff. His strong championing of the value of investment in the development of people was an inspiration to many and his legacy is widely recognised in the terms 'Roberts' Agenda' and 'Roberts' Money'. The activities funded have come to represent a programme of major cultural change in the level of provision of skills and career support for researchers in UK Higher Education Institutions. As this phase of the Researcher Development Programme comes to its conclusion, we trust that this review demonstrates the progress made to date as a result of Sir Gareth's recommendations.



Professor Sir Gareth Roberts May 16th 1940 – February 6th 2007

Foreword



As Chair of the panel, this report summarises our findings on the progress with the implementation of the 'Roberts' Skills Recommendations'. The report addresses the points in our Terms of Reference. The panel is pleased with the progress made and the foundations that are now in place for the development of the generic skills of researchers and the attention now paid to the development of their careers whether in academia or elsewhere. The panel does, however, see risks that the internationally recognised high standing achieved in such matters in the UK, may be lost with uncertainties over future funding mechanisms.

We have highlighted our recommendations that we hope will alert stakeholders to the points that need specific attention. Underlying these was the striking observation that the greatest recognition for what has been achieved, is emanating from outside the UK in the international academic community. Therefore considerably greater focus should be paid to engaging with stakeholders outside academia, particularly the employers and potential employers of those who have trained as researchers, to find and optimise the ways in which future development may benefit all involved in relatively shorter timescales.

Sir Gareth's views on the need for such skills and career development remain vitally important for the UK, perhaps even more so in 2010.

Professor Alison Hodge, MBE

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Executive summary

Introduction

The need for improvement in the development of research careers and researchers' training in transferable skills was highlighted in two particular recommendations (numbers 4.2 and 5.3) in the 2002 report 'SET for success: the report of Sir Gareth Roberts' Review - the supply of people with science, technology, engineering and mathematics skills' (Roberts, 2002). As a consequence of that review, Research Councils UK (RCUK)¹ have invested about £120 million, usually referred to as 'Roberts' Money', in research organisations to address this concern in all research disciplines.

The last 'Roberts' Money' payment will be for the period up to March 2011; it was therefore proposed to assess the progress made with taking forward these specific recommendations. An independent panel was formed by RCUK to undertake this review in 2010. The terms of reference for the panel are in Annex A. In summary, the panel was asked to review progress made and to advise RCUK and the higher education (HE) sector about future requirements for the development and training of researchers. In the course of their review, the panel considered a wide range of existing reports, interviewed key stakeholders in the HE sector and elsewhere, as well as drawing on their own knowledge and expertise. This report presents the findings of the panel's review.

Mechanisms and approaches

The mechanism to fund the career development and transferable skills training of researchers was very different from most RCUK funding. The amount paid to each research organisation² was based on the number of PhD students and research staff funded by RCUK. Hence some organisations received over £1 million and some as little as a few hundred pounds. Money was held centrally in a distinct fund (rather than within a research grant) and this has enabled critical focus and coordination of activity. Inevitably similar activities have been developed separately by different research organisations, so some duplicated effort is likely to have occurred. The panel note the range of practices occurring and commend the innovation they have seen from some organisations, including some of those receiving very small allocations who are commended for the significant progress they have achieved.

The greatest concern noted by the panel was that there was little evidence of routine interaction between research organisations and employers or other stakeholders when setting strategies and building skills development programmes. As employability, whether in academia or elsewhere, was a major motivation for Sir Gareth's recommendations, and remains of crucial importance, this lack of external engagement will inevitably have lessened the potential relevance of the funded activities, particularly as employer expectations evolve rapidly.

¹ Research Councils UK (RCUK) are responsible for investing public money in research in the UK to advance knowledge and generate new ideas which lead to a productive economy, healthy society and contribute to a sustainable world. www.rcuk.ac.uk

² In this report the term 'research organisation' includes UK Higher Education Institutes, Research Council Institutes and Independent Research Organisations i.e. all those in receipt of 'Roberts' Money'

International standing

Interestingly, the greatest recognition for the advancement of researcher development in the UK is from international sources. While there have been similar initiatives at national and EU level, the UK is recognised as leading the development of transferable skills training and research career development internationally. In particular, moves to embed researcher skills development as a core part of the UK PhD have commanded international respect. The UK is ahead of other countries in its extension of researcher career development to postdoctoral research staff, particularly through the implementation of the 'Concordat to Support the Career Development of Researchers' (RCUK, 2008a) and the activities of Vitae in this area. This clear UK lead risks being overtaken as other nations expand their researcher training activities. The UK should continue to track and monitor international developments and, where possible, learn from examples of best practice emerging from other countries.

Impact

Qualitatively, the panel has identified major improvements all enabled by 'Roberts' Money'. These include:

- improved understanding of the importance of more formalised training and career development for all researchers,
- improvement in the way career development and transferable skills training is provided for researchers, whether funded by RCUK or not,
- research organisations contributing to this 'Roberts' Agenda', typically with senior manager responsibility for it and specialist individuals involved in delivery.

However, the panel has been unable to quantify the impact of 'Roberts' Money' specifically, in part because of various other initiatives between 2001 and now with similar and overlapping effects, but largely because there was no firm baseline established at the outset.

The current and future role of Vitae

The RCUK funded Vitae programme which is the national organisation for championing the development of researchers in the UK, has played an important role in:

- catalysing collaborative activity in research organisations in the area of researcher development,
- facilitating the sharing of best practice, including the database of practice,
- the development of a cadre of research training professionals.

Vitae should continue their activities, particularly in enabling the sharing of best practice, but increasingly expand their role as an intermediary between the HE sector and employers and other relevant stakeholders, such as recruitment services and professional and trade organisations. Such a role should serve to increase two-way interactions and the awareness in the HE sector of the needs and interests of employers. Vitae should also take the primary responsibility for communicating both within and beyond the academic sector, nationally and internationally, the successes of the developments taking place in this area.

Progress towards embedding and sustainability

Considering the future, the development of researcher skills is still variable, with some individuals and groups being very diligent, some less enthusiastic or less well supported. Funding should therefore continue to be made available specifically for the

development of transferrable skills of researchers and their careers. Specialist staff are essential for this and research organisations should ensure that such skills remain available even in the face of a different funding mechanism. Anticipated reductions in funding and other pressures in research organisations could reduce the emphasis on career development and generic skills training overall, affecting both PhD students and research staff and it will be important to continue to monitor this to encourage and support progression.

In particular, the panel observed that provision to support career development and skills training for research staff is not yet an embedded part of staff development practices and is therefore more vulnerable. Research organisations have a responsibility to support the professional development of all their staff members and as such, staff development practices and quality of management should be a normal part of research organisations' human resources policies.

The panel concludes by recognising the progress made and encouraging still further, the development of research skills at both the PhD and postdoctoral career stages. The success and value needs to be made better known, particularly in the UK and especially with greater involvement of employers outside academia. As championed by Sir Gareth in his review, the training and career development of researchers remains important and perhaps even more so in 2010.

Summary of recommendations

Recommendation 1: Future funding arrangements should aim to move the transferable skills and career development agenda towards clearly defined goals and progress towards these goals should be monitored against quantified starting points.

Recommendation 2: RCUK needs to ensure that specific funding and other initiatives continue to stimulate and reinforce the development of transferable skills and support for career development of researchers, using mechanisms that are efficient for the whole higher education sector and other stakeholders.

Recommendation 3: All funders must contribute financially (directly and indirectly) to the skills and career development of PhD students and research staff.

Recommendation 4: Research organisations must ensure that expertise is maintained in specialist roles dedicated to maintaining the skills development and support for career development of researchers, even following changes in funding mechanisms.

Recommendation 5: Research organisations should continue to find ways of sharing provision and best practice to minimise duplicated effort and support researchers more effectively.

Recommendation 6: Research organisations, employers and other relevant stakeholders such as Vitae, should develop systematic and frequent interactions such that the focus on employment needs is the driver for future developments of transferrable skills training. Mechanisms for this and the blocks that prevent it happening must be understood and improved.

Recommendation 7: Vitae could be instrumental in providing a relatively independent and centralised coordinating function to establish a baseline, monitor progress and communicate widely about the benefits of the development of the transferable skills of researchers. Recalling the low level of engagement with employers, the panel believes that Vitae could take a more proactive and visible role as an intermediary between research organisations and other organisations such as employers, recruitment organisations, careers services, and related stakeholders.

Recommendation 8: To achieve greater stability of the transferable skills training and career development of researchers, it is recommended that all research organisations should recognise and reward appropriate behaviours such as good supervision of PhD students and career development of all research staff through their human resources policies and practices.

Recommendation 9: Wide communication and promotion of the standing and value of the UK doctorate both within and outside the UK is vital. In addition it is recommended that international activities in the development of researchers' skills are monitored and shared systematically by all stakeholders primarily by research organisations, but also by RCUK and Vitae.

1: Introduction

1.1 Background to this review

In 2001, the UK government (Chancellor of the Exchequer and the Secretaries of State at the Department of Trade and Industry and at the Department for Education and Skills) commissioned Sir Gareth Roberts to review the supply of people with STEM (science, technology, engineering and mathematics) skills. The outcomes of his review were published in 2002 in the report entitled ‘SET for success – The report of Sir Gareth Roberts’ Review’ (Roberts, 2002).

Sir Gareth Roberts’ review was undertaken as part of the government’s strategy for improving the UK’s productivity and innovation performance. It stemmed from the government’s concern that the supply of high quality scientists and engineers should not constrain the government’s goal to raise the research and development (R&D) and innovation performance in the UK. ‘SET for Success’ made a number of recommendations calling for action from a wide range of stakeholders, including RCUK, funding councils and research organisations themselves. Two of these recommendations (numbers 4.2 and 5.3) specifically concern the training and career development of researchers in higher education (HE). As a consequence of these two recommendations alone, the UK government made specific funding available to RCUK to enable research organisations to reinvigorate the science and engineering base through providing career development and transferable skills training to their doctoral (PhD) students and research staff.

1.2 ‘Roberts’ Skills Recommendations’

The two recommendations from the ‘Roberts’ Report’ relevant to this review are as follows:

Recommendation 4.2 of the Roberts report: PhD training elements

Despite the welcome current moves by the Funding Councils to improve the quality of PhD training, institutions are not adapting quickly enough to the needs of industry or the expectations of potential students. The Review therefore believes that the training elements of a PhD – particularly training in transferable skills – need to be strengthened considerably. In particular, the Review recommends that HEFCE and RCUK, as major funders of PhD students, should make all funding related to PhD students conditional on students’ training meeting stringent minimum standards. These minimum standards should include the provision of at least two weeks’ dedicated training a year, principally in transferable skills, for which additional funding should be provided and over which the student should be given some control. There should be no requirement on the student to choose training at their host institution. The minimum standards should also include the requirement that HEIs – and other organisations in which PhD students work – reward good supervision of PhD students, and ensure that these principles are reflected in their human resources strategies and staff appraisal processes.

Furthermore, in order to assure employers of the quality of PhD students, as part of these standards the Review recommends that institutions should introduce or tighten their procedures for the transfer of students to the PhD. In particular, the Review believes that HEIs must encourage PhD projects that test or develop the creativity prized by employers.

Recommendation 5.3 of the Roberts report: A vision for postdoctoral researchers

It is important for postdoctoral researchers to be able to develop individual career paths, reflecting the different career destinations – Industrial, Academic and Research Associate – open to them, and that funding arrangements reflect the development of these career paths. The Review believes that enabling the individual to establish a clear career path, and a development plan to take them along it, is critical to improving the attractiveness of postdoctoral research. The Review therefore recommends that HEIs take responsibility for ensuring that all their postdoctoral researchers have a clear career development plan and have access to appropriate training opportunities – for example, of at least two weeks per year. The Review further recommends that all relevant funding from HEFCE and RCUK be made conditional on HEIs implementing these recommendations.

In the current review, the two recommendations above are referred to as the ‘Roberts’ Skills Recommendations’.

1.3 Responding to the ‘Roberts’ Review’ – the origin of ‘Roberts’ Money’

Following the ‘Roberts’ Review’, the UK government published ‘Investing in Innovation: A Strategy for Science, Engineering and Technology’ in 2002, which included the government’s response to the ‘Roberts’ Review’ (HM Treasury, DFES, DTI and OST, 2002, p. 95-120). Recognising the importance of researcher development for the UK’s future capacity for research and development, the government committed to take the lead in providing a new dedicated capital stream and enhanced research funding to enable the science and engineering base to restore, maintain and grow the infrastructure for research.

Of importance to the current review, the government positively supported the two skills related recommendations in ‘SET for Success’ and provided additional funding to RCUK for the ‘career development and transferable skills training of researchers’ (often referred to as ‘Roberts’ Money’³). The overall budget for career development and transferable skills training amounted to approximately £20 million per annum between 2003 and 2010. This was not allocated exclusively for STEM disciplines, but all research disciplines.

The present review specifically considers progress with these two skills related recommendations, in the final stages of investment of “ring-fenced” ‘Roberts’ Money’.

1.4 Context and focus for this independent review of the ‘Roberts’ Skills Recommendations’

At the 2009 Vitae Policy Forum, representatives from research organisations, Vitae and RCUK discussed questions and concerns about the continuation of ‘Roberts’ Money’, its allocation mechanism and the sustainability of the development of skills. The ambitions envisaged by Sir Gareth Roberts, have become known collectively as the ‘Roberts’ Agenda’. It was agreed at that forum that an independent review of the ‘Roberts’ Agenda’ might be timely and a useful addition to the existing knowledge base (Vitae, 2009).

³ Additional funding used for Roberts’ payments in 2003-2006; later this funding was secured from a small ‘top-slice’ of RCUK funding retained for centrally funded programmes.

Following an initial proposal by the Vitae Impact and Evaluation Group (IEG) and further RCUK discussions, it was agreed that the independent review should focus on assessing the improvement in provision of development opportunities for researchers, resulting from 'Roberts' Money'. An independent panel was formed, with secretariat provided by RCUK. The independent review was announced publicly at the January 2010 Vitae Policy Forum (Vitae, 2010).

1.5 Aim and purpose of the review

The overall aim of this review is to advise on the progress made in implementing recommendations 4.2 and 5.3 of the 'Roberts' Report'; in particular to indicate how the development of the careers and skills of researchers has evolved, and to provide advice to RCUK and the HE sector about future requirements.

The primary audience for this report is RCUK and senior staff in UK research organisations. However, in order to ensure that any new recommendations are implemented, this report is also of relevance to the whole HE sector including academic and other staff at all levels (careers services, human resources, research supervisors and principal investigators, and researchers themselves), and key influencers such as Vitae, Universities UK (UUK), Quality Assurance Agency for higher education (QAA), Funding Councils and the Department for Business, Innovation and Skills (BIS). The report will also be relevant to employers, professional institutions and industry bodies, and others responsible for the subsequent recruitment and career management of graduating PhD students and researchers.

1.6 Approach to the independent review of the 'Roberts' Skills Recommendations'

The RCUK Research Careers and Diversity Team produced draft terms of reference for the review. These were discussed and further refined with a sub-set of the RCUK cross-Council Research Careers and Diversity Group (RCDG⁴) and the Vitae Impact and Evaluation Group⁵ before being signed off in December 2009 (see Annex A).

The panel Chair was appointed in December 2009 and nominations for panel members sought from a number of organisations and bodies with a vested interest in the 'Roberts' Agenda'. The full panel was formed in April 2010 with the following members:

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| Professor Alison Hodge MBE, (Panel Chairman) | Chair, CBI's Inter-Company Academic Relations Group (ICARG) & QinetiQ University Partnerships Director (initially), latterly Independent |
| Professor Mary Bownes OBE | Vice Principal, University of Edinburgh |
| Professor Sir Robert Burgess | Vice Chancellor, University of Leicester |

⁴ The RCUK Research Careers and Diversity Group (RCDG) comprises representatives from each Council and the RCUK Strategy Unit.

⁵ The Impact and Evaluation Group (IEG) previously known as the Rugby Team, is a higher education sector led group with a mission to 'propose a meaningful and workable way of evaluating the effectiveness of skills development in early career researchers'. <http://www.vitae.ac.uk/policy-practice/1418/Rugby-Team-activities.html>

| | |
|----------------------------|---|
| Professor Jean Chambaz | Vice President for Research, Université Pierre et Marie Curie |
| Dr Elizabeth Dodson | Co-Chair, UK Research Staff Association & Research Associate, Loughborough University |
| Professor Geraint Johnes | Dean of Graduate Studies, Lancaster University |
| Dr Charles Loving | Formerly University Relations Manager, IBM UK (representing IBM on CBI's Inter-Company Academic Relations Group (ICARG); currently Director of Operations, British Institute of Technology and E-commerce |
| Dr Debbie McVitty | Research and Policy Officer (postgraduates), NUS |
| Dr Conor O'Carroll | Director (Research), Irish Universities Association |
| Professor Ella Ritchie | Pro-Vice-Chancellor for Teaching and Learning, Newcastle University |
| Sarah Townsend (Secretary) | Policy Manager, RCUK |

Annex C provides a short biography for each panel member.

All panel members contributed their time voluntarily, performing this task in addition to and independent of their professional commitments. The review has necessarily been conducted at a high level in accordance with the terms of reference. It has not initiated the collation or analysis of supplementary data or evidence; however the panel did convene meetings with a range of stakeholders. See Annex B for an overview of the process followed by the panel for undertaking this review.

1.7 Context of the researcher development landscape prior to the allocation of 'Roberts' Money'

The panel recalled that before the 'Roberts' Review' most research training still adopted a traditional loose 'apprentice – master' relationship, inevitably therefore being highly dependent on the personalities and environment experienced by each researcher. However, the numbers of postgraduate researchers had increased markedly in the years prior to the 'Roberts' Review', with increasing strain appearing in the traditional approaches. A very small number of independent skills development activities had been established and operating, some for many years, such as courses run by CRAC: The Career Development Organisation⁶.

⁶ CRAC: The Career Development Organisation is the independent, charitable organisation dedicated to career development and active, career-related learning <http://www.crac.org.uk/>.

By the time of Sir Gareth's review, however, a growing range of initiatives were emerging to form a nascent 'researcher development landscape', supporting the training and professional development of PhD research students in their personal and career advancement, in addition to training in their specialist research topic. In addition, graduate schools and doctoral centres were increasingly being formed in research organisations, with more attention being placed on the needs of PhD students and research staff as a group (Smith, 2010). However, at that time there were still very few initiatives to promote and continue such training for research staff.

Examples of initiatives included:

For PhD students:

The 1998 Code of Practice for the assurance of academic quality and standards in higher education (QAA, 2004), which provided guidance on maintaining quality and standards for research organisations and colleges subscribing to the Quality Assurance Agency for higher education (QAA). The Code of Practice was originally prepared by QAA between 1998 and 2001. Revisions of individual sections began in 2004.

The 2001 'Joint Statement of Skills Training Requirements of Research PhD students' (RCUK and AHRB, 2001) developed by RCUK in collaboration with the UK GRAD Programme and the HE sector. This document set out a joint statement of the skills that PhD students funded by RCUK would be expected to develop during their research training.

For research staff:

The 1996 'Concordat' to provide a framework for the career management of contract research staff in research organisations and colleges agreed by the HE sector (CVCP and OST, 1996).

The Research Careers Initiative (RCI): The RCI was established in 1997 under the Chairmanship of Professor Sir Gareth Roberts in order to monitor progress towards meeting the commitments of the 1996 Concordat and to identify and encourage good practice in the career management and development of contract research staff.

1.8 HEIs support for researcher development at the time of the 'Roberts' Review'

In order to establish a baseline for the status of researcher development activities in the HE sector at the time of the 'Roberts' Review', the research organisations' outline strategies proposed to RCUK in 2004 have been analysed in detail (Haynes, in press).

Key points of this analysis show that:

- about 10% of research organisations reported having extensive provision for transferable skills training for PhD students and fewer than 10% reported having extensive provision for transferable skills training for research staff,
- 33% reported either having no provision for research staff or failed to report this,

- 12% described a wide range of opportunities in a structured programme of provision for either PhD students or research staff,
- research organisations rarely maintained systematic approaches to analyse, provide and review initial training needs for both transferable skills and research skills.

1.9 Beneficiaries of ‘Roberts’ Money’

There is a very complex set of beneficiaries of ‘Roberts’ Money’. The direct beneficiaries are the researchers themselves and the research organisation in which they are based. Indirectly, it is the subsequent employers of these researchers who benefit.

Researchers further their careers straight after their PhD or after further research, in all sectors of the economy, both in the UK and internationally. Some will remain active researchers but the majority will use their training and experience in a wide range of professional occupations outside research environments. Roles may be in government, industry and business and the third sector, across all discipline areas including technical and more vocational disciplines as well as in the arts and cultural sectors.

Of UK-domiciled doctoral graduates working in the UK between 2003-2007, almost half remained in the education sector (around 23% as research staff in research organisations) and a similar number were working in other sectors - the largest proportion, at 14%, in manufacturing (Haynes, Metcalfe and Videler, 2010). This report will therefore show the progress made in improving the training and development of researchers to achieve their own and their employer’s goals, with the investment of ‘Roberts’ Money’.

2: Mechanisms and approaches for career and skills development

The panel's terms of reference required them to comment on how the approaches and mechanisms used to support, fund and monitor skills and career development have affected its implementation. This section summarises the panel's observations about the major approaches used to allocate and monitor the 'Roberts' Money' and how the money has been used.

2.1 The funding mechanism and implementing skills training

Since 2003, RCUK has progressively invested funding of about £20 million per year for career development and transferable skills training, for the benefit of PhD students and research staff. This funding has typically been referred to as 'Roberts' Money'. It has been "ring-fenced" (i.e. the money is held in such a way that it can only be used for the specified purposes) until March 2011. Although Sir Gareth's review considered STEM careers, the funding was intended to enable researchers in all disciplines to participate.

'Roberts' Money' was allocated in an unusual way by RCUK; it was allocated annually and centrally to each research organisation. Research organisations did not bid for 'Roberts' Money' (as with usual research grant funding) and it was not paid as part of individual research grants. The amount paid has been per RCUK sponsored student/researcher, approximately £800 per capita per annum.

RCUK directly supports approximately 15,000 PhD students and 10,000 research staff at any one time; this equates to one in every four PhD students and research staff in the UK. The remainder are either funded by other grant-awarding organisations such as charities, research organisations, international sponsors, external companies or are self funded.

As a consequence of this formula, 178 institutions received a total of £120 million over seven years. About 30% of these received 80% of the funding (~£17.9 million), the remaining 140 received 20% (~£4.4 million). Funding ranged from over £1 million to an institution, down to £392 per annum (based on a part-time researcher).

Once allocated, each research organisation could use the money as it determined (subject to meeting the aims of the 'Roberts' Skills Recommendations' and RCUK expectations for how the funding should be used) (RCUK, 2010a). Funds could be used to support all researchers (e.g. towards central coordination of training) and hence not just for those in receipt of RCUK grants, even though allocated on that basis. A nominated individual from each research organisation acts as the primary contact for skills training and budgets. The use of 'Roberts' Money' has been monitored through annual reports to RCUK which are handled by the RCUK Research Careers and Diversity Team.

The funding mechanism was strongly influenced by the outcomes of the UK GRAD Policy Forum arranged by RCUK in January 2004 (UK GRAD, 2004). This was attended by senior representatives of over thirty research organisations who discussed issues surrounding implementation of the 'Roberts' Skills Recommendations' for additional training of PhD students and research staff.

At this Forum it was recognised that implementing the ‘Roberts’ Skills Recommendations’ required significant resources and a radically different approach to training. It was stated at this time, and it is still the case, that the long-term aim was to see generic skills development embedded into research degree programmes for PhD students (and in normal staff development practices for research staff).

It was also recognised at the Forum that the levels of generic skills development required would depend on the ambitions, experience and knowledge of the individual. Indeed Sir Gareth Roberts recommended in ‘SET for Success’ that students should have an element of control over the training they receive and that this may be through training needs analysis or personal development planning, taking into account accreditation or prior experience and learning. Personal decision making is very important as researchers are inherently a very diverse group of individuals, with diversity arising not only from their highly specialised topics of study but also their diverse modes of operation and personal needs and backgrounds, including full or part-time, dispersed or campus based locations etc. This sentiment was reinforced by the sector at the Forum. Taking account of stakeholders’ views expressed at this Forum, RCUK adopted a common approach and set of principles when allocating ‘Roberts’ Money’ which was communicated to the receiving institutions (RCUK, 2003).

Although there was no explicit requirement for research organisations to augment ‘Roberts’ Money’, statements from RCUK about how skills training would be implemented did imply that this was expected. It was clearly stated at the 2004 UK GRAD Policy Forum that RCUK expected their funding to be supplemented by corresponding levels of funding from other sponsors of PhD studentships and researchers (including institutional sponsored students). The greatest addition of resources is believed to be from pre-existing institution funds derived from various sources.

In most instances, researcher development activities funded wholly or partially by ‘Roberts’ Money’ have been made available to all researchers at the research organisation, not only RCUK funded researchers. About 30-40% of ‘Roberts’ Money’ is used to support co-ordination (as opposed to delivery) of researcher development activities which benefits all students and researchers. There is slightly more coordination support for PhD student development activities (around two thirds), whilst the rest is for the coordination of research staff development activities. Most research organisations state that they themselves have also invested significant funds in researcher development, suggesting that considerable additional resources have been leveraged in addition to ‘Roberts’ Money’.

Transferrable skills have received considerable attention, as intended but ‘Roberts’ Money’ has also been used for a wider range of training and development. While some institutions have retained a separation between generic skills training and training in the research discipline, others have integrated into a single set, all their skills, training and development programmes, using pre-existing and additional materials. The merit in this is that this single focus may encourage better planning, take up and recording of both specialist and non-specialist courses.

These developments have taken place against a background of RCUK training and governance requirements for subject specialist skills. The panel felt that good integration between non-specialist and specialist was important.

2.2 Monitoring

At the start of this funding, RCUK did not define specific targets or metrics with which to monitor progress. It was widely agreed by RCUK and the HE sector that any metrics would be extremely difficult to determine and that evaluation should be focussed on enhancement and not measurement. This opinion is illustrated in the following quote from a 2006 Impact and Evaluation Group report 'Evaluation of Skills Development of Early Career Researchers – a strategy paper from the IEG' (Rugby Team, 2010):

“Techniques to measure the development of ‘soft’ skills and competencies were not well developed and tend to be qualitative rather than quantitative. Additionally the diversity of researchers and provision across the sector further complicates the process ... Additionally, it is widely recognised that this is a complex area with no simple indicators that can adequately measure the impact of skills development, and particularly the impact of a single initiative such as Roberts funding.”

The monitoring system adopted by RCUK (summarised below) aimed to minimise the administrative burden on research organisations and RCUK themselves. The purpose of this monitoring was to provide evidence that 'Roberts' Money' was being spent appropriately and to provide a means of identifying and sharing good practice.

For RCUK, this monitoring focussed on what the additional funding had enabled research organisations to achieve. In addition to RCUK monitoring, it was assumed that research organisations would also monitor their skills development programmes internally for their own business reasons.

Outline strategies

In 2004 each research organisation receiving 'Roberts' Money' was required to produce a report (RCUK, 2004) outlining their strategy for implementing additional training in transferable skills for PhD students and research staff, and the progress towards implementing the strategy.

Each strategy report was to include:

- existing provision and the scope, content and level of take-up of skills development programmes⁷ prior to this funding being awarded,
- changes introduced as a result of the additional funding to enhance skills development for PhD students and research staff,
- changes made in the first year to improve the staffing, resources and organisation of skills development programmes,
- research organisational systems for monitoring, evaluating and reporting back on skills development programmes,

⁷ For PhD students and research staff

- longer term plans for enhancing skills development programmes and proposed key performance / success indicators research organisations intend to use to measure the outputs and benefits of these programmes.

Annual reporting

Since 2005, research organisations receiving ‘Roberts’ Money’ have been required to submit an annual report (RCUK, 2005) to RCUK, with three components:

- tabular summary of funds spent in the accounting period,
- entry of innovative or exemplary practices in a Database of Practice at www.vitae.ac.uk/dop,
- brief (two page) report on the use of ‘Roberts’ Money’.

Feedback from RCUK to the HE sector

For each year that annual reports have been requested, RCUK has produced a summary of the reports received. This is made available on the RCUK website⁸.

Typically these summaries have provided a general overview of the reports received, a commentary on the profile of annual spend, summary of the financial tables and some ‘illustrative quotes and references’.

Research organisation visits

In 2010, the annual reporting process was complemented by members of the RCUK Research Careers and Diversity Group undertaking a series of visits to those five research organisations that receive over £1 million of ‘Roberts’ Money’. The aim of these visits was to facilitate sharing of practices which worked well and identify common issues and constraints. Reports of these visits were made available on the RCUK website (RCUKb, 2010).

2.3 Evaluation

Impact and Evaluation Group – Impact Framework

One of the outcomes of the 2005 UK GRAD Roberts Policy Forum (UK GRAD, 2005) was the decision to debate with national stakeholders about how to evaluate the effectiveness of skills development amongst PhD students and research staff.

Recognising this, the Impact and Evaluation Group (IEG) was established in 2005 with a mission to ‘propose meaningful and workable ways of evaluating the effectiveness of skills development in early career researchers’. One of the major activities of this group has been to develop the Impact Framework (Bromley, Metcalfe and Park, 2008) which is an evaluation tool specifically tailored to the context of training and development of researchers in HE. The framework also lays out new skills over and above those mentioned in the ‘Roberts’ Skills Recommendations’.

CROS

The Careers in Research Online Survey (CROS) was originally developed in 2002 as part of a project funded by the Higher Education Funding Council for England (HEFCE), the Scottish Funding Council (SFC), and Department of Trade and Industry (DTI)/Office of Science and Technology (OST) (now Department for Business Innovation and Skills (BIS)). CROS is now supported by Vitae and hosted on the Bristol Online Survey (BOS) tool.

⁸ Summaries of 2005 – 2009 research organisations reporting on ‘Roberts’ Money’. Available at: <http://www.rcuk.ac.uk/rescareer/rcdu/training.htm>

CROS aims to gather data anonymously about working conditions, career aspirations and career development opportunities for research staff. It was re-launched in 2009 with a new set of questions reflecting the principles of the Concordat to support the Career Development of Researchers.

PRES

The Postgraduate Research Experience Survey (PRES) conducted for the Higher Education Academy (HEA) is a service made available to all research organisations in the UK which have postgraduate research students.

2.4 Employer engagement

Sir Gareth Roberts recommended that RCUK needed to examine how training could better meet the needs of employers (without jeopardising high quality research content). When payments for the purpose of supporting the career development and transferable skills training of researchers were introduced, RCUK were clear that they expected individual institutions to be alert to the expectations of employers and, where appropriate, seek their views in order to ensure that their training provision would be fit for purpose and relevant.

In annual monitoring reports, research organisations are required to make reference to how they have involved employers and other stakeholders as part of their processes for reviewing their skills development strategy and building their training programmes.

The following extracts, produced by RCUK, are taken from research organisations annual reports. These are reproduced here in order to give an indication of the examples of employer engagement by research organisations during the funding period.

2006 summary: (RCUK, 2006). Interaction with employers did not come out consistently in the reports received in 2006. Just under half of the reports received mentioned interaction with employers, or gave information on the process for involving them in programme development. However a similar number of reports did not mention any employer input or said there was none.

2007 summary: (RCUK, 2007). The number of research organisations who reported to have sought or incorporated employer views when developing programmes in 2007 reports was variable. Almost one third of reports in 2007 made no mention of routes for incorporating employer views or participation in the development of programmes for research students or staff. Around 18% of reports mentioned employer engagement but gave little or no details. A small number mentioned involvement of RDAs or sector groups.

2008 summary: (RCUK_b, 2008). Seeking or incorporating employer views was again variable in 2008 with around one third of reports in 2008 making no mention of routes for incorporating employer views or participation in the development of programmes for research students or staff. Around a quarter of reports mentioned employer engagement but gave little or no details.

2009 summary: A summary of reporting was not produced in 2009 as an analysis of 2009 reports was commissioned by RCUK. The following statements are taken from Karen Haynes report (Haynes, in press):

- In 2009 most research organisations focussed less on seeking employer input about quality and content of provision (researchers were most likely to be consulted).
- Most HEIs' involvement with employers focused on their role in delivery – of careers, business and enterprise sessions (sometimes by alumni).
- Ad hoc employer input to programmes was most frequently gathered via the HEI careers service.

2.5 Other initiatives

The allocation of 'Roberts' Money' has occurred during a period in which other initiatives have been under way aimed at improving researcher development e.g. the QAA Code of Practice, the Joint Skills Statement, and the Researcher Development Initiative. Together, these changes have raised the profile of research training in research organisations and over time led to changes in policy, processes and, most importantly the resulting cultures.

One of the key activities supported by RCUK over the same period was the UK GRAD programme (UK GRAD, 2007). This was launched in January 2003 as a five-year project contracted and funded by RCUK. It evolved from the previous format of the RCUK Graduate Schools Programme (RCGSP) that focussed on the delivery of a programme of national 'GRAD school' courses, principally for RCUK funded PhD students. The creation of the UK GRAD programme provided, for the first time, a national organisation dedicated to supporting universities to embed personal, professional and career development into research degree programmes. In January 2008, the new Vitae programme was launched taking over from UK GRAD, with an expanded remit to work with all researchers in UK HE, both PhD students and research staff.

2.6 Activities undertaken

The panel has deduced that types of training funded by 'Roberts' Money', as recorded by research organisations, can typically be allocated as one of the following:

- skills for employment and career development, for example:
 - generic skills - communication skills (especially presenting to non-specialist audiences), data analysis, working with the public and media, planning, time management,
 - entering the job market – recruitment process, CV writing, practice interviews, company visits, work place experience,
 - employment experience – secondments or visits to other organisations, laboratories, companies etc,
- training in PhD techniques - induction days, literature searching, writing up,
- training as a researcher – conference presentation, writing papers, IP management, bidding for and reviewing grants, plagiarism, ethics, data recording and analysis.

The panel notes that research organisations have adopted a wide variety of approaches in offering the training. These have included:

- *employment of specialist support staff.* 'Roberts' Money' supports (all or part of the salary of) well over 500 specialist staff, involved in both co-ordination and/or training. Approximately two in three staff funded by 'Roberts' Money' enables support to PhD students and the other third provides support for research staff⁹.
- *sharing information and provision within and between research organisations.* This includes courses, lectures, workshops and conferences, mentoring and coaching as well as web-based information and self-help groups. Such sharing has included some local collaborations and some external provision.
- *engaging with employers and other stakeholders in developing or providing training.* This has included visits and meetings between employers and researchers as well as maintaining links with alumni.
- *recording training activities.* Examples include creating portfolios, on-line logs and log-books and files.
- *recognising and rewarding participation in training activities* such as The Times Higher award for Outstanding Support for Early Career Researchers.

⁹ Employment of staff with 'Roberts' Money' varies year to year and this may be due in some part to how posts are reported. The most recent figure of 532 staff employed is taken from the 2008 summary report.

2.7 Panel's comments on how the mechanisms and approaches used to support, fund and monitor this agenda have affected its implementation

Quantifying the progress made has not been possible as there was no baseline defined at the start of the funding period. In the opinion of the panel, the spirit of Sir Gareth's recommendations have been achieved; encouragingly PhD students now have more encouragement for and flexibility over what and how they acquire their skills. However, progress has been impossible to quantify.

Recommendation 1: Future funding arrangements should aim to move the transferable skills and career development agenda towards clearly defined goals and progress towards these goals should be monitored against quantified starting points.

The central "ring-fenced" funding has been critical in raising the profile of and need for generic skills training. In the evidence presented to the panel, it was clear that little progress would have been made if the funds for skills development had been allocated more conventionally i.e. as a small addition to individual research grants.

It should be noted, however, that block funding does not guarantee efficiency; it may well be the case that a different allocation of funding across institutions could have resulted in an outcome in which, across the system as a whole, more could have been provided for less. It cannot remain the sole responsibility for RCUK to finance the provision of these important skills so all funders of research should contribute.

Recommendation 2: RCUK needs to ensure that specific funding and other initiatives continue to stimulate and reinforce the development of transferable skills and support for career development of researchers, using mechanisms that are efficient for the whole HE sector and other stakeholders.

Recommendation 3: All funders must contribute financially (directly and indirectly) to the skills and career development of PhD students and research staff.

Appointment and/or recruitment in research organisations of specific individuals with specialist expertise and a designated role to support this agenda has been vital. They have ensured that skills development is promoted, encouraged and recorded. It is unlikely that they would have been appointed if 'Roberts' Money' had been distributed as part of conventional research grants.

Recommendation 4: Research organisations must ensure that expertise is maintained in specialist roles dedicated to maintaining the skills development and support for career development of researchers, even following changes in funding mechanisms.

Prior to 'Roberts' Money' the starting circumstances for each organisation in terms of existing support for the training and development of researchers varied greatly as did

the 'Roberts' Money' sums paid to research organisations for training; **the approaches and mechanisms used in various research organisations have therefore varied greatly**. This is to be commended as it has enabled wider opportunities and other sources of money to be exploited. Whilst there are some examples of sharing of ideas and practices between research organisations it is very obvious to the panel that there has been considerable investment in independent development in separate institutions of systems and practices to achieve very similar outcomes. Now that there is a good foundation in research organisations for the skills development and training needs of researchers, it will be more valuable to the researchers if there is greater sharing of best practice and cooperation in the provision of such training between institutions, even while they retain their own characteristics and independent ways of operating. Having advised this, the panel does wish to ensure that provision should remain flexible and not become too prescriptive; the personal needs of researchers will inevitably be very diverse. Vitae and other stakeholders will be key organisations in enabling such sharing of practices.

Recommendation 5: Research organisations should continue to find ways of sharing provision and best practice to minimise duplicated effort and support researchers more effectively.

The most serious concern for the panel was the relatively limited systematic interaction between research organisations and employers (particularly those outside academia) and other stakeholders (professional institutions, careers advisers and other representative bodies outside academia) **either in setting or implementing skills development programmes**. With Sir Gareth's emphasis on improving the employability of researchers, the panel looked specifically at the level and nature of interactions with employers during the development and implementation of programmes. While the panel was encouraged by examples of employer engagement, seen for example in the annual monitoring reports, and discussed in the meetings, external engagement was far from widespread. Without this, the focus of career development and skills training is unlikely to match the rapidly changing external environments and associated opportunities for the majority of researchers. As suggested strongly in the Council for Industry and Higher Education (CIHE) 2010 report 'Talent Fishing: What Businesses want from Postgraduates' (CIHE, 2010), such engagement is essential. Research organisations are reminded that Sir Gareth's report noted that opportunities such as secondments and wider external experience are forms of training and could be exploited more.

Significantly, there is still very little visibility or awareness of the 'Roberts' Agenda', or the investment in it, outside the HE sector.

Recommendation 6: Research organisations, employers and other relevant stakeholders such as Vitae, should develop systematic and frequent interactions such that the focus on employment needs is the driver for future developments of transferrable skills training. Mechanisms for this and the blocks that prevent it happening must be understood and improved.

3: The role of Vitae

RCUK see the Vitae programme as a key part of the implementation of the 'Roberts' Skills Recommendations' therefore the review panel were mandated to comment specifically on the current and future role of Vitae. This section aims to address this requirement.

3.1 The role of Vitae

Vitae is a national organisation championing the personal, professional and career development of PhD students and research staff in research organisations. Information is available on their website www.vitae.ac.uk

In summary Vitae:

- brings together all those with a stake in realising potential of researchers e.g. by establishing strategic partnerships between funders and national organisations,
- works with research organisations to embed professional and career development in the research environment e.g. by supporting regional hubs,
- provides resources, advice, information and a forum for individual PhD students and research staff who are interested in their professional development and careers e.g. through a dedicated researchers' portal,
- works at the interface between researchers, the HE sector and employers, by working with current and prospective employers of researchers.

Vitae provides information about researcher careers and employment, facilitates dialogue between researchers and employers, and provides information on the latest thinking in recruitment, training and working with researchers. Vitae campaigns to raise the range of employment opportunities open to researchers and provide opportunities for employers to engage in national discussions about how to train researchers. Examples of how they do this include: careers in focus events (e.g. in investment banking, academia, professional services and environment). These events provide researchers and employers with opportunities to network, explore career options and identify what employers look for in applications. This work also involves producing publications about recruiting researchers such as Dr Charles Jackson's 2007 publication for the UK GRAD Programme 'Recruiting PhD's: What Works' (Jackson, 2007). Vitae also produces briefs for current or potential employers about researchers' skills.

One key resource specifically set up as part of the Vitae Programme is the Vitae database of practice which enables the HE sector to share examples of practice relating to the skills and career development of researchers. This is housed on a searchable database¹⁰.

Vitae builds on previous work by the UK GRAD Programme and UK Higher Education Researcher Development (UKHERD) and is funded by RCUK and managed by CRAC:

¹⁰ The Vitae Database of Practice can be viewed at: <http://www.vitae.ac.uk/policy-practice/34837/Database-of-practice.html>

The Career Development Organisation. The £15 million contract awarded in August 2007 to run the Vitae programme ends at the end of 2012.

3.2 Panel's comments on the current and future role of Vitae

The panel found that the views expressed in Vitae's recent stakeholder views report, including the statement that "**Vitae is a unique and valuable organisation whose work has placed the UK into a leadership position in the area of researcher development**" (McWhinnie, 2010. page 5), are validated by numerous other sources (European Commission, 2008), (Scholz, Eoro, Matuschek and Cameron, 2010), (Haynes, in press), (Commission on the Future of Graduate Education in the United States, 2010) as well as research organisations annual reports to RCUK and anecdotally.

The panel concludes that the Vitae programme has provided an external and pan research organisation focus that, although perhaps not especially visible outside the HE sector, does stimulate and enable early career researchers to broaden their horizons and consider their development needs. The Vitae database of practice, for example, should be a durable tool that facilitates more cost-effective adoption of good practices.

In particular it is the view of the panel that Vitae has played an important role in:

- *catalysing collaborative activity*: in research organisations in the area of researcher development through, amongst other initiatives, membership of the regional Vitae Hubs (Haynes, in press), and
- *facilitating the sharing of practice*: e.g. through the Vitae database of practice (as well as events such as policy forums and the annual Vitae conference) in order to make skills training more efficient and effective and enable separate research organisations to adopt common approaches where this is appropriate.

Reflecting on the difficulty of measuring progress with the development of transferrable skills, and with the experience gained so far, the Vitae Impact and Evaluation Group will be a key organisation to ensure the tracking and monitoring of the benefits of skills development and ensuring they are visible to all stakeholders.

Recommendation 7: Vitae could be instrumental in providing a relatively independent and centralised coordinating function to establish a baseline, monitor progress and communicate widely about the benefits of the development of the generic skills of researchers. Recalling the low level of engagement with employers, the panel believes that Vitae could take a more proactive and visible role as an intermediary between research organisations and other organisations such as employers, recruitment organisations, careers services, and related stakeholders.

4: Achievements, impact and added value

The panel was asked to assess the impact of the activities funded with 'Roberts' Money'. This section summarises the progress noted by the panel, along with their recommendations.

4.1 Progress resulting

As noted in Annex B (the process for the independent review), RCUK commissioned Karen Haynes of the Professional and Higher Partnership Ltd to analyse the reports that research organisations sent to RCUK in 2009 about their use of 'Roberts' Money', and compare these against the outline strategies submitted by those same research organisations in 2004. This work has enabled progress to be assessed against the recorded starting point. Key points of this analysis (Haynes, in press) show that:

For PhD students

- In 2004 only about 10% of research organisations reported having extensive provision for transferable skills training for PhD students.
- in 2009 annual reports described extensive, structured provision in three-quarters of research organisations, and partial provision in almost all the remainder.

For research staff

- In 2004 fewer than 10% reported having extensive provision for transferable skills training for research staff. 33% reported either having no provision for research staff or failed to report this.
- In 2009 annual reports described extensive structured provision in more than one in three research organisations, and one in five provide some structured, tailored support for research staff. Fewer than one-fifth reported offering only general staff training; however, around one fifth of reports lacked detail about research staff provision.

Only 12% of reports in 2004 described a wide range of opportunities in a structured programme of provision for either PhD students or research staff. Additionally research organisations rarely maintained systematic approaches to analyse, provide and review initial training needs for both transferable skills and research skills.

In most research organisations, marked changes in provision are reported between those available in 2004 and in 2009, in terms of quantity, range and quality of provision. Progress includes considerable expansion of opportunities for researchers, better embedding of broader skills in research degree programme processes, as well as significant growth in specialist careers provision for researchers and widespread dissemination of good practice and innovation via UK GRAD/Vitae networks.

Progress is more developed for PhD students than research staff, due in part to the fact that there were fewer drivers of change in 2004 for research staff. The panel also suspect that the motivation for research staff to engage in skills training may be lower than that of PhD students; they are no longer students, and their priorities tend to be on developing their deep specialism, achieving their project goals, publishing,

teaching, finding further contracts and grants etc. Moreover, such priorities may be reinforced by their local and wider organisational colleagues.

4.2 Impact

'Roberts' Money' aimed to contribute to the following outcomes:

- PhD students gaining generic/transferable skills relevant to employers.
- The availability to research staff of career development opportunities contributing to a research career being seen as more attractive.

Any assessment of the impact of 'Roberts' Money' should therefore include an assessment of the extent to which these goals have been met. As already stated, this was not possible because:

- there was no defined baseline prior to the investment,
- during the period 2004-2010 there have been a number of complementary activities and initiatives contributing to a greater or lesser extent to similar outcomes. For example, EPSRC engineering doctorates are a four-year programme aimed at students who want a career in industry, and doctoral training centres also emphasise transferable skills training. The panel have also noted the development of other Professional Doctorates in Education and Clinical Psychology that also provides skills training. In addition to these overlapping schemes, there were also other initiatives contributing to similar outcomes, some well established, including the Code of Practice, Joint Skills Statement and Concordat. Separating the impact of 'Roberts' Money' from these other activities is very difficult,
- the first cohorts of researchers having undertaken training through Roberts' funded activities, have only recently embarked on their careers. Time is required to demonstrate maximum benefit from the investment.

Having noted this, the panel considers the following to have advanced significantly as a consequence of 'Roberts' Money':

For research organisations

Research organisations now make the development of transferable skills more visible and available, with improved coordination. Importantly, many researchers now recognise that generic skills training is of great benefit to their career, whether within or outside academia.

Examples of the impact of the funding reported by Higher Education Institutions can be identified against the levels of the Impact Framework developed by the sector (information based on an analysis of the impact of Roberts' funding in 1994 Group institutions) (1994 Group, 2009). The key findings mapped most closely against level 0 and level 4 of the Impact and Evaluation Group Impact Framework as identified below (Bromley, 2009):

Level 0: the reaction of participants to training and development activities

- increased financial resources available for skills training of all PhD students and research staff,
- promoted more effective resource management and planning,
- improved coordination of training provision,
- widened scope and extent of training programmes,
- motivated engagement of researchers with skills development.

Level 4: measures of the final results of the training and development activity

- facilitated better inter- and intra-research organisation collaborations,
- stimulated researcher-led innovations,
- extended networking and mentoring within the research community.

For PhD students

'Roberts' Money' has had a significant impact on the nature of PhD training. The panel noted wide-ranging qualitative evidence of the positive impact that the Roberts provision has had on postgraduate researchers (Park, 2009), (Mellors-Bourne and Metcalfe, 2009), (Haynes, in press), (Haynes, Metcalfe and Videler, 2009).

Career development and training in transferable skills, as part of the preparation of PhD students for the job market, is starting to emerge in research organisations as a recognised and essential part of many doctorates in the UK. This has been achieved whilst still retaining the traditional elements of research training and the focus on the research project as the core element of the doctoral degree.

Although there were some excellent examples of generic skills training prior to the 'Roberts' Review', the funding has enabled that to be adopted more systematically throughout the sector in the UK.

'Roberts' Money' has helped PhD students to identify and express more clearly what their skills are and helped them to relate better to career opportunities outside academia but further progress in this area is essential. This was a key aim for Sir Gareth's recommendations.

For research staff

Developments are less marked for research staff than for PhD students. However, 'Roberts' Money' has had a significant impact on raising the professionalism of research as a career; in particular it has encouraged research staff to take ownership for their personal continuing professional development.

In addition the panel heard from some research organisations that the generic skills that research staff have acquired is directly benefitting their academic activities.

For employers outside academia

The panel found little recognition of the impact of these achievements, particularly with regard to researchers' preparedness for work after a doctorate particularly outside academia. This was a key point in recommendation 4.2 of the 'Roberts' Report' and therefore concerns the panel.

The panel believes that there are several reasons for this:

- the first cohorts of researchers to have benefitted from ‘Roberts’ Money’ throughout their training have only entered the job market during the last few years,
- there is very little systematic gathering of information about where PhD students progress in their subsequent careers, whether in academia, business and industry or elsewhere, and related to this there is little evidence on employer demand or their perspectives of how different kinds of graduates perform and progress within their companies. There is even less which makes a distinction between the need for graduates to have different levels of qualifications and their subsequent performance (Connor and Brown, 2009),
- there has been relatively little engagement with employers, in any employment sector, prior to or during the planning of development and skills programmes.

Longitudinal surveys, such as the follow-up to HESAs ‘Destinations of Leavers from Higher Education Longitudinal Survey’ (HESA, 2007), may provide more evidence of the value of PhD students in future years, including use of generic and transferable skills developed as a PhD student.

It was made very clear to the panel by the Council for Industry and Higher Education (CIHE) that there is strong support from employers for PhD graduates to have considerably more business experience, and commercial knowledge and understanding (Connor and Brown, 2009) and that employers need graduates with relevant skills and knowledge – particularly leadership skills and work experience (Connor, Forbes and Docherty, 2010).

4.3 Panel’s comments on the impact of the activities associated with the ‘Roberts’ Money’

The panel observed that ‘Roberts’ Money’ has been an important stimulus for changes in the contents of doctoral and post-doctoral study. While it is not possible to isolate changes resulting from ‘Roberts’ Money’ from the outcomes of other initiatives, dedicated funding has been extremely influential:

- there has been a significant change of attitude in research organisations with better appreciation and understanding of the need for career development of researchers,
- training in both research and transferable skills is now recognised as important in most research organisations and there is evidence of a wide range of career development activity taking place,
- ‘Roberts’ Money’ has resulted in new approaches to career development and transferable skills training in UK research organisations. “Ring-fenced” funding dedicated to such activities has enabled people to be appointed to devise and implement programmes. The use of providers outside the home institution has been limited. The panel believes that where appropriate training is not available at the host institution, PhD students and research staff should be supported to participate in appropriate external skills development opportunities,

- communication skills and awareness of wider employability are most often cited as having improved.

There is still further to go as training in topics and activities related to a researcher's specialist discipline is still seen by many as a higher priority, higher value, better recognised, and more worthwhile.

Although 'Roberts' Money' was calculated on the basis of numbers of researchers funded by RCUK grants, **the activities set up have been offered to all PhD students and research staff whatever their funding source.** This unbiased approach has been welcomed by recipients and commended as a non-discriminatory approach by the panel.

The panel note the range of practices occurring and commend the innovation they have seen from some organisations. It was notable that even institutions receiving very small grants, as a consequence of their low numbers of researchers, often still reported good progress, even though the range of activities in the institutions receiving more money were typically more varied. Perhaps perversely, it is in some of the institutions with small grants and hence no dedicated staff that the activities may continue more readily in the longer term, than in some more highly funded institutions that had appointed dedicated teams with the separate funding.

5: Progress towards embedding and sustainability

As “ring-fenced” ‘Roberts’ Money’ comes to an end, the panel has considered whether career development and transferrable skills have become “normal practice” for researchers, and hence whether they will continue after changes to the current funding mechanism come into effect.

5.1 Context

A recently released statement (RCUKc, 2010) by RCUK sets out how the funding for the career development and transferable skills training of researchers (‘Roberts’ Money’) will no longer be distributed as “ring-fenced” payments, but will be incorporated into normal funding mechanisms after March 2011. A letter to research organisations in July 2010 (RCUKd, 2010) states that:

- for PhD students: Research organisations should include the costs of researcher development and transferable skills training in the fees for postgraduate research students. RCUK will raise its standard fee level used in calculating the value of Training Grants (where appropriate) by £200. RCUK anticipate that other funders will pay a similar fee level to research organisations,
- for research staff: RCUK expect research organisations to include costs for the career development of research staff within their normal business planning processes for their research activity. Further guidance on the mechanism is expected to be released later.

5.2 PhD students

The panel observes that skills training is now an integral part of postgraduate research programmes as illustrated by entries in the Vitae database of practice, annual monitoring reports from research organisations to RCUK, and feedback from research organisations consulted by the panel. However, a large proportion of this is stimulated and delivered by staff who are specifically funded by ‘Roberts’ Money’ and there is concern that changes in funding arrangements may lead to these dedicated positions and activities being lost.

5.3 Research staff

From the analysis of the outline strategies of research organisations in 2004 (Haynes, in press), it is apparent that existing provision for career and skills development for research staff (as recommended in 5.3 of the ‘Roberts’ Report’) was less well established in comparison to similar provision for PhD students. The panel noted that, while the quantity and quality of provision has increased significantly, this is still not yet a routine part of staff development practices.

Despite the intention of the government, outlined in its response to the ‘Roberts’ Review’ (HM Treasury, DFES, DTI and OST, 2002), that support for postdoctoral researchers would feature in institutions’ human resource strategies (and therefore help to ensure that researchers are prepared for future careers in academia or industry), there is little evidence that this has occurred widely.

Some research organisations reported the continuing reluctance of research staff to participate in training; there is still a lack of support by some research leaders for such activity as it is seen as not contributing directly to core research project outcomes. Indeed the panel found little evidence that principles of rewarding good supervision (to encourage students and staff to develop their generic/transferable skills) are reflected in many research organisations' human resources strategies or staff appraisal processes, as was recommended in 'SET for Success'.

5.4 Panel's comments on the progress towards embedding the 'Roberts' Skills Recommendations' and ability of the sector to sustain the agenda

The panel heard from institutions that the impending reductions in university funding may well result in less emphasis on career development and generic skills training. In some instances it was even stated that all such activities would completely cease if dedicated funding were to cease. This can only imply that, at least in certain institutions, generic skills development is not yet routine despite this being an implied intention in the 'Roberts' Report'.

As recommended in recommendation 4 of this report, institutions should consider how they will continue to provide appropriate centralised and specialist support for training of researchers, even in the event of reduced and changed funding mechanisms.

Importantly, the development of transferable skills in early career researchers would be enhanced considerably by such skills being "normal practice" throughout the research environment. Research supervisors and leaders need still more encouragement, support, reward and recognition such that they themselves contribute routinely to their own and encourage their less experienced colleagues' generic skills development. This is not suggesting that each specialist discipline supervisor should lead the skills development of their less experienced colleagues, just that that they should recognise and support good practice.

Research organisations have a responsibility to encourage the professional development of all of their staff members, including those on fixed-term contracts. This responsibility should be reflected in human resources (HR) policies and practices, which should aim to support, recognise and reward appropriate behaviours and ensure that these policies are indeed followed. As a specific point, the panel were told that some research organisations believed that 'Roberts' Money' could not be used to train supervisors in how to enable their PhD students to develop their generic skills¹¹.

Recommendation 8: To achieve greater stability of the generic skills training and career development of researchers, it is recommended that all research organisations should recognise and reward appropriate behaviours such as good supervision of PhD students and career development of all research staff through human resources policies and practices and ensure that these policies are followed.

¹¹ The frequently asked questions on the RCUK website <http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/researchcareers/faqs2009.pdf> states the following about ensuring the engagement of supervisors: Funding provided by the RCUK for additional training of PhD students and research staff should not be used for supervisor training, unless it is part of a 'cascade' system of training where professional trainers train supervisors to enable them to impart specific generic skills to groups of PhD students. Furthermore, the QAA Code of Practice for research degree programmes also makes it clear that institutions should be enabling supervisors to update their skills.

6: International standing

Internationally, there are similar initiatives to stimulate training for researchers, both at a national and wider level (e.g. EU). The panel has therefore considered the status of UK researcher development in comparison with international practice.

6.1 EU policy

Since 2001, the European Commission (EC) has focused on the career development of researchers as an integral part of establishing the European Research Area (ERA). The first specific policy document was the EC Communication in 2003, “Researchers in the European Research Area: one profession, multiple careers” (Commission of the European Communities, 2003). In this report there was explicit recognition of the need for complementary skills and training for PhD students and researchers, “Therefore, postgraduate students should be trained and prepared to enter not only the endogenous academic market but also a broader exogenous market (page14).”

In the lead up to the 2005 European Charter for Researchers and Code of Conduct for their Recruitment (Charter & Code) there was a focus on skills and training for researchers. (European Commission, 2005) The UK was looked on as an excellent example of how to support graduate students in the acquisition of transferable and generic skills. In 2004, only the UK had recognised this explicitly through the Joint Skills Statement.

In 2006 a UK HE sector gap analysis of the European Charter and Code demonstrated that existing UK practice already complied with the Charter & Code (RCUK and Universities UK, 2006). ‘Robert’s Money’ had enabled a significant part of this through support for the Charter & Code recommendations to provide continuous professional development for researchers. Moreover in the development of the new Researcher Concordat, the Charter & Code has been seamlessly incorporated into UK national policy.

In the 2008 report “Realising a single labour market for researchers – Report of the ERA Expert Group for the European Commission” (European Commission, 2008) there was explicit recognition of the UK approach in enhancing the skills and training of early stage researchers. That report laid the basis for the European Partnership for Researchers (EPR) in 2008. Two core elements of the EPR are enhancing skills and researcher career development. As part of the implementation of the EPR, the EC is developing a framework for research careers and conducting a mapping study of doctoral schools. The approach to the mapping is based on structures closely aligned to the UK model developed through ‘Roberts’ Money’.

The Treaty of Lisbon now establishes the ERA as a legal objective and has emphasised the need for researchers who go on to employment in diverse sectors. The new Innovation Union Policy (European Commission, 2010) now sets the target of achieving the ERA within four years. This emphasises the need to attract the most talented people to research and equip them with the skills to work in a wide range of employment sectors. In particular there is an emphasis on improved doctoral training and researcher career development.

In 2008 the European Universities Association (EUA) established the Council for Doctorate Education (CDE) to acknowledge the significant changes made across Europe in the delivery of PhD programmes. The general direction of the CDE is towards the structured approach and generic/transferable skills that Roberts pioneered. They have recently published the EUA 'Salzburg II Recommendations' for improving doctoral education in Europe' (European Universities Association, 2010). They are the result of a wide consultation with the 185 members of EUA's Council for Doctorate Education (EUA-CDE), this report emphasizes that,

“Career support for doctoral candidates must take into account individual goals and motivations and acknowledge the wide range of careers for doctorate holders” (page 5)

There is no doubt that the ideas proposed by Sir Gareth and implemented by the research organisations and RCUK, have been consistently ahead of EU and other national policy developments. RCUK and UK research organisations are viewed as key stakeholders by the EC and play a key role in the development and implementation of EU policy.

6.2 EU funding

Since the early 1990s, the EC has funded structured PhD programmes through the Marie Curie Actions within the Framework Programme. The Initial Training Networks have, over the past 30 years, evolved with a focus on the skills and training through research of early stage (PhD) researchers. The funding mechanism provides Roberts type money to provide skills training for all researchers in the Network. It is no coincidence that the UK is the largest single beneficiary from this competitive funding stream.

In the planning for FP8, there is a desire on the part of the EC to broaden this approach to all PhD researchers funded in all parts of the Framework Programme. This is seen as a concrete means of implementing the European Partnership for Researchers. A critical part of this is the provision of a Roberts type funding to support early stage researchers through direct support for doctoral/graduate schools.

The Marie Curie individual fellowships are the vehicle through which the Commission funds researcher career development at postdoctoral level. The approach taken by Roberts (recommendation 5.2) in supporting the career development of researchers has certainly played a key role in making UK universities the leading European hosts for these fellows.

6.3 United States

The US has a long tradition of using graduate schools for the delivery of PhD programmes. A 2010 report 'The Path Forward - The Future of Graduate Education in the United States' (Commission on the Future of Graduate Education in the United States, 2010) makes it clear that there needs to be major change in PhD education to maintain the numbers and quality of their graduates. This report was written by a combination of senior industrialists and academics. They believe that the US is losing its prime position for graduate education and that the nature of PhD education must respond to needs of employers outside academia. The report identifies Europe as a threat to US international student recruitment (through the success of the Bologna

Process), as is the rapid expansion of this activity in Asia. The US report recognises the need for transferable and generic skills.

It is worth quoting in full a section from the report (pages 49-50) where there is a clear reference to the UK:

“Much of the strength of U.S. graduate education has come from providing robust master’s education that often incorporates significant professional development, as well as strong in-depth research training at the doctoral level. However, doctoral education has not typically included a strong professional development component. Countries around the world have begun to recognize this deficiency in the traditional research doctoral preparation, and some have initiated strong government-supported efforts to fill this gap.”

The best example is the Vitae program in the UK where, as a result of a study led by [Sir] Roberts, a program was initiated to “make the UK world class in supporting the personal, professional and career development of researchers.” Responding to clear employer demand, professional development programs concentrate on supporting the acquisition of transferable skills by doctoral students to prepare them better for an array of employment settings outside of the academy.”

The report goes on to say:

“To be competitive globally, U.S. research organisations should develop professional development programs that:

- *Encourage the development of creativity and entrepreneurship in conjunction with core disciplinary attributes.*
- *Improve personal effectiveness including self-organization and career development skills.*
- *Develop capacity for project management, understanding of finance, funding and resource management.*
- *Cultivate a highly developed framework of professional and research ethics*
- *Encourage the development of skills that enhance research impact, including communication, teamwork, relating work to a broader context, and application of research to larger corporate or social purposes*

While there is no current U.S. government program similar to the one described in the UK, U.S. graduate schools should make every effort to develop these opportunities for their doctoral students. There are some examples of research organisations that are moving in this direction, but professional development of this kind should become part of every doctoral student’s experience. Federal agencies could favor such programs in future grant solicitations, specifying that the programs should not extend time to degree. In particular, attention to these professional development activities should be included in new doctoral traineeship programs.”

It is highly significant that the US recognises, above all other countries, the advances made by the UK in PhD education through the 'Roberts' Money'.

6.4 Ireland

In the midst of a serious economic crisis, the Irish government announced on 16th July 2010 an investment of €360 million for research infrastructure in the universities to drive research and innovation. The funding will support directly new physical infrastructure along with €90 million for structured PhD programmes.

In 2005 the Irish Universities Association (IUA) submitted a Framework Proposal entitled 'Reform of 3rd level and creation of 4th level Ireland' - securing competitive advantage in the 21st century' (Irish Universities Association, 2005). A major component of the proposal was the generation of the new model 'Structured PhD Programme'. Structured PhDs will facilitate a 'radical increase in the number of PhD graduates who will carry the knowledge created into all areas of society.' National policy through the Strategy for Science Technology and Innovation in 2006 committed to a doubling of PhD student numbers with an increase in annual PhD output by 2013. The universities developed a document that promotes PhD Graduates' Skills that was based on the UK Joint Skills Statement (Irish Universities Association, 2006). The collective efforts of the seven Irish universities on PhD education come under the umbrella of 4th Level Ireland¹² and many aspects are based on the 'Roberts' Agenda'.

One issue recognised from the beginning was the need to assess progress and determine if this approach has a real impact on the PhD. The Irish Universities Study¹³ is an annual survey for PhD students covering a wide range of issues from demographics to health and well-being. It is being used to measure the changes brought about by the introduction of structured PhD programmes in 2006. There are now approximately 25% of PhD students on structured programmes. The study has demonstrated that being in a structured PhD programme is certainly beneficial to the student experience. Most significantly being in a structured PhD programme increases the likelihood of producing peer reviewed papers, publishing papers, and presenting at international conferences.

It should be noted that other countries across Europe (especially Scandinavia) have developed their doctoral programmes in this manner.

6.5 Panel's comments on the international standing of the UK regarding researcher development

The panel believes that **the UK approach has been at the forefront internationally** in the development of transferable skills training and researcher career development **largely as a consequence of 'Roberts' Money'**. As a result the reputation of the UK as an attractive research and research training destination has been enhanced.

¹² <http://www.4thlevelireland.ie/>

¹³ www.iua.ie/ius

The inclusion of skills training in the PhD in the UK as a result of ‘Roberts’ Money’ is well recognised internationally and has been used as a model for other countries including Ireland and the US. Over the past 10 years the European Commission has developed policy in this area that converges with that of the UK.

The international trends are clear in terms of graduate education and researcher career development. The European Commission, European Universities Association and countries including the US and Ireland have recognised that the UK approach is the way forward.

There has been an integration of the approach to PhD education and postdoctoral research career development through the Researcher Concordat and the establishment of Vitae. This has taken the UK ahead of any other countries active in this area.

The panel therefore recommends that **RCUK and Vitae should continue to track and monitor international developments in this area** and where possible learn from and share examples of best practice emerging in other countries. **Moreover, the UK HE community should be communicating about the continued development, value and benefits of such skills development and training with all stakeholders.** While organisations like Vitae and RCUK may contribute significantly, it is the responsibility of all stakeholders to reinforce and support these messages.

Recommendation 9: Wide communication and promotion of the standing and value of the UK doctorate both within and outside the UK is vital. In addition it is recommended that international activities in the development of researchers’ skills are monitored and shared systematically by all stakeholders primarily by research organisations, but also by RCUK and Vitae.

7: Conclusions

This report presents the progress made in implementing the recommendations of Sir Gareth Roberts, regarding employability and career development of PhD students and research staff.

Since 2002, about £120 million has been invested by RCUK in such skills. Both the quantity and quality of career development and transferrable skills training, has improved markedly, even though the impact has not been quantified. Developments have encompassed all specialist research disciplines.

The panel found that the greatest recognition and most marked acknowledgements of the progress that has been made are from outside the UK. Internationally there is great appreciation of the wider skills that are acquired by researchers in the UK in comparison with their peers in other countries. The UK is perceived to be leading the world, other nations are attempting to emulate what is being done. This is a great commendation of the foresight and vision shown by Sir Gareth.

'Roberts' Money' has been a major stimulus for this improvement. The unusual mechanism used for distribution of the money has resulted in many diverse approaches being adopted. It is now timely for institutions to consider more carefully the effectiveness of the various approaches, then share and communicate the best and their benefits more widely in the HE sector and wider than this. There is concern that this leading position attained in the UK may be overtaken if attention to the 'Roberts' Agenda' is diminished.

The panel encourages research organisations to continue, even with funding changes, the development of transferrable skills as an integral part of all PhD studentships. In addition, training all research staff would encourage them to consider not only their own career development, but that of their students as well. A very positive sign is that some researchers are appreciating that generic skills training benefits all careers, whether in academia or elsewhere. Such benefits need to be recognised, understood and promulgated.

To reinforce and encourage this, HR strategies and processes in all institutions should recognise and reward good supervision of PhD students and appropriate career development of all research staff. The panel judges that the central coordination with specialist staff within universities and by Vitae has contributed significantly to the outcomes. Vitae provides an external and pan institution focus that, although not particularly visible outside the HE, does stimulate and enable early career researchers to broaden their horizons and consider their development needs. Their role and activities should be expanded to include considerably greater identification and sharing of good practices as well as more extended two-way communications with all stakeholders, about needs and actual effect on subsequent careers.

The most worrying point noted by the panel is that there has been very little systematic involvement of employers in planning the needs for skill development or development of programmes. Full and frequent engagement with many more external stakeholders, will enable their rapidly evolving needs to be met. Also the value of researchers as

employees in a wide range of roles (not just in their research specialism) will be valued more highly.

The panel therefore concludes this review by recognising the progress made and encouraging still further, the development of research skills at both the PhD and postdoctoral career stages. The success and value needs to be made better known, particularly in the UK and especially with greater involvement of employers outside academia. As proposed by Sir Gareth, adopting appropriate standards, measuring the current status and aiming for specific progress, remain clear imperatives.

Annex A: Panel Terms of Reference

Independent review of progress in implementing the recommendations of Sir Gareth Roberts, regarding employability and career development of PhD students and research staff.

1. Provide an independent assessment of the impact of the work that has been done to implement the recommendations of Sir Gareth Roberts' Review (Roberts, 2002) regarding the employability and career development of research students and staff (recommendations 4.2 and 5.3).
2. Comment on how the approaches and mechanisms used to support fund and monitor this agenda have affected its implementation.
3. Assess the progress towards embedding the recommendations into normal practice in PGR programmes and in staff development and the readiness of the sector to sustain the agenda for both postgraduate researchers and research staff.
4. Identify the additionality achieved as a result of Roberts' funding and RCUK and institutional approaches to the 'Roberts' Agenda', including for example: impact in areas of low/no Roberts' funding; collaboration; leverage from other sources of funds; how other stakeholders have engaged with the agenda.
5. Comment on the international standing of the UK regarding researcher development.
6. Comment on the current and future role of Vitae.

Annex B: Process for the independent review of the ‘Roberts’ Skills Recommendations’

In this review, the panel drew on various pre-existing information sources. These included:

- Existing literature (see bibliography) such as:
 - Careers in Research Online Survey (CROS) 2009: Analysis of aggregated UK results (Mellors-Bourne and Metcalfe 2009).
 - The research students experience: Lessons from PRES (Park, 2009).
 - Survey of the Impact of the Roberts’ Fund at 1994 Group Institutions (1994 Group, 2009).
 - the Impact and Evaluation Group (IEG) Impact Framework (RTIF) and reports on its use.

- A sample of research organisations’ reports to RCUK from 2004 to 2009. The sample included reports from research organisations across the whole range of funding levels from largest to smallest and annual summaries (2005-2009) of all of the reports received.

- An analysis of research organisations’ 2009 annual reports to compare current provision for career development and transferable skills training against their initial 2004 outline strategies. This analysis was commissioned by RCUK to inform the panel (Haynes, in press).

- The panel also met with stakeholders in order to corroborate and extend the information contained in the material examined. These included representatives from:
 - Selected research organisations.
 - Vitae.
 - The Council for Industry and Higher Education (CIHE).
 - The Association of Graduate Careers Advisory Services (AGCAS).

The panel met four times between April and September 2010 to consider the documentation, engage with stakeholders, and discuss and agree their conclusions and recommendations based on the information provided and their own expert views.

This report has been prepared by the RCUK secretariat and panel members.

Annex C: Panel biographies

Professor Alison Hodge MBE, PhD, CPhys, FInstP, CEng, FIET, MInstKT (Panel Chairman) Trained as a research physicist at the University of Reading, Alison was until recently QinetiQ's University Partnerships Director. She is currently working at Aston University developing programs in the School of Engineering and Applied Science. Alison is recognised nationally as a leading exponent of knowledge exploitation between businesses and universities. She chaired the CBI Inter-Company Academic Relations Group (ICARG) and was a member and interim chairman of EPSRC (Engineering and Physical Sciences Research Council) User Panel. Her professional career has encompassed pioneering research, management and strategic direction of applied research programs. She is an enthusiastic ambassador for science and engineering careers, and the need for these STEM skills.

Professor Mary Bownes OBE is Vice-Principal at the University of Edinburgh with responsibility for strategic development in Widening Participation, Recruitment, Admissions, Community Relations, Postgraduates, Early Career Researchers and Scholarships. She also holds a Personal Chair in Developmental Biology. Mary is actively engaged in promoting and developing skills and career development opportunities for early career researchers in order to enhance the experience for researchers in universities. She is a Fellow of the Royal Entomological Society, the Institute of Biology, the Royal Society of Arts and a Fellow of the Royal Society of Edinburgh and has an OBE for services to science.

Professor Sir Robert Burgess is Vice-Chancellor of the University of Leicester. He is currently Chair of the Universities and Colleges Admissions Service (UCAS), the Higher Education Academy and the Research Information network. He has engaged in much work on postgraduate education and was the founding Chair of the UK Council for Graduate Education.

Professor Jean Chambaz MD received a doctorate es sciences. He is currently Professor of Cell Biology at the Faculty of Medicine Pierre and Marie Curie and heads the department of clinical biochemistry at the hospital Pitié-Salpêtrière at Paris. He created a research unit in the field of intestinal metabolism in 1999, which merged in 2007 into the Research Centre of Cordeliers, of which he is vice-director. He was elected at a scientific committee (1990-1994) and at the scientific council of INSERM (1995-1998), and served as adviser at the biology and medicine department of the research direction at the French ministry in charge of research and higher education (1998, 2000-2022). In the field of doctoral education, he created and headed successively at UPMC the doctoral school in physiology and pathophysiology (2001-2005) and the Institute of Doctoral Training at UPMC, which awards about 700 doctorates a year (2005-2008). Elected member of UPMC scientific council in 2006, he currently serves as vice-president for research of UPMC. He chairs the steering committee of the Council for Doctoral Education launched by the European University Association in 2008.

Dr Elizabeth Dodson is a Chartered Psychologist, employed as a researcher at Loughborough University. She has spent the past six years working within an on-scene crash investigation team, exploring accident causation and road user behaviour

issues. Elizabeth is also a founding member of the UK Research Staff Association and became Co-Chair in January 2010.

Professor Geraint Johnes is Professor of Economics and Dean of Graduate Studies at Lancaster University. He has published extensively on the economics of education, much of his recent research focusing on the evaluation of costs and efficiency in higher education institutions.

Dr Charles Loving was until March 2010 UK University Relations Manager for IBM and represented IBM on the CBI Inter-Company Academic Relations Group (ICARG). Prior to his career at IBM, he trained as a research physicist at the University of Oxford. He is a Fellow of the BCS and currently Director of Operations for the British Institute of Technology and E-commerce.

Dr Debbie McVitty took up the role of Research and Policy Officer (postgraduates) with the National Union of Students in 2009. Prior to this she completed a DPhil in English Literature at the University of Oxford and subsequently worked for two years in preparing postgraduates for academic practice for Oxford's Humanities Division. Her current role involves working with the higher education sector on policies affecting the postgraduate experience and supporting students' unions in working with postgraduate students.

Dr Conor O'Carroll led the development of the reform strategy for the university sector in research and career development, "Reform of 3rd Level and Creation of 4th Level Ireland – securing competitive advantage in the 21st century". He is responsible for the coordination of structured PhD research/training across the seven universities through the 4th Level Ireland project. Dr O'Carroll is also working with the Vice Presidents of Research and Directors of Human Resources on introducing a robust and attractive research career structure for all of the universities. His current research interests are in the area of evidence based policy for Research, Science and Innovation and he is involved in a number of projects in this area. Dr O'Carroll is a member of a number of European Committees, Boards and Panels.

Professor Ella Ritchie has been Pro-Vice-Chancellor for Teaching & Learning at Newcastle University since July 2004, and was previously Postgraduate Dean in the Faculty of Humanities and Social Sciences. In January 2011 she will become Deputy Vice-Chancellor at Newcastle University with responsibility for Internationalisation and Engagement. She has been actively involved nationally in the development of Research Masters and Doctoral programmes, and was a member of the Postgraduate Training Board of the Economic & Social Research Council (ESRC) from 2000-2004. She also played a key role in the development of the doctoral cycle of the Bologna process. Since 2009 she has chaired the national Impact and Evaluation Group that assesses the impact of skills training on Early Stage Researchers. She is a member of the Higher Education Funding Council for England (HEFCE) Strategic Committee for Teaching, Quality and the Student Experience. She leads the national 'Realising Opportunities' project that aims to develop a common scheme for widening access to 13 research intensive universities. She has acted as an adviser to the Quality Assurance Agency (QAA) on Transnational Education. As Pro-Vice-Chancellor at Newcastle she has responsibility for Teaching and Learning, the student experience, quality enhancement, the skills and employability agenda and internationalisation.

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