

# RCUK Delivery Plan 2008/09 to 2010/11

Research Councils UK (RCUK) is the strategic partnership of the seven UK Research Councils. RCUK exists to facilitate and enable the Research Councils to work together more effectively to enhance the overall economic impact and efficiency of their activities.

Each Research Council is an equal partner in RCUK and leadership of the partnership is provided by the Research Councils' Chief Executives working together through the RCUK Executive Group (RCUKEG). The refreshed RCUK delivery plan reflects the Research Councils' priorities for joint working for 2009-10 and 2010-11. It complements the Research Councils' individual delivery plans and should be read in conjunction with these, together with Excellence with Impact and the RCUK international, research careers and diversity, and science in society strategies.

## Role of RCUK

RCUK's priorities in this delivery plan are presented alongside the RCUK framework. The framework describes why and how RCUK adds value to the activities and increases the economic impact of the individual Research Councils:

- *The nature of research and requirements for training, infrastructure, and translation increasingly transcend Councils' remits. To the community, the process of securing funding for collaborative and multidisciplinary activities should be seamless.*  
RCUK provides a framework for coordinated investment within which the overall portfolio can be shaped to ensure excellence with impact and enable a multidisciplinary approach to tackle specific challenges.
- *As major funders of UK research, the Research Councils have responsibility, alongside other partners, for the sustainability of the UK research base.*  
RCUK aims to strengthen the UK research base by developing and implementing joint Research Council policies and approaches, and promoting dialogue with other funders.
- *Through their advisory structures and academic and user communities, the Research Councils have access to a huge range of expertise and draw upon this to influence the national and international research and innovation agenda for the benefit of the UK.*  
RCUK seeks to raise the visibility and leadership of the Research Councils and increase their influence in shaping national and international research and innovation policy by collectively developing, articulating, and promoting the Councils' views.
- *The Research Councils have internationally recognised expertise in many areas such as peer review and research administration. Sharing good practice and implementing consistent practices enables the Councils to increase their efficiency and effectiveness.*  
RCUK aims to increase the efficiency and effectiveness of Research Council operations to release more Science Budget resources for research and collectively improve the services the Research Councils' provide to their communities.

## Operation of RCUK

RCUK activities are delivered through a range of mechanisms: joint business units; cross-Council groups; joint projects; and day-to-day collaboration between Research Council staff.

The RCUK Partnership is supported by the RCUK Strategy Unit, which undertakes the business planning and management of RCUK activities, working across the Councils to stimulate collaboration. The Strategy Unit provides the platforms, tools, and services to help Councils collaborate effectively, and takes the lead in developing and planning the implementation of policy in key areas. The major focus through this period will be to work with Councils to realise greater economic impact and international influence and engage with other partners, including the UK Funding Councils, to achieve a sustainable research base.

The RCUK Strategy Unit has teams covering Research Careers and Diversity, Science in Society, International, Policy and External Relations and the Economic Impact.

## RCUK Framework: A Tabular Representation

	<b>Skilled people</b>	<b>Knowledge</b>	<b>Economic Impact</b>
<b>Investing in the UK research base</b>	<b>Investing in training &amp; fellowships</b>	<b>Investing in world class research</b>	<b>Investing for economic impact</b>
<b>Strengthening the UK research base</b>	<b>Strengthening the skills base</b>	<b>Strengthening the research base</b>	<b>Strengthening and enabling economic impact</b>
<b>Leading the wider UK research base and influencing the international agenda</b>	<b>Leading and influencing the skills agenda</b>	<b>Leading and promoting the research agenda in society</b>	<b>Leading and influencing the economic impact agenda</b>
<b>Efficiency &amp; effectiveness</b>	<b>Increasing the efficiency and effectiveness of Research Council operations</b>		

# Investing in world class research

## Investing in multidisciplinary research

The Research Councils fund world-class research with successive studies demonstrating the quality of the UK research base and the UK's strong international performance. Novel, multidisciplinary approaches are needed to solve many, if not all, of the big research challenges over the next 10 to 20 years.

To achieve this RCUK will:

- **Coordinate the delivery of multidisciplinary research in six priority areas**  
Each programme is important in terms of the knowledge and skilled people which will be generated, and has significant potential for delivering economic impact. Effective coordination of the programmes through RCUK will accelerate delivery of benefits and economic impact. Other multidisciplinary priority areas are being taken forward bi/tri-laterally by Councils.

### Energy

Energy is at the top of our national and international policy agenda. We need secure and sustainable energy supplies to facilitate our economy and way of life. However, energy provision is the major contributor to greenhouse gas emissions. The Stern Review emphasises the need for an urgent global response to climate change including measures such as energy demand reduction and new technology in power generation, transport, and energy use.

The Research Councils' Energy Programme (£319M investment over the CSR period) (EPSRC, BBSRC, ESRC, NERC, and STFC) brings together energy-related research and training across the Research Councils to address the outstanding international issues of climate change and security of energy supply. The programme aims to sustain the strong research portfolio in power generation and supply, and grow the portfolio in demand reduction, alternative energy vectors, transport, security of supply, research capacity building, and international engagement. Collaborative development of the portfolio with business, government, Regional Development Agencies, and other funders and non-governmental organisations is a priority. The programme will work closely with the Energy Technologies Institute (ETI) and its company members and the Technology Strategy Board, the Department for Energy and Climate Change, and DIUS to help realise the enormous potential of ETI to bring a step change in applied energy research and development in the UK and internationally. The Councils will seek to ensure that ETI work is focused in appropriate technology areas, addresses relevant environmental, social and economic issues, and pulls through the most promising work from the research base.

### Living with Environmental Change

Human activities, most notably worldwide fossil-fuel demand and rapid population and economic growth in the developing world, are accelerating environmental change and increasing pressure on ecosystems and services, challenging our social and economic well-being. HM Treasury has identified this issue as a key challenge that the UK must address in the next decade, a concern supported by the Intergovernmental Panel on Climate Change Fourth Assessment, the Millennium Ecosystem Assessment, and the Stern Review.

LWEC is a major interdisciplinary research and policy partnership to tackle environmental change and the societal challenges it poses, and so to provide a firmer basis for people to deal with the unprecedented changes that the world will face over the next century. LWEC brings together the Research Councils, investing £363M investment over the CSR period, and partners in departments of state, governments, and agencies, to design and implement the LWEC programme across the relevant research areas and policy and industrial sectors.

Through a 10-year programme, LWEC aims to provide: the knowledge, tools, predictions, solutions and business opportunities needed to increase resilience to, and reduce economic costs of, environmental changes such as more severe weather and reduced biodiversity; and the best information to enable sustainable management and protection of vital ecosystem services — such as clean air, fresh water, healthy soils, and flood and disease protection — on the time and space scales on which the economy is managed.

### **Global Uncertainties: Security for all in a changing world**

International security has become more pressing and more complex in recent years, opening up a large and increasingly multi-disciplinary research agenda. Conflicts of different forms and types persist in many parts of the world, posing enormous challenges for communities and states. Trans-national global crime such as the drug trade, people smuggling, money laundering and cyber crime, is increasing in sophistication and scale as criminals exploit today's open and globalised world. Environmental stresses will continue to interact with human vulnerabilities to provide a powerful basis for insecurity in many parts of the world. The world's poorest people are often those most vulnerable to harm from security threats, and systemic research is needed to capture the direct and indirect contributions to global insecurity arising from the continuing experience of extreme poverty. Terrorism in pursuit of particular aims is increasing across the globe as many disparate groups see violence as a means to achieve their aims.

How to address this complex agenda effectively is a challenge for the research community, policy makers, the private sector and the wider public. In response all seven Research Councils will work together (investing £114M over the CSR period) with a range of non-academic stakeholders to address how five inter-related global issues create uncertainties which can under certain circumstances form the basis for a number of threats and risks to the security of individuals, communities, organisations and nation states. The five issues - conflict; international and transboundary crime; stresses on the global environment; global poverty, inequality and injustice; and radicalised violence and terrorism - will be linked in a systematic way to address three themes - causes, detection, and possible interventions to prevent harm. The programme will have a particular focus on the positive and negative interactions between the five global uncertainties and how those interactions may impact on the evolution of existing, or emergence of new, threats and risks.

### **Ageing: lifelong health and wellbeing**

There is an unprecedented demographic change underway in the UK with the proportion of young people declining whilst that of older people is increasing. By 2051, 40 percent of the population will be over 50 and one in four over 65. There are considerable benefits to the UK of having an active and healthy older population with potential economic, social, and health gains associated with healthy ageing and reducing dependency in later life.

Ageing research is a long standing priority area for the Research Councils. A total of £486M will be invested by the Research Councils in ageing-related research over the current CSR period. To strengthen their commitment to supporting and co-ordinating ageing research, five Research Councils (AHRC, BBSRC, EPSRC, ESRC and MRC) have developed a new interdisciplinary initiative Lifelong Health and Wellbeing (LLHW). The initiative will deliver a programme of activities focused on building capacity and capability in ageing related research and supporting multi-disciplinary research addressing factors over the life course that influence healthy ageing and wellbeing in later life. Other key objectives of the programme are to identify and develop effective interventions that lead to improved quality of life and health in later life and inform policy and practice for the development of services to support independent living.

Formation of strategic partnerships with stakeholders and users is a major goal of LLHW. To assist in achieving this aim, the Research Councils are working in partnership with the four UK Health Departments to deliver Phase 2 of the LLHW programme.

## **Digital economy**

Information and Communications Technology (ICT) is everywhere, it is embedded in every aspect of our lives. Business, Government, the Health Service, and other users depend on how we capture, manipulate, and share information. ICT has the power to transform the way business operates, the way that government can deliver, and the way science is undertaken to improve life. In an ever-changing world, being able to respond rapidly to new opportunities and challenges is key to the future economic and social prosperity of the UK. A World Bank report identified that 'early adoption of ICT tools supported by research capacity and skilled people better positions a country to reap the economic and social benefits of those tools.

The Digital Economy will link the world-class ICT research base with the other disciplines needed to deliver its benefits and match those with a strong user pull to deliver a programme of multidisciplinary, user focused research aimed at building a base of people and expertise to put the UK at the forefront of the Digital Economy. Through the Digital Economy we will make a step-change in the type of industrial engagement to pursue key research challenges so that the transformational possibilities of ICT are employed to support the innovation cycle. The initiative (with £58M of investment over the CSR period from EPSRC, AHRC, ESRC, and MRC) will concentrate on areas where the management and presentation of information can have maximum transformational impact: healthcare, transport, and the creative industries.

## **NanoScience through Engineering to Application**

Nanotechnologies can revolutionise society. They offer the potential of disruptive step changes in electronic materials, optics, computing, and in the application of physical and chemical understanding (in combination with biology) to generate novel and innovative self-assembled systems. The field is maturing rapidly, with a trend towards ever more complex, integrated nanosystems and structures. It is estimated that by 2015 products incorporating nanotechnology will contribute US\$1 trillion to the global economy, and that the UK has a 10 percent share of the current market.

To focus the UK research effort we will work through a series of Grand Challenges. These will be developed in conjunction with researchers and users in areas of societal importance such as energy, environmental remediation, food, the digital economy, and healthcare. An interdisciplinary, stage-gate approach spanning basic research through to application will be used. This will include studies on risk governance, economics, and social implications. The challenges will be addressed via interdisciplinary consortia supported jointly by EPSRC, BBSRC, ESRC, MRC, NERC, and STFC (£51M investment over the CSR period), and the Technology Strategy Board. The Councils will work with the cross-Government Nanotechnology Research Coordination Group and Nanotechnology Issues Dialogue Group to respond to the Royal Society/Royal Academy of Engineering report on Nanoscience and Nanotechnologies and Nanotechnology Stakeholders Forum to engage in stakeholder engagement and public dialogue activities.

## **Providing UK researchers with access to world class research facilities**

A high quality research environment with access to leading edge facilities is fundamental in keeping UK researchers competitive and at the forefront of research. We aim to provide UK researchers with world-class facilities and where research needs to be undertaken overseas or in international facilities we will continue to work to facilitate access.

To achieve this RCUK will:

### ➤ **Determine the priorities for investment in the research infrastructure required by UK researchers**

RCUK will continue to publish the Large Facilities Roadmap every two years. The Roadmap provides an overview of current infrastructure provision, facilities under construction, and potential large facilities that the Councils would like to see available to UK researchers over the next 10-15 years. RCUK will continue to advise DIUS on the alignment of UK needs with European and global infrastructure priorities, such as inputs to the European Strategy Forum for Research Infrastructures (ESFRI) roadmap describing research infrastructures needs in Europe.

RCUK will continue to advise DIUS on the allocation of the Large Facilities Capital Fund, undertaking a biennial exercise to prioritise those large infrastructure projects likely to move into a capital construction phase within the period. RCUK will continue to advise DIUS on the business case of projects during their development and construction.

# Strengthening the research base

## Promoting the sustainability of the UK research base

To achieve the UK's ambitions of moving to a higher level of research and development intensity it is crucial that the UK research base is sustainable and can respond flexibly to new challenges in a rapidly changing global economic environment.

To achieve this RCUK will:

➤ **Shape the development of a metrics-based research assessment framework**

We believe that the planned metrics-based research assessment framework should:

- sustain a strong environment for internationally competitive research;
- encourage interdisciplinary, policy-relevant, and practice-related research;
- encourage contributions to economic impact and knowledge transfer;
- enable international benchmarking;
- reduce the overall administrative burden on universities.

RCUK has an important role to play and will work with DIUS and the Funding Councils to shape the new framework.

➤ **Monitor the implementation of Full Economic Costing (FEC)**

We will continue to fund research at 80 percent FEC. With the alignment of DIUS's Capital Investment Fund with Research Council funding, the Science Budget will in effect be funding 90 percent FEC. This is an important part of the Government's goal to achieve a financially sustainable research base. RCUK will monitor the efficiency of FEC, reviewing its effectiveness to evaluate its long-term impact on the research base.

➤ **Monitor the health of the UK research base**

RCUK will continue to conduct an annual assessment of the health of the UK research base. Where concerns remain over the health of the key underpinning disciplines (including physics, chemistry, engineering, mathematics, and modern languages) RCUK will take forward actions and recommendations of the Review of UK Physics and conduct further reviews in strategic areas where required.

## Promoting multidisciplinary and transformative research

Harnessing knowledge across a wide range of disciplines and taking novel approaches is necessary to respond to the big research challenges facing society. All partners in the research base have a role in encouraging and enabling multidisciplinary and transformative research.

To achieve this RCUK will:

➤ **Encourage research organisations to support multidisciplinary and transformative research**

The Research Councils provide funding to give the best researchers the resources, time, and support to pursue their research ideas. All Councils will continue to promote transformative and multidisciplinary research as part of a balanced portfolio. Through RCUK, the Councils will share good practice, review guidance to ensure that researchers and reviewers are aware that the Councils will fund transformative research, and consider what further encouragement could be given to the community to enable them to rise to this challenge. Likewise, RCUK will share good practice, review the

protocol on handling proposals which cut across Council remits and ensure that the Councils' processes enable multidisciplinary research to flourish.

## **Encouraging collaboration between UK researchers and the best researchers from around the world**

International collaboration exposes UK researchers to new ideas and fresh approaches, ensuring they are full participants in the global knowledge economy. Much world class research can only be achieved through global collaboration. RCUK aims to make it simpler for UK researchers to collaborate with their preferred research partners around the world.

To achieve this RCUK will:

- **Ensure researchers have access to clear information regarding international research opportunities**  
RCUK will develop a single point of access for the community to promote international funding opportunities and publicise this widely throughout the research community.
- **Remove potential barriers to international collaboration**  
A barrier to international collaboration is “double jeopardy”; the risk that a project will secure funding in one country but not in another. Where possible, RCUK will ensure that such projects are assessed under a single review process, by sharing good practice in international review and developing new agreements with overseas funders.
- **Develop international partnerships (with a focus on Europe, China, India, and the USA)**  
To foster and deepen links, the Councils will continue to support collaborations through international visits, workshops, and grants. Through the RCUK overseas offices in China (£2.6M), the US (£1.2M), India (£1.5M) and the UK Research Office in Brussels (£0.7M), RCUK will expand its services to increase the volume, range, and durability of research collaborations between priority countries and the UK. Expansion of the successful Science Bridges scheme to £12M will also help forge stronger link with the US, China and India.

## **Increasing the collective influence of the Research Councils on UK research policy**

Speaking collectively as RCUK, we can be more effective in shaping the UK debate on research and innovation.

To achieve this RCUK will:

- **Influence policy and decision making to shape UK debate on research and innovation**  
RCUK will strengthen the Councils' collective interactions with key policy makers and stakeholders such as DIUS, the Funding Councils, and other Government Departments, raising the profile and impact of Councils' advice on research funding, skills, and innovation issues.
- **Better inform Government and policy makers about the Research Councils' activities and the impact of their work**  
RCUK will continue to provide high quality briefings and data to Government to inform policy makers better about the impact of our investments. RCUK will continue to

develop the evidence base for the Science Budget under Government Spending Reviews and produce joint inputs for Government and Parliamentary inquiries.

# Leading and promoting the research agenda in society

## Promoting the UK as a world centre for research and innovation

The UK is already recognised as a world leader in research and is an attractive location for academics and companies wishing to utilise the world class skills and facilities the UK can provide. The Councils have an important role to play alongside others such as the Foreign and Commonwealth Office and British Council in promoting the UK's research excellence.

To achieve this RCUK will:

- **Raise the international profile of the Research Councils**  
RCUK will deploy its External Relations Programme alongside the work of the RCUK overseas offices to raise the international profile of the Research Councils, and promote the quality of the researchers and facilities they support. RCUK will take the lead, working with the National Academies and others, to develop a UK International Fellowship Association. Membership of which, will be extended to fellows overseas, holding fellowships from participating UK funders.
- **Contribute to national efforts to increase inward investment in research and development**  
In an increasingly globalised industrial world companies will only locate or retain research and development capacity in the UK if there is a competitive advantage. RCUK will continue to collaborate with the Foreign and Commonwealth Office, UK Trade and Investment, and others in contributing staff expertise and knowledge to national efforts to stimulate inward investment in research and development.

## Influencing the international research agenda

As a strong research nation, the UK has a major role to play in influencing international research policy and delivery to maximise its impact. By exerting their influence, the Research Councils enhance the reputation of UK research and ensure that the country remains an international partner of choice.

To achieve this RCUK will:

- **Increase our impact in influencing international research priorities**  
As well as its reputation in research the UK is seen as a world leader in areas such as research ethics, peer review, and public engagement. RCUK will deploy this expertise to shape international research priorities and funding, data management policies, knowledge transfer, and public dialogue. In particular we will align priorities with the European Framework Programme, support the European Research Council, and play an active role on the European Heads of Research Councils.

Individually and collectively, the Councils represent UK interests in a range of international consortia. Increasingly, RCUK will take a pan-Council role to represent UK interests. For example, RCUK will be an active member of the UK Collaborative for Development Science, contributing to research aimed at achieving the Millennium Development Goals.

## **Identifying public attitudes to be considered in the conduct of research and fostering debate**

Modern research is a capital intensive process, and as such relies upon public acceptance and support of its value. The Research Councils, as major funders of UK research, are ideally positioned to identify public attitudes and have a specific role to play in enabling researchers and policy makers to be aware of and engage with public opinion in a two-way dialogue.

To achieve this RCUK will:

- **Identify public attitudes to be considered in the conduct of research**  
Taking a lead on researching public attitudes relevant to Research Council funded research, RCUK will ensure that mechanisms are in place such that the outcomes are considered within Councils' planning and decision making processes.
- **Foster successful public dialogue on topics of wider public relevance**  
The Research Councils aim to increase opportunities for people of all ages and from all sectors of society to engage with research and to contribute their views on the conduct and direction of research so that these may be considered in policy-making. Building on the work of the energy public engagement programme and sharing good practice.
- **Foster continued focus on issues of research integrity, ethics and good research conduct**  
The research councils will issue new guidance on their expectations for ensuring the highest levels of integrity and ethics in research and the management of good research conduct in research organisations. They will also work with Universities UK, the Department of Health and leading charities to ensure a co-ordinated approach to guidance, monitoring and development of UK approaches in this area.

## **Encouraging researchers funded by the Research Councils to engage with the public**

Public engagement with research is vitally important at a time when the outcomes of research have the potential to address many of the challenges facing society. Research Councils ensure that researchers are given the resources, opportunities, and incentives to engage the public and present the outputs of their work to the public in an accessible environment.

To achieve this RCUK will:

- **Improve rewards and recognitions for researchers who engage with the public**  
Working in partnership with the Funding Councils and the Wellcome Trust, RCUK will establish a culture for excellence in public engagement in HEIs, through the Beacons for Public Engagement initiative (£9.2M over four years). More effective cross-Council working through the RCUK National Science and Engineering Week Awards and BA perspectives (£0.1M), will together provide researchers with training, support and funding for public engagement activity.
- **Improve accessibility to funding for public engagement**  
Following the RCUK statement of expectation in 2008 regarding public engagement which applies to research grants, continued developments in 2009 to public engagement's profile as an important part of research will be associated with funding (£0.08M) to enable researchers better develop capability to engage the public. Best

practice guidelines will follow, to present information about public engagement to researchers in a coherent, accessible way.

# Investing in training and fellowships

## Attracting the best potential researchers into research careers

We are committed to enhancing the quality and output of the UK research base through training the next generation of world class researchers and ensuring the supply of the best potential researchers into research careers.

To achieve this RCUK will:

- **Maintain the attractiveness of the UK PhD**  
Continuing increases in minimum stipends will contribute to the attractiveness of the PhD. RCUK will monitor and report annually on the impact of these increases and promote the marketing of transferable skills and other aspects as attractors for research training. RCUK will coordinate the modernisation of Councils' studentship funding, to improve accessibility of PhDs and exploit the opportunities of a common system.
- **Encourage the production of trained researchers to meet the needs of the research base**  
RCUK will promote the use of enhanced stipends and salaries and longer than average length doctoral training to recruit and retain the best researchers in shortage areas, reporting annually on the impact. RCUK will continue to monitor the outcomes of the RCUK Academic Fellowship scheme.

## Embedding transferable skills in research training

The Leitch Review of Skills recommends that the UK must become world class on skills. We are committed to continued innovation in the range and delivery of transferable skills to increase future productivity of PhD graduates and early career researchers.

To achieve this RCUK will:

- **Embed transferable skills in the PhD**  
Researchers do not necessarily stay within their discipline and a substantial portion of PhD students move outside the academic sector. The Roberts Report stresses the importance of matching the skills of doctoral graduates to employer expectations. RCUK will encourage the development of transferable skills for early career researchers relevant to employers with a single coordinated annual payment to HEIs of £20M.
- **Promote better enterprise skills for researchers**  
To realise the full economic impact of their research, the Worry report recommends that researchers should have access to enterprise training. RCUK will foster a collaborative approach between HEIs and industry to promote the sharing of good practice on skills training, ensure relevance in training, and provide researchers with access to entrepreneurship, knowledge transfer, and business training.
- **Promote better early career researcher training and development**  
Improved career development for post-docs has seen slower growth than for transferable skills in the PhD. RCUK will place emphasis on stimulating this area and promoting the continuity of skills development from undergraduate to early career researcher.

# Strengthening the skills base

## Improving retention of the best researchers by promoting better career development

Early career researchers play a key role in maximising the quality and output of the research base. A skilled and motivated workforce will maintain the healthy and vibrant UK research sector. RCUK will work with research institutions to promote better career development for researchers and highlight the career options open to researchers.

To achieve this RCUK will:

- **Make career paths in research more visible to early-career researchers**  
The new Research Careers Mapping Tool will assist early career researchers in understanding the careers open to them and how research and personal skills can help them develop their careers. Through its £15M Vitae<sup>®</sup> Researcher Development Programme, RCUK will develop the publications ‘what do PhDs do?’ and ‘what do researchers do?’ highlighting the paths taken by former students/researchers.
- **Promote better career development for research staff**  
RCUK will take a lead in the implementation, and review of the ‘Concordat to Support the Career Development of Researchers’. RCUK will work with partners in the sector to assess the impact of the Fixed Term Working regulations, reporting annually to support best practice sharing.

## Promoting the movement of researchers to and from the UK

Many researchers benefit from working overseas, particularly at the early part of their careers. It provides them with different skills and ideas and lays the foundation for career-long collaboration. The Research Councils will promote the movement of researchers, encouraging UK researchers to spend time overseas and attracting the best international talent to UK.

To achieve this RCUK will:

- **Attract the best international talent to the UK**  
The Dorothy Hodgkin Postgraduate Awards, funded by the Councils on an à la carte basis in partnership with industry, will continue to bring outstanding students to study in the UK. Applying best practice across Councils’ Fellowships schemes will ensure they continue to attract high quality international applicants.
- **Equip UK students and researchers to make the most of the opportunities for research the globalised world offers**  
The Research Councils will encourage their researchers to gain experience overseas and provide them with the professional and personal skills they need to flourish. RCUK is at the forefront of efforts within Europe to improve transferable skills training, conditions and career progression of researchers.
- **Increase the mobility of students and researchers by removing barriers to international working**  
RCUK is exploring opportunities to increase the mobility of researchers in Europe and will use the framework provided by the Concordat for the Career Management of Researchers as a key tool and as a focus for partnership with the complementary

activities of the European Commission. RCUK will encourage the sector to explore opportunities for international working and aim to ensure that the best researchers are attracted to the UK.Concordat.

## **Promoting diversity within the research workforce**

The ability of the UK to carry out the highest quality research of relevance to users and of benefit to the economy requires that the UK draws on the best researchers from all groups in society and overseas. RCUK will work with stakeholders, including industry, who share an interest in the diversity of the UK research sector.

To achieve this RCUK will:

- **Attract researchers back into research after a career break**  
RCUK will work with the UK Resource Centre for Women in SET to assess the accessibility and impact of schemes in relation to researchers returning to research after a career break. RCUK will undertake a survey of existing activities and explore new areas where RCUK could add value.
- **Gain a fuller understanding of participation by ethnic minorities in research**  
RCUK will be a strategic partner to the Equality Challenge Unit, to provide a definitive account of the equality profile of staff and students in higher education. It will aim to develop a better understanding of progression of under-represented groups from undergraduate level into research degrees and their mobility between HEIs.
- **Promote good practice in Research Council Institutes as employers as an example to the sector**  
Prime responsibility for staff development lies with employers. Where the Research Councils are employers of research staff they will aim to set high standards as an exemplar for the sector. RCUK will work with the institutes to exchange and publicise good practice.

# Leading and influencing the skills agenda

## Engaging young people with contemporary research

To help secure a supply of researchers and particularly to address the decline in the uptake of science subjects in schools, RCUK science in society programmes for schools help to engage young people and highlight the contributions that research makes. These schemes also have the effect of increasing the number of school leavers who have a richer understanding of the role of research in modern society, enabling them to act as informed citizens.

To achieve this RCUK will:

- **Engage young people and teachers with contemporary research**  
Through a programme of continuing professional development for science teachers until 2011 (£0.9M), RCUK, in partnership with the Department for Children, Schools and Families funded UK Science Learning Centre Network, will help stimulate teachers' interest in their subject, encouraging them to transmit their enthusiasm to their students. RCUK intends to run the RCUK Researchers in Residence scheme for a further three years (£1.2M), to help connect students with the excitement of research, and will continue to support the BSA CREST and Nuffield bursary schemes for 2009 (£0.09M).
- **Engage with the process of education policy making**  
RCUK will continue to contribute to increasing the role of contemporary research in the school curriculum through engaging in educational policy-making with organisations such as the QCA, the Awarding Bodies, the Department for Children, Schools and Families, and the Science Council. In 2009, this will include developments to frameworks and funding support to help researchers work with the schools sector in particular (£0.1M).

## Demonstrating the economic impact of the PhD

To promote the relevance of PhD training and skills to the economy and increase its attractiveness as a career option, RCUK will evaluate the economic impact of PhD training and develop a better understanding of career flows.

To achieve this RCUK will:

- **Develop better metrics for evaluating the benefit and employability of PhDs**  
RCUK will work with DIUS to develop a better understanding of the evidence for the economic impact of PhD training including the development of better metrics for evaluating the benefit of PhDs. RCUK has been working with the higher education sector led group 'the Rugby Team' to develop measures of impact of the Roberts' skills investments and will further develop these to determine the wider economic impact of doctoral graduates and research staff.
- **Develop a better understanding of career flows and mobility within and between sectors**  
RCUK will develop a better understanding of career flows and mobility between sectors through ongoing cooperation with HESA longitudinal career tracking of PhDs and initiating a new cohort-based survey tracking career patterns and movements over ten or more years for a full cohort of PhDs and control groups.

## **Influencing the culture in research organisations in relation to support and training for early career researchers**

The Research Councils exert a specific influence on the higher education sector through funding a major proportion of the human research capital, supporting over 30,000 researchers at any one time. RCUK will foster relationships with other funders to promote awareness in higher education of the value of research skills to the economy and their impact on the productivity of researchers.

To achieve this RCUK will:

- **Provide the framework to enable the HE sector to build its capacity to develop its researchers**  
Following the development of the new Concordat for career development of researchers, RCUK will develop a new competency framework for researchers to support career and skills development.
- **Demonstrate the benefit of the framework to encourage other funders to contribute**  
RCUK will encourage universities to demonstrate whether improved career development of researchers can bring about improvements to the quality and quantity of research, promoting the benefits to other funders. Through its £15M Vitae<sup>®</sup> Researcher Development Programme' RCUK will support an incubator unit to develop, pilot and evaluate programmes and resources for use by HE sector.

# Investing for economic impact

## Increasing the economic impact of Research Council investments

The Research Councils have a successful record in supporting research, training, and innovation that have had major economic benefits for the UK. Government has challenged us to go further, achieving and demonstrating a step change in the economic impact of our investments. We are committed to ensuring maximum benefit for the UK economy, without sacrificing research excellence.

To achieve this RCUK will:

- **Understand and demonstrate the impacts of Research Council investments**  
The Councils need to understand better the causes and processes that generate successful economic impact to inform strategy and decision making and maximise future impact. RCUK will lead the assessment, analysis and integration of economic impact within the Research Councils, including the improvement of methodologies for the assessment of economic impact (£1M).
- **Increase the economic impact of collective Research Council investments**  
RCUK will ensure that excellent research with high economic impact is central to RCUK activities. For example, we have identified six multidisciplinary priority areas that address major international challenges (see page four). RCUK will ensure that there is effective knowledge transfer associated with each priority area and will actively promote user involvement to accelerate the delivery of benefits and economic impact.

## Increasing collaboration with users

Economic impacts are often realised through the active involvement of users. Users may participate at any or all stages in the innovation process. Councils will focus on increasing the scale, breadth, and richness of collaborations between the research base and users.

To achieve this RCUK will:

- **Substantially expand partnership activity with the Technology Strategy Board**  
RCUK strongly support the broader remit and ambition of the new Technology Strategy Board (TSB) and sees considerable benefit and opportunities from greater partnership with the TSB. RCUK will coordinate the Research Councils engagement with the TSB to collectively invest at least £120M in complementary and collaborative activity with the TSB.
- **Increase research collaborations involving SMEs**  
SMEs represent an important, albeit heterogeneous, component of the economy. RCUK will coordinate the broad, flexible range of activities developed by Councils, improving SME's access to the research base. RCUK anticipates that a significant increase in SME involvement with the research base will be achieved through partnership with the TSB and Regional Development Agencies (RDAs).

## **Investing in a progressive knowledge transfer portfolio**

In a modern, knowledge driven economy, knowledge transfer is about transferring ideas and skills between research organisations, business, government, and the wider community to enable innovative products and services. No two users are identical in their needs and no two research organisations are identical in the skills they offer. Collectively and individually the Councils will invest in a portfolio of knowledge transfer appropriate to user communities.

To achieve this RCUK will:

- **Improve accessibility to Research Council knowledge transfer funding**  
To make it easier for users to access funding for knowledge transfer, RCUK will rationalise the range of schemes available and promote the knowledge transfer web portal as a single information gateway.
  
- **Invest in knowledge transfer activities to address gaps in the innovation process**  
RCUK will evaluate its Business Plan Competition, which offers researchers training and competition to develop business plans for commercially viable ideas. RCUK will seek greater involvement from the TSB, RDAs, and others and will review the scheme's operation and impact in 2008. Researchers often experience difficulties securing funding to support the initial stages of commercialisation, particularly early proof of concept funding. RCUK will harmonise and rationalise specific knowledge transfer schemes such as the Follow-on Fund. RCUK will also ensure the full integration of knowledge transfer within the six multidisciplinary priority areas.

# Strengthening and enabling economic impact

## Building knowledge transfer capacity

Science and innovation underpin the UK's position in the global economy. An effective two way link between research and the market is needed to ensure that good research becomes good business.

To achieve this RCUK will:

- **Align knowledge transfer excellence with research excellence**  
Research Council investments in their Institutes represent an essential component of national innovation capacity and infrastructure. RCUK will promote the exchange of good practice to ensure they provide an equally effective knowledge transfer capability and deliver successful economic impact. In particular, the Science and Innovation Campuses at Harwell and Daresbury are associated with some of the UK's major research institutes and facilities, providing a focus for innovative and high-technology businesses and acting as major drivers for economic growth.

## Fostering an enterprise culture

To succeed in delivering a significant increase in economic impact, requires the commitment and energies of many others and as major investors in the UK research base, the Research Councils have a key role to play in fostering knowledge transfer more widely. The Councils will work with universities and institutes to engender a culture in which knowledge transfer activities are encouraged, valued, and rewarded.

To achieve this RCUK will:

- **Recognise and reward successful knowledge transfer**  
In addition to sharing best practice on schemes, RCUK will provide rewards and incentives (in partnership with other organisations) to encourage increased participation in knowledge transfer, where researchers and institutions that have demonstrated successful economic impact from past activities.
- **Promote role models and leadership**  
The aspirations, ambitions, and expectations of individual researchers are often conditioned by the achievements of their peers. RCUK will promote those role models and leaders who have successfully broken through these cultural barriers and through this foster a more entrepreneurial and enterprise culture within the UK research base.

## **Improving wider access to knowledge**

The dissemination, availability, and access to research outputs are crucial to ensure the impact of RCUK funded research. As public bodies, the Research Councils take very seriously their responsibilities in making the outputs from research publicly available.

To achieve this RCUK will:

➤ **Promote open access to research outputs**

The development of internet technologies provides new models for access to a range of distributed information resources. RCUK considers that these developments can help improve access to the results of publicly funded research for the benefits of both research and user communities. RCUK will review Councils' policies on open access following the 2008 Study on Open Access to Research Outputs.

# Leading and influencing the economic impact agenda

## Influencing the knowledge transfer arena

The Research Councils are major investors and stakeholders in the UK research base. They have a responsibility for promoting economic impact, influencing the behaviour of universities and institutes and working with other stakeholders to address systemic issues.

To achieve this RCUK will:

- **Engage key opinion formers and stakeholder organisations**  
Success in achieving a step change in economic impact will depend on the active engagement of research organisations, business, and other funders and facilitators of research. RCUK will establish a programme of events involving key stakeholders, partners and users to achieve a coordinated response to major topical issues.
- **Build upon existing partnerships with RDAs and DAs**  
The Research Councils will develop their relationships with the Regional Development Agencies and their devolved equivalents, particularly as a means to improving their interactions with SMEs. RCUK will share information on existing interactions to enable better coordination and alignment between Councils and to promote good practice.

## Embedding users' views in policy, strategy and delivery

Informed users make a significant contribution to Research Council decision making – at all levels. Further enhancing their input will be critical to the appreciation of potential benefit and impact.

To achieve this RCUK will:

- **Understand users and their requirements and the benefits, expectations and perceptions of collaborations**  
In order to ensure effective take-up of research outputs by users, and thereby maximise the economic impact of Research Council investments, RCUK will improve understanding of user needs. RCUK will carry out a joint biennial survey of organisations (£0.2M) that benefit from Research Council funded activities, in order to establish the extent to which the Research Councils are meeting the needs of their user communities and identify areas of greatest priority for improvement. Where areas for improvement are identified, RCUK will lead on the development and monitoring of action plans.
- **Ensure peer review maximises both excellence and impact and user perspectives are strongly represented**  
The Councils will jointly review and implement changes to peer review assessment criteria to ensure economic impact considerations are reflected in funding decisions. Councils will also ensure that there are sufficient non-academic peer reviewers with appropriate expertise.

## **Raising the national profile of Research Council funded research**

In addition to maintaining public interest and confidence in Research Council funded activities, increased national awareness gives profile to the scope of publicly funded research in the UK. The Councils undertake extensive and diverse activities targeted at a wide range of audiences to promote the outcomes of their research and its uptake by users. RCUK will continue to encourage a joint approach to raise the profile of the Councils and promote understanding of how the Councils contribute to the UK economy and quality of life.

To achieve this RCUK will:

➤ **Increase public awareness of the impacts that flow from Research Council funded research**

Working in partnership with expert deliverers such as the mass media and science centres, we will ensure that the public have access to the outcomes of Research Councils' investments. Bringing together their combined resources to achieve increased prominence, Councils will further develop a joint approach to Research Council involvement in science and art festivals, science centres and exhibitions (£0.06M).

➤ **Increase the visibility of the Research Councils**

The RCUK External Relations Programme will continue to fund a tailored programme of external relations activities aimed at senior opinion formers and decision makers. This will include sponsorship of conferences and events, a suite of RCUK publications, continued development of the RCUK website as a central source of information, and the collective promotion of the Research Councils through the media.

# Efficiency and effectiveness of Research Council operations

## Delivering efficiency savings

RCUK seeks to optimise the way in which the Councils work together to enhance their overall performance and to provide better and more efficient services. Improving operational performance, promoting a culture of efficiency and continuous improvement, and making efficiency gains all release more Science Budget resources for research and contribute to the central Treasury targets for value for money savings.

To achieve this RCUK will:

- **Run a new cross-Council efficiency delivery programme to collectively deliver 3.65 percent (across the whole science budget) per annum net cashable value for money gains**

The RCUK efficiency programme will focus on increasing the efficiency of Research Council Institutes and growing the level of co-funding of research/postgraduate training with business to continue to deliver agreed programme efficiency gains over the period. The programme will also realise a reduction in the percentage of administrative costs to total programme expenditure to 2.92 percent in 2010/11. RCUK will also monitor delivery of Research Councils' asset disposal targets.

## Ensuring peer review remains efficient and effective and excellent value for money

The UK's peer review system is regarded as an international benchmark of excellence in research funding and provides a guarantee of the quality of UK research. The Research Councils will maintain a competitive, project-based peer review system to support the UK research endeavour whilst enabling efficiency across the research sector as a whole. Alongside the continuation of the RCUK Assurance Unit and continued improvements to the Je-S system this will contribute to the wider service transformational government agenda.

To achieve this RCUK will:

- **Run a cross-Council programme to deliver overall improvements in the efficiency and effectiveness of the peer review system**

RCUK will drive forward the implementation of agreed opportunities for improving the efficiency and effectiveness of their peer review via a coordinated cross-Council programme addressing the final reporting process, greater use of outlines, controlling re-submissions, and consolidation. This will deliver efficiency gains over the period, to be agreed in the programme's Business Case presentation due in Spring 2009, whilst maintaining the quality and effectiveness of peer review.

## Delivering the majority of support services on a shared basis

RCUK aims to improve Research Councils' operational performance, delivering services on a cross-Council basis where it is cost effective to do so. Delivery of support services on a shared basis will provide efficiencies, ensuring the maximum possible funds are directed to research, training and knowledge transfer.

To achieve this RCUK will:

- **Deliver financial, HR, procurement, administrative IT IS services collectively to all of the Councils by March 2009 and research grants administration by December 2009**

A new RCUK Shared Services Centre (RCUK SSC Ltd) has been established to provide processing services in human resources, payroll, finance, procurement, information technology, information systems and grants processing. A separate legal entity jointly owned by the Research Councils, and governed by a Board of Directors, the SSC will be organised and run on the following principles:

- use of common processes and systems;
- use of technology to improve service, productivity and controls;
- customer focused culture with continuous improvement;
- use of service level agreements and performance indicators.

The reduced number of systems and processes, together with increased use of technology will improve efficiency and deliver more effective services. The SSC will also include a strategic procurement team to work with the Councils and their suppliers. Over ten years of operation the SSC is estimated to save the Councils £297M (net present value). In line with good practice, the cost and benefit model is under ongoing review which will have an impact on the projected NPV.

Due to the scale and complexity of the project, there will be a phased migration of services and Councils to the SSC. The SSC will begin to operate during 2008 and be fully operational in all service functions by the end of 2010.

## **Implementing a common pay structure**

Establishment of common reward and grading structures across the Research Councils will facilitate greatly the transfer of employees between Councils, the operation of the Shared Services Centre, and deliver economies in developing annual pay remits.

To achieve this RCUK will:

- **Harmonise pay and terms and conditions for Research Council staff**  
As a first step a common pay structure will be developed and implemented across five Research Councils; AHRC, BBSRC, EPSRC, ESRC, and STFC.