

# Research Council Support for Knowledge Transfer

*Professor Philip Esler*

**G**lobalisation is both a process and a precipitator of turbulent change. It is one of the key challenges facing the UK in coming decades. In order to create and maintain the highly skilled, knowledge-based economy that will allow this country to thrive when other countries can undertake manufacturing so cheaply we need to harness the world-leading research in our universities and research institutes. As the Chancellor reminded us in his statement on his Pre-Budget Report, "Economies like ours have no choice but to out-innovate and out-perform competitors by the excellence of our science and education."<sup>1</sup>

With a combined budget of around £2.6 billion, the Research Councils comprise the largest single funder in the UK research base. We currently support around 50,000 researchers on 18,000 grants and each year almost 7,000 doctorates are awarded as a result of our funding. Research Councils will therefore play a significant role in meeting Mr Brown's challenge, funding the social, environmental and life sciences, through to chemistry, physics and engineering, as well as

my own domain in the arts and humanities. We are clear that the benefits to the economy are derived from the full spectrum of our investments.

With this scale of activity, it is appropriate that the Government looks to us as central contributors to the establishment of the UK as a world-leading knowledge based economy. It is also right that our activities are open to close scrutiny and the early part of 2006 saw two major exercises.

The House of Commons Science and Technology Committee looked at Research Council Support for Knowledge Transfer. Its report was published on 15 June 2006. In parallel, Sir Keith O'Nions, the Director General of Science and Innovation, invited a group of Research Council chief executives, senior academics and business people, to form an Economic Impact Group, led by Peter Warry, the Chairman of the Particle Physics and Astronomy Research Council, to advise him on how Research Councils can deliver – and demonstrate they are delivering – a major increase in the economic impact of their investments. It



published its report on 14 July 2006. Similar themes emerged from the two exercises. The Research Councils had pivotal roles, both as funding bodies and as leaders of the research base and had made great strides in increasing the impact of their investment, but there was more that could be done. For example:

- There was scope for more co-ordination between Councils and there needed to be greater leadership within the Councils.
- There needed to be greater national co-ordination of knowledge transfer and the Research Councils had a significant role in bringing the main players together.
- Research Councils needed to increase their engagement with users and their requirements must be fully considered when determining funding priorities
- Research Councils needed to evaluate the impact of their knowledge transfer schemes and of the impact of their investments.

The Research Councils are willing to take up these challenges, working together through Research Councils UK (RCUK), the strategic partnership of the eight Councils. We have set up a new high level strategic cross-Council group, chaired by myself to drive the necessary changes. While there are differences in Research Councils' knowledge transfer activities, depending on remit and the level of intramural research, there is the potential for greater learning from one another's experience and for rationalisation and joint branding. We aim to report on the options in autumn 2007.

## **Knowledge transfer by the Research Councils**

- Co-operation in education and training at masters and doctoral level. We will spend £83 million this year on collaborative training. This includes awards for some 3,000 PhD students who are being trained collaboratively. The scheme involves over 500 companies and users range from Reebok UK to BP to county councils.
- People and knowledge flow. Through a range of schemes, we aim to fund researchers to work in industry or government for a period.
- Collaborative research with users. Next year we expect to spend £260 million on collaborative research.
- Commercialisation including IP exploitation and entrepreneurial activities. We aim to maximize the opportunities from the research in our institutes and encourage entrepreneurial activity in universities.

<sup>1</sup> HC Deb, 6 Dec 2006, Col 306

A new national forum will enhance co-ordination with partners including higher education and research institutions; the four UK Funding Councils; users of the research in the private, public and voluntary sectors; and organisations such as the Regional Development Agencies that play a role in mediating between the researchers and other users. RCUK will enable sharing of best practice across the Research Councils and among higher education institutions in collaboration with other stakeholders.

All the Councils have a mechanism by which research users can influence their strategies. To improve these channels, we will be commissioning a pilot user survey to be conducted by about the middle of 2007. We anticipate that such surveys will be undertaken regularly in the future, providing valuable data to the Research Councils individually and collectively.

Demonstrating the impact of our investments and the effectiveness of our knowledge transfer programmes is a major challenge for the Research Councils, and indeed for research funders the world over. We are determined to be at the forefront of world efforts to demonstrate the economic impact of funded research. PriceWaterhouse has now

done economic impact studies for two Research Councils and we are working to apply this approach across all eight.

Generating the data is only one part of demonstrating the impact of our investments; it also requires effective communication. Some of the criticism that has been levelled against the Research Councils in relation to knowledge transfer and economic impact in the last couple of years stems from our failure adequately to tell our success stories. We believe that better communication with our stakeholders of our activities and successes will not only correct negative impressions but also create a more positive environment in which to achieve our aims.

Research Councils will play a pivotal role in ensuring that all those with a stake in the success of the UK research base are pulling in a common direction. By achieving this, the UK can achieve its potential to be a dynamic and successful knowledge economy. That will prove that for us globalisation proved an opportunity and not a threat.

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## Some success stories

More than 14 million people were glued to BBC2 when Arts and Humanities Research Council award holders lifted the lid on the *Lost World of Mitchell and Kenyon*. Thousands more turned up to touring exhibitions throughout the country, the book sold out, and the DVD has sold almost 20,000 copies.

Research funded by the Biotechnology and Biological Sciences Research Council led to a vaccine that protects chickens against the disease coccidiosis, and of which around eight million doses are sold annually worldwide.

Oxensis, a spinout company from the Council for the Central Laboratory of the Research Councils, is developing advanced instrumentation for gas turbines in the aviation and power sectors; this is designed to achieve major reductions in greenhouse gas emissions as well as considerable fuel savings.

A hi-tech 'watermark' that can show whether a digital image has been tampered with has been developed by researchers funded by the Engineering and Physical Sciences Research Council. This has applications in legal cases where CCTV footage or digital images are used as evidence.

Work undertaken by the Economic and Social Research Council's Violence Research Programme has enabled the Metropolitan Police to better decide which domestic violence 999 calls require the fastest response.

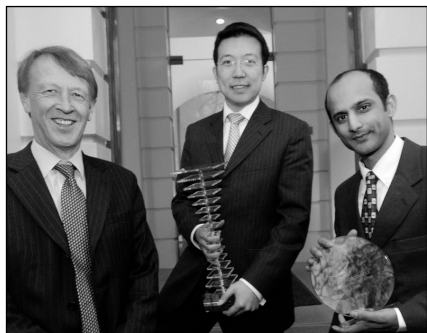
Medical Research Council trials in Africa of a vaccine against *Haemophilus influenzae* type b (Hib) have shown how the lives of hundreds of thousands of children can be saved worldwide each year. Hib infection is a major cause of pneumonia and meningitis.

Natural Environment Research Council-funded research at the University of Nottingham has used the Research Councils' Follow-on Fund to develop a revolutionary technique called hydrolysis that will be valuable in oil exploration and the detection of steroid abuse.

Particle Physics and Astronomy Research Council-funded researchers at Cambridge University have set up a company Geometrics, to apply a geometric algebra theory to the computer games industry. The technology rapidly calculates how light and shade fall on objects as they move producing more realistic images.

## Business Plan Competition

The RCUK Business Plan Competition provides researchers who have ideas with commercial potential the skills, knowledge and support needed to develop a first-rate business plan. This is provided through expert trainers, coaches and mentors. The competition provides the opportunity to win funds to help with the development of business ideas. The 2006 winner, announced in December, was Warwick Warp (<http://www.warwickwarp.co.uk/>), which is developing a highly accurate fingerprint identification technology for use in personal ID cards, passports and access control systems. It is not just the winners who benefit. All the entrants benefit from expert guidance on how to make their research a commercial success. [www.rcuk.ac.uk/innovation/fundingkt/bpc/](http://www.rcuk.ac.uk/innovation/fundingkt/bpc/)



**Warwick Warp, a spin-out company from the University of Warwick, display the 2006 Research Council Business Plan Competition trophy. Warwick Warp is developing a unique software-based fingerprint identification system which is substantially more reliable and also faster than those currently available. Warwick Warp's technology can be incorporated into identity cards and biometric passports - and so could help combat crimes such as identity theft, social security fraud, people trafficking and terrorism.**