

# PUBLIC INVESTMENT IN R&D DURING THE DOWNTURN



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**Politicians of all stripes have highlighted the importance of science and engineering to the nation's economic future. Most notably, the Prime Minister said that "we will not allow science to become a victim of the recession – but rather focus on developing it as a key element of our path to recovery."**

Although it is widely recognised that science and engineering will be critical to ensuring that the UK emerges stronger from the recession tough decisions will have to be made to do this. The economic crisis will impact policy decisions about spending on science and engineering and how it is focused. There have to be constructive debates now if science and engineering is going to help make the UK economy more balanced and resilient in the future.

## BUDGET 2009

In advance of this year's Budget, the Campaign for Science & Engineering (CaSE) and others argued there should be targeted investments to complement and build upon the Government's long-term strategy for science and engineering. There were two main reasons for this.

First, scientists and engineers will be critical to achieving the ambition for a more balanced economy. The implosion of the financial and housing sectors has meant that other parts of the economy from high value-added manufacturing to technology start-ups are now being given greater importance in policy circles. Many of these areas require people with science and engineering skills, so it is critical that those skills are developed, not lost, during the recession.

Second, the UK needs to remain internationally competitive through the

downturn. Although absolute funding has gone up over the last decade, the UK still lags behind competitor countries in terms of the percentage of GDP spent on R&D. The inclusion of R&D investment in other countries' stimulus packages risks putting us at an even greater relative disadvantage. The USA has led the way here by putting an additional \$21.5 billion of investment into R&D.

On Budget day there was additional support for key technology areas through a new £750 million Strategic Investment Fund. There was no additional funding for the research base. Instead the Budget report stated that £106 million would be reallocated within the science budget to support key areas of economic potential. The debate started by ministers about focusing research on priority areas is now being implemented.

## PRIORITY AREAS

The Science and Innovation Minister, Lord Drayson, started this 'debate' when he suggested Government investment in research funding should be focused on strategic areas to improve its economic impact. It was unclear how a focusing agenda would be implemented. Would research funding be reallocated towards priority areas? Or would it be done by using other instruments within the policymaker's toolbox? The Budget made it clear that the Government is moving forward with both options.

Following the Budget, the Department for Innovation, Universities and Skills said Research Councils would have to refocus their work for 2010/11 to respond to priority areas, such as the green economy, life sciences, the digital economy, high-value manufacturing systems and services and cultural and creative industries. These are the priority areas identified in the Government's new industrial policy, Building Britain's Future – New Industry, New Jobs, launched days before the Budget.

Research Councils are supposed to operate at arm's length from Government so that their priorities are not directed by short-term political expediency. The Government does set the over-arching funding framework, but it is not meant to meddle. Meddling is inefficient, because it means widening up or down programmes to suit political rather than research objectives. It also erodes the independence of researchers to set new research directions, because funding is committed to priority areas.

The Government's admirable aim of creating a more balanced economy will not be achieved by unbalancing the UK's research effort. A strong and diverse research base is one of the nation's most important assets. It provides the space for developing innovative technologies and the ability to respond to new challenges.

## CAN WE PICK THE RESEARCH WINNERS?

Trying to identify which areas of research have the most promise in terms of delivering an economic or social return isn't new. In 1986, an advisory council to the Government produced a list of scientific areas needed to support the development of communication technologies. They did not foresee that the major advance in that area – the World Wide Web – would come out of particle physics research just a few years later, in 1989.

The Council for Science and Technology (CST) looked at technology-priority setting in 2007. The CST recognised the importance of the breadth of the research and technology base and suggested that priority areas should not be supported at the expense of others. Rather, the Government could provide support for particular areas through procurement, regulation and facilitating collaborative working. Where it was available, financial support could be used for R&D investment, demonstration projects and public engagement. The Government should learn from past attempts and recent reports, before it continues down the path of focusing research funding to support priority sectors.

## SUPPORTING TECHNOLOGY AREAS

Although the Government is getting it wrong in terms of focusing the UK's research funding, it is moving in the right direction by providing other types of support for key technology areas. The Budget included £750 million for a new Strategic Investment Fund aimed at supporting advanced industrial projects. £50 million is set aside for the Technology Strategy Board and £250 million

will go towards low-carbon investments. More information is needed about the operation of the Fund before a proper assessment of it can be made, but it has the potential to provide much needed support for emerging technologies.

The new industrial policy is meant to spur departments to ensure that various Government activities, including procurement and regulation, better support particular sectors. One of the key initiatives was the creation of the Government Office of Life Sciences, intended to bring various departments together to create greater coherence between policies affecting the pharmaceutical and biotechnology sector. If this proves to be a successful model, it should be expanded to other sectors. The Treasury has said that it will assess potential reforms to the tax system to see if they can help ensure that the UK is a good place for companies to locate R&D and register their intellectual property rights.

## GOVERNMENT R&D

There has been little discussion about how Government departmental R&D budgets will contribute to priority areas. Will the Department for Energy and Climate Change's R&D budget be sufficient to support its ambition of a low-carbon economy? Departmental R&D budgets have remained relatively constant in real terms over the last ten years while funding for the research base has gone up. Departments need to start thinking about how they could use their R&D budgets to contribute to their priority areas.

The only mention of departmental R&D within the Budget was with reference to cost savings. £10 million of savings were to be found within the Department for International

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Development's research budget. £170 million will be cut from the Ministry of Defence's Nuclear Weapons Capability Sustainment Programme, which sustains key skills, research and manufacturing facilities. The Government needs to implement the Sainsbury Review recommendation to protect departmental R&D budgets from cuts. So far only the Department of Health has done so.

## GOING FORWARD

The Budget did not contain a US-style boost for science and engineering that many hoped for. It did show that the Government is moving forward with its plans for aligning the research base with its new industrial policy. The Government needs to pause and have a proper consultation about this move before it continues along this path. Refocusing resources will mean that there will be cuts to non-priority areas. It is difficult to reconcile this with the Prime Minister's recent commitment to increase investment in science across the board.

Through the 10-Year Science and Innovation Investment

Framework the Government has provided policy clarity and continuity for science and engineering. The Government should build upon this record and not undermine it by creating instability in research funding, which could risk losing talented researchers and mobile corporate R&D to other countries who are making considerable investments in R&D through the economic downturn.

The Government is right that science and engineering are central to the nation's prosperity. Through sustained investment over the last ten years it has put the UK in a much better position to build upon the strength of the research base. However, it needs to take a step back and think through its focus agenda. Instead, it should provide support for key technology areas through better co-ordination across Government, the Technology Strategy Board and utilising departmental R&D budgets. Narrowing the focus of the research base is not going to make the UK economy more balanced and resilient in the future.

