luke georghiou **view from the top**

...what is the value of science?

As budget day approaches, the question of how to respond to the recession will reach a peak of intensity even beyond that we have already experienced.

The flurry of bank bailouts, VAT and interest rate cuts and the exotically named quantitative easing (printing money to you and me) are all essentially short-term fixes. History tells us that recovery is likely to ride on the back of a wave of innovations. The question is what policies do we need to get that wave rolling? Three key areas for action concern people, money and the market. All three face serious disruption and need attention.

First the people: without a highly skilled workforce there is no chance of competing in the knowledge economy. Yet, a generation of talent could be lost. Industrial R&D is likely to face cutbacks as firms struggle to maintain cash flow. During the 1980s, government research funding initiatives, such as the Alvey Programme for Information Technology, played an important role in 'warehousing' researchers during the low point of the economy under the Thatcher government. The grant income kept researchers in productive employment ready for the eventual upturn. It can take 10 years to train a researcher, but only one or two years out of the system to make them lose touch with the vanguard.

A similar challenge faces younger researchers. Tight university finances and a falling job market could threaten the careers of a generation of those gaining doctoral qualifications. Post-doc positions on a large scale have a direct and (let's face it, quite cheap) impact upon the unemployment rate. It is tempting to think that we could second guess which areas are going to drive the recovery but we simply don't know. Better to hedge our bets: go for excellence across the board, and make sure that these excellent people are also exposed to training in innovation and entrepreneurship skills so that the economy and social need are on their minds. Such a scheme will also help to defend our top-end skill base from raids from the US following the major increases in research budgets announced by the Obama administration (*see news, page 5*).

Turning to money, the argument runs in parallel. Again we risk a lost generation but, this time, it is of entrepreneurial ideas emerging from the research system, which can form the basis of new companies. Fractured capital markets have frozen the supply of venture capital as investors are unable to sell on present successes. The irony is that, with the right expertise, what were previously seen as high risk investments are in fact much safer than most financial products and offer a rare chance of higher returns to those with patient capital. Some partial underwriting of early-stage funds is again a priority for government.

Finally, the market. Policymakers have acknowledged that the demand-side of innovation policy has been neglected and have begun to experiment with the use of public procurement, to pull through innovations, and of regulation, to favour innovative approaches. Now is the time to move from experiment to large-scale action. Even the overstretched public purse still commands a huge budget—public procurement of goods and services is estimated at £150 billion. For innovative start-ups, a first customer is worth far more than any grant, giving them the credibility to move on to other customers. In a win-win situation, this opens the way to socially-driven innovation—to harnessing creative ideas to the major challenges confronting society today. Sustainability is the most obvious driver but health, food security and migration are examples of others. Politicians around the world have latched onto renewable energies as an economic driver but there is a key difference between scaling-up on current technologies and truly driving innovation in the sector.

These three areas of action are not alternatives. All are critical and the returns will be still greater if we can achieve the level of co-ordination that will allow them to reinforce each other.

The surest path out of the current gloom is through research and innovation but the politically unpalatable truth is that there are no quick fixes. Realistically, it will take some years for new industries to gain real weight in the economy but if we do not lay down the foundations now, the chance of that fast growth will pass to others. With these three areas of action, the government can start the process. And if the answer is it would be nice if we had the money, let us remember that R&D is a bigger activity than electricity, gas and water in terms of its share of GDP and that just under 5 per cent of the labour force are scientists and engineers (to which we may add social scientists and other researchers). A big sector to risk but not big enough if we want to recover and succeed.

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