

The Foundation for Science and Technology
Meeting
Response to Lord Drayson

4th February 2009
at The Royal Society

Dr Peter S. Ringrose
Chairman, BBSR and Member, TSB

Thankyou Lord Drayson for sharing with us your thoughts on the future direction of British Science.

I thought I would take as the theme of my response the need you emphasised for tough choices and strategic focus, particularly as it relates to Research Council funding and the Technology Strategy Board. I will also address your question concerning the need to adjust the balance of investment to where we're most likely to succeed.

Many of the examples I will use come from my background in the BBSRC and the Pharma-Biotec industry. Without question, innovation is at the heart of recovery. And it is innovation that needs a balanced and broad portfolio of investment in both blue skies (or basic research) as well as in strategically targetted research and development.

In times of economic recession it is important in both

industry and in academia to ensure that sufficient funding is focused on areas of science and technology with the greatest potential to create innovative products and the industries of the future.

It is also critical to have in place mechanisms that translate innovative discoveries in basic science into intellectual property, startup companies and ultimately products and services that will drive future economic growth.

The concept of strategic focus is indeed not new to the RC's or to the TSB.

As you have mentioned there are now a number of cross council strategic initiatives such as "Living with Environmental Change" which also involve a number of government departments and relevant members of industry.

Last week BBSRC announced £27 million funding of a new centre of sustainable bioenergy, involving 4 universities, the Rothamsted Research Institute and 15 industrial partners.

In addition BBSRC has a significant strategic focus on food security and sustainable agriculture, as well as the biology of ageing.

These 3 strategic focus areas are all "Challenge Driven". The 5 BBSRC institutes (IAH, JIC, IFR, Rothamsted and Babraham with its dynamic Bioincubator) also provide facilities for more strategically directed research to flourish.

Another form of strategic focus is on "Technology Inspired" science areas, which (for BBSRC) is focused on Systems and Synthetic Biology as well as on Stem Cell science.

As a member of the Technology Strategy Governing Board I should also mention TSB's focus on 3 "Challenge Driven" areas;

1. Energy and the low-carbon economy.
2. Regenerative Medicine.
3. Next generation digital economy.

Strategic focus is therefore no stranger to the funding councils or to the technology strategy board.

However one should not get carried away and think that during times of recession and tight budgets, basic science necessarily falls off the agenda.

Indeed some analyses show that long term basic research ultimately has a greater return on investment than shorter term directed research.

You mentioned that in many scientific disciplines, the UK is second in excellence only to the US, and in some it is the world leader.

Interestingly the G8 citation index for the biosciences puts the UK as number one.

It is this excellence in the basic sciences that is so critical for skills training of the next generation of scientists and

technological entrepreneurs.

And it has been this excellence that has in the past spawned the largely productive pharmaceutical and biotech companies in the UK employing 67,000 scientists and other staff, attracting almost £4 billion in R&D investment and contributing £8.4 billion to Britain's GDP in 2007.

No surprise that many of these companies have seen much of their new product creativity coming from labs in the UK.

However during these difficult economic times industry is now responding with significant cut backs in R&D, particularly R.

This is being felt particularly in the large pharmaceutical companies.

And indeed for emerging biotech companies the situation is dire, with many completely running out of cash in the next 12 months.

Government has a responsibility to where possible maintain science funding in its universities and institutes in order to ensure that innovation will ultimately drive us out of recession.

Critical in all of this is the translation, indeed the exploitation, of science into new products and the emergent industries of the future.

This is an area where we need to improve and become a lot more savvy.

We need to be much more aware of the likely economic impact of the scientific research that we fund.

And have our scientists better trained in understanding what is involved in identifying new opportunities and how to exploit them.

BBSRC, for example, sponsors the annual Biotechnology Young Entrepreneurs Scheme (YES), which grows in popularity and last year had over 300 participants, who benefitted from mentoring in the financial, intellectual property and business sectors.

We also showcased "Bioscience Biomillions" at the Treasury last year, highlighting the work of 50 bioscience researchers, whose science we conservatively estimated to have an economic impact value of close to £2 billion.

Impact can of course be broader than direct commercialization and wealth creation.

Policy support and being able to prepare for and minimize threats is in one sense, an invisible impact.

Combatting the insect carried viral animal disease Blue Tongue is an example.

Scientists at the Institute of Animal Health accurately predicted the time and location of the arrival of this devastating disease in the UK last year.

This enabled effective preparation and preventative vaccination in 2008 saving the UK economy an estimated £485 million and 10,000 jobs.

Next month BBSRC will host the first "Bioscience Innovator of the Year" ceremony, when we shall be celebrating the successes of BBSRC-supported scientists in delivering economic and social impact from their research.

I give these examples as illustrative of what many Research Councils are doing to improve our nations track record of translational science.

Between the Technology Strategy Board and the funding councils there are now a number of initiatives to facilitate the interaction with industry and aid startup companies, for example Knowledge Transfer Networks and Partnerships, Small Business Research Initiatives (SBRI's), Research Council Follow-on Funding, TSB Innovation Platforms and Research Council Technology Clubs (for example in Bioprocessing and in Diet and Health).

We now need to demonstrate that these initiatives are indeed stimulating innovation and wealth creation. Studies of innovation however have tended to show that removal of inhibitors can be more impactful than initiatives to stimulate.

Governmental clearly has a role to play in the removal of innovation inhibitors such as overly cumbersome regulatory barriers and unhelpful taxes on investment in new companies.

This is very much part of the main conclusions of the

recently updated Cooksey report from the Biotechnology Innovation and Growth Team (BIGT) on Bioscience 2015.

This emphasises the need for tax incentives, particularly for the pharmaceutical industry to invest in biotechnology development. Also the need for Government to catalyse the redesign of new medicines regulation on a worldwide basis and for an independent review of the long term impact of NICE.

It is unfortunate, to say the least, that the NHS has been one of slowest adopters of innovative new drugs and health technologies in the Western World. This is hardly encouraging for the large Pharma companies when it comes to investing further in UK science.

However I very much welcome the new executive office for the life sciences under your direction.

In conclusion I agree with Lord Drayson and the questions he poses.

I would argue that the future wealth creation and recovery of the UK economy is closely linked to a continued strong Government investment in science and innovation both at the focused strategic level but also at the basic science level.

A balanced portfolio of high and low risk, short and long term science and technology will provide the basis of our nation's competitive place in an increasingly technology

driven post recession world.