

## DINNER/DISCUSSION SUMMARY

### How should the government support innovation in the economy?

Held at The Royal Society on 25th April, 2006

We are grateful to the following for support for this meeting:  
Innovation Group, OSI, Department of Trade and Industry  
QinetiQ  
and  
South East England Development Agency (SEEDA)

**Chair:**                   **The Baroness Wilcox**  
Council Member, The Foundation for Science and Technology

**Speakers:**           **Sir Keith O'Nions FRS**  
Director General Science and Innovation, Office of Science & Innovation, DTI  
**Stephen Heal**  
Director, Business Development, Tesco  
**Norman Pickavance**  
Group Corporate Services Director, Northern Foods

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SIR KEITH O'NIONS described the new Science and Innovation Group in DTI which brought science and innovation together. This arrangement should lead to greater coherence between DTI's ring-fenced budgets for the research base, innovation and its responsibility for ensuring investment was effective. The challenge was to ensure that new ideas lead to new services, markets and products. Successful innovation depended not only on R&D but also on beneficial taxation, regulation and business processes. Innovation and knowledge transfer required collaboration between the university research base and business. There had to be push and pull in both directions. The relation between new science, the need for business to find solutions to business problems either in business or in universities was complex. Government could assist, and did so through the DTI Innovation Fund, R&D tax credits, Government procurement, DTI Knowledge Transfer Partnerships and Technology Strategy. However, there was a need for a cultural change; business needed to appreciate the benefits of university research, and universities must deliver programmes which met the problems of business. DTI recognised that the current emphasis on big business did not capture the development activities of service industries or SMEs. The emphasis must be not only continuous investment in the research base, but driving forward knowledge transfer from the research base, supporting innovation in all business sectors, and understanding the impact of government interventions.

MR. HEAL said that Tesco's developmental activities were driven forward by the wishes and needs of its customers. It looked to its customers to tell it what improvements they wanted. The focus to provide an ever widening database on preferences, types and purpose of purchases, through the development of the Club Card, had led to new methods of delivery of services. Tesco relied primarily on its staff - from check-out assistants to store managers - to suggest and implement improvements to their services. Crucially, the culture Tesco sought to develop was one of continuous improvement, which meant individuals had to

show entrepreneurship and undertake risk. Not all ideas paid off. Over 6,000 ideas had come forward from staff which were tested against cost and productivity and then, in some cases implemented. The reward for the staff was recognition - not a bonus. The technologies concerned were primarily in information gathering and transfer, scanning and IT. Tesco's job was to bring them together. A new development was the £100m sustainable technology fund, which was designed to lessen energy usage, and prevent or reuse waste. He endorsed Sir Keith's view that the service industries were structured differently from the major industrial groups, their developmental activities did not show up in the same form as other industries and the need to follow, or anticipate, customer's wishes demanded a greater entrepreneurial ability in their staff. Competition was important; it forced a company to innovate; it was important to be able to absorb lessons from different industries and cultures. A Government priority should be to improve its services by studying what its "customers" wanted, through developing an entrepreneurial culture in its own staff.

MR. PICKAVANCE outlined the scale and nature of the food industry - the largest UK manufacturing sector, 650,000 employees, £66bn turnover, £153.8 billion consumer spending and 6,750 enterprises. Northern Foods itself had 20,500 employees, £1.4 bn turnover and 35 manufacturing sites. Like Mr. Heal and Sir Keith, he emphasised the difference between a service industry such as this and other manufacturing sectors such as pharmaceutical companies and oil and gas. Innovation was a general term which needed to be broken down to be useful - there was new innovation, leading to a major change in technology or product (only about 7%), and reasonably, fairly or scarcely new innovation which made some or minor changes, at the other end of the scale, innovation which was essentially only repackaging. It was useful to consider developmental activities as being, on one axis, either real innovation or simply continuous improvement, and, on another axis, as being new knowledge or applying existing

knowledge. Examples such as the induction wok, melt in the mouth puddings, environmental packaging, trigeneration (electricity, heating and cooling) and laser sealing fell into different places on these axes. Partnership was a common factor in these developmental activities. Sometimes it was partnership with a customer, sometimes with another industry (engineering for woks), sometimes universities - Brunel for packaging, Loughborough for laser sealing, and sometimes government (a link with DEFRA). Government should recognise that if it looked only at truly innovative R&D it would miss many of the value creating activities that service industries undertook through applying existing technologies and understanding their customers needs. There was an opportunity for the food industry to be a world leader for the UK, but the government needed to recognise its importance in a climate when nutritional health and environmental concerns were becoming more important, and strongly support the bioscience base which underlay it.

A principal theme in the following discussion was the relation between universities and business. There were a number of problems. There was, for example, a perception that because 80% of the government's research budget went to 20 universities, the other 100 universities were not doing useful research, or capable of doing it. This was quite false, and rested on a far too narrow view of what research meant, and a failure to understand that the crucial factor in universities helping business was their ability to transfer knowledge from all their activities. In particular, the new universities and those with strong regional bases, should be in an excellent position to develop programmes which would use new technology or exploit existing technology for the benefit of businesses for which they were training students or supporting locally. But they must know what the problems were and which business needed help. How could a university find out from a company what were its needs? How could a business find out from a university whether there was a programme or members of staff who could help them with their problems? There could be no simple answer to these questions as universities and businesses were individual entities with very different modes of operation and structures. In many cases businesses needed help to formulate the questions to which they needed answers; equally, universities failed to understand the cost and competitive demands which businesses faced. There was still, and perhaps most important, a cultural gap; it was suggested that an intermediary – a "translator" was necessary for the two sides to understand each other and to enable them to work profitably together.

Service industries had to rely more on their staff to generate ideas and implement them than did other industries. This meant that they had to be more entrepreneurial and risk taking than would otherwise be the case. Much could be done by training programmes within the industry itself. But there was much that universities could do to foster such a spirit in their science and technical students (although, admittedly, they were limited by the quality of their students whose school background often left much to be desired - it was to be hoped that recent budget proposals would work through into improving performance from pupils at school) as well as encouraging their staff to explore opportunities for development with local businesses.

There was a general welcome for the recognition by the DTI that the structure of the service industries, and the role that research and development played in their economy was different from other industries. The DTI scoreboard failed to capture the richness and diversity of their work, and added to the problems of getting them to see the advantages of working with universities. There was still a need for a step change in the willingness and ability to use the research base in universities, but a better understanding by government on how research was used, and when it

was used, and what was the motivation of service industries in accepting the inevitable costs, must be a starter. Suggestions that government, perhaps through the RDAs, should make much greater efforts to persuade companies to employ more R&D and use the research base carried dangers of being perceived as the nanny state. Greater efforts to promote mutual understanding - yes; overt persuasion - no.

Speakers had suggested that competition was a great driver towards innovation. To stay ahead of one's rivals was a strong motivation; if a company did not do so, it would decline. Another driver could be regulation. Regulation, in the environmental and health and safety areas could force companies to adopt new techniques and explore new science. But regulation could also be inhibiting, particularly if risk taking was an important factor in entrepreneurial activity.

### **Sir Geoffrey Chipperfield KCB**

#### **Useful web links:**

**Department of Trade and Industry:** [www.dti.gov.uk](http://www.dti.gov.uk)

#### **Science & Innovation Investment Framework 2004-2014: Next Steps**

[www.hm-treasury.gov.uk/budget\\_06/assoc\\_docs/bud\\_bud-06\\_adscience.cfm](http://www.hm-treasury.gov.uk/budget_06/assoc_docs/bud_bud-06_adscience.cfm)

**Innovation Review:** [www.dti.gov.uk/innovationreport](http://www.dti.gov.uk/innovationreport)

**Lambert Report:** [www.hm-treasury.gov.uk/consultations\\_and\\_legislation/lambert/consult\\_lambert\\_index.cfm](http://www.hm-treasury.gov.uk/consultations_and_legislation/lambert/consult_lambert_index.cfm)

**Northern Foods:** [www.northern-foods.co.uk](http://www.northern-foods.co.uk)

**OST:** [www.ost.gov.uk](http://www.ost.gov.uk)

**QinetiQ:** [www.qinetiq.com](http://www.qinetiq.com)

**South East England Development Agency (SEEDA):** [www.seeda.co.uk](http://www.seeda.co.uk)

**Tesco:** [www.tesco.com](http://www.tesco.com)