

DINNER/DISCUSSION SUMMARY

The role and strategy of the Technology Strategy Board

Held at The Royal Society on 19th March, 2008

We are grateful to
QinetiQ, South East of England Development Agency (SEEDA)
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Chair: **The Earl of Selborne KBE FRS**
Chairman, The Foundation for Science and Technology

Speakers: **Iain Gray**
Chief Executive, Technology Strategy Board
Professor Andy Hopper CBE FRS FREng
Head, Computer Laboratory, Cambridge University
Dr Richard Ward
Chief Executive, Lloyd's of London

MR. GRAY summarized the aims of the Technology Strategy Board (TSB), outlined in the White Paper on Innovation, as being to connect and to catalyze. The TSB is in the process of drafting a plan to implement these aims. He was heartened by the emphasis in the Budget speech on driving forward innovation. The development of an independent TSB was timely; there was a favourable policy framework; strong openings for innovation in e.g. robotics and genetics; and a business market driven by entrepreneurship. However, questions were - how does innovation arise? Should government intervene to stimulate innovation? Innovation should be challenge lead - major challenges were climate change, ageing, security, and globalization. The TSB would establish innovation platforms in areas such as assisted living, intelligent transport and network security, where the aim would be to bring together the various players. For example to understand the opportunities and market for assisted living it was necessary to understand the demographic and cultural changes in society, medical advances and the work and responsibilities of voluntary and official bodies. Such information would shape technologies for the benefit of users. Innovation itself must be technologically inspired, built on successes and existing assets and deliver a pipeline of technologies. An innovation climate was one where people chose innovation, and were rewarded for doing so. The TSB was not a government department, would be business lead, work with the grain of the market, but take risks. Questions were: should the TSB extend its remit into financial and creative services; how to define its most effective role; and how should the TSB collaborate internationally, but preserve UK interests?

PROFESSOR HOPPER drew on his experience to analyze the differing constraints and drivers in the academic and business worlds. A University was based on people who were individually motivated to do what passionately interested them; it ran on goodwill but success was measured by peer review and publication. It was not, therefore, a promising environment for commercially successful innovation. Intermediate organizations were necessary to link academia with the business world. Business itself was characterized by risk taking, by ensuring long term sus-

tainability and specific funding goals. Where innovation was successful it used applied research which bucked trends; developed operational models with actively managed teams who had a shared culture and was linked both to academia and to markets. There must be adequate incentives - and these could be damaged by ill considered tax changes. The commercial model would involve supporting transfer to sponsors while keeping technology in the forefront. If the TSB were to get more geese to lay golden eggs, it should encourage broadly based but people centred teams, operating at arms length from universities, who were willing to compete and collaborate internationally.

DR. WARD emphasized the need for the financial services industry to understand and use science and engineering, and for scientists and engineers to understand the requirements of the industry and its markets. The insurance industry was based on assessment of risk and where unusual risk was concerned - such as natural catastrophes, terrorism and space science, rational assessment could only be developed from a scientific base. Such assessment involved modelling the likelihood of events occurring together with the damage that they could cause. Such modelling would involve many scientific disciplines, such as earth sciences, climatology, demography, engineering and IT. Such models needed to be continuously updated and new data incorporated, which would mean bringing together data and information from different sources. For such modelling and assessments information sharing was essential. The contrast between the USA and the UK in making government funded information, such as maps, available was marked. In the USA it was free, in the UK there was a fee (a double whammy, as the taxpayer had already paid). The TSB could help to improve the partnership between the complex and sophisticated financial services industry and science, encourage networking and push for an open data policy.

The principal focus of the ensuing discussion was the ability of the TSB to achieve the White Paper aspirations, and how it could measure its success. A number of speakers endorsed the business lead approach Mr. Gray had prom-

ised and understood his inability at the present time to fill in the programme which the TSB plan would develop. But there was some scepticism about whether there had been any significant addition to funding and whether the new regime was much more than a reshuffling of responsibilities and functions. The proof of the pudding would lie in the business approach, in the networking opportunities that were delivered, for example with Regional Development Agencies, and in the willingness to take risks - and stand up to the political pressure when they went wrong. Aligning the commercial need for secrecy and security through IP protection and the task of encouraging collaboration and information sharing would be very difficult. Speakers agreed that existing methods of measuring innovation success - the DTI R&D scorecard - were inadequate; but what could usefully supplement or replace them? Was the measurement of success to be related to benefit to the UK economy, employment prospects, wealth creation, or social improvements? It was desirable to base any success measurement on simple feed back and not seek to develop bureaucratic box ticking models. An innovation index would be valuable. Did it matter if companies based on successful innovation moved overseas to the USA? Or should we aim to ensure long-term growth stayed in the UK? Globalization meant, however, that markets were international and companies must go to where their markets lay; this did not mean that the home country lost out, proceeds of sales could be recycled and there would be a continuous demand for the sort of skills which lead to the original success. It was misguided to have a fixation on a possible brain and capital exodus to the USA. Strong economic growth and the demand for innovative services and technology, were more likely to lie in India and the Far East. These economies were more likely to wish to use the technical and financial expertise of companies which were still resident in the UK.

Mr. Gray had asked whether it was right for the TSB to include the financial services and creative sectors in its remit. Speakers agreed that Dr. Ward had demonstrated the close link between science and the sector, and it was clearly right that the TSB should seek to encourage collaborative work which would lead to more understanding among scientists of the opportunities for innovation in the financial services and a greater appreciation in the sector of the benefits of encouraging innovative science. Although Dr. Ward had concentrated on the insurance industry, such collaboration could prove of value in other financially related areas, such as law. There was, of course, concern that such closer collaboration would lead to more scientifically trained academics leaving research for the lush pastures of the City. Of course, academic emoluments could never match the rewards available in the City, but perhaps that danger could be discounted. Professor Hopper had already explained the attractions of academia for the committed researcher, who was far more interested in pursuing his obsession than achieving great financial rewards. (A speaker noted that this was not an argument for failing to increase academic emoluments to a reasonable level.) In principal, this was true also of the creative sector, but there were concerns that departmental organization and the role that the Department of Culture Media and Sport might seek to arrogate to itself; would limit the effectiveness of the TSB. Open access software was of great importance in the creative industry and the TSB could usefully consider how to promote collaborative software development. A major input from the creative sector was design and speakers noted the importance of design in successful commercialisation of innovative technology. It needed to be brought into play from the start, and not relegated to the role of pretty packaging.

Speakers also endorsed Mr. Gray's views on the importance of international collaboration, which meant not only working for markets abroad but also making the UK an attractive place for foreign entrepreneurs and companies to thrive. But both for attracting foreign companies and incentivising innovative practices in the UK, speakers noted that tax was an important consideration. The TSB could act as a magnet to attract such companies. It should also ensure that it had close relations with the EU to make sure that the UK succeeded in bidding for the financial support that was available. It was valuable to understand what other European countries were doing, so that we could benchmark ourselves against best practice elsewhere.

Sir Geoffrey Chipperfield KCB

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Other links are:

Advantage West Midlands:

www.advantagewm.co.uk

Arts and Humanities Research Council:

www.ahrc.ac.uk

Biotechnology & Biological Sciences Research Council:

www.bbsrc.ac.uk

East of England Development Agency:

www.eeda.org.uk

East Midlands Development Agency:

www.emda.org.uk

Engineering & Physical Sciences Research Council:

www.epsrc.ac.uk

Economic & Social Research Council:

www.esrc.ac.uk

Department for Business, Enterprise and Regulatory Reform:

www.berr.gov.uk

**Department for Innovation, Universities and Skills:-
Innovation Nation Report**

www.dius.gov.uk/docs/home/scienceinnovation.pdf

London Development Agency:

www.lda.gov.uk

Medical Research Council:

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www.royalsociety.org

Science and Technology Facilities Council:

www.stfc.ac.uk

South East of England Development Agency:

www.seeda.co.uk

South West of England Development Agency:

www.southwestrda.org.uk

The Technology Strategy Board:

www.innovate.org

Yorkshire Forward:

www.yorkshire-forward.com