THE FOUNDATION FOR SCIENCE AND TECHNOLOGY

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DINNER/DISCUSSION SUMMARY

Innovation Nation – a new strategy for innovation

Held at The Royal Society on 7th May, 2008

We are grateful to the
The National Endowment for Science, Technology and the Arts (NESTA)
for supporting this event

Chair: **The Earl of Selborne KBE FRS**
Chairman, The Foundation for Science and Technology

Speakers: **Dr Ian Pearson MP**
Minister for Science and Innovation, Department for Innovation, Universities and Skills (DIUS)
Professor Vicky Pryce
Chief Economic Adviser and Director General, Economics, Department for Business, Enterprise and Regulatory Reform (BERR) and Joint Head, Government Economic Service
Andy Goldberg MD FRCS
Honorary Fellow, Oxford Orthopaedic Centre and founder Medical Futures
Sir John Chisholm FREng FIEE
Chairman, Medical Research Council and Chairman, QinetiQ

MR. PEARSON said that while innovation had been crucial throughout the UK's history, from the industrial revolution onwards, it was now, because we could no longer compete on price but had to do so on quality and new products, more important than ever. This meant collaboration and networking, as well as competition, between scientists engineers, and businessmen to tackle international and intersectional problems such as global warming, ageing and food shortages. The innovation White Paper expected innovation in all sectors of the economy - public, private and the increasingly important voluntary sector. All three needed to look increasingly outside their own organizations or silos to use ideas and concepts from wherever they came whether or not from within the UK or outside - open innovation. Innovation should be user driven, and not tied to the traditional linear - research, development, commercialization, marketing - path. The Government itself was playing an important role - it was reconsidering its SME policies, was looking at the procurement policies in all departments, enhancing the science budget, creating with others, the national UK centre of medical research, driving forward the low carbon initiative, seeking better means of measuring innovation, so that the UK could be benchmarked against its competitors.

PROFESSOR PRYCE emphasized the seamless working of the two reorganized departments – DIUS and BERR - to promote science, technology and innovation. BERR had three Public Service Agreements (PSAs) on which to deliver - raising productivity; creating the conditions for business success; and improving regional performance while reducing the gaps between regions' growth rates. DIUS had a PSA to promote world class science and innovation, which BERR strongly supported. It was vital to measure the UK's performance on productivity and output against its competitors. We did not do badly on various measures, such as GDP per hour and per worker, particularly taking into account the inevitable lack of skills in an expanding workforce, but there was much to be done to improve matters. The key to further success lay in services and high quality technology and manufacturing, which already had high levels of innovation. The difference in performance between regions, however, was marked - 11% of companies in the North East had cooperative arrangements in technical innovation, compared with 14% in the South East. BERR's specific role in this area was to work with RDA's; to seek to link enterprise and the government's manufacturing strategy with innovation; and to analyze the balance between regulation and risk

MR GOLDBERG described the size and complexity of the NHS, (£100bn budget) and the scope which it should offer for innovation if the proper emphasis was put on meeting the needs of its consumers. Attempting to meet these needs by targeting had been unproductive and led to perverse results as box ticking took over from sensitive analysis. Innovation did not mean working to set targets; it meant implementing change by sensing unmet needs, getting ideas together with finance, development and marketing with understanding of the correct timing. He gave some vivid examples of how this happened - from ideas dreamt up in sheds and kitchens by "ideapreneurs" which led to (sometimes chance) meetings with people who knew how to put them into the market place - "entrepreneurs"-; which led to commercial and consumer success. He contrasted the attitudes of the "ideapreneurs " - thoughtful, persistent, risk adverse, outside the financial and marketing worlds, and "entrepreneurs", - risk takers, opportunists, using a wide circle of contacts. The process cannot be hurried - there could be 10 years between the idea and committing it successfully to paper, and 10 to 15 years between the paper and market success. The problems were how to put the two temperaments together - chance meetings were not enough - and how to ensure that when the " entrepreneur" seized upon the idea, he could get sufficient finance and entry into the market place. The NHS was badly placed to do either - it had far too many "ideapreneurs" and little knowledge of how to find "entrepreneurs". It was vital that institutions such as the NHS understood that start-ups cost money, and that the benefit should lie in long term efficiency gains and patient satisfaction. Too often the cost benefit was looked at far too narrowly. Fostering and exploiting talent - which was widely

distributed - when the need for a new service or technique was seen, was the way forward. Don't throw money away on ideas for which there is little evidence that they will meet a need. Help entrepreneurs cover risk when finance is sticky.

SIR JOHN CHISHOLM opened the discussion. Innovation, at the macro level, was a good, and should be warmly encouraged; but innovation at the micro level would have as many failures as success. The task was to create an environment where innovative individual risk was encouraged, success praised and failure not castigated (the opposite approach to that taken by many Ministers and the Public Accounts Committee). There were both market and technical risks which varied according to sectors. The White Paper did not sufficiently emphasize the linkages between the incentives that need to be given to the academic community, the development of ideas through SMEs, and the sale of those SMEs to big companies. The analysis of risk and reward must look at all three components - and it did not matter whether the big company who were the ultimate buyer came from the UK, the US or Europe.

Although, in the course of the following discussion, there was praise for many of the points made in the White Paper, there was, in the comments of a number of speakers, an underlying scepticism about the Government's understanding of how innovation worked and the link between innovation and entrepreneurial success and economic growth - succinctly summarized by the speaker who noted that there were the word innovation occurred 135 times in the White Paper, but investment only 11 times and growth only once. There was much sympathy with Mr. Goldberg's analysis of innovation and commercial and consumer success. It was the talented individual who needed to be encouraged, and, as Mr. Goldberg had pointed out, there were different talents in different people. "Ideapreneurs" (a term some speakers found difficult to love) needed to be encouraged in different ways from entrepreneurs. They needed encouragement to work away on their ideas over the long term, which meant secure employment, sufficient time, and cooperative assistance, and possibly collaboration from those working in related fields, and help in making eventual contact with entrepreneurs. The entrepreneurs, on the other hand, needed to have sufficient access to customers (patients in the NHS) to be able to sense unmet needs and sufficient contact with the "ideapreneurs" to judge when one or more of the ideas could meet those needs. The government should be prepared to risk some finance to exploit the opportunities and be prepared to face the criticism if some did not work. If the Government really wished to help SMEs, it should be prepared to require bodies such as the NHS to buy from them - contracts which might well be more risky than with a large firm, but an area where more innovation is likely to take place. While the Minister had said the right things about procurement, there was some doubt about how these would be translated into practice, where Departments would remain risk adverse, and unwilling to put possibly intangible efficiency gains into the equation.

But Mr. Goldberg's analysis did not exclude innovation coming from large companies, or universities and their research laboratories. It was important to understand that answers to major health issues - cancer, ageing , heart disease etc. - would not come from intermediate technology (although that could be valuable, as in stents, in mitigating effects) but from basic science carried out in major medical research facilities. Indeed, speakers endorsed the thrust of the Government's policies which stressed the importance of universities encouraging start-up companies and efforts by their staffs to link with SME's in developing innovative practices and products. Universities should not be too restricted by concerns about IP, if this stood in the way of exploitation of ideas; they should also not be too anxious to take immediate returns through licensing arrangements rather than waiting to achieve full commercial success and taking the full rewards. But this was perhaps another area where the Government were failing to take account of the entrepreneurial spirit, - recent Capital Gains Tax changes, had given a strong indication that the government was unsympathetic to large entrepreneurial gains.

Some speakers also had concerns about the possible bureaucratic empire that might be built around attempts to measure the immeasurable - was the Innovation Index really worth the trouble? Was it sensible to devote effort to reducing disparities between regions, and rely on Regional Development Agencies, whose effectiveness in some regions was doubtful? Why did not BERR learn from the past - there had been the valuable Innovation Handbook produced in the 1970's which seemed to have been lost sight of. More important, had the Government the expertise to manage programmes where innovation should play a large part. For example, how many engineers did BERR or the Department of Transport have? How many building surveyors were in the Department of Communities? It was no answer to say they also did not have enough economists or other skills; or that they could use consultants (which they would not have the expertise to manage). No doubt, the root of it was the small numbers of STEM graduates coming from universities, but that made it more important for the government to make extra efforts to recruit them. If Government could not recruit the expert staff it needed, then it should not plan over ambitious programmes. Also, much of the current effort was puny compared to the drive and scale of Chinese research and enterprise. Speakers endorsed the Minister's comment that regulation had an important role to play in encouraging innovation as new standards were set (as in carbon zero housing). It was helpful for industry to know that certain standards had to be met when they were given sufficient time to develop means of meeting them. But, there was a caveat. If Government then reneged on its commitment to the new standards, because of populist concerns, and industry had been forced to spend money which was now wasted, the end result would be to dampen innovation, not improve it.

Sir Geoffrey Chipperfield KCB

Details of past events are on the Foundation web site at www.foundation.org.uk.

Other links are:

Department for Business, Enterprise and Regulatory Reform - Unlocking the UK's talent:
www.berr.gov.uk/bbf/enterprise-smes/enterprise-framework/index.html

Department for Innovation, Universities and Skills - White Paper on Innovation:
www.dius.gov.uk/publications/ScienceInnovation.pdf

Medical Futures:
www.medicalfutures.co.uk

National Endowment for Science, Technology and the Arts:
www.nesta.org.uk

Research Councils UK:
www.rcuk.ac.uk