THE FOUNDATION FOR SCIENCE AND TECHNOLOGY

DINNER/DISCUSSION SUMMARY

Does manufacturing have a future in the UK?

Held at The Royal Society on Tuesday 11th November 2003

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In the Chair: The Rt Hon The Lord Jenkin of Roding

Speakers:
The Lord Haskel
House of Lords
Simon Edmonds
Director, Materials and Engineering Sector Unit, DTI, on behalf of Jacqui Smith MP, Minister of State for Industry and the Regions, DTI
Tim Woodbridge
Chief Executive, Webdynamics
Professor Mike Gregory
Department of Engineering, University of Cambridge

The invited speakers were positive about the future of manufacturing in the UK, stressing the need to deal with the decline of traditional industries through innovation and quality, investing in skills, responding flexibly to demand and thinking laterally. There were many entrenched misconceptions about the supposedly inevitable decline of manufacturing industry in developed countries.

In discussion a number of participants called for more refined measures of the state of manufacturing and complained of outdated econometrics. Official statistics used ancient standard industry codes. One speaker carrying out research on manufacturing had found that companies tended to be clear why production mattered to them, but that economists did not have models to understand the links between it and the rest of the economy.

High volume employment had certainly been lost over the years, but the picture was different if regard was had to the value of production, and in particular added value. It was also important to take account of the services associated with production. In some cases manufacturing companies now bought in functions such as financial advice which used to be provided in house, and that could give a misleading impression of a decline in the manufacturing sector. The nature of employment changed too. Those who asked whether manufacturing had a future in the UK were probably worried about jobs for their children, but it was hard to know what jobs would be like in the future. Instead of nineteenth century workers in large factories controlled by a boss there were now, for example, skilled technicians who worked for themselves fixing computers and domestic equipment.

Another speaker warned against complacency. It might be comforting to compare the relative size of the manufacturing sector in the UK with that in the US, but even a small slice of the American economy was big. A major British manufacturer which had been mentioned did not fund its own capital investment, and the UK was failing to develop middle to large ranking companies.

There was general concern over a shortage of relevant skills and poor recruitment into engineering, with universities closing physics and engineering departments. Industry had to get passion and vibrancy across in order to attract keen graduates. The UK compared badly with its competitors in workplace skills. One speaker who ran companies in Germany and Switzerland reported having staff who were well trained through true apprenticeship systems, and wondered what UK companies should do to reactivate apprenticeships. Another speaker was impressed with the work of technical secondary schools in Italy. By contrast, when he had gone on factory visits as a schoolchild the teachers had warned the pupils that that was where they would end up if they did not watch their step.

It was observed that people complained because students would not go off and become factory

foremen, but a lot of them become consultants instead. They were not being stupid: the money was much better, and if industry wanted good young people it had to pay the market rate. Consultancy was one way for rather rare talents to be shared round. Another participant thought that talk of apprentices and foremen was rooted in the 1950s and would not inspire young people these days. It was necessary to move on from the nineteenth century concept of manufacturing. When Matthew Bolton had created a "manufactory" it had been a magical place where art, science and engineering came together, a dynamo of creativity, not just a big machine.

The universities faced the difficulty that they could never be as up to date as manufacturing industry in high-tech areas such as machine tools. There were links between universities and manufacturing companies, but the universities tended not to be those in the forefront of research. It was suggested that there was something wrong with the system if companies pursued their own research, not using the universities, or forgot about research altogether while leading academics were encouraged to spend their time chasing research funding. There was, indeed, concern in the Research Councils over the effort which went into grant applications. The Research Assessment Exercises tended to encourage this. Possible solutions included better quality control within universities, a quota system (as operated by PPARC), and funding policies designed to help established research groups consolidate their portfolios while still letting new teams in.

The Government was criticised for not doing more to help industry. One speaker who had been on both sides of the fence suspected that the Government regretted entering this field. Industry had become more demanding, but the Government could not help companies open new factories or market their products. One participant complained that his small company had received nothing from official sources except bad advice, but another acknowledged very helpful tax concessions that small businesses could use to give incentives to their founders and directors. One speaker had been impressed to see how aggressively the American system separated long-term from misson-oriented science, with the latter being directly promoted by the US Government. It did not simply create tax incentives and a favourable environment for applied science: funding agencies made it happen, buying anything from axle designs for army trucks to semiconductors from small innovative companies. These did not make much use of venture capital, because it was the US Government which forced innovation. Another speaker feared that the UK Government's innovation review might recommend more investment in new technology, which was in plentiful supply in the UK, without addressing the national weakness when it came to turning innovation into successful products.

One problem for the UK in trying to help startup companies was the lack of any reliable way to predict whether they would prosper. Standard investment appraisal methods only worked for established companies. Statistics on the numbers of patents filed tended to be quoted as measures of innovative capacity, but what mattered was whether the patents were exploitable and exploited and how many new companies survived beyond the first two or three years. One speaker's small company succeeded through innovation and flexibility. They treated the customer as king and would supply any variant on the standard product quickly, at a price, using a team who believed in this way of working.

The continuing automation of manufacturing processes was forecast to lead to factories staffed by a man and a dog, the man's job being to feed the dog while the dog was there to bite the man if he tried to do anything. It was asked whether automation would erode the competitive advantage enjoyed by countries with low labour costs. One answer was that the importance of labour in manufacturing would certainly change, as it had in agriculture, but that it would be a mistake to assume that competitors in parts of the world with low labour costs would miss out on automation. A visit to the Hyundai factory in Korea 15 years before had revealed more robots than in the whole of England. The technology was very portable and would not give the West an advantage. The need was to educate people who could understand it.

The forthcoming end-of-life legislation imposing requirements for recyclability was welcomed because it would encourage designers to build in replaceable components rather than integrated designs where the whole product had to be thrown away when one part went wrong. A demand for replacement components would create opportunities for local manufacturing industries.

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