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Business and Enterprise
Committee

**Risk and Reward:
sustaining a higher
value-added economy**

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The Business & Enterprise Committee

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Summary

We are in the middle of a severe recession, but this Report is an optimistic one. Here are a few of the most recent statistics about the United Kingdom's underlying strengths that deserve to be better known:

- In 2008, it was the world's second largest exporter of services;
- In 2008, it was the world's sixth largest manufacturing nation;
- In 2007, it was the eighth largest exporter of manufactured goods; and
- In 2006, 25% of those goods were high-tech.

Some readers will know all this, but to too many people these facts will be unfamiliar. As a nation, we are good at self-criticism. Of course it is important that we identify our weaknesses, and take action to correct them. However, failing to know and assert our strengths can also be disastrous. If, as some reporting suggests, Britain genuinely and wrongly believes itself a nation in which manufacturing is in decline, there is no high technology industry, and the scale of the service sector is a weakness rather than strength, then we will deter potential partners—from foreign investors to the young people in our schools—from participating in some extraordinarily successful businesses. That would help make sure that long-term economic decline becomes a self-fulfilling prophecy.

The United Kingdom is facing severe and real challenges. The country has been hit hard by the recent recession. Increasing globalisation means that we cannot compete on price alone. If the economy is to have a future, it must be in higher value-added goods and services, and it must be an economy which competes on innovation, skills and knowledge. We have been doing so as a nation at least since the days of the Industrial Revolution and there is no reason why we cannot continue doing so in the future.

However, there is a great deal to be done to make sure that the United Kingdom can compete successfully. To its credit, the Government has said a lot about the policies required to ensure a higher value-added economy can flourish. Recently, it has published at least five significant policy papers. But a higher value-added economy cannot be built by central government alone; regional bodies, local government, academia, the third sector and, above all, businesses of all sizes must also play their part. The challenge now is to make sure that broad policy statements are translated into action.

The Committee's inquiry is based on an extensive programme of visits in the United Kingdom and the USA, as well as oral evidence sessions from some distinguished individuals and organisations. We heard repeatedly of the underlying importance of six key factors in fostering a higher value-added economy:

Skills: the successful centres we saw built on the intellectual capital around them.

Ideas: the areas we visited had centres of research excellence and many organisations dedicated to ensuring ideas could be successfully commercialised.

Networks: ultimately, success owed a great deal to the fact that different parts of the system were connected to one another. Universities and technology transfer organisations collaborated; venture capitalists had links to universities and to local government.

Finance: there was ready access to risk capital, and encouragement and help for would-be entrepreneurs.

Leadership: this could come from business, from academia, or from the relevant part of government. Often, a variety of organisations worked together, or complemented one another.

Culture: it was taken as read that good ideas should be commercialised and accepted that not every initiative or business would succeed—indeed frequent failure was seen as part of the price of success.

Where the United Kingdom is succeeding, it already has the sources for ideas, skills and leadership in place. There are already world class collaborations between research institutions and industry, and action is being taken to widen such networks and increase their number. Where the UK economy is not reaching its true potential, these six ingredients are not in place.

Our Report looks at areas where more could be done to foster higher value-added activities, and makes a number of specific and more general recommendations.

However, in our view, the most urgent change is one of culture, and that will be the hardest to bring about. Collectively, we need to identify our strengths, publicise them and build upon them. We also need to accept that the innovation and experimentation the higher value-added economy requires will mean that projects sometimes fail, and that, in the long term, there is no reward without risk. If the United Kingdom has a culture in which appropriate risk taking, whether by entrepreneurs or by public servants, is discouraged, it will soon be overtaken by other more dynamic economies. We should start by recognizing that we already have a higher value-added economy; the challenges are to sustain it and to broaden that success to other sectors. This Report identifies ways in which that can be achieved.

1 Introduction

The purpose of the inquiry and the aim of the report

1. This Report has taken far longer than anticipated when, on 26 July 2007, the Committee announced its intention to carry out an inquiry into creating a higher value-added economy. The intention of the Committee was to build on the findings of its reports into better skills for manufacturing and public procurement, but it was forced by the recession to turn its attention to other urgent subjects.¹ However, innovation remains a vital issue for an advanced economy like that of the United Kingdom and arguably is of even greater relevance at a time of severe economic challenge. The inquiry's terms of reference were broad:

- What is meant by a high value-added economy? Which business activities qualify as such?
- How UK business compares internationally in areas such as research and development, creativity and design.
- What can be learnt from the experiences of other countries in this area and how fast other countries are moving up the value chain?
- The extent to which UK business has absorbed new business practices such as lean manufacturing.
- Why some sectors of the UK economy appear to be more effective at embracing value-added activities than others?
- The impact on business of government efforts to promote research and development, including the research and development tax credit.
- The progress that has been made on university/business co-operation and knowledge transfer since the publication of the Lambert Review in December 2003.
- Whether business and government interpret innovation too narrowly?
- What the Government can do to further promote higher value-added business activities and innovative thinking among UK businesses.
- The impact of nationality of ownership on the location of research and development work.
- The effectiveness of machinery of government arrangements in encouraging innovation and creativity.

2. The Committee is not the only organisation preoccupied by these questions. They have underlain the work of many other bodies in recent years. As the Engineering Employers

¹ Trade and Industry Committee, Fifth Report of Session 2006-07, *Better skills for manufacturing*, HC 493. Trade and Industry Committee, Thirteenth Report of Session 2006-07, *The future of UK manufacturing: public procurement*, HC 1109.

Federation (EEF) told us in their evidence “concerns have been addressed in the recommendations made in the reviews of innovation conducted by Lord Sainsbury and of skills by Lord Leitch”.² In the course of our inquiry, the Government has published further documents and speeches relating to this topic.

Our inquiry

3. This has been an extremely long running inquiry, informed by seven evidence sessions and an extensive programme of visits. The Committee is extremely grateful to all those who contributed to the inquiry. We were keen to ensure that we both looked at the way in which innovation could be supported in ‘traditional’ innovative industry, and that we also took a wider view. We took oral evidence from Professor Peter NC Cooke KPMG, Professor of Automotive Management at the University of Buckingham and Mr Eric Wallbank, Automotive Sector Leader for Ernst & Young; Sir John Rose, Chief Executive, Mr Charles Blundell, Head of Public Affairs, and Mr Mike Terrett, Chief Operating Officer, Rolls-Royce Group plc; Mr Richard Halkett, Executive Director, Policy and Research Unit, National Endowment for Science, Technology and the Arts (NESTA); Mr Will Hutton, Chief Executive, and Mr Ian Brinkley, Director, Knowledge Economy Programme, Work Foundation; Professor Michael Clarke, Vice-Principal, and Dr James Wilkie, Director of Research & Commercial Services, Birmingham University; Professor Madeleine Atkins, Vice-Chancellor, Professor Ian Marshall, Pro Vice-Chancellor for Research, and Professor Keith Popplewell, Director of Future Manufacturing Applied Research Centre, Coventry University; Mr Mick Laverty, Chief Executive, Dr Richard Hutchins, Corporate Director for Economic Development and Dr Phil Extance, Director of Innovation, Advantage West Midlands; Ms Rachel Elnaugh, Entrepreneur and former panellist on Dragon's Den and Mr Doug Richard, Entrepreneur, Chair of Conservative Party Small Business Task Force and former panellist on Dragon's Den; Ms Frances O'Grady, Deputy General Secretary, and Mr Tim Page, Senior Policy Officer, Trades Union Congress (TUC); Mr John Cridland, Deputy Director General, Confederation of British Industry (CBI); Mr Andrew Cave, Head of Policy, Federation of Small Businesses (FSB); and Mr Iain Gray, Chief Executive, Mr David Bott, Director of Innovation Programmes, Mr Graham Hutchins, Director of Operations and Services, Technology Strategy Board (TSB).

4. We were eager to talk to practitioners around the country, and some of our oral evidence was taken on committee visits. As well as taking formal evidence, we met a wide range of people involved in innovation: academics, entrepreneurs and government bodies. We visited Cambridge, the West Midlands, the British Library in London, Glasgow and Edinburgh. A full list of meetings is included in Annex B.

5. One of the most useful parts of the inquiry was the visit to the United States to assess what could be learnt from the experience there. That visit enabled us to look at: the way in which innovation was funded; interactions between universities, businesses and public authorities; industry collaborations; and publicly funded technology transfer organisations.

2 Ev 183 [EEF]. HM Treasury (2007), *The Race to the Top, A Review of Government's Science and Innovation Policies* conducted by Lord Sainsbury of Turville; HM Treasury (2006), *Leitch Review of Skills, Prosperity for all in the Global Economy- World Class Skills*

We looked at Federal Organisations such as the Defense Advanced Research Projects Agency (DARPA) and the National Institute of Standards and Technology (NIST) in Washington; at the Research Triangle Park and at the university-centred activity in Boston. It was invaluable for setting the UK experience in context.

6. In addition to our evidence, we have drawn on the wide range of material published by others. There is a danger that so much is said about the high value-added economy, about innovation and about how policy can foster it, that it is difficult to keep up with the policy debate. Our purpose is to focus at a very high level on what the higher value-added economy means for the United Kingdom, and to make recommendations about the overall policy approach. In addition, we encountered many examples of best practice, and the Report offers an opportunity to draw attention to some of these. We recommend that those who are interested in exploring these topics in more detail look at the evidence published with this Report, where experts have given their views freely.

The background to our inquiry: history and circumstances

7. No sensible assessment of the United Kingdom's needs can be made without an appreciation of two underlying factors—our nation's extraordinary history of innovation, beginning with the Industrial Revolution and continuing to this very day and, linked to that, a proper understanding of the current economic context.

8. Britain's continuing success as a manufacturing nation—something not fully understood and which we analyse below—owes much to our long history of innovation. Dating the exact beginning of the Industrial Revolution would be a matter of academic debate. It would be convenient for our Report to say it began in 1709, exactly 300 years ago, when Abraham Darby first used coke to smelt iron ore, replacing wood and charcoal as fuel. But it is safer to be less specific. As one of Britain's leading historians says:

From the 1730s and 1740s, the majority of British commentators argued that modern achievements were superior to those of former times, especially the ancient world. A culture of improvement lay at the heart of much innovation and the diffusion of new techniques and machinery, although art, architecture, furniture and much else in the cultural world, all used classical designs.

Progress took many forms, but the most important was a belief in the prospect and attraction of change. From 1759, there was a marked increase in the number of patents, testimony to an interest in the profitable possibilities of change.³

9. It is safe to say, then, that Britain's Industrial Revolution began at least 250 years ago and that this head start on the rest of the world is one of the reasons that the United Kingdom, to this day, enjoys a lead in many manufacturing technologies—a lead that is not properly appreciated or celebrated. A central theme of this Report is the need for politicians and commentators to understand just how successful we continue to be as a nation in many sectors.

3 Jeremy Black, "The Making of Modern Britain", 2001

10. All too often, the rhetoric about the British competitive position is unduly pessimistic. In the last few months the following headlines have appeared:

- UK manufacturing 'falls off a cliff' – *The Guardian*, 1 December 2008;
- Manufacturing outlook “grim” – *The Telegraph*, 2 January 2009;
- UK Manufacturing report near record Jan weakness – Reuters UK, 2 February 2009;
- Outlook for UK manufacturing continues to worsen – *businessweekly.co.uk*, 6 February 2009;
- UK Manufacturing still on the decline – Agent Cities, 13 May 2009; and
- Figures reveal biggest slump in manufacturing output for 35 years – *The Daily Mail*, 2 June 2009.

11. This Report is not about the recession or its causes. It does not look at any alleged failures of policy by this Government that may have contributed to the recession, just as it does not look at any similar allegations about the then Government’s response to the previous recession in 1991. It is, however, a matter of fact that the current recession has hit British industry hard. The CBI, in supplementary evidence to the Committee, summarised the effects of the current economic downturn on business:

Aside from the negative effects on aggregate demand and output, there will undoubtedly be other, more permanent, effects on the business community. Clearly the UK financial system has already changed radically. Even when the economy emerges from recession, we do not envisage a return to pre-2007 credit conditions anytime soon. This may have adverse consequences for business formation, investment and innovation.⁴

12. The most recent figures show the severity of current conditions for industry. Manufacturing output has fallen 13.7% below the level of a year ago, and is at the lowest level since 1991. But although the Committee recognises that the economy is facing severe difficulties, the United Kingdom is not alone in this. For example, in the year to January 2009, manufacturing output in Germany fell by 20%.⁵

13. However, the broader context—the product at least in part of two and a half centuries of innovation—is rarely given. As the title of a PricewaterhouseCoopers report issued this April put it: “The future of UK Manufacturing: Reports of its death are greatly exaggerated”.⁶ Similarly, whatever one's views of the right balance of different sectors in the economy, one cannot deny that the United Kingdom has real competitive strength in the

4 Ev 160 [CBI]

5 BNP Paribas, March 09

6 http://www.pwc.co.uk/pdf/UKmanufacturing_300309.pdf

service sector. The United Kingdom was the second largest exporter of commercial services in the world in 2008, surpassed only by the US.⁷

14. There is, of course, room for legitimate debate about the extent to which the policies of successive governments since the Second World War have assisted or damaged industry, but the UK economy is not the weakening some commentators suggest. *Innovation Nation* (published in March 2008) states that “In 2007, the UK exported around £75 billion of knowledge services, an increase of 170% on the decade before, and now makes up about a quarter of all UK exports. Exports have outpaced imports such that the surplus on trade has trebled from 1.8% of GDP in 1995 to 3.3% in 2005.”⁸

15. Similarly, although Britain runs a significant trade deficit in manufacturing, the manufacturing sector is not as weak as commonly supposed. Manufacturing accounts for 13% of the United Kingdom’s GDP, making the United Kingdom the sixth largest manufacturer in the world (measured by output)⁹ and 25% of the United Kingdom’s exports are high-tech goods.¹⁰ *Innovation Nation* argues that the sector is, therefore, not in decline, particularly as manufacturing production has increased by 50% since 1997. This is not simply the Government’s view; EEF told us that there had been a “modest increase in manufacturing output of 4.2% between the end of 2002 and August 2007”.¹¹

16. The United Kingdom is also a relatively open economy. The EEF told us “Relative to its GDP, the stock of foreign direct investment (FDI) stood at 37% in the UK in 2005. This compares with 28% in France, 18% in Germany, 13% in the United States and 12% in Italy. Similarly, the stock of British outward investment stands at 56% of GDP, well ahead of France (40%) and Germany (35%)”.¹² This has advantages and disadvantages; there are clear signs that companies prefer to locate their research and development (R&D) in their home market.¹³ On the other hand, the need to compete globally provides an inbuilt spur for competitiveness, and exposes companies to best practice elsewhere.

17. This is not to deny there are serious challenges. The UK economy is competing in a global market of goods and services, and cannot compete on labour costs. China, India and other developing countries can offer skilled workforces at far lower costs. In the view of NESTA, “for the UK to remain competitive it will need to move up the value chain, rather than compete solely on cost. It will therefore have to both generate high value-added activities and create the conditions that sustain its advantage against increasingly rapid progress by international competitors”.¹⁴ The Sainsbury Review considers that “in today’s global economy, investment in science and innovation is not an intellectual luxury for a

7 WTO Trade Statistics Database

8 *Innovation Nation*, DUIS, HMT and BERR, March 2008

9 In 2008, the UK was still the 6th-largest manufacturer in the world by value of output as ranked by the UN Council for Trade and Development." Source: http://www.pwc.co.uk/pdf/UKmanufacturing_300309.pdf

10 2006 was a record year for UK exports, and according to a 2008 report by BERR, 25% of UK exports in 2006 were high-tech goods, compared with 22% in the USA, 15% in France and 11% in Germany." Source: http://www.pwc.co.uk/pdf/UKmanufacturing_300309.pdf

11 Ev 176 [EEF]

12 Ev 181 [EEF]

13 Ev 118 [Advantage West Midlands]

14 Ev 213 [NESTA]

developed country, but an economic and social necessity, and a key part of any strategy for economic success".¹⁵ The more open an economy is, the more important it is to ensure that it has the skills and attitudes needed to sustain higher value-added activities.

18. Over-caution and even pessimism about the country's relative economic situation, and the skills and expertise it can offer, can lead directly to the United Kingdom appearing a less attractive place for investment than is actually the case. This would be unfortunate in any case; it is doubly so in such an open and internationally linked economy. It can also deter able young people from even considering jobs in the industry sectors whose future is wrongly disparaged in casual comments by those who should know better.

19. Higher value-added goods and services will be essential to the strength of the UK economy in the future. Encouraging the growth of such activities depends on a realistic and measured assessment of the United Kingdom's strengths and weaknesses. This does not mean refusing to acknowledge the very real economic difficulties which face the country. However, this should be balanced by more confident and better-informed acknowledgement of the economy's very real underlying strengths.

15 HM Treasury (2007), *The Race to the Top, A Review of Government's Science and Innovation Policies* conducted by Lord Sainsbury of Turville; HM Treasury (2006), p22

2 The higher value-added economy

What is a higher value-added economy?

20. The need to create a higher value-added economy is widely taken as a given in public policy debate—but what exactly does this apparent platitude mean? Just as policy interventions can only be considered appropriately with an understanding of the real context, so it is necessary to understand exactly what the desired outcome, in this case a higher value-added economy, might be. As NESTA said, “A high value-added economy focuses on those activities that generate a large margin between the final price of a good or service and the cost of the inputs used to produce it, and thus create higher profits for businesses and higher wages for workers.”¹⁶

21. There are some sectors which are clearly higher value-added, such as pharmaceutical development and advanced engineering. However, a higher value-added economy may encompass a far wider range of activity. The Committee received a large amount of evidence exploring the concept. Here we reproduce some of the most eloquent submissions.

22. The CBI gave the following explanation:

The term “value added” refers to the differential that can be achieved between the cost of a service/product/process etc. and the price that can be charged for it. In turn, ‘higher value-added’ concerns maximising that differential, be it through reducing input costs (e.g. reducing material, labour or process costs etc) or increasing the price that can be realised (e.g. through brand association, improved quality, innovative features, faster delivery, higher specification etc.), or some combination of the two ... The global accessibility of inexpensive labour means that UK-based businesses cannot compete in markets for internationally traded goods and services on the basis of low labour costs alone. Thus our economy naturally tends to focus on higher value and higher value-added activity where investment in skills, knowledge, technology and innovation more broadly are important factors.¹⁷

23. The Engineers Employers Federation said that:

investing in technology or in research and development (R&D) tends to be associated with rising levels of value added but focusing exclusively on this would ignore the range of routes that companies follow to achieve business success. These include innovation in products, processes or services that might not be particularly high-tech but that generate an increase in productivity, helping to establish a niche market or allowing a company to charge a premium over its competitors. For manufacturers, operating in intensively competitive markets, becoming higher

16 Q 213

17 Ev 147 and Ev 148 [CBI]

value-added essentially involves any activity which allows them to move away from competing mainly on price.¹⁸

24. Advantage West Midlands (the Regional Development Agency (RDA) for the West Midlands) noted the importance of innovation, saying: “‘value added’ is taken to mean the increase in the value of goods or services that arise as a result of the production process before they are taken to market. Innovation is therefore a critical factor in raising product value (and therefore, ultimately, price), thus accruing greater wealth and prosperity”,¹⁹ whereas the TUC noted that “Skills and design will be two important concepts in any discussion of high value goods and services. The market, through the basic rules of supply and demand, plays a role in setting the price, of course, but value added refers more closely to the quality of the product.”²⁰

25. The higher value-added economy depends on a range of factors, many of which interact. It is not simply about R&D, or high technology manufactures; it goes far wider and depends on many different factors. We look at some of them here.

Innovation and higher value-added

26. Innovation is a key source of competitive advantage in a higher value-added economy. Traditionally, innovation has been associated with the high technology and manufacturing sectors, with measurements of innovation ranging from the number of patents registered to productivity rates. It is, of course, far wider than this. *Innovation Nation* states: “Innovation ... can be defined as the successful exploitation of new ideas, which can mean new to a company, organisation industry or sector. It applies to products, services, business processes and models, marketing and enabling technologies”.²¹

27. Nor is innovation simply a matter of producing a new idea and bringing it to market. As we discussed with Professor Eric von Hippel of MIT, innovation can come from users. Companies may pick up ideas from their customers, and make them into new products or services. To give one prominent example, Apple has encouraged others to develop applications for the iPhone, and secured market advantage from so doing.

Manufacturing

28. A higher value-added economy needs a strong manufacturing sector. As Sir John Rose, Chief Executive of Rolls-Royce Group said in the Gabor Lecture at Imperial College, “high value-added manufacturing drives demand for supporting industries and services”; it drives demand for skills, and it provides employment. Industry is also essential for developing the technologies needed to tackle problems like the need to reduce greenhouse gases, or aircraft noise. Wider ties may be built with developing markets by providing the goods needed to develop their infrastructure. As Sir John said “there are high barriers to entry because of the financial cost of taking part, the level of technology required and the

18 Ev 174 [EEF]

19 Ev 117 [Advantage West Midlands]

20 Ev 275 [TUC]

21 *Innovation Nation*, DIUS, March 2008

customer knowledge that helps prioritise the application of innovations".²² The country already has extremely strong pharmaceuticals and biotechnology, and aerospace and defence sectors, as can be seen from the discussion of R&D intensity in paragraphs 48 to 52 below. Our recent inquiry into the Automotive Assistance Programme highlighted the United Kingdom's strength in the premium motor industry.²³ **Any strategy for ensuring that the United Kingdom has a higher value-added economy must not look simply at new opportunities flowing from new technologies or new challenges, such as the move to a low-carbon economy, but must also identify, safeguard and build on existing manufacturing strengths.**

Services

29. Although manufacturing is important, the higher value-added economy is not just about high-tech manufacturing. A December 2008 speech by Lord Mandelson gives some idea of the range of activities such an economy might encompass:

our specialisations must be built on knowledge and value-added. They will be in business and financial services, where smart regulation, combined with the depth of commercial and legal experience in the City, for example, have the potential to make Britain a clear market leader—even if it's not fashionable to say it right now. But they will also be in the knowledge and creative industries and the technological and manufacturing process revolutions that will define the current century, for example in the biosciences. The global shift to cleaner and more efficient energy usage will also throw wide open the market for new forms of energy generation and a host of other low carbon or post-carbon goods and services.²⁴

30. The knowledge industry is not just about services, and services themselves are not just about finance, or retail. As Will Hutton told us, financial services:

are simply part of a more general phenomenon which is the rise of knowledge services. The truth be told, in terms of employment generation or improving their share of Britain's knowledge service exports, the story is not that great. The real story in the last 10 years has been our great teaching hospitals, our great drugs companies, our great manufacturers like Rolls-Royce and what is happening in culture and the creative industries and what has been happening in ICT and in things like auctioneering. I suppose the Big Four accountancy firms, although they are not conventional financial services They have been really just going like a steam train, really benefiting from globalisation. The much vaunted City has been doing satisfactorily but it has not been growing as rapidly as some of these.²⁵

31. Indeed, in some cases, the distinction between goods and services is unclear. The Sainsbury Review gives this example:

22 *Why Manufacturing Matters*, Gabor Lecture, Imperial College, 15 November 2007

23 Business and Enterprise Committee, Ninth Report of Session 2008-09, *The Automotive Industry in the UK*, HC 550

24 Speech to the Royal Society for the encouragement of the Arts, Manufacturers and Commerce by Lord Mandelson in London on 18 December 2008

25 Q 187

Software for an aeroplane produced by an aeroplane manufacturer is classified as manufacturing, but if it is outsourced to a computer services company it is classified as a service. Jet engine manufacturers such as Rolls-Royce no longer sell engines and spare parts, but propulsion services, because the value of services on a product through its lifespan can exceed original sales by as much as five times.²⁶

Sir John Rose pointed out that “services” could entail a great deal of intellectual property:

We are providing engineered solutions, so “services” is a useful descriptor of that part of our business in the sense that we are providing services that are ancillary to and post the original equipment sale. The services are fundamentally enabled by the fact that we do the research and technology in the first place, that we develop the product, that we certify it, that we understand its operation in service, that we have the skills and capability to monitor it, that we can view the use of our product across geographies and applications, and that we can therefore act with the customer in a way that improves their business and improves the operation of our product in service, which is very meaningful to them, because for most of our customers our product has a significant impact on the success or otherwise of their business. It is not that we are going around and saying we happen to understand the civil market or the defence market or the energy market and we can do some service things because of that; it is fundamentally to do with the fact that we own the intellectual property and the relationship with the customer.²⁷

32. Although we recognise and emphasise the importance of manufacturing, it is only part of the economy. In the manufacturing strategy published in September 2008, the Government stated that “our future lies in a mixed and balanced economy with manufacturing and services reinforcing each other”.²⁸ We agree. We should celebrate the fact that the United Kingdom is the second largest exporter of services in the world.

Creative business: branding and design

33. Both services and manufacturing can benefit from harnessing creativity to add value. The Design Council told us that “the UK design industry is the biggest in Europe with a total turnover of £11.6 billion and has an international reputation for quality and value”, although it warned that other countries were developing their capabilities. Its research “shows that companies that invest in design outperform in practically every measure of business performance including market share, growth, productivity, share price and competitiveness” and that “adding value through design brings market confidence and competitive advantage and reduces the need to compete on price.”²⁹

34. Value can also be added by exploiting intellectual property, not just in obvious ways but through measures like branding. A successful brand is not a static entity; it can be a source of value, and provide a framework for innovation. The British Brands Group (BBG)

26 HM Treasury (2007), *The Race to the Top, A Review of Government's Science and Innovation Policies* conducted by Lord Sainsbury of Turville; HM Treasury (2006), p38

27 Q 84

28 *Manufacturing: new challenges, new opportunities*, BERR and DUIS, September 2008

29 Ev 164 and Ev 165 [Design Council]

told us that the creation and management of brands generates £15.85 billion for the UK economy in the United Kingdom.³⁰ The Committee notes that, apart from a study by Westminster Business School that identified the potential scale of branding's contribution to the UK, little research has been done into the effect of branding on innovation, for example. **Branding is an area where the UK creative industries are strong but which is talked about far too little in public debate. Government policy must sustain the creative industries that are responsible for the successful development of brands in the United Kingdom, and must protect effectively the intellectual property of the brands themselves.**

Collaboration

35. Successful innovation often depends on networks. In some cases, these are driven by academia, or involve academia and business. But there is also scope for industry collaboration, both in working on ideas which may come to market soon, and in more speculative research. For example, we visited the perhaps misleadingly named and remarkable Media Lab at MIT. Here a range of companies collectively sponsor research, gaining access to creativity which can often transform 'far out' research into useful products. The range of research extends from the immediately obviously useful to the truly beautiful. On our visit we talked to the people behind many intriguing innovations from those using high-technology sensors and materials to develop far better prosthetic limbs, to those developing technology to allow bottles to make sounds. We saw 'bottled music', but it would also be possible to arrange for jars to announce their contents when opened. Intellectual property rights need not be a barrier to such collaboration. The Media Lab has developed a framework which effectively allows participating companies access to the technology developed there while protecting any further developments they may make.

The higher value-added ecosystem

36. If the higher value-added economy is so multi-faceted, what does it need to thrive? Our visit to areas in the US where higher value-added businesses were strong lead us to the following answers:

Skills: the successful centres we saw built on the intellectual capital around them. This was not just about the successful exploitation of research; the skills which were cultivated were far wider.

Ideas: the areas we visited had centres of research excellence. It was accepted that many people would be focused on research, not on business, and we observed a delight in ideas for their own sake, as well as for their commercial potential. But there were also many organisations dedicated to ensuring ideas could be successfully commercialised. Sometimes these were at the university level, sometimes, as in the Massachusetts Institute for Technology Transfer, the state had invested in them.

Networks: ultimately, the success of the areas we visited appeared to owe a great deal to the fact that different parts of the system were connected to one another. Universities and

technology transfer organisations collaborated; venture capitalists had links to universities and to the local government. Networking events were commonplace.

Finance: there was ready access to risk capital, and also encouragement and help for would be entrepreneurs.

Leadership: this could come from business, from academia, from state level government or from the federal government. Often, a variety of organisations worked together, or complemented one another.

Culture: it was taken as read that good ideas should be commercialised (although not necessarily by their originator), and that enterprise was to be encouraged. It was also accepted that not every initiative or business would succeed, and that failure was not necessarily blameworthy.

The United Kingdom already has the resources for ideas, skills and leadership in place. Increasing attention is being paid to developing networks. However, as we explore in this Report, more could be done to foster higher value-added activities. In particular, as we shall see, the United Kingdom's risk-averse culture needs to change,

37. The United Kingdom cannot build a higher value-added economy on a single sector, or type of intervention. Many different factors come into play. For example, a wide range of skills is needed if we are both to sustain manufacturing and maintain our strength in services and the creative industries. Government undoubtedly has a role to play in creating the right environment for innovation, and responsibility for this spreads beyond the remit of the Department for Business, Innovation and Skills. However, central government cannot foster innovation alone. Local policy makers, academia and, above all, industry itself—of all sizes—need to be involved.

Government policies

38. The Government is engaged with innovation policy. Over the last year it has published at least five strategy and policy papers on the matter:

- *Creative Britain: New Talents for the New Economy*, Department for Culture Media and Sport, Department for Business, Enterprise and Regulatory Reform and Department for Innovation, Universities & Skills, 22 February 2008.
- *Innovation Nation*, Department for Innovation, Universities & Skills, Her Majesty's Treasury and Department for Business, Enterprise and Regulatory Reform, March 2008.
- *Enterprise: Unlocking the UK's Talent*, Department for Business, Enterprise and Regulatory Reform and Her Majesty's Treasury, March 2008.
- *Manufacturing: New Challenges, New Opportunities*, Department for Business, Enterprise and Regulatory Reform and Department for Innovation, Universities & Skills, September 2008.
- *Building Britain's Future: New Industry, New Jobs*, HM Government, April 2009.

These papers are summarised in Annex A of this report. On one hand, we welcome the Government's commitment to identifying British strengths, and shaping policy to promote enterprise and innovation. However, there is inevitable overlap between the papers and it will take time for policy aspirations to become translated into action. **Over the last year, the Government has produced a succession of strategy and policy papers related to innovation and industry. Their proposals cannot be implemented by the Government alone. All those involved now need to ensure that the emphasis is on the actual delivery of policies designed to support innovation, rather than producing further policy documents.**

Local and regional leadership

39. Policy delivery is not just a matter for the central government. Many local and regional bodies have an important role to play. Mr Halkett, the Chief Executive of NESTA, told us:

We produced a series of reports at the end of last year, one on innovation in the city, one on regional innovation coalitions and one on what we called rural innovation. They all demonstrated that, whilst you should have a national standard of policy, it needed to be able to be tailored for local and regional industrial and demographic structures and priorities.³¹

Local leadership is essential to ensure that innovation policy meets regional needs, and leadership roles can be taken by many sorts of organisations. Our evidence paid tribute to the way in which in some areas, local government leadership had helped build city economies.³² We were also very impressed by the work done by Scottish Enterprise, and our recent report on Regional Development Agencies noted the positive assessment of their effectiveness.³³ Often work is done in collaboration with the private sector, such as in Longbridge Innovation Centre, where Advantage West Midlands is working with a property developer to transform the site.

40. Although we emphasise the importance of local or regional bodies in shaping innovation policy in their area, there has to be care that regions do not duplicate one another's work, or try to compete in sectors where other parts of the country have a competitive advantage. Mr Halkett warned against regional 'boosterism' and noted that although regional clusters of expertise and industry could stimulate growth, creating them would be extremely difficult.³⁴ Successful local leadership, such as that we saw in the West Midlands or in Scotland, identifies local strengths and builds on them. It can help transform local economies. There is a very delicate role for central government in this; it needs to maintain awareness of what regions are doing to foster innovation and a higher value-added economy, and to exert its influence when it appears that there is excessive duplication of effort. It also needs to identify and build on best practice. However, it must

31 Q 156

32 Q 189

33 Business and Enterprise Committee, Fourth Report of Session 2008-09, *Regional development agencies and the Local Democracy, Economic Development and Construction Bill*, HC 89-I, para 40

34 Q 157

do so while leaving regional bodies free to innovate; it must act as a broker and guide, not as a director.

Central government

41. One of the issues in our original call for evidence was the effectiveness of government arrangements in encouraging innovation and creativity. The Committee has recently taken evidence on the likely effectiveness of the recent and unexpected machinery of government changes that led to the abolition of the Department of Innovation, Universities and Skills (DIUS) less than two years after its creation.³⁵ The range of policy documents listed above, and the number of those which were produced by two or more departments suggest that previous arrangements were unwieldy. The CBI originally welcomed the creation of DIUS, in part because it had explicit responsibility for innovation. However, it was concerned that this arrangement separated innovation from business, and considered that robust links between DIUS and the Department for Business, Enterprise and Regulatory Reform (BERR) were of critical importance. Now, in evidence to the Committee, the CBI has welcomed the merger of BERR and DIUS.³⁶ Had the merger not taken place, it is very likely that this Report would have called for the return of innovation policy and intellectual property issues to BERR. However, there will always be boundary problems. The British Brands Group, for example, was critical of the fact that government responsibility for brands does not fall within one department but is now divided between DBIS and the Department for Culture, Media and Sport (DCMS).³⁷

42. If times are becoming tougher, then it becomes even more important that public policy does all it can to support British business. Measures to provide short-term support have already been developed, and we have examined some of them in recent reports. In the longer term, government needs to ensure that it has a range of policies in place to encourage innovation. Some of these policies, such as Research & Development (R&D) tax credits, will need to be simple, consistent and widely available. Some will require the Government to support a range of innovative approaches, to accept that one size will not always fit all, and that some of the policy interventions sometimes will not succeed. It will be a challenge to sustain this blend of stability and flexibility, but as we shall see, government policy is, largely, heading in the right direction. **At this stage, although we make no comment on the inclusion of higher and further education within the new Department for Business, Innovation and Skills, we acknowledge the vital importance of improved skills to all British industrial sectors. We believe that the new department is a welcome opportunity to coordinate policy on innovation, and to ensure that policy is consistent.**

35 Uncorrected transcript of oral evidence taken before the Business and Enterprise Committee on 30 June 2009, HC (2008-09) 754-i, Q 54 [Mr Lambert]

36 Ev 158 [CBI], HC 754-i, Q 54 [Mr Lambert]

37 Though it was previously between BERR, DIUS and DCMS as laid out in the memorandum. Ev 128 [British Brands Group]

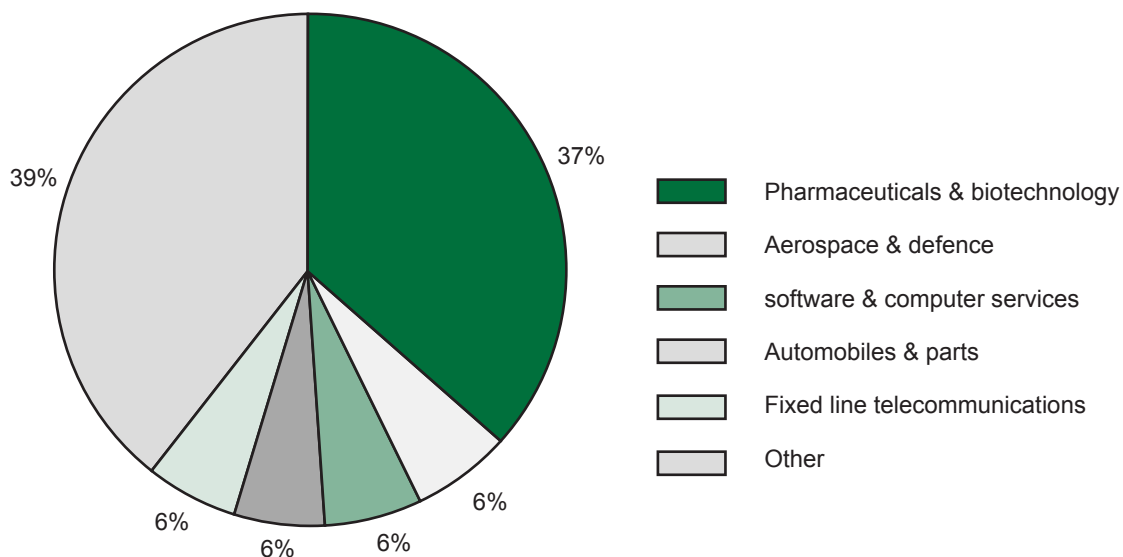
3 R&D and innovation

Research and development

43. Measures of R&D are one of the traditional ways of assessing the comparative strength of different countries, and their ability to compete in producing higher value-added goods and services. As we noted, a higher value-added economy is about far more than research and development; nonetheless, R&D is a key part in ensuring that the United Kingdom has the knowledge and the expertise it needs, given that the country cannot compete in price alone. Here the picture is mixed.

44. The 2008 R&D scoreboard states that the 850 largest corporate spenders on R&D in the United Kingdom (the UK850) invested £21.6 billion in 2007, 7% more than these companies spent the previous year. Even allowing for inflation, investment in R&D in the United Kingdom increased significantly. The distribution of R&D by sector can be seen in Figure 1, below:

Figure 1: Distribution of UK850 R&D expenditure (2007).



Source: DIUS³⁸

45. The 1,400 companies in the world most active in R&D in 2007 (the G1400) invested £274 billion, an increase of 9.5% over the previous year. This R&D was highly concentrated in firms based in five countries; 79% of the investment was undertaken by companies from the USA, Japan, Germany, France and the United Kingdom and 1,035 (74%) of the companies come from these countries.³⁹ While R&D expenditure amongst the G1400 was relatively concentrated in the leading countries' firms, the sectors in which those firms operate varied significantly between the leading countries. Both the USA and France and, to a lesser extent, Japan had relatively diversified portfolios of R&D whereas Germany was more concentrated, especially in automobiles and parts. R&D in South Korea and Switzerland remained highly specialised in electronic and electrical equipment and

38 The 2008 R&D Scoreboard, DIUS. http://www.innovation.gov.uk/rd_scoreboard/?p=11

39 *Ibid.*

pharmaceuticals and biotechnology respectively. The 88 UK firms in the G1400 were also quite specialised, with pharmaceuticals and biotechnology dominating, but the UK88 had the largest amount of R&D outside the major sectors (52%) of all the leading countries covered by the analysis. Table 1 shows the top 25 UK companies by R&D expenditure.

Table 1: Top 25 UK companies by R&D expenditure (2007).

Rank 2008	Company	Sector	R&D (£m)	Growth in R&D over last year (%)	Rank 2007
1	GlaxoSmithKline	Pharmaceuticals & biotechnology	3,246	-6.1	1
2	AstraZeneca	Pharmaceuticals & biotechnology	2,533	29.8	2
3	BT	Fixed line telecommunications	1,252	11.9	4
4	Unilever	Food producers	638	-4.2	5
5	Royal Dutch Shell	Oil & gas producers	603	35.7	7
6	Royal Bank of Scotland	Banks	481	25.9	10
7	Rolls-Royce	Aerospace & defence	454	10.4	9
8	Airbus*#	Aerospace & defence	397	-10.8	8
9	Ford Motor*#	Automobiles & parts	368	9.9	6
10	HSBC	Banks	295	-0.3	12
11	BP	Oil & gas producers	284	43.3	15
12	Shire	Pharmaceuticals & biotechnology	261	71.7	18
13	Pfizer*#	Pharmaceuticals & biotechnology	258	-30.2	11
14	Vodafone	Mobile telecommunications	234	5.4	14
15	Land Rover (now Ford LRH)*#	Automobiles & parts	204	-19.8	13
16	Reuters (now Thomson Reuters)	Media	190	8.0	17
17	Jaguar Cars*#	Automobiles & parts	185	-4.3	n/a
18	BAE Systems	Aerospace & defence	176	8.6	3
19	Roche Products*	Pharmaceuticals & biotechnology	163	14.9	n/a
20	Nokia*#	Technology hardware & equipment	137	23.4	22

21	Tesco	Food & drug retailers	128	-0.8	21
22	Smiths	General industrials	126	-41.9	16
23	BAT	Tobacco	119	22.7	n/a
24	Telefonica O2 Europe (now Telefonica Europe)*#	Mobile telecommunications	119	-6.0	n/a
25	Barclays	Banks	118	24.2	n/a

* - foreign owned firm

- accounts not prepared using IFRS

Source: DIUS

46. The Society of British Aerospace Companies (SBAC) argued in evidence that:

The benefits to the economy from increased investment in research and development are large. In 2006 Oxford Economic Forecasting (OEF) estimated that a one time investment of £100 million in aerospace R&D would raise UK GDP by £70 million per annum. This work estimated that these economy wide-social returns or spillovers were higher for aerospace than other manufacturing sectors.⁴⁰

47. The CBI evidence gave us more information about the UK R&D spend and how that compares to other developed countries: “According to the OECD's Main Science and Technology Indicators (Vol 2007/1), 1.78% of the United Kingdom's GDP was spent on R&D in 2005 (a fraction below the average for the previous four years, despite increases in both government and business spending): 42% of this comes from industry and 33% from government. For the 27 EU countries as whole the figures are 1.74%, 62% and 30% and the United Kingdom is rated ‘about average’ in most analyses of our performance.”⁴¹

Table 2: R&D as a percentage of GDP

Country	R&D as % of GDP	% financed by industry	% financed by government
EU-27	1.74	62	30
UK	1.78	42	33
France	2.13	53	38
Germany	2.46	67	26
USA	2.62	65	30
Japan	3.33	76	17
Finland	3.48	67	31

Source: CBI

48. However, as can be seen from Table 2, UK R&D as a percentage of GDP is significantly lower than it is in competitor countries, such as France, Germany and the USA. It is

40 Ev 260 [SBAC]

41 Ev 149 [CBI]

nowhere near the target set by the Lisbon Agenda agreement between EU Member States to invest 3% of GDP on R&D.⁴²

49. Moreover, while the overall picture may appear in line with other countries, as Table 2 shows, British R&D is less likely to have industry financing than R&D in competitor countries. (UK R&D figures are increased by the large amount of research funded by medical charities.) In evidence we heard from the EEF that “despite the strength of manufacturing innovation related spending, overall R&D spending by business in the United Kingdom lags behind that of Japan, the US, Germany and France. These differences are due in part to the fact that R&D intensive industries account for a smaller share of GDP in the United Kingdom than they do in other countries”.⁴³ As the Lambert Review said in 2003:

Compared with other countries, British business is not research intensive, and its record of investment in R&D in recent years has been unimpressive. UK business research is concentrated in a narrow range of industrial sectors, and in a small number of large companies. All this helps to explain the productivity gap between the UK and other comparable economies.⁴⁴

50. It is important to note that many high-tech industrial firms do invest significantly in R&D. Some of the differences in research intensity are caused by the structure of United Kingdom’s economy in which the service sector is relatively large, compared to some other countries, and by the sectoral mix which contains many industries which historically have not reported high levels of R&D (see Table 3). Nonetheless, the Sainsbury Review noted some studies suggest “at least in parts of manufacturing, there is some evidence of an intensity effect, i.e. the proportion of gross value added spent on R&D in specific industries might be lower than in other countries”.⁴⁵

51. The United Kingdom does well in attracting foreign companies to locate research and development here. This is impressive, given that there is evidence that all things being equal, companies will naturally locate research and development close to their head office. The CBI told us that in 2005 a survey by Arthur D. Little found that “foreign firms in the UK appear to be relatively more R&D intensive than foreign firms based in other G-7 countries”.⁴⁶ We also note that “in terms of the international exploitation of technology, the UK has a positive technology Balance of Payment and its surplus expressed as a percentage of its GDP is the largest of all the OECD countries”.⁴⁷

42 See Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000, available at: http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm

43 Ev 180 [EEF]

44 HM Treasury (2003), *Lambert Review of Business-University Collaboration: final report*, p1

45 HM Treasury (2007), *The Race to the Top, A Review of Government's Science and Innovation Policies* conducted by Lord Sainsbury of Turville; HM Treasury (2006), para 2.21

46 Ev 157 [CBI]

47 Ev 157 [CBI]

Table 3—Breakdown of selected world economies by kind of economic activity, 2006
%of total economic output

	Services	Manufacturing	Mining and Utilities	Construction	Agriculture, hunting, forestry & fishing
Canada	66	18	8	5	2
France	76	14	2	6	2
Germany	69	24	2	4	1
Italy	70	19	2	6	2
Japan	70	20	3	6	2
UK	75	14	4	6	1
USA	77	13	4	5	1
Brazil	54	23	7	7	9
China	41	41	0	5	13
India	53	16	5	7	20
Russia	57	19	14	6	5

Source: UNCTAD, *Handbook of Statistics 2008*, online database

52. The United Kingdom’s relatively modest rates of R&D relative to GDP are in part the result of the structure of the United Kingdom economy. Indeed, the proportion of R&D financed by government is not out of line with many comparable countries. If the United Kingdom is to grow as a higher value-added economy, the policy challenge will be to encourage innovation, and to encourage companies to take advantage of the United Kingdom’s strengths as a source of innovation. This includes promoting the strength of United Kingdom research and development capabilities, but also looking at innovation more widely.

Wider innovation

53. One problem with assessing the United Kingdom’s relative performance is that since R&D levels are easily measured, international comparisons tend to be based on such inputs. The CBI told us that “as far as we are aware, none of the various UK, EU and international surveys and scoreboards that attempt to measure innovation adequately capture the full innovation dynamic across all sectors”.⁴⁸ For example, RBS has a group for innovation which reports to the Chairman’s office of regional markets to meet customers’ needs using innovative technology, business models, products and services. We visited the group in Edinburgh. It is impressive but little if any of its activities would score on traditional R&D measures.

54. Given that 76% of the UK economy is services and only 2.5% high-tech manufacturing,⁴⁹ NESTA contends indicators such as investment in R&D and patent awards do not effectively capture innovation that is taking place in, for example, the creative industries and the public sector and that understanding this “hidden innovation” is vital to the UK's future prosperity.⁵⁰ In this view, innovation does not necessarily mean the application of knowledge which is “new to the world” but can and does include the successful adaptation of existing knowledge to new things. Mr Halkett of NESTA gave us an example:

If you think about something like low-cost airlines, very little of the innovation that is represented there was actually new to the world. It is a combination of extensive investments in ICT, marketing, standardisation of maintenance, things like that, which have delivered enormous value and are definitely recognised as being innovative but certainly were not based on new to the world discoveries.⁵¹

55. If this is the case, innovation policy should be extended to include “the adoption and exploitation of technologies, organisational innovation and innovation in services (including public services)”.⁵² This view is widely shared. For example Mr Cridland, Deputy Director General of the CBI, told us that:

we have felt for a long while that the way government was measuring innovation was leading to a set of false assumptions and therefore sub-optimal policies. Their tendency was to focus on research rather than development. Their focus was on R&D rather than innovation. Their metrics were not capturing the activity that I would consider innovation in the broader economy.⁵³

56. We accept that it may be extremely difficult to capture some of the innovative activities in our economy. Indeed, it is likely to be impossible to provide a full and accurate measure of something which involves a high level of intangibles. However, this does not mean that improvement is impossible. Quite small changes would capture some of this wider innovation. For example, measuring the number of items copyrighted as well as the number of patents granted would capture a wider range of information.⁵⁴ It should also be possible to capture some of the value added by intangibles such as branding.

57. It should be possible to produce wider measures of innovation than those currently in use, and we are delighted that the Government has asked NESTA to work on this. However, as well as knowing how the United Kingdom is doing internally, we need to be able to benchmark performance against other countries. We hope the Government will take a lead in encouraging the development of better international monitoring.

49 Q 133

50 Ev 219 [NESTA]

51 Q 136

52 NESTA (June 2007) *Hidden Innovation: how innovation happens in six 'low innovation' sectors*, p6

53 Q 430

54 Q151

4 An enterprise culture

58. The difficulty in measuring the real level of innovation in the economy is undesirable in itself, but it also contributes to the wider problem that there is little public understanding about the structure and the true state of the United Kingdom economy. This in turn contributes to a culture which does not appreciate the extent to which a higher value-added economy is already in existence, or the opportunities it offers. It also contributes to a misperception of risk. Taken together, these could have a serious impact on the future success of the economy.

Education and skills

59. Sir John Rose stressed the importance of the “visibility of rewarding careers”.⁵⁵ The first problem with a misperception of the true state of the economy is that people may make choices about skills and careers which are not the best for themselves or indeed for the wider economy. Throughout the inquiry, witnesses raised the importance of skills to the HVA economy. NESTA put it succinctly: “Clearly skill levels are very important to innovation.”⁵⁶ The globalised economy now means that companies can choose where to locate their facilities and the level of the skills in the workforce is one of the factors which influences their choice of location. Will Hutton told us that “When you talk to the high-tech companies in particular, one of the biggest considerations on their minds is whether they can get access to high quality human capital.”⁵⁷

60. We recognise the importance of skills to the higher value-added economy. However, there has been a great deal of work on skills by this Committee and others, including: the Leitch Review of Skills (2006);⁵⁸ The Lambert Review of Business-University Collaboration (2003);⁵⁹ Trade and Industry Committee Report, *Better skills for manufacturing*;⁶⁰ Innovation, Universities, Science and Skills Committee Report, *Re-skilling for recovery: After Leitch, implementing skills and training policies*.⁶¹ Rather than replicate this work here, we limit ourselves to a few key points.

Demand-led training

61. Evidence throughout the inquiry highlighted the importance of demand-led training. Sir John Rose explained to us that “If you are a young person, you are going to respond to the signals that you get from industry and from government about where the opportunities are likely to lie. This is not just a supply issue; this is a demand issue”.⁶² The CBI argued

55 *Why Manufacturing Matters*

56 Ev 222 [NESTA]

57 Q 202

58 *Leitch Review of Skills, Prosperity for all in the Global Economy- World Class Skills*

59 HM Treasury (2003), *Lambert Review of Business-University Collaboration: final report*

60 Fifth Report of Session 2006-07, HC 493.

61 First Report of Session 2008-09, HC 48

62 Q 109

that training and education programmes should be designed to meet demand from both students (be they at school or in the workplace) and business. The Leitch Review recommended that the UK skills system be demand-led with qualifications that deliver the skills that employers and individuals need. Ford Motor Company told us it welcomed this but also recognised “that the implementation of this recommendation poses significant challenges but call upon all stakeholders to redouble their efforts in this area.”⁶³

62. Linked to this, there is a need to cultivate demand by promoting a range of skills leading to worthwhile careers.⁶⁴ Sir John Rose told us that apprenticeships were a good example of demand-led training but he highlighted the need for schemes to feed into growth industries.⁶⁵

63. As in previous inquiries, manufacturers and the business community expressed concerns about the number of graduates in science, technology, engineering and mathematics (STEM) subjects.⁶⁶ The CBI told the Committee that “STEM subjects are absolutely vital to the high value-added economy. It has been going wrong for 20 years”.⁶⁷ Professor Marshall of Coventry University, told us that the United Kingdom’s situation with the number of STEM graduates was “really at a tipping point. Unless we can get the numbers up, the research base in this country will be staffed entirely by overseas researchers. In the short term there is only one thing you can do which is to pay them all a realistic bursary”,⁶⁸ a suggestion that the CBI also made.⁶⁹ Dr James Wilkie of Birmingham University highlighted “the issue in terms of the perception and the communication of STEM subjects”.⁷⁰ He noted the perception that STEM graduates do not get well paid “but in reality they get quite well paid in comparison with other graduates.”⁷¹ On the other hand, Will Hutton drew attention to the number of STEM graduates who moved into the city rather than into industry.⁷²

64. It is vitally important that British education and training is as good as it can be, and we welcome the growing public debate about the necessary steps to improve it. We are particularly concerned about the continuing complexity of the skills system and the impact this has on the smaller companies who wish to engage with it. But ultimately, the skills available to the United Kingdom depend on the individual choices made by individual students and workers. They will create the demand for the training which will sustain the higher value-added economy. They will only do so if they have a realistic understanding of the opportunities available to those with particular skills. They will also need to know that employers reward the skills they say they need.

63 Ev 191 [Ford Motor Company]

64 Qq 255, 256

65 Q 110

66 HC 493 (2006-07), paragraph 83.

67 Q 449

68 Q 257

69 Q 449

70 Q 253

71 Q 254

72 Q 209

Risk taking and entrepreneurialism

65. The Enterprise White Paper states that enterprise “as one of the five drivers of productivity, has contributed to the United Kingdom’s increased rate of productivity growth and a narrowing gap with comparator countries” and says that the Government wants to see more enterprise and “more people with the ambition to start, grow and innovate within business”.⁷³ This will not happen if people do not take risks.

66. At the individual level, the United Kingdom’s culture discourages risk-taking. Arguably, this is the cumulative effect of encouraging people into areas where the United Kingdom’s economy is undoubtedly strong, such as services, and reducing entrepreneurs’ appetite for innovative approaches. Unwillingness to accept risks can reduce long term effectiveness — as NESTA said, risk is not an inherently bad thing but is something that needs to be managed or properly balanced, even if it cannot be overcome.⁷⁴

67. One thread from our evidence was the extent to which entrepreneurial skills could be taught. The Government has stated that it wishes to develop entrepreneurial education for children from primary through to higher and further education,⁷⁵ and our witnesses also highlighted the importance of educating young people and fostering business and entrepreneurial skills from an early age.⁷⁶

68. Whether or not entrepreneurial skills can be actively taught to young people, schools should not discourage their pupils from considering a career in business. We were disappointed to hear from the CBI that “we have fundamental problems with careers advice and guidance” for careers relating to business and the higher value-added economy.⁷⁷ Similarly, we heard from the Dragon’s Den panellists that that schools were not encouraging (or were even actively discouraging) young people to investigate careers in business and entrepreneurship.⁷⁸ The problem appears to be a desire to avoid risk as much as possible, rather than to balance risk and reward appropriately.

69. The Committee recognises that a successful higher value-added economy is influenced by factors stretching across many government departments. The role of education in giving young people the confidence, ambition and skills to be creative and entrepreneurial is vital. The Committee welcomes the Government’s proposals to extend and develop entrepreneurial training. The Committee also believes that it is important to teach children from a young age to take appropriate risks and not to fear failure. We recommend that the Government incorporates this into education on entrepreneurship.

70. We also stress the importance of well-informed, up-to-date careers advice in schools to encourage children to consider careers in business—especially in engineering—and

73 HM Treasury and BERR (March 2008), *Enterprise: unlocking the UK’s talent*

74 Q166

75 Innovation Nation states that the Government will “drive the implementation of the Leitch review of skills” (p10) and *Enterprise: unlocking the UK’s talent* (p33)

76 Q 318

77 Qq 318, 448

78 Q 318

in entrepreneurship, alongside balanced advice about other careers. Careers advice in most schools appears not to be of the standard required to enable young people to make properly informed choices and we urge the Government to consider how this serious shortcoming can be addressed. If our economy is to continue adding value and competing successfully internationally, it is essential that young people understand the true range of opportunities open to them.

Risk aversion

71. While some of the reluctance to promote industry and entrepreneurship as possible careers rests on misperception, Mr Doug Richard told us that many of those who feared risk were justified:

The fact of the matter is fear of failure in the UK is not some abstract culture, as Roger said, some woolly thing. I believe it is grounded in very specific conditions where the risk of failure is greater. It is as simple as that. Part of it is a cultural condition. It is quite shocking, when you move from the US to the UK, to see exactly what happens when you reach public status in this country. You get skinned alive. It is a harsher public environment, and there is nothing you can do about it, it is what it is, but the fact of the matter is you stick your head above the parapet and all of a sudden everybody takes a shot at you.⁷⁹

He suggested to the Committee that the scale of risk associated with failure in the United Kingdom should be changed to motivate more people to take the step into entrepreneurialism or to innovate.⁸⁰

72. Doug Richard and Rachel Elnaugh set out a range of difficulties facing business angels⁸¹, ranging from flaws in the Enterprise Investment Scheme to the eagerness of the Government to conduct investigations when a company closes down.⁸² There is clearly a difficult balance to be struck between promoting a culture in which investors are encouraged to back new businesses, and know they can close businesses that fail, and protecting the legitimate interests of taxpayers, creditors and employees. In our work on the Insolvency Service⁸³, we drew attention to the fact that the targets for enforcement had not been raised, even though the recession meant that there were likely to be more cases of wrong-doing. In its response, the Government explained it considered that a simple numerical target would give the Service a perverse incentive to look at simple cases, and neglect more serious and complex ones. We were told that “the Insolvency Service and the department are working to move towards a profiling and reporting system based on outcomes alongside outputs for enforcement which more closely relate inputs to the desired policy objectives.”⁸⁴ One of those policy objectives should be to detect and deter

80 Q 319

81 A business angel is a high net worth individual who invest, on their own, or as part of a syndicate, in high growth businesses

82 Qq 327, 329, 323-3

83 Business and Enterprise Committee, Sixth Report of Session 2008–09, *The Insolvency Service*, HC 198

84 Business and Enterprise Committee, Fourth Special Report of Session 2008–09, *The Insolvency Service: Government response to the Committee’s Sixth Report of Session 2008–09*, HC 919

wrong-doing; another should be to ensure the regime does not inadvertently deter honest entrepreneurs.

73. Two other key risks identified by Mr Richards were the way in which the insolvency regime in the United Kingdom provided insufficient breathing space for entrepreneurs, and the frequent requirement for entrepreneurs to provide their homes as security for start-up capital. There are gradual moves to reduce these risks, which we welcome. We note that the Insolvency Service is currently consulting on a new regime for company voluntary arrangements. Similarly, the Government has said that the family home cannot be used as security for loans backed by the Enterprise Finance Guarantee Scheme. **Shifting the United Kingdom’s culture to one which accepts that making progress may require taking risks, and that success is not always guaranteed, will take time, but will be vital to the future success of our economy. It will depend in large part on a more balanced approach from politicians and the media—two groups that too often seem to celebrate failure with more enthusiasm than success.**

The public sector

74. The public sector is, if anything, subject to more pressure to avoid risk than the private. As Will Hutton told us:

Where the public sector is weak is in coming up with the new thing. It does that because of ... profound risk aversion and very heavy costs for getting something wrong with the new thing, where you get kicked and the present accountability in the way that the media operates.⁸⁵

There has to be a balance here: no one wants tax payers’ money to be wasted. However, there would be clear economic benefits if the Government could use its purchasing power not just to buy goods or services but also to promote innovation and higher added value. Learning from the example of such organisations as DARPA in the USA, we examine ways in which this could be done in more detail later in this Report. **In *Innovation Nation*, the Government announced that the National Audit Office will be conducting a study into the role of risk in public sector innovation.⁸⁶ We welcome this development. We have no desire to waste money, but progress requires risk-taking. Some of those risks will lead to a project’s failure, in whole or in part. We believe that the United Kingdom’s culture is too risk averse. This needs to change in the public as well as the private sector.**

85 Q 205

86 *Innovation Nation*. P. 8.

5 Universities, research and innovation

75. The United Kingdom has the competitive advantage of an extremely strong and diverse university sector. Will Hutton told us:

I am slightly concerned about the way we think about universities. Universities are one of the most important assets of the knowledge economy. We do not want to kill the goose that lays the golden egg by thinking of them too much as sources of economic regeneration or sources of wealth generation. They are sources of knowledge generation, first and foremost. I think that should not be compromised.⁸⁷

We agree that universities' core research role should not be compromised. But the United Kingdom also needs to encourage universities' wider role as powerhouses of the surrounding economy. We do not want to engage in debate here about the allocation of funding to different types of research: both blue sky and applied research are important, and we do not doubt that our colleagues on the Science and Technology Committee will in due course look at them both. Here we draw attention to some of the ways in which universities are already working with local and regional public bodies, and local industry, to drive and support innovation, both within academia and within industry. The more people are aware of what is possible, the more likely it is that good practice will spread.

Clusters

76. The existence of high quality research universities can foster clusters of innovative businesses. Sometimes, universities, policymakers and business take a courageous decision to try to develop such clusters, as happened in the Research Triangle Park in North Carolina, which we visited as part of this inquiry, and describe in Case Study 1. Sometimes, as in Cambridge, which we also visited, the growth appears to be more organic, although here too, university institutions provided funding for incubator facilities and new companies.

77. In addition to the clusters in North Carolina and Cambridge, we looked at the cluster of high-tech industry and universities in and around Boston, Massachusetts, and at the cluster in the West Midlands. Although each cluster had developed differently, there were some common themes:

- the universities have the confidence to realise their expertise can be built upon without compromising their fundamental mission;
- local government or public bodies are extremely supportive; we saw examples of state governments supporting innovation in the US, and RDAs and local authorities playing similar roles in the United Kingdom;
- a range of institutions are involved; for example, in the West Midlands, the universities work closely with the RDAs and local manufacturers;

- facilities are available for companies spun out from the universities, or attracted into the area, ranging from the ambition of the Research Triangle Business Park to the small-scale incubators in Cambridge;
- sources of finance are available, whether through the venture capital funds common in the USA, or the smaller-scale business angels operating around Cambridge;
- there are healthy formal and informal networks to support innovators, and to coach them in business skills; and
- there are strong arrangements for technology transfer, which offer academics the option of seeing their ideas through to production, but do not rely on individual academic initiative to ensure that promising developments are taken forward.

Case Study 1: Clusters: North Carolina, USA and Cambridge, UK

The Research Triangle Park (RTP) in Durham, North Carolina is one of the oldest and largest science parks in North America. It is 7,000 acres in size, it is home to over 170 companies which employ around 40,000 full-time workers and an estimated 10,000 contract workers. It is located within the Raleigh-Durham-Cary Combined Statistical Area around the University of North Carolina and within which the North Carolina Biotech Center, the Council for Entrepreneurial Development and the North Carolina Board of Science and Technology are all located along with many other business, technology and innovation businesses and services. The Research Triangle Park was set up in 1959 in a conscious attempt to move North Carolina's economy away from dependence on sunset industries, such as tobacco, by building on the local universities' research excellence. It has succeeded far beyond original expectations. The businesses attracted to the Research Triangle are not limited to university spin-offs; established companies have also been attracted to the area.

In Cambridge, UK, a high-tech cluster has grown around the University and brings together the Judge Business School, the Centre for Entrepreneurial Learning, the Integrated Knowledge Centre (IKC) Commercialisation Laboratory, the Cambridge Innovation Park, the St John Innovation Centre and a number of other businesses and services for innovation and entrepreneurship. Many organisations within the cluster are working to foster entrepreneurship, to link R&D and academic work to enterprise, to protect and capitalise on ideas and create an overall environment where the HVA economy can thrive. Cambridge Enterprise works in this area to “commercialise university science for the benefit of society, the UK economy, and to provide a fair return to investors and the University” and is a good example of how business and universities can work together to make the most of science and innovation in the UK, supporting inventors, protecting their ideas and finding the best partner for the development of their work. Cambridge Angels provide venture capital and expertise. The cluster also encompasses the Anglia Ruskin University, which provides vital skills.

78. As well as fostering clusters of excellence, universities can provide facilities directly, or in collaboration with industry. Coventry University told us about the way in which it provided research facilities that could be used by the private sector. This is particularly helpful for SMEs unable to afford their own facilities, which can benefit greatly from access to specialised equipment.⁸⁸ In Warwick University we saw a range of institutions where the university worked closely with industry, such as the premier Automotive Research and Development Centre and the Warwick Manufacturing Group.

79. Strong academic institutions can play a key role in supporting valuable clusters of innovative industry. In the best examples, academics, entrepreneurs and public institutions understand and value one another's contribution. It is impossible to mandate such cross-fertilisation between universities and industry, but a great deal can be done to support it, by providing collaborative facilities, by supporting technology transfer and simply by promoting networking. Collaborations of this kind, formal or informal, offer a great deal to all parties concerned, and we have seen that universities, financial institutions and industry can all play an active part in supporting them. Public authorities should be aware of the benefits of this kind of clustering, and should actively look for ways in which they can act as catalysts to encourage it.

Collaborative research

80. The clusters we saw were strengthened by their strong research base, and it is important not to lose sight of the importance of research in the higher value-added economy. Here too, collaboration between publicly funded institutions and industry or charities can pay dividends.

81. It is important to build on existing strengths, such as the United Kingdom's leading position in the medical sciences. Cancer Research UK, the Medical Research Council, University College London and the Wellcome Trust are collaborating together to promote the UK Centre for Medical Research and Innovation. This new centre for biomedical science will have six themes: research innovation and excellence; a national focus for biomedical science; public engagement; effective interface with technology transfer; and finding and developing the scientists of the future.⁸⁹ It will be the largest medical science centre in Europe. It is an ambitious project and we very much hope it will be successful. **Recognising and building on the research strengths both of the United Kingdom as a whole, and of particular areas, will be essential to sustain a higher value-added economy. In principle we strongly support developments such as the proposed UK Centre for Medical Research and Innovation.**

82. Industry can also play a leading role in developing collaborations. QinetiQ is currently attempting to develop a quantum technology lab, and has proposed a centre of excellence (Quantum Technology Partnership or QTP) for manufacturing, composites and for exploration of quantum technology. QTP would be a partnership of private sector and academic organisations supported by the Regional Development Agency and government office and would be developed around an existing centre of expertise at Malvern in the

88 Qq 222, 223

89 UK Centre for Medical Research and Innovation pamphlet

West Midlands. The Partnership will aim to add to the United Kingdom’s skills, knowledge and research bases, as well as developing technology solutions using quantum technology. It will aim to encourage collaboration across the academic, private and governmental sectors. Several organisations have already shown interest, including the universities of Birmingham, Lancaster, Oxford and Warwick with Advantage West Midlands, QinetiQ and industrial partners. The partnership aims to bring economic benefits to the region and to the United Kingdom’s economy as a whole: competitive advantage; development of the science base; creation of higher value-added employment; emergence of associated high-tech industries and suppliers; interchange of skills and experience across academia and business; training for the next generation of scientists and engineers and attraction of investment to the United Kingdom and in particular to the West Midlands. **We applaud the development of centres of excellence such as Quantum Technology Partnership, and its approach of fostering collaboration among existing institutions rather than duplicating effort.**

Knowledge transfer

83. The Lambert Review in 2003 concluded that one of the barriers to collaboration between business and universities was a lack of demand from business. It noted “there has been a marked culture change in the United Kingdom’s universities over the past decade. Most of them are actively seeking to play a broader role in the regional and national economy. The quality of their research in science and technology continues to compare well against most international benchmarks”.⁹⁰ Despite universities’ increasing involvement with the wider economy, the need for improved transfer of knowledge from academic institutions to the private sector was one of the repeated themes of our evidence. There are several initiatives in place to promote this, such as the Higher Education Innovation Fund, which was praised by witnesses. This Report does not discuss all such initiatives, but concentrates on more focussed interventions.

Technology Strategy Board

84. The Technology Strategy Board was established in July 2007, bringing into effect a significant number of recommendations made by the Sainsbury Review.⁹¹ It is a non-departmental body that sits within the Department for Business, Innovation and Skills (but previously overseen by DUIS). The TSB funding pot is split between headings—challenge-led innovation, technology inspired innovation, and creating an innovation climate—though witnesses from the TSB told us that it was “much more than just a funding agency” and it had highlighted the “pivotal role we play between government, business and academia in the innovation space”.⁹²

85. The CBI said that it welcomed the establishment of the TSB (as did others including QinetiQ)⁹³ and emphasised the need for it to have a wider vision (than just technology as

90 Foreword of *Lambert Review of Business-University Collaboration: final report*

91 HM Treasury (2007), *The Race to the Top, A Review of Government's Science and Innovation Policies* conducted by Lord Sainsbury of Turville; HM Treasury (2006)

92 Q 499

93 Ev 227 [QinetiQ]

the name suggests) to also include the service sector within business-university collaboration.⁹⁴

86. Research Councils UK (RCUK) “supports the Technology Strategy Board's plans to take a broad view across all the sectors of the UK economy”.⁹⁵ Mr Iain Gray, Chief Executive of the TSB told that its name was “misleading in the context of one of our key objectives. We are very much moving into that service territory. Of course when we come back to some of the more conventional technologies like manufacturing technology it will not be lost on people that a lot of the big major manufacturing players are actually involved in the service economy and their business model is much, much more than just traditional manufacturing and production [...] I see us as an organisation playing a strong role right across the innovation spectrum”.⁹⁶

87. Sir John Rose said (some time ago) that it was very important that the TSB “set a strategy for guiding future research and technology”, particularly to keep up with other developed nations such as Canada, Germany and the US who have very specific, focused strategies.⁹⁷ In April 2007, before the publication of the TSB strategy, NESTA expressed some concern that: “At the moment, it seems to be the answer to everybody's prayers”.⁹⁸ Although the TSB in publishing its strategy has focused its work, there is still a danger that the TSB may be trying to do too much and is spreading its resources too thinly.

88. The Committee supports the role of the TSB and its re-focus on driving innovation. We believe that the TSB can play a strong role in helping industry, especially developing sectors, to develop a higher value-added economy. The TSB should work on behalf of the Government to help to foster an enterprise culture within which risks can be taken and where fear of failure does not hinder innovation. However, although it is tackling a broad remit with enthusiasm, the TSB is a small organisation. We will be keeping the extent to which its remit is too broad, or its resources are adequate, under review.

89. There are a number of mechanisms currently used for knowledge transfer, for which TSB has lead responsibility. There are currently 24 overarching national networks, known as Knowledge Transfer Networks (KTN), which bring together people from businesses, universities, research, finance and technology organisations to stimulate innovation in specific fields of technology or business application. They provide activities and initiatives that aim to promote the exchange of knowledge and stimulate innovation in these communities.⁹⁹

90. Knowledge Transfer Partnerships (KTPs) are a method of enabling individual companies to obtain knowledge, technology or skills which they consider to be of strategic competitive importance, from the further (FE) or higher education (HE) sectors or from a

94 Q 431

95 Ev 241 [Research Councils UK]

96 Q 503

97 Q 116

98 Q 161

99 Information taken from the TSB website,
<http://www.innovateuk.org/deliveringinnovation/knowledgetransfERNETWORKS.ashx>

research and technology organisation. At the time TSB gave evidence to us there were 975 KTPs. KTPs involve an individual from within the United Kingdom's knowledge base (universities, colleges or research organisations) who work within a company on one or more projects. The Government and the benefiting company contribute towards the cost of the project. The KTP Annual Report for 2006/07 reported that companies had an average one-off profit increase before tax of £60,000, an annual increase in profit before tax after project completion of £229,000 and an average investment in plant and machinery needed to realise the outcomes of £193,000.¹⁰⁰ Another of the advantages of KTPs is that the researchers often move into the company for which they have performed research, increasing the skill base and strengthening links between universities and industry.

91. In evidence, Coventry University praised KTPs as a good way of working with industry but also said that sometimes the bureaucracy or fear of working with a university led to a “significant mortality rate”.¹⁰¹ There were significant criticisms of the time it could take to set up such partnerships. Advantage North West also acknowledged the difficulties that some companies experienced entering into a KTP and said that they had seen more success if KTPs were preceded by a “collaboration taster” – such as mini-KTP or Innovation Vouchers.¹⁰² Coventry University suggested combining the application process for KTP with R&D tax credit as a possible way to cut down on bureaucracy and a way to better publicise both schemes to businesses.¹⁰³ The university was also concerned that a significant culture change was required within FE and HE to properly exploit the benefits and possibilities of the scheme, though this was within the context of viewing the scheme as very successful, reporting 50% year on year revenue growth through collaboration with business.¹⁰⁴

92. The CBI commented “that business-university collaboration has much improved since the Lambert Report of 2003”,¹⁰⁵ although it highlighted that businesses, particularly SMEs, felt the need for an intermediary; for example, a single point of contact with the university sector to direct their inquiries more effectively.¹⁰⁶ In oral evidence Birmingham and Coventry universities acknowledged the need for a more effective interface between business and academia, also noting that universities needed to improve their internal infrastructure to deal with business.¹⁰⁷

93. It is clear that there has been significant progress on university-business collaboration since the Lambert Report in 2003. It is also clear that much more needs to be done. Since this is a matter of building relationships between individual institutions and companies, progress will necessarily be slow. We are encouraged by the success of

100 Information taken from the TSB website,
<http://www.innovateuk.org/deliveringinnovation/knowledgetransferpartnerships.ashx>

101 Qq 246, 247

102 Q 272

103 Q 234

104 Q 234

105 Q 431

106 Q 438

107 Q 236

knowledge transfer partnerships, but recommend that the process of applying for such partnerships should be made faster and simpler.

Innovation vouchers

94. The Committee has heard evidence that publicly funded Innovation Vouchers are being used to stimulate innovation by linking up universities and SMEs. Advantage West Midlands described such a system to us as a useful way of allowing SMEs to access research facilities:

You might have heard of INDEX vouchers that we have introduced which were piloted over the last couple of years, and we are rolling that out now. It has been quite a success. Our mission is to try and commercialise some of the science and technology that is buried in some of our universities and research establishments by connecting it with business organisations, so there is a classic example of trying to get businesses, universities, and higher education establishments to interact and collaborate. We are not pretending a £3,000 voucher is going to lead to world-breaking innovative activity but it might be the start of a relationship that does just that, so that is the intention behind that.¹⁰⁸

The *Innovation Nation* White Paper announced that DIUS would institute Innovation Vouchers.¹⁰⁹

95. The Innovation Vouchers have been welcomed by many; for example NESTA argued that:

Stronger links between industry and academia could also further promote higher value-added business activities and innovative thinking among UK businesses. Efforts to boost business demand for university R&D should be stepped up. One exemplary approach is the Innovation Voucher scheme currently being piloted by Aston University. Based on a Dutch model, this has provided 80 high-growth SMEs with £3,000 vouchers which they can use to purchase academic support to improve their innovation capability.¹¹⁰

The Committee recognises the vital importance of the small business sector to innovation in the private sector. We therefore welcome the recognition of the success of Innovation Vouchers as one way of achieving a better dialogue between SMEs and universities. We consider their effectiveness should be kept under review, and further support for them be given, if appropriate.

Mission-led innovation

96. One way of encouraging greater industrial engagement with both R&D and innovation more generally is to encourage mission-led or mission-driven innovation which was

108 Q 263

109 *Innovation Nation*, Chapter 4, Introduction

110 Ev 220 [NESTA]

defined for the Committee by NESTA as “problem backwards innovation”.¹¹¹ QinetiQ defined it more precisely as:

[research] where the objective is to deliver needed and useful capability, which involves innovation. This is different to research initiated by ‘principal investigators’ which is aimed at advancing specific technologies or areas of science. Mission-driven research provides the opportunity for suppliers to identify new solutions to end-users’ problems, whilst maximising the economic leverage achieved from innovation taking place within the supplier base.¹¹²

97. QinetiQ and the Society of British Aerospace Companies (SBAC) used the same illustration comparing the UK with the US system, which they praised for its ability to encourage innovation:

The higher percentage of mission driven research in the US means that more of the capabilities generated in undertaking the research are created in the supply base, and are therefore more directly exploited in subsequent delivery of the solution. This explains the greater pull through of research into products and services that drive the US economy. The UK does not have an equivalent magnitude of mission-driven programmes and this has an important effect on innovation in UK industry.¹¹³

The figure, which is reproduced in the evidence,¹¹⁴ shows that 76% of research in the US is mission driven, in comparison with 50 % in the United Kingdom.

98. Mission-led research is a defining characteristic of the work of DARPA, which the Committee visited in July 2008. Case Study 2, below, provides a summary of DARPA’s work.

99. The Committee notes that one of the funding streams of the TSB is to invest in challenge-led (or mission-led) research. The TSB told us in evidence that it is funding the use of the challenge-led approach which “is, by its very nature, multi-disciplinary [...] a real way of pulling in together multi-function and multidisciplinary subjects all working together [...] one of the key differentiators again between the way the Technology Strategy Board is approaching the innovation agenda rather than just a more conventional technology push type of approach”.¹¹⁵ The Committee is encouraged that the TSB has adopted this as one of the main methods for its research funding. The TSB has a total budget of £711 million for the period 2008-2011. Funding from other public sector sources will increase it to something over £1 billion. Approximately half of that will be devoted to challenge-led innovation—perhaps £500 million over three years. In contrast, in 2006-07 alone, DARPA’s budget was \$2.3 billion.

111 Q 169

112 Ev 262 [SBAC]

113 Ev 262 [SBAC]

114 Ev 230 [QinetiQ]; Ev 263 [SBAC]

115 Q 506

Case Study 2: Defense Advanced Research Projects Agency (DARPA)

DARPA's mission is to "maintain the technological superiority of the US military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use". Its programmes (largely driven by its Director, Dr Tony Tether, and its programme directors) fall into three broad categories: high-risk, high-payoff concepts, such as stealth technologies; critical military programmes, such as secure and reliable communication networks; and new military capabilities and solutions to key military problems. DARPA is characterised by its work culture which is based on a small, flat and flexible organisation (240 staff, of which 120 are technical), with high turnover of staff (with 3-5 year contracts) with the ability to hire highly skilled scientists and engineers. It also has substantial autonomy over its large budget (\$2.3bn in 2007-08), and projects focussed on a tangible end goal (prototype rather than report). Management are focused on the overall goal of good stewardship of taxpayer's money, and a complete acceptance of failure, with lessons learnt, if the payoff of success is high enough. A lot of work is outsourced to science and technology organisations and laboratories, with DARPA staff acting as programme managers. DARPA claims a number of successes including the M-16 rifle, stealth fighters, body armour and ARPANET since its establishment in 1958.

100. The Committee considers that mission-led projects can encourage greater innovation. However, as we saw at DARPA, such approaches work best in a culture which does not fear failure and which is not subject to obsessive accountability requirements. The Committee believes this method must be embraced and encouraged more by the Government and recognised in future policy formulation. Innovation will, by its very nature, always be elusive in a bureaucratic culture.

6 The policy framework

R&D tax credits

101. R&D tax credits are the key Government policy for raising levels of business investment in R&D. The scheme was established first for SME research spending after 1 April 2000 and was extended to large company spending after 1 April 2002. In order to claim, companies must undertake qualifying R&D, a government definition of which is given as “working to resolve scientific or technological uncertainty aimed at achieving an advance in science or technology”.¹¹⁶ Innovation in products, processes and services is not currently defined as R&D.

102. The credit can be used to reduce a company’s tax bill or, for some SMEs not in profit, to provide a cash sum. Companies must be spending at least £10,000 a year on qualifying R&D and can claim for revenue, but not capital, expenditure. SMEs (fewer than 500 employees and an annual turnover less than €100m or annual balance under €86m) can make a deduction of up to 175% of qualifying expenditure incurred on R&D activities when calculating their taxable profit (they can also claim a credit for R&D performed if they are not in profit). Large companies can claim up to 130% of expenditure incurred. From 1 August 2008, companies can also claim 140% (down from 150%) of their qualifying vaccine research expenditure. In 2006/07, over 6,500 R&D tax credits claims were made, meaning that government support totalled £650 million, split between SMEs (around £180million) and large firms (around £460million).¹¹⁷

103. A CBI survey published February in 2009 found that the value of the credit to companies now exceeds the “noise-level for investment decisions”; it was large enough to influence companies’ decisions. Key findings included:

- savings on R&D costs delivered by the tax credit now average 8% (with SMEs on average saving 10.5%, medium-large companies 8.5% and large companies 6.0%);
- 37% of companies surveyed increased R&D as a result of the credit; and
- three quarters of companies surveyed said the credit had helped directly or indirectly to maintain their R&D investment in the UK.

104. The CBI survey also found that the role of HMRC in handling claims and providing advice had improved significantly. Also, the credit was an important factor for companies when deciding where to base R&D activity, improving the attractiveness of the United Kingdom as a destination for high value investment and jobs.¹¹⁸ Our witnesses also acknowledged the success of the R&D tax credit scheme. For example, the Institute of Physics¹¹⁹ and NESTA said that “Studies have consistently shown that R&D tax credits are

116 HM Revenue & Customs website on R&D tax credits, available at: <http://www.hmrc.gov.uk/randd/>

117 Statistics available at: http://www.hmrc.gov.uk/stats/corporate_tax/randdmenu.htm

118 Summary of CDI survey taken from Department for Business, Innovation and Skills website on R&D tax credits. Rounding figures to the nearest £10 million has caused the sum of some figures not to equate.

119 Ev 211 [Institute of Physics]

effective at raising investment in R&D”.¹²⁰ Universities UK said that they “strongly support R&D tax credits extension to companies with less than 250 employees, which, in a SME-dominated economy, is vital to achieving the government's targets for research and innovation”.¹²¹ Rolls-Royce, giving the perspective of a large, multinational company, told us that the tax credit “incentivises those who spend on R&D to continue to do so in the UK”.¹²²

105. Most witnesses considered that it was too early to evaluate the scheme, given that larger firms in the United Kingdom have only been able to benefit from the tax credit since 2002.¹²³ Even so, the CBI noted that “the R&D tax credit may not be an incentive for the short term, but with more certainty and continuity of the legislation, business will be able to work the relief into its long term strategy and it will increasingly stimulate innovation in parts of the UK economy where R&D is an important factor”.¹²⁴ The CBI told us the Government would evaluate the scheme in 2014.

106. However, the evidence also highlighted a number of concerns about the more detailed workings of the scheme. Some evidence suggested that tax credits were complex and not widely known about or taken up. The Institute of Chartered Accountants in England and Wales (ICAEW) said that “the majority of SMEs do not consider tax credits before they choose to invest in R&D [...] there is significant evidence that the R&D tax credit is not as effective in encouraging smaller business to invest in R&D as compared to larger business”.¹²⁵ Coventry University noted that SMEs could not always get good advice from accountants and suggested that the system needed to be simplified.¹²⁶

107. Rolls-Royce also warned while that the tax credits were useful, they were only worth a small amount of money to them, particularly compared to the incentives provided by the US and other countries.¹²⁷ Sir John Rose warned that if the United Kingdom:

wants to be in high value added manufacturing, it has to understand the competitive environment in exactly the same way as a company has to understand the competitive environment... the rational company will go to those places where the environment is more conducive to what they are trying to do.¹²⁸

It is worth noting the importance of research and technology incentives to many companies operating in the United Kingdom's most successful manufacturing sectors. In a climate of increasing international competition for mobile R&D investment, this factor must be borne in mind when deciding policy on the future of the R&D tax credit scheme.

120 Ev 217 [NESTA], see also Q 124

121 Ev 290 [Universities UK]

122 Q 124

123 Ev 152 [CBI]

124 Ev 153 [CBI]

125 Ev 210 [ICAEW]

126 Qq 249, 250

127 Q125

128 Q 130

108. **On balance, the evidence available suggests that R&D tax credits have been successful and that they are becoming more so as awareness of them grows. Businesses take time to adjust to new policy instruments, so this increased awareness is not surprising. We recognise, then, that the policy needs time to produce its full effects, and welcome the Government's commitment to a full evaluation in due course. However, although we support the principle that business needs some basic certainty about the incentives available, this should not prevent improvements to the tax credit scheme before then. We particularly urge the Government to look at ways in which the scheme could be made more accessible to SMEs by reducing both the eligibility thresholds and the complexity of the scheme.**

109. Questions were also raised about the principles on which the scheme has been built. NESTA highlighted the fact that R&D is becoming increasingly global, which raises questions about what expenditure should qualify. NESTA noted that “R&D performed by foreign multinationals in the United Kingdom generates benefits for the UK economy, while R&D expenditures by UK firms abroad improve the United Kingdom’s ability to apply new knowledge”.¹²⁹ We encourage the Government to consider this point in the future development of tax credit policy.

110. NESTA argued that Government “policy should concentrate on building capacity for innovation rather than the creation of specific innovations” and therefore that the tax credit should be widened beyond traditional R&D to encourage innovation more generally and particularly to take account of innovation in the service sector. It suggested that an innovation tax credit should replace the current R&D tax credit.¹³⁰ The CBI also called for the extension of the scheme (and other government supported measures) to the service sector,¹³¹ saying that “R&D is only one factor in innovation and, with our service-dominated economy, not always the most important. Care is thus needed in making international comparisons on the potential for value-added activity in the economy on the basis of national R&D performance alone”.¹³²

111. The Committee strongly agrees that innovation is much broader than R&D and that wider innovation should also be encouraged. Nonetheless, we would be cautious in making radical changes to the R&D tax credits scheme, which is currently seen as a success, particularly before it has been properly evaluated. However, we strongly encourage the Government to think about how it might better encourage innovation beyond the current support for traditional R&D and particularly, how it will encourage innovation in the service sector.

Intellectual property

112. The importance of intellectual property (IP) to innovation and entrepreneurialism and the challenge of properly protecting ideas have been discussed in a number of reports

129 Ev 217 [NESTA]

130 *Ibid.*

131 Q 430

132 Ev 147 [CBI]

over recent years.¹³³ The Committee does not wish to replicate that discussion, but appropriate protection for intellectual property is a critical factor in encouraging the growth of the higher value-added economy in the United Kingdom. The CBI told us that IP had become more important in recent years due to the “high-value challenge. If you are going to move up the ladder of high value and you have the Chinese and the Indians chasing you up that ladder, it matters hugely whether you can protect the thing that differentiates you from your East Asian competitor”.¹³⁴

113. The Committee is also aware, however, that attitudes to IP are changing in the increasingly fast-paced technological market, where the emphasis is on getting a product onto the market before competitors, and securing IP protection may not always be the highest priority. It also recognises the implication of product user innovation on goods. There are circumstances in which copyright or patent protection is not appropriate. A company may gain greater market advantage from trademark protection, branding, or even foregoing protection altogether.

114. The Committee welcomes the fact that responsibility for IP within government will lie with the new Department for Business, Innovation and Skills. All too often, intellectual property is seen as synonymous with patenting; one of the tasks of the department should be to raise awareness of the variety of ways in which such property can be protected.

115. Although these days many larger companies have IP expertise, it is more difficult for SMEs to protect their ideas.¹³⁵ The Committee recognises the importance of intellectual property to the development of a higher value-added economy and wishes to see greater support for businesses in understanding and researching their IP options. This challenge was identified by the British Library and inspired it to re-launch its Business and IP Centre in 2003 to provide support for businesses within the M25 (see Case Study 3 for further explanation). The Committee was very impressed with the centre when it visited it as part of this inquiry. Similarly, the Intellectual Assets Centre in Scotland aims to raise business awareness of the importance of managing intellectual assets. **We believe that the British Library Business and IP Centre is providing an exemplary service to the SMEs and entrepreneurs of the capital and we would like to see this model replicated throughout the United Kingdom. The Committee recommends that the Government secure the Centre’s long term funding to enable it to provide a service to business people across the United Kingdom and provide funding for similar centres in key business hubs within the United Kingdom.**

133 Including HM Treasury (2006) *Gowers Review of Intellectual Property* and *Lambert Review of Business-University Collaboration*.

134 Q 444

135 Q 220

Case Study 3: British Library Business and IP Centre

The centre was designed to support entrepreneurs and SMEs in the start up and development of a business. It provides free access to information and advice on IP, market research, and databases. It also runs events to encourage entrepreneurs; and it acts as a hub for the Knowledge Transfer community in the capital and many other businesses. The centre has exceeded all its targets to give business advice and skills development by a wide margin since it was re-launched in March 2006. It has links with more than 50 service providers in the enterprise sector and provides information to businesses in person, over email or on the telephone. The objectives of the centre, agreed with the LDA who fund the centre, include: promoting economic growth through information and knowledge transfer; providing guidance and information to SMEs and entrepreneurs on IP and the protection of innovative ideas and promoting innovation; encouraging the creation of new businesses and helping create new jobs within the M25; and regeneration of the King's Cross area.

Public procurement

116. Estimates of expenditure on public procurement vary but the Glover Committee review into strategic procurement¹³⁶ estimated its worth at over £175 billion per annum, representing 13% of GDP.¹³⁷ QinetiQ told us that the Government spends “between £125 billion and £150 billion annually on procuring goods and services, such procurement is widely recognised as potentially being a major driver of innovation, through the Government creating a market for innovative products”.¹³⁸ If used properly, public procurement could not only increase the market for innovative products or services, but foster the collaborative approach which allows higher value-added products and services to be developed.

117. There are significant barriers to this. QinetiQ said:

Previous procurement problems have made Government even more risk-averse. This leads UK Government to procuring existing technological solutions which it perceives are low risk and provide value for money, thereby acting as a late adopter of technology. As a result procurement contracts are placed increasingly frequently with overseas companies (or with UK companies buying overseas equipment) because they have been able to develop track record with overseas governments who have been more agile in their procurement. This leaves UK industry at a distinct disadvantage.¹³⁹

Another criticism was that parts of the Treasury and the Office of Government Commerce often interpreted the EU procurement rules very conservatively.¹⁴⁰

136 HM Treasury (November 2008) *Accelerating the SME economic engine: through transparent, simple and strategic procurement*

137 *Accelerating the SME economic engine through simple and strategic procurement*, p3

138 Ev 228 [QinetiQ]

139

140 Q 393

118. There are signs this conservatism is changing. The report of the Glover Committee recommended that “Departments should use their Innovation Procurement Plans to set out how procurement aligns with their overall commercial strategy, *encourages innovation* and gives advanced notice of long-term procurement plans” [emphasis added] and “Government should encourage wider use of outcome-based specifications across the public sector, as a means of driving innovation”.¹⁴¹

119. The Glover Report also contained proposals to make the public procurement system more transparent and simpler, so that it was easier for SMEs to access. These proposals were accepted in the Pre-Budget Report (PBR) 2008, when the Government said

The Government will advertise government contracts worth more than £20,000 in a single free online portal, it will introduce measures to reduce bureaucracy and will make opportunities more transparent for small businesses. In addition, it will standardise qualification criteria and encourage innovation by increasingly specifying outcomes rather than prescribing solutions. It will also help SMEs get a fair deal when they are sub-contractors.¹⁴²

The Committee welcomes this move by the Government and we hope that it produces tangible results for SMEs. The Committee will continue to monitor the situation.

120. The Committee highlights the vitally important role for public procurement in stimulating innovation in the United Kingdom. The Government has an obligation to use the large amount of money that it spends each year on public procurement to stimulate innovation. We welcome the Government’s promise to accept the Glover Committee recommendations and look forward to monitoring the results this produces for SMEs.

121. In its Report on public procurement, our predecessors on the Trade and Industry Committee commented that “Given competition from lower-cost countries, the Government is anxious to encourage manufacturing industry to develop higher value products, and to this end it aims to promote innovation. The Government could use its purchasing power to support innovation”.¹⁴³ The Office of Government Commerce (OGC) has recently published a guide to driving innovation through public procurement, which “seeks to encourage public sector organisations to be intelligent, demanding customers and open to new ideas”.¹⁴⁴ **We welcome the OGC’s guidance on innovation and procurement; the difficulty will be to ensure that departments and individual officials really understand the ways in which procurement can support innovation, and are supported in using procurement policy in this way. It will require the public sector, and those who monitor its effectiveness, to take a balanced approach to risk, rather than simply reaching for the tried and tested way of doing things, because it is safer.**

141 *Accelerating the SME economic engine: through transparent, simple and strategic procurement*, p5

142 Pre-Budget Report 2008, Chapter 4, available at: http://www.hm-treasury.gov.uk/d/pbr08_chapter4_136.pdf

143 Thirteenth report of the Trade and Industry Committee of 2006-07, *The future of manufacturing: public procurement* (HC 1109)

144 *Driving Innovation Through Public Procurement*, OGC and BIS, available at: http://www.ogc.gov.uk/documents/OGC09-0679_InnovationBrochure.pdf

Small Business Research Initiative

122. One way to reduce the risk that adopting an innovative approach will expose an organisation or individual to criticism is to have programmes explicitly designed to foster innovation. Since the PBR 2008, the Government has set up a Small Business Research Initiative (SBRI) in the United Kingdom. This Initiative is championed by the Technology Strategy Board and significantly reworks the previous scheme that was launched in the United Kingdom in 2001. It is similar to the SBIR scheme in the United States, which has been running successfully since 1982, and which the Committee was briefed on in detail during its visit to the USA last year. The programme aims to find innovative solutions to specific public sector needs, by engaging a broad range of companies in competitions for ideas that result in short-term development contracts. These fully funded development contracts between the successful company and the government department (usually with an initial feasibility study and then more detailed product development) should result in a commercial product or service. It is a fast track, simplified process that allows government departments to engage with businesses they would not normally work with. The government department (or public sector body) acts as the lead customer and is instrumental in helping the business develop its product or technology.

123. The Committee welcomes the establishment of the SBRI in the United Kingdom and hopes that it will play its part in fostering a true spirit of innovation. The Committee also recommend that the Government use a larger part of the public procurement budget to invest in riskier, high payoff projects that will help to stimulate a change of culture within government departments and in the UK economy. Such a policy may be considered courageous in the prevailing climate, but the example of DARPA in the USA shows the value of such courage.

Access to finance

124. The availability of finance to support both new start-ups and established companies has been widely discussed. Indeed, this is something that we are monitoring actively in our current work.¹⁴⁵ We do not attempt to deal with the subject in detail here, simply to draw attention to a few key points. As we noted at the beginning of this Report, the US benefits from a well-developed venture capital industry. There are individual business angels in the United Kingdom, and a range of venture capital funds. Nonetheless, while venture capital accounts for 33% of investment in the US, it accounts for only 4% in the United Kingdom.¹⁴⁶ In particular, there is a funding gap for businesses that need sums under £2 million.

125. There are measures to support very early stage businesses. NESTA invests about £10m per year into early stage companies, but recognises that this will not transform the market. However, it may draw others into the market by demonstrating the returns which can be made.¹⁴⁷ Similarly, Scottish Enterprise's Proof of Concept scheme helps researchers to

¹⁴⁵ Business and Enterprise Committee, Ninth Report of Session 2008-09, *The Automotive Industry in the UK*, HC 550; Tenth Report of Session 2008-09, *Enterprise Finance Guarantee scheme*, HC 588

¹⁴⁶ "Mandelson issues venture funding challenge", *Reuters*, 11 March 2009

¹⁴⁷ Q 144

export their ideas and inventions from the lab to the global marketplace, usually after a background patent has been filed, but before full scale development of the technology or commercial backing.

126. The state was readier to support industry in the past. In 1945, the Bank of England established the Industrial and Commercial Finance Corporation (ICFC) to provide capital to small- and medium-sized companies; this was privatised and became 3i, which was reported to have moved out of technology start ups. Earlier this year, the Government established the Capital for Enterprise Fund, a £75 million fund, with a contribution of £50 million from government and £25 million from the banks. When she gave evidence to us on 12 May, Baroness Vadera hinted that more might be done.¹⁴⁸

127. On 29 June 2009, the Government launched the UK Innovation Investment Fund in which the Government will invest £150 million, to be matched by private industry. It is hoped that this will leverage enough private investment to build a fund of up to £1 billion over the next 10 years.¹⁴⁹ **We welcome the launch of the UK Innovation Investment Fund, although only time will tell whether the investment from the Government will leverage all the money required.**

148 HC 143, Q 240

149 "Government aims for £1 billion venture capital fund to invest in the businesses of the future", Department for Business, Innovation and Skills press release, 29 June 2009

7 The future of the higher value-added economy

128. There is consensus within the United Kingdom about the need to develop a higher value-added economy. We have heard from many people that the development of the higher value-added economy is critical for the future of the UK economy and we add our voice to those already encouraging the Government to help promote it. The United Kingdom already has a strong university sector, world-class businesses and world-class services on which to build.

129. There is still, however, much to be done to secure the future of the higher value-added economy. The Committee believes strongly that the culture of the United Kingdom's society and those acting in the United Kingdom's economy must change. We are good at analysing our failures: we must also acknowledge our successes. People need to know the United Kingdom has a high-technology manufacturing industry which will reward their skills, and there is more to innovative and knowledge-driven services than the financial sector, important though this is. They need encouragement to form the networks that let innovation thrive. There needs to be an acceptance that sensible risk-taking is a necessary condition of an innovative and enterprising economy.

130. As we have outlined in this Report, we also believe that **the Government needs to take a leading role in being prepared to experiment, to take more risks, to spread best practice, and to monitor and fund initiatives that are shown to work well. It must also be prepared to put in place a policy framework which supports successful industry, as well as encouraging new businesses to begin. We acknowledge, however, that this is a difficult task. We believe that the Government is saying many of the right things; it now needs to make sure its many policy documents are translated into action.**

Conclusions and recommendations

The background of the inquiry: history and circumstance

1. Higher value-added goods and services will be essential to the strength of the UK economy in the future. Encouraging the growth of such activities depends on a realistic and measured assessment of the United Kingdom's strengths and weaknesses. This does not mean refusing to acknowledge the very real economic difficulties which face the country. However, this should be balanced by more confident and better-informed acknowledgement of the economy's very real underlying strengths. (Paragraph 19)

Manufacturing

2. Any strategy for ensuring that the United Kingdom has a higher value-added economy must not look simply at new opportunities flowing from new technologies or new challenges, such as the move to a low-carbon economy, but must also identify, safeguard and build on existing manufacturing strengths. (Paragraph 28)

Services

3. Although we recognise and emphasise the importance of manufacturing, it is only part of the economy. In the manufacturing strategy published in September 2008, the Government stated that “our future lies in a mixed and balanced economy with manufacturing and services reinforcing each other”. We agree. We should celebrate the fact that the United Kingdom is the second largest exporter of services in the world. (Paragraph 32)

Creative business: branding and design

4. Branding is an area where the UK creative industries are strong but which is talked about far too little in public debate. Government policy must sustain the creative industries that are responsible for the successful development of brands in the United Kingdom, and must protect effectively the intellectual property of the brands themselves. (Paragraph 34)

The higher value-added ecosystem

5. The United Kingdom cannot build a higher value-added economy on a single sector, or type of intervention. Many different factors come into play. For example, a wide range of skills is needed if we are both to sustain manufacturing and maintain our strength in services and the creative industries. Government undoubtedly has a role to play in creating the right environment for innovation, and responsibility for this spreads beyond the remit of the Department for Business, Innovation and Skills. However, central government cannot foster innovation alone. Local policy makers, academia and, above all, industry itself—of all sizes—need to be involved. (Paragraph 37)

Government policies

6. Over the last year, the Government has produced a succession of strategy and policy papers related to innovation and industry. Their proposals cannot be implemented by the Government alone. All those involved now need to ensure that the emphasis is on the actual delivery of policies designed to support innovation, rather than producing further policy documents. (Paragraph 38)

Central government

7. At this stage, although we make no comment on the inclusion of higher and further education within the new Department for Business, Innovation and Skills, we acknowledge the vital importance of improved skills to all British industrial sectors. We believe that the new department is a welcome opportunity to coordinate policy on innovation, and to ensure that policy is consistent. (Paragraph 42)

Research and development

8. The United Kingdom's relatively modest rates of R&D relative to GDP are in part the result of the structure of the United Kingdom economy. Indeed, the proportion of R&D financed by government is not out of line with many comparable countries. If the United Kingdom is to grow as a higher value-added economy, the policy challenge will be to encourage innovation, and to encourage companies to take advantage of the United Kingdom's strengths as a source of innovation. This includes promoting the strength of United Kingdom research and development capabilities, but also looking at innovation more widely. (Paragraph 52)

Wider innovation

9. It should be possible to produce wider measures of innovation than those currently in use, and we are delighted that the Government has asked NESTA to work on this. However, as well as knowing how the United Kingdom is doing internally, we need to be able to benchmark performance against other countries. We hope the Government will take a lead in encouraging the development of better international monitoring. (Paragraph 57)

Education and skills

10. It is vitally important that British education and training is as good as it can be, and we welcome the growing public debate about the necessary steps to improve it. We are particularly concerned about the continuing complexity of the skills system and the impact this has on the smaller companies who wish to engage with it. But ultimately, the skills available to the United Kingdom depend on the individual choices made by individual students and workers. They will create the demand for the training which will sustain the higher value-added economy. They will only do so if they have a realistic understanding of the opportunities available to those with particular skills. They will also need to know that employers reward the skills they say they need. (Paragraph 64)

Risk-taking and entrepreneurialism

11. The Committee recognises that a successful higher value-added economy is influenced by factors stretching across many government departments. The role of education in giving young people the confidence, ambition and skills to be creative and entrepreneurial is vital. The Committee welcomes the Government's proposals to extend and develop entrepreneurial training. The Committee also believes that it is important to teach children from a young age to take appropriate risks and not to fear failure. We recommend that the Government incorporates this into education on entrepreneurship. (Paragraph 69)
12. We also stress the importance of well-informed, up-to-date careers advice in schools to encourage children to consider careers in business—especially in engineering—and in entrepreneurship, alongside balanced advice about other careers. Careers advice in most schools appears not to be of the standard required to enable young people to make properly informed choices and we urge the Government to consider how this serious shortcoming can be addressed. If our economy is to continue adding value and competing successfully internationally, it is essential that young people understand the true range of opportunities open to them. (Paragraph 70)
13. Shifting the United Kingdom's culture to one which accepts that making progress may require taking risks, and that success is not always guaranteed, will take time, but will be vital to the future success of our economy. It will depend in large part on a more balanced approach from politicians and the media—two groups that too often seem to celebrate failure with more enthusiasm than success. (Paragraph 73)

The public sector

14. In *Innovation Nation*, the Government announced that the National Audit Office will be conducting a study into the role of risk in public sector innovation. We welcome this development. We have no desire to waste money, but progress requires risk-taking. Some of those risks will lead to a project's failure, in whole or in part. We believe that the United Kingdom's culture is too risk averse. This needs to change in the public as well as the private sector. (Paragraph 74)

Clusters

15. Strong academic institutions can play a key role in supporting valuable clusters of innovative industry. In the best examples, academics, entrepreneurs and public institutions understand and value one another's contribution. It is impossible to mandate such cross-fertilisation between universities and industry, but a great deal can be done to support it, by providing collaborative facilities, by supporting technology transfer and simply by promoting networking. Collaborations of this kind, formal or informal, offer a great deal to all parties concerned, and we have seen that universities, financial institutions and industry can all play an active part in supporting them. Public authorities should be aware of the benefits of this kind of clustering, and should actively look for ways in which they can act as catalysts to encourage it. (Paragraph 79)

Collaborative research

16. Recognising and building on the research strengths both of the United Kingdom as a whole, and of particular areas, will be essential to sustain a higher value-added economy. In principle we strongly support developments such as the proposed UK Centre for Medical Research and Innovation. (Paragraph 81)
17. We applaud the development of centres of excellence such as Quantum Technology Partnership, and its approach of fostering collaboration among existing institutions rather than duplicating effort. (Paragraph 82)

Technology Strategy Board

18. The Committee supports the role of the TSB and its re-focus on driving innovation. We believe that the TSB can play a strong role in helping industry, especially developing sectors, to develop a higher value-added economy. The TSB should work on behalf of the Government to help to foster an enterprise culture within which risks can be taken and where fear of failure does not hinder innovation. However, although it is tackling a broad remit with enthusiasm, the TSB is a small organisation. We will be keeping the extent to which its remit is too broad, or its resources are adequate, under review. (Paragraph 88)
19. It is clear that there has been significant progress on university-business collaboration since the Lambert Report in 2003. It is also clear that much more needs to be done. Since this is a matter of building relationships between individual institutions and companies, progress will necessarily be slow. We are encouraged by the success of knowledge transfer partnerships, but recommend that the process of applying for such partnerships should be made faster and simpler. (Paragraph 93)

Innovation vouchers

20. The Committee recognises the vital importance of the small business sector to innovation in the private sector. We therefore welcome the recognition of the success of Innovation Vouchers as one way of achieving a better dialogue between SMEs and universities. We consider their effectiveness should be kept under review, and further support for them be given, if appropriate. (Paragraph 95)

Mission-led innovation

21. The Committee considers that mission-led projects can encourage greater innovation. However, as we saw at DARPA, such approaches work best in a culture which does not fear failure and which is not subject to obsessive accountability requirements. The Committee believes this method must be embraced and encouraged more by the Government and recognised in future policy formulation. Innovation will, by its very nature, always be elusive in a bureaucratic culture. (Paragraph 100)

R&D tax credits

22. On balance, the evidence available suggests that R&D tax credits have been successful and that they are becoming more so as awareness of them grows. Businesses take time to adjust to new policy instruments, so this increased awareness is not surprising. We recognise, then, that the policy needs time to produce its full effects, and welcome the Government's commitment to a full evaluation in due course. However, although we support the principle that business needs some basic certainty about the incentives available, this should not prevent improvements to the tax credit scheme before then. We particularly urge the Government to look at ways in which the scheme could be made more accessible to SMEs by reducing both the eligibility thresholds and the complexity of the scheme. (Paragraph 108)
23. The Committee strongly agrees that innovation is much broader than R&D and that wider innovation should also be encouraged. Nonetheless, we would be cautious in making radical changes to the R&D tax credits scheme, which is currently seen as a success, particularly before it has been properly evaluated. However, we strongly encourage the Government to think about how it might better encourage innovation beyond the current support for traditional R&D and particularly, how it will encourage innovation in the service sector. (Paragraph 111)

Intellectual property

24. The Committee welcomes the fact that responsibility for IP within government will lie with the new Department for Business, Innovation and Skills. All too often, intellectual property is seen as synonymous with patenting; one of the tasks of the department should be to raise awareness of the variety of ways in which such property can be protected. (Paragraph 114)
25. We believe that the British Library Business and IP Centre is providing an exemplary service to the SMEs and entrepreneurs of the capital and we would like to see this model replicated throughout the United Kingdom. The Committee recommends that the Government secure the Centre's long term funding to enable it to provide a service to business people across the United Kingdom and provide funding for similar centres in key business hubs within the United Kingdom. (Paragraph 115)

Public procurement

26. The Committee highlights the vitally important role for public procurement in stimulating innovation in the United Kingdom. The Government has an obligation to use the large amount of money that it spends each year on public procurement to stimulate innovation. We welcome the Government's promise to accept the Glover Committee recommendations and look forward to monitoring the results this produces for SMEs. (Paragraph 120)
27. We welcome the OGC's guidance on innovation and procurement; the difficulty will be to ensure that departments and individual officials really understand the ways in which procurement can support innovation, and are supported in using

procurement policy in this way. It will require the public sector, and those who monitor its effectiveness, to take a balanced approach to risk, rather than simply reaching for the tried and tested way of doing things, because it is safer. (Paragraph 121)

Small Business Research Initiative

28. The Committee welcomes the establishment of the SBRI in the United Kingdom and hopes that it will play its part in fostering a true spirit of innovation. The Committee also recommend that the Government use a larger part of the public procurement budget to invest in riskier, high payoff projects that will help to stimulate a change of culture within government departments and in the UK economy. Such a policy may be considered courageous in the prevailing climate, but the example of DARPA in the USA shows the value of such courage. (Paragraph 123)

Access to finance

29. We welcome the launch of the UK Innovation Investment Fund, although only time will tell whether the investment from the Government will leverage all the money required. (Paragraph 127)

The future of the higher value-added economy

30. The Government needs to take a leading role in being prepared to experiment, to take more risks, to spread best practice, and to monitor and fund initiatives that are shown to work well. It must also be prepared to put in place a policy framework which supports successful industry, as well as encouraging new businesses to begin. We acknowledge, however, that this is a difficult task. We believe that the Government is saying many of the right things; it now needs to make sure its many policy documents are translated into action. (Paragraph 130)

Annex A: Summary of Government policy papers relating to innovation

Creative Britain: New Talents for the New Economy

1. The Government creative industry strategy makes 26 recommendations through which it is aiming to sustain and stimulate growth within the UK's creative industry sector. The Government has focused its attention on creating the "right environment" for growth, which would contribute to the creation of a HVA economy. The commitments range from taking measures to identify talent at school age, to turning the talent into jobs in the sector, to supporting creative hubs within the United Kingdom, to supporting innovation and research in the sector, to making Britain the creative hub for the whole world. The strategy takes note of the importance of innovation to the creative industries in particular and proposes to give Government support through the establishment of a Knowledge Transfer Network for the creative industries by NESTA and the £10 million from the TSB for collaborative research projects in the sector.

Innovation Nation

2. The Innovation White Paper states that the United Kingdom must "excel at all types of innovation to raise productivity, meet the challenges of globalisation, and live within our environmental and demographic limits" and the report identifies the government role as "championing innovation across the board" and recognises the role of "hidden innovation" in the service sector and creative industries. The report sets out its proposals around a number of key themes:

- i. Demand innovation. Moving on from supply-side policy initiatives, the proposals require government departments to set out how they intend to drive innovation through procurement.
- ii. Supporting business innovation. Innovation vouchers will be given to 500 businesses a year, with the aim of increasing this to 1,000 a year by 2011. The Technology Strategy Board (TSB) will aim to double the number of knowledge transfer partnerships and introduce five new innovation platforms.¹⁵⁰
- iii. Strong and innovative research base. NESTA will work on an Innovation Index to measure the United Kingdom's performance and be involved in setting up an Innovation Research Centre. Investment in UK science "will grow"; The Department for Innovation, Universities and Skills (DIUS) [now within BIS] will aim to broaden exchange between humanities and science subjects and commission research into university intellectual property.
- iv. International innovation. DIUS will produce an "international strategy" in 2008 drawing together skills, education and research policies. The TSB will develop a

¹⁵⁰ Innovation platforms are areas of technology which the TSB has identified as a priority and undertakes research and promotion work on.

plan to market UK businesses bidding for grants under the EU's Framework Programme 7 and advise the government on opportunities arising from EU regulations.¹⁵¹

- v. Innovative people. Most of the key proposals in this area amount to implementing the Leitch Review on skills – including reforming sector skills councils, increasing take up of STEM subjects in education, increasing the role of Train to Gain and apprenticeships and establishing National Skills Academies.
- vi. Innovation in public services. The National Audit Office will be conducting a study into the role of risk in public sector innovation. A number of initiatives to bring together public sector innovators and work on new methods of innovation will be launched by NESTA and the Design Council. DIUS (now within BIS) and the Cabinet Office will work together on proposals to give front-line staff greater ability to innovate.
- vii. Innovative places. The majority of proposals in this area amount to increased alignment of funding between RDAs and TSB, expanding Higher Education (including consultation on 20 new higher education centres) and greater cooperation between venture capital, universities, business and regional government.

Enterprise: Unlocking the United Kingdom's Talent

3. The Enterprise White Paper identifies five “enablers” of enterprise which it seeks to influence:

- i. Culture. The Government's stated aim is to inspire more people (particularly younger people and women) to become entrepreneurs and reduce the fear of failure associated with going into business.
- ii. Knowledge and skills. The Government plans to spend an extra £30 million on extending enterprise education into primary and tertiary education and launch a National Enterprise Academy. It also plans a number of Women's Business Centres, business mentoring schemes and investment in a Leadership and Management Programme.
- iii. Access to finance. In this area the Government proposes a strengthening of the Small Firms Loan Guarantee, £12.5 million investment in a capital fund for women-led businesses, funding through Enterprise Capital Funds and removal of procurement contract clauses preventing factoring and invoice discounting being used as forms of finance.
- iv. Regulatory framework. The Government will “introduce a new approach to regulating small firms” aiming to achieve a net 25% reduction in the administrative burden by 2010.

151 An umbrella programme beginning together the EU's research-based initiatives.

- v. Business innovation. The key proposals are to investigate the use of Innovation Vouchers to encourage business/university cooperation and expanding the supply2gov website.

4. The White Paper also sets out a number of proposals, including £1 million in funding for the Prince's Trust and a £10 million Risk Capital Fund for start-up and early stage social enterprises.

Manufacturing: New Challenges, New Opportunities

5. The manufacturing strategy, published in September 2008, recognises the importance of manufacturing to the UK economy but states that “our future lies in a mixed and balanced economy with manufacturing and services reinforcing each other”.¹⁵² It identifies the current trends in manufacturing and the consequent challenges and opportunities for the future for this sector, for example the need to create a low-carbon economy and the knock on effects for manufacturing processes and products throughout the world. The strategy identifies five major challenges for manufacturing: increased prevalence and complexity of global value chains; the accelerated pace of technological exploitation; the increased importance of investment into design, branding and research and development (R&D); the increased recognition of the need for investment in people and skills; and the move to a low-carbon economy.

Building Britain's Future: New Industry, New Jobs

6. The report entitled “New Industry, New Jobs”,¹⁵³ published in April 2009, brands itself as a “strategic vision for Britain's recovery” and outlines, in the view of the Department for Business, Enterprise and Regulatory Reform, the need for: internationally coordinated action; preparation for an inevitable upturn in the economy; the greater dependency on higher value goods and services to drive exports and growth; support for successful businesses by improving skills, strengthening R&D, encouraging innovation and capitalising on it; the Government's business support to build on measures that have already been shown to work well; and retaining a skilled and flexible workforce.

7. The report argues that the foundations for UK competitiveness need reforming according to the following priorities which chime with the need to promote a HVA economy in the United Kingdom:

- Innovation: turning innovation into goods and services in a context of lower investment into R&D than competitors;
- Skills should be demand-led but also anticipating the skills needs of the future particularly through an improved higher education framework;
- Infrastructure improved through government funded projects and guarantee schemes; and

¹⁵² Manufacturing: new challenges, new opportunities. Foreword of Summary. September 2008.

¹⁵³ New industry, new jobs. April 2009.

- Openness and effectiveness of the European single market to ensure exports that are important to the growth of the economy.

8. The report also acknowledges the need for a change in the system for the regulation of the financial markets and accepts that smarter, more strategic procurement by government is needed to stimulate further innovation, particularly in small firms.

9. The report proposes a mix of overarching policies and more specific measures to help particular sectors as the solution to the current crisis. It also acknowledges the need for the United Kingdom to move to a higher value-added economy for the future wellbeing of the economy, with greater support for university-business links and research and development in sectors such as life-sciences, digital and advanced manufacturing.

Annex B: Visit Programme

Cambridge: Tuesday 29 April 2008

Judge Business School

Meeting with Professor Around Der Meyer, Director of the Judge Business School

Meeting with Shai Vyakarnam, Director of the Centre for Entrepreneurial Learning

Meeting with Michael Pollitt, Assistant Director of the Economic and Social Research Council, Director of Studies in Management and Economic and Fellow fo Sidney Sussex College

Meeting with Alan Hughes, Margaret Thatcher Professor of Enterprise Studies and Director of the Centre for Business Research

Working Lunch with academics and local entrepreneurs

St Johns Innovation Centre and Cambridge ecosystems

Meeting with Walter Herriot, Managing Director, St Johns Innovation Centre

Company Visits

West Midlands: Monday 12 - Tuesday 13 May 2008

Monday 12 May 2008

Coventry University Technology Park

Working Lunch at the Design Hub facility

Formal Evidence Session

Warwick University

Round Table discussion with Lord Bhattacharya, Director of Warwick Manufacturing Group and representatives of West Midlands manufacturing companies

Meeting with Alan Curtis, Director of Premier Automotive Research and Development Programme and Andrew Morris, Managing Director, Stadco

Tour of the International Automotive Research Centre and International Manufacturing Centre workshops

Birmingham

Working dinner with Advantage West Midlands, business representatives and academics

Tuesday 13 May 2008

Longbridge Innovation Centre

Meeting with Bill Oliver Chief Executive Officer, St Modwen, Mike Wilkes, Managing Director, Scyron and James Windridge, Regional Manager, Science Recruitment Group.

Qinetiq

Working lunch and tour of the facility

Jaguar Land Rover, Gaydon

Meeting with David Smith, Acting Chief Executive Officer

Tour of the proving grounds

British Museum: Thursday 5 June 2008

British Museum

Meeting with Isabel Oswell and Gill Webber

Glasgow & Edinburgh: Thursday 12 June 2008

Glasgow

Scottish Enterprise

Working lunch with Ruth Walker, Director of Customer Relations, Kevin Kane, Director of Policy Development, Brain McVey, Director of Operation Management and Eleanor Taylor, Head of Programme, Proof of Concept Programme, Scottish Enterprise and Dr Graeme Malcolm, Chief Executive Officer, M-Squared Lasers; Professor Chris Hiller, co-founder, and Kevin Moore, Chairman Biopta; and Gerald Kelly, Senior Director, SE Investments

Intellectual Assets Centre

Meeting with Ian Russell, Chief Executive and Jim Houston, Chairman of the Board of Directors

Edinburgh

Royal Bank of Scotland

Meeting with Jeremy Larsson, Innovation Team

America: Sunday 20 - Saturday 26 July 2008

Washington

Monday 21 July 2008

Ambassador's residence

Briefing with Sir Nigel Sheinwald, KCMG, British Ambassador

National Institute of Standards and Technology

Meeting with Dr Claire M Saundry, Director, Office of International and Academic Affairs

Meeting with Mr Marc G Stanley, Director, Technology Innovation Programme

Meeting with Mr Alex Folk, Manager, Center Operations, Manufacturing Extension Partnership Programme

Meeting with Ms Clara Asmail, SBIR Program Manager, Technology Service

Defence Advanced Research Projects Agency (DARPA)

Meeting with Dr Anthony J Tether, Director and Dr Robert F Leheny, Deputy Director

Small Business Administration (SBA)

Meeting with Edsel M Brown Jr. Assistant Administrator and Ronald S Cooper, Senior Policy Analyst, Office of Technology and Business Development

Tuesday 22 July 2008

Information Technology and Innovation Foundation (ITIF), British Embassy

Meeting with Karen Mills, MMP Group and Managing Director, Solera Capital; Dr Andrew Reamer, Fellow, Metropolitan Policy Programme at Brookings; Howard Wial, Metropolitan Policy Programme at Brookings, and Shanker Singham, Partner, Squire Sanders & Dempsey

North Carolina

North Carolina Council for the Entrepreneurial Development, Alexandria Technology Centre, Durham

Meeting with representatives from the Research Triangle Regional Partnership

The Aurora Funds, Durham

Meeting with Jeff Clark, Managing General Partner, Investment Team

University of North Carolina, Chapel Hill

Mark Crowell, Associate Vice Chancellor for Economic Development and Technology Transfer

Wednesday 23 July 2008

Science and Business Development and Piedmont Triad Office

Meeting with Dr Ken Tindall, Senior Vice President for Science & Business Development; Michael Wilkins, Senior Vice President of Statewide Operations & Economic Development; Maria Rapoza, Vice President, Science and Technology Development Program, John Richert, Vice President, Business and Technology Development Programme; Christy Russell, Vice President, Government and State Relations; Mark Lombard, Biosciences Industrial Development Programme Manager; Mary Beth Thomas, Senior Director, Centers of Innovation Operations; and Gwyn F Riddick, Regional Director, Piedmont Triad Office

North Carolina Department of Commerce

Meeting with Dr John W Hardin, Acting Executive Director, North Carolina Board of Science and Technology and John Ujvari, SBIR specialist at the NC Small Business and Technology Development Center

Research Triangle Park Foundation

Meeting with Kevin Johnson, Vice President of Business Development

Boston

Thursday 24 July 2008

Boston University Technology Development Office

Meeting with Ashley Stevens, Director, Office of Technology Transfer

Meeting with Vinit Nijhawan, entrepreneur and venture capitalist

Statehouse

Meeting with Senate President Murray and Senator Hart

Massachusetts Technology Transfer Center

Meeting with Dr Abi Barrow, Director

Harvard Business School

Meeting with John Quelch Lincoln Filene Professor of Business Administration

Massachusetts Institute of Technology (MIT)

Professor Eric von Hippel, Head of the Innovation and Entrepreneurship Group

Friday 25 July 2008

Deshpande Center, MIT

Meeting with Leon Sandler, Executive Director

K&L Gates

Working lunch with K&L staff

MIT media lab

Meeting with Steven Whittaker, Research affiliate

Formal Minutes

Monday 20 July 2009

Members present:

Peter Luff, in the Chair

Mr Adrian Bailey

Mr Michael Chapman

Mr Mark Oaten

Mr Anthony Wright

Draft Report (*Risk and Reward: sustaining the higher value-added economy*), proposed by the Chairman, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 130 read and agreed to.

Annexes agreed to.

Summary agreed to.

Resolved, That the Report be the Eleventh Report of the Committee to the House.

Ordered, That the Chairman make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

Written evidence was ordered to be reported to the House for printing with the Report.

[Adjourned till this day at 6.30 pm]

Witnesses

Tuesday 11 December 2007

Page

Professor Peter N C Cooke, Professor of Automotive Management, University of Birmingham and **Mr Eric Wallbank**, Automotive Sector Leader, Ernst & Young

Ev 1

Thursday 28 February 2008

Sir John Rose, Chief Executive, **Mr Charles Blundell**, Head of Public Affairs and **Mr Mike Terrett**, Chief Operating Officer, Rolls-Royce Group Plc

Ev 15

Wednesday 2 April 2008

Mr Richard Hackett, Executive Director, Policy and Research Unit, National Endowment for Science, Technology and the Arts (NESTA)

Ev 28

Mr Will Hutton, Chief Executive and **Mr Ian Brinkley**, Director, Knowledge Economy Programme, Work Foundation

Ev 37

Monday 12 May 2008

Professor Michael Clarke, Vice-Principal and **Dr James Wilkie**, Director of Research & Commercial Services, University of Birmingham, **Professor Madeline Atkins**, Vice-Chancellor, **Professor Ian Marshall**, pro Vice-Chancellor for Research and **Professor Keith Popplewell**, Director of Future Manufacturing Applied Research Centre, Coventry University

Ev 48

Mr Mick Laverty, Chief Executive, **Dr Richard Hutchins**, Corporate Director for Economic Development and **Dr Phil Extance**, Director of Innovation, Advantage West Midlands

Ev 58

Tuesday 15 July 2008

Ms Rachael Elnaugh, Entrepreneur and former panellist on Dragon's Den and **Mr Doug Richard**, Entrepreneur, Chair, Conservative Party Small Business Task Force and former panellist on Dragon's Den

Ev 66

Tuesday 4 November 2008

Ms Frances O'Grady, Deputy General Secretary and **Mr Tim Page**, Senior Policy Officer, TUC

Ev 79

Mr John Cridland, Deputy Director General, CBI

Ev 88

Mr Andrew Cave, Head of Policy, Federation of Small Businesses

Ev 96

Thursday 20 November 2008

Mr Iain Gray, Chief Executive, **Mr David Bott**, Director of Innovation Programmes and **Mr Graham Hutchins**, Director of Operations and Services, Technology Strategy Board Ev 103

List of written evidence

1	Advantage West Midlands	Ev 117
2	Alliance Against IP Theft	Ev 123:Ev 124:Ev 126
3	British Brands Group	Ev 128
4	British Chambers of Commerce	Ev 129
5	British Printing Industries Federation	Ev 130
6	British Recorded Music Industry	Ev 136
7	British Retail Consortium	Ev 138
8	Commission for Rural Communities	Ev 144
9	Confederation of British Industry	Ev 147: Ev 159
10	Coventry University	Ev 162
11	Design Council	Ev 164
12	e-skills UK	Ev 167
13	Engineering Employers Federation	Ev 174
14	Environmental Industries Commission	Ev 185
15	Ford Motor Company	Ev 187
16	Imagineering Foundation	Ev 193
17	Intellect	Ev 194
18	Intellectual Assets (IA) Centre	Ev 201
19	Institute of Chartered Accountants in England & Wales	Ev 208
20	Institute of Physics	Ev 210
21	National Endowment for Science, Technology and the Arts (NESTA)	Ev 213:Ev 223
22	QinetiQ	Ev 227:Ev 237
23	Research Councils UK	Ev 239
24	Christopher Roebuck	Ev 244
25	Rolls-Royce	Ev 245
26	Royal Aeronautical Society	Ev 247
27	Scottish Enterprise	Ev 253
28	Society of British Aerospace Companies	Ev 257:Ev 262
29	Society of Motor Manufacturers and Traders Ltd (SMMT)	Ev 265
30	South East England Development Agency	Ev 267
31	South West Regional Development Agency	Ev 271
32	Trades Union Congress	Ev 273:Ev 280
33	Unite the Union	Ev 283:Ev 287
34	Universities UK	Ev 289
35	University of Hertfordshire	Ev 292

36 West Midlands Technology Network
37 Work Foundation

Ev 294
Ev 296

List of Reports from the Committee during the current Parliament

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

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First Report	Energy policy: future challenges	HC 32
Second Report*	Pre-appointment hearing with the Chairman-elect of Ofcom, Dr Colette Bowe	HC 119
Third Report	Work of the Committee in 2007-08	HC 175
Fourth Report	Regional development agencies and the Local Democracy, Economic Development and Construction Bill	HC 89
Fifth Report	The Postal Services Bill	HC 172
Sixth Report	The Insolvency Service	HC 198
Seventh Report	Pub Companies	HC 26
Eighth Report	Post Offices—securing their future	HC 371
Ninth Report	Automotive Assistance Programme	HC 550
Tenth Report	Enterprise Finance Guarantee scheme	HC 588

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Third Report	Post Office Closure Programme	HC 292
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Fifth Report	Waking up to India: Developments in UK-India economic relations	HC 209
Sixth Report	After the Network Change Programme: the future of the post office network	HC 577
Seventh Report	Keeping the door wide open: Turkey and EU accession	HC 367
Eighth Report **	Scrutiny of Arms Export Controls (2008): UK Strategic Export Controls Annual Report 2006, Quarterly Reports for 2007, licensing policy and review of export control legislation	HC 254
Ninth Report	Construction matters	HC 127
Tenth Report	Post Office finance: matters arising from evidence taken on 10 June 2008	HC 662
Eleventh Report	Energy prices, fuel poverty and Ofgem	HC 293
Twelfth Report	Post Office Card Account: successor arrangements	HC 1052

* First Joint Report with Culture, Media and Sport Committee

** First Joint Report of Committee's on Arms Export Controls

Thirteenth Report	Companies House	HC 456
Fourteenth Report	Departmental Annual Report and Scrutiny of the Department for Business, Enterprise and Regulatory Reform	HC 1116