



House of Commons

Business, Innovation and Skills  
Committee

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# Full speed ahead: maintaining UK excellence in motorsport and aerospace

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**Sixth Report of Session 2009–10**

*Report, together with formal minutes, oral and  
written evidence*

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## The Business, Innovation and Skills Committee

The Business, Innovation and Skills Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department for Business, Innovation and Skills. On 5 June 2009, the Department for Business, Enterprise and Regulatory Reform and the Department for Innovation, Universities and Skills become the Department for Business, Innovation and Skills. On 1 October 2009 the Business and Enterprise Committee was renamed the Business, Innovation and Skills Committee to reflect that change. The Committee retained the same membership as the Business and Enterprise Committee.

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## Summary

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Motorsport and aerospace are two industries in which the United Kingdom is a world leader. The United Kingdom can boast the second largest aerospace sector, after the United States and is a global leader in motorsport. Both epitomise the best of UK manufacturing and form key parts of the higher value-added economy. They are knowledge-intensive, utilise a highly skilled work force and consistently invest in Research and Development (R&D) to improve their products and maintain their edge over international competition. We believe that the future success of the UK economy will be based on these types of industries.

The aerospace sector is highly competitive with many existing competitors in Europe, the US and Japan. Many developing countries are also trying to establish themselves in the sector and capture a share of the market. The Government needs to ensure that British aerospace firms can compete on a level playing field. While the United Kingdom, like many other nations, invests in the aerospace industry its ability to do so is currently subject to a United States' complaint in the World Trade Organisation (WTO). The Government needs to robustly defend its right to support this industry through Repayable Launch Investment, which is much less generous than our competitors, while simultaneously exploring alternative measures of support that could be adopted in the case of an unfavourable outcome. We are also concerned that the UK aerospace sector has access to export trade credit at less favourable rates and through a more complex system than other countries. The Government needs to address this imbalance so that customers do not have difficulties in securing the credit they need to purchase aircraft.

When examining the motorsport industry we were struck by the lack of understanding and effective engagement by Government. The industry repeatedly told us that the Government was “complacent” about UK leadership in this sector and that previous attempts by the Government to support the industry had failed to produce meaningful results. The Government appears to be unaware of these concerns. We are not content with the Government's current plans to take forward its work with the sector through the UK Automotive Council. That approach runs the risk of treating the motorsport industry purely as a subsection of the automotive industry, ignoring many of the features which make the industry world beating. Instead, we recommend that the Government establish a dedicated motorsport policy team within the Department for Business, Innovation and Skills (BIS).

Small and medium-sized enterprises (SMEs) play a very important role in supporting both sectors, but they have been worst hit by the recession. We are encouraged by the steps the Regional Development Agencies (RDAs) have taken to support efforts to drive up the quality of SMEs but believe that the Government needs to do more to encourage high-performance engineering firms to diversify into other sectors. This would not only better insulate them from future economic shocks but also provide a mechanism for spreading best practice across different sectors; in particular the “motorsport ethos”—which provides a rapid, tailored response to engineering challenges.

The Government wants academia and businesses to work more closely together to better

align the education system with the skill needs of industry and to encourage more effective research. This is a laudable ambition but we are not convinced that the Government has yet articulated how it intends to bring about the kind of culture change it wishes to see in this relationship.

Both sectors require a highly skilled workforce able to adapt, develop and deploy new technologies successfully. This should be addressed by all parts of the education system, from encouraging children to study science and maths at primary and secondary school to ensuring the universities design their engineering courses with the needs of industry in mind. Further education also plays an important role in training the workforce, but the sector skills council need to properly engage with industry, something that is not always happening at present.

The UK's competitive advantage in these industries is based on its constant investment in R&D to discover new and innovative ways to improve their products and processes. However too often the excellent research done by universities is never developed to a stage where companies are able to take it forward and create a new product. Much of that research is left to languish in the "valley of death". To combat this the Government has established a number of centres of excellence designed to bridge this gap between academic and corporate research.

We fully support these new centres but have concerns over how the Government ran the procurement process that led to their establishment. In particular, the National Composites Centre of Excellence in Bristol was only established after a process that was at best disorganised. There was a lack of clarity about the exact specification of the project and those bidding for the centre were asked to provide additional information at short notice, sometimes less than 24 hours. This was an unhappy example of mismanagement by Government and lessons need to be learnt to ensure that future projects are more professionally run.

Not all R&D is done through research organisations; much is conducted by SMEs working on the ground. These companies have benefitted greatly from the Government's R&D tax credits. We fully support this scheme.

During the course of our inquiry it became clear that both industries believed that they were burdened by a "non-green image", which they believed, put them at odds with government policy. However, much work is being done in this area, often supported by the Government. In addition to financial support for "green" research, the Government is considering the potential for using motorsport to challenge people's perception of environmental issues. We welcome the fact the Government is considering this as an area of action and agree that motorsport has the potential to shift the debate about carbon emissions away from a dry conversation about carbon budgets, towards a more valuable debate on the role that technology and innovation can play in addressing climate change and other environmental issues.

# 1 Introduction

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1. The motorsport and aerospace industries represent two jewels in the crown of UK manufacturing. The United Kingdom is a world leader in the motorsport industry, and boasts the world's second largest aerospace sector after the USA.

2. Both of these industries represent the best of UK manufacturing, and form key parts of the higher value-added economy. They have many common characteristics and often work closely on shared challenges. The motorsport and aerospace industries, are knowledge-intensive, utilise a highly skilled work force and are constantly investing in Research and Development to improve their product and to maintain their edge over international competition. These are industries that need to form the basis of the UK economy in the future, and are particularly important in efforts to rebalance the economy to ensure the UK has an appropriate mix of service and manufacturing industries.

3. This Report both celebrates the successes of the industries and looks to the future to examine what role the Government needs to play to ensure that these industries stay ahead of their international competitors. In addition to examining government policies directly targeted at these sectors the Report discusses the wider issues which impact on the industries, including whether the education system is properly equipping the UK workforce with the skills that businesses need; the growing need for universities and businesses to work together more effectively, and the role that both sectors can play to reduce carbon emissions.

## Our inquiry

4. In the course of this inquiry, we received written submissions from 24 organisations. We held three oral evidence sessions: the first concentrated on the aerospace industry, with representatives from Airbus, BAE Systems, the Royal Aeronautical Society and A|D|S, the industry trade association. The second explored motorsport issues with the Motorsport Industry Association, the Motor Sports Association, Lola—a motorsport SME (Small and medium-sized business)—and Dr Dickison, a lecturer at Coventry University. At our final session we questioned the Minister responsible for these two sectors, Ian Lucas MP, Parliamentary Under-Secretary of State, Department for Business, Innovation and Skills.

5. We also undertook four visits in connection with this inquiry. The first was to Bristol where we met representatives from GKN and Airbus and visited the aerospace department at Bristol University. During our visit to France and Italy, in connection with our inquiry into “Exporting out of recession”<sup>1</sup> we were able to visit Airbus’ headquarters in Toulouse. Our third visit was to Silverstone where we met with the track management, academics, SMEs and the Brawn GP Formula One team.<sup>2</sup> The final visit was to Rolls-Royce’s base in Derby to discuss its involvement in government-supported research projects. Our visits always provide us with an excellent opportunity to be appraised of activity on the ground. Through discussions with people who work in these industries we are able to gain a much

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1 Business, Innovation and Skills Committee, Third Report of the Session 2009–10, *Exporting out of recession*, HC 266

2 Brawn has since been bought out by Mercedes.

fuller understanding of what the Government needs to do to support these sectors and to protect their positions as global leaders. A full account of our visits can be found in the Annex at the end of the Report.<sup>3</sup>

## Space sector

6. While this Report concentrates on the motorsport and aerospace industries, we should not forget the vibrant space sector which forms part of the aerospace industry. During the course of this inquiry we became concerned that not enough attention was being paid by Government to the space sector, something we ourselves were guilty of when drawing up our terms of reference for this inquiry. We believe that this is often the result of an over-concentration on the scientific aspects of space which overlooks the fact that there is a hi-tech industry which has developed from it—most notably the manufacturing of satellites. The consumer derives enormous benefits from space technology of which the most noticeable are satellite television and GPS navigation systems. The UK has a flourishing space sector, which was clearly described to us by EADS Astrium, the space branch of the European aerospace and defence firm:

Space is one of the UK's most hi-tech, high-skilled, high-growth, value adding and strategic sectors, adding £6 billion to the UK economy in 2008 (including £500 million directly in the manufacturing sector), and supporting over 18,000 direct jobs, and 60,000 jobs indirectly. The UK has built up a 7% slice of a fast-growing global space market, estimated to be worth €500 billion by 2020. Space is one of the UK's most R&D intensive industries, on a par with pharmaceuticals and aerospace and six times the national average.<sup>4</sup>

7. Despite this, it is the scientific agenda which dominates discussions of space. Ian Lucas MP, Parliamentary Under-Secretary of State, illustrated this point when he said:

I tend to associate space with the Apollo missions still, but I think there is a much more basic involvement of space in industry as a whole now, and I think that we need to reflect that in our thinking.<sup>5</sup>

We do not underestimate the importance of the scientific aspect of space research, but we believe that space now needs to be seen as part of mainstream high-technology manufacturing and industry; it is no longer a purely scientific endeavour. **Due to time constraints we have not been able to give the space sector the attention it deserves during this inquiry. We recommend to our successor committee that it considers conducting an inquiry into the role of the space sector in the UK economy.**

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3 See p 63 ff.

4 Ev 97

5 Q 256

## 2 The Aerospace Industry

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8. The United Kingdom has the world's largest aerospace industry outside the USA,<sup>6</sup> with a 17% global share of the civil aerospace market and 10% of the defence market.<sup>7</sup> The industry has an annual turnover of around £20.5 billion,<sup>8</sup> and directly employs over 160,000 people with another 200,000 people indirectly relying on the sector for their employment.<sup>9</sup> UK aerospace companies invested £1.8 billion in R&D activities in 2008,<sup>10</sup> and Britain is one of the few nations involved in the design, manufacture, marketing, maintenance and support of the full range of aircraft products—from complex composite aero-structures, including wings, aero-engines, rotorcraft, aircraft systems and avionics, through to maintenance, repair and overhaul services.<sup>11</sup>

9. The aerospace industry did not escape the recession. In 2008 although the sector received £35 billion in new orders, this represented a decrease of 23% on the £45 billion of orders placed in 2007. Over the same period the sector's workforce had reduced by 11%, with the loss of 12,578 jobs. In its evidence A|D|S, the industry trade association, told us that the difficulties faced by the sector in 2008 continued into the first half of 2009, and that “the downturn has been felt most markedly in the business jet, general aviation, civil fixed-wing and rotary-wing sectors.”<sup>12</sup> However, this was still better than the industry had initially predicted. Mr Godden, Chairman of A|D|S, remarked that “in the larger commercial aircraft industry, the order book has held up better than most anticipated.”<sup>13</sup>

10. The decrease in new orders was partially due to companies cancelling or delaying orders for new planes in response to falling passenger numbers.<sup>14</sup> As well as causing a reduction in new orders this has also resulted in companies postponing or reducing maintenance, repairs and improvements to their existing fleet.<sup>15</sup> However, larger companies have been able to minimise the impact of this by reorganising their order book. Dr Williams, Head of Business Development, Research and Technology (R&T) at Airbus, highlighted the fact that:

whilst there are some cancellations, typically there will be deferrals or movements of orders and there is, through prudent management of that order book, an ability to bring some orders forward and dampen the immediate effect on short-term production.<sup>16</sup>

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6 Ev 148

7 Ev 76

8 Ev 65

9 Ev 148

10 Ev 76

11 Ev 65

12 Ev 79

13 Q 9

14 Ev 86

15 Ev 139

16 Q 10

It is also possible that the longer-term nature of aerospace investments, particularly defence aerospace, has provided some parts of the industry with a degree of stability.<sup>17</sup> A|D|S asserted that “the long-term nature of large-scale projects means that effects can be delayed.”<sup>18</sup>

11. There are 9,000 SMEs in the United Kingdom who supply the aerospace industry. We discussed with major manufacturers how the recession had impacted on those businesses. It was clear that there were concerns within the aerospace industry that the recession could cause SMEs in the supply chain to go out of business. During oral evidence Mr Keen, Head of Government Relations, BAE Systems, reported that BAE was monitoring closely the health of its supply chain. He told us that out of 1,200 suppliers:

we have a watch list of about 80 companies that we are keeping a special eye on, and that we are engaging with on a weekly basis. Beyond that, we have about half a dozen companies that we have more significant concerns about.<sup>19</sup>

Mr Godden, Chairman of A|D|S, said that while there was no evidence to suggest that a large number of suppliers were going out of business, telling us “there are a number of companies who are exiting markets [...] and there are a number of companies that we think may be in trouble in the future.”<sup>20</sup> He also reported that his organisation had “identified so far six or seven companies that we have passed on to BIS as being in real trouble.”<sup>21</sup> We also heard that many of the SMEs who supply the aerospace industry were also involved in the automotive supply chain, and were seeing orders in that market fall as well.<sup>22</sup> We return to the issue of supply chains in more depth in Chapter 4.<sup>23</sup>

## Government strategy

12. In 2003 the Aerospace Innovation and Growth Team (AeIGT) published *An Independent Report on the Future of the UK Aerospace Industry*, which set out the Government’s long-term vision for the future of the aerospace industry in the United Kingdom. The Report concluded that by 2020: “the UK would offer a global Aerospace Industry the world’s most innovative and productive location, leading to sustainable growth for all its stakeholders.” The AeIGT’s Report contained a series of recommendations covering areas including:

- Research and Technology;
- Process excellence skills and people management;
- The environment;

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17 Ev 94

18 Ev 79

19 Q 25

20 Q 22

21 Q 22

22 Ev 133

23 See para 84 ff.

- Safety and security, and
- The socio-economic environment.<sup>24</sup>

The Report also recommended the establishment of a National Aerospace Technology Strategy (NATS), as a partnership between government, industry and academia with the aim of improving UK competitiveness in aerospace technologies.<sup>25</sup> Although the AeIGT is no longer active, many of the Department's current programmes reflect the priorities set out in its Report.

13. Mr Mans, Chief Executive, Royal Aeronautical Society, was of the view that despite the fact that the AeIGT was no longer active, its Report remained “a very relevant document and I think that it really does point the way ahead”.<sup>26</sup> Similarly Mr Keen, Head of Government Relations, BAE Systems, said that “the general comment certainly is that the AeIGT set out the right vision.”<sup>27</sup>

14. That said our witnesses believed that some areas could benefit from being re-visited. Mr Godden argued that the Report was in need of a “refresh” noting that it was five years old and that “as we know from our own planning [...] five years is a long time.”<sup>28</sup> BAE, A|D|S and the Royal Aeronautical Society suggested a number of areas which they believed should be included in any review of the Report including funding for research, threats to the cost base, the service sector related to aerospace, changing technologies (in particular emerging unmanned technologies), rotorcraft, the skills agenda, and space.<sup>29</sup> We return to a number of these issues later in our Report.<sup>30</sup>

**15. It is clear the aerospace sector is broadly content with the Government's aerospace strategy as set out in the AeIGT Report. However, the report is now five years old and is in need of updating. We recommend that the Government undertakes a short review in order to ensure that its strategy takes account of the latest economic and technological developments.**

## Government support

16. The Government supports the aerospace sector through a number of programmes and initiatives. Some of those programmes are directly tailored to aerospace, while others are designed to benefit a number of higher value-added industries. In this section we examine two forms of government intervention targeted specifically at the aerospace sector, the Repayable Launch Investment and export credit support. We also consider calls for government financial support for the Airbus A400M military transport plane.

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24 DTI/AeGIT, *An Independent Report on the Future of the UK Aerospace Industry*, June 2003

25 AeIGT, *National Aerospace Technology Strategy: Implementation Report*, p 5

26 Q 36 [Mr Mans]

27 Q 37 [Mr Keen]

28 Q 36 [Mr Godden]

29 Q 36–38

30 See para 103 ff.

### **Repayable Launch Investment**

17. Repayable Launch Investment is a government initiative to provide financial risk-sharing investment in the design and development of civil aerospace projects in the United Kingdom. It is designed to address the unwillingness of capital markets to fund projects with high product development costs, high technological and market risks and long pay back periods on investment. Government investment is repayable at a commercial rate of return, usually through levies on sales of the product. Launch Investment is only available to the civil aerospace sector.

18. Launch Investment has supported various aerospace projects over the last 60 years. Since 1997, the Government has invested nearly £1 billion in Launch Investment projects and during that period, £1.6 billion has been received as a return on its investment.<sup>31</sup> Recent projects which have received funding under the scheme include:

- £114 million to Bombardier Aerospace (Shorts) in Belfast towards the design and development of CSeries composite wing (July 2008);
- £60 million to GKN for the design and development of A350XWB trailing edge and rear spar composite wing components (September 2008), and
- £340 million to Airbus towards the development of the A350XWB (August 2009).<sup>32</sup>

Each applicant has to demonstrate that its project is technically and commercially viable, that government investment is essential for the project to proceed on the scale and in the timeframe specified and that the Government will recoup the investment at a real rate of return.<sup>33</sup>

19. The United Kingdom is far from unique in providing its aerospace sector with support in this way; the French, German, Spanish, Dutch and Italian Governments all operate some form of launch investment. The US uses indirect measures to finance its industry, most notably the R&D programmes run by NASA and the Department of Defense. However, industry has argued that government support for the UK aerospace industry compares unfavourably with that provided by other nations. The Royal Aeronautical Society stated that the terms of the UK Launch Investment “tend[ed] to be more onerous than Britain’s European partners and less generous generally than some of the newer entrants such as Japan and China.”<sup>34</sup>

20. We explored with witnesses whether this scheme was addressing a real market failure, or whether it was merely done to maintain a level playing field with our competitors. Ian Lucas MP, Minister for Business and Regulatory Reform strongly argued that the scheme was there to address the specific problems of long-term investment:

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31 <http://www.berr.gov.uk/whatwedo/sectors/aerospacemarinedefence/aerospacelaunch/page9107.html>

32 Ev 76

33 <http://www.berr.gov.uk/whatwedo/sectors/aerospacemarinedefence/aerospacelaunch/page9107.html>

34 Ev 132

The time that is spent in terms of bringing new aircraft to market is very, very long indeed and requires long-term investment, which is very strategic investment but is very important in terms of maintaining the position of the UK as a major aerospace manufacturer. [...] It is because of the long-term nature of the industry that, I think, the governmental role is particularly important and why it is necessary that the Repayable Launch Investment is there.<sup>35</sup>

This view was not universally shared by industry representatives. Mr Godden, Chairman of A|D|S, argued that market failure was not the primary factor. He believed that “market failure is that every single government in the world has decided that this is not a free market and a commercial marketplace.”<sup>36</sup>

21. Despite a difference of views on why the Repayable Launch Investment was necessary both Government and industry supported the existing model and believed that it should continue. In particular, Mr Godden highlighted the benefit to the Government of the return it received on its investments, noting that launch investment “returns two-and-a-half times on investment money for Government.”<sup>37</sup> Dr Williams, Head of Business Development, Research and Technology at Airbus agreed asking “why would you not want to invest in success?”<sup>38</sup> The Minister was of the same view:

I think that the model that we have operated has been very successful and, on the basis of success that we have had in the past, I think that is a powerful argument for continuing to use the model, which is why we have stuck with it.

**22. We welcome the Government’s continued use of Repayable Launch Investment. This investment has not only been successful in supporting the thriving aerospace sector, but has also delivered a substantial return to the taxpayer. We believe that the Government should continue to offer Repayable Launch Investment to companies—where no viable commercial financing is available—to ensure that the United Kingdom’s aerospace industry retains its position as a world leader in the development of new technologies. To do otherwise would put the industry at a serious competitive disadvantage given the prevalence of similar measures available to overseas competitors.**

### *WTO dispute*

23. Despite broad domestic support for the scheme, Repayable Launch Investment has been the subject of an on-going dispute at the World Trade Organisation (WTO) between the USA and the EU. On 15 November 2006, the US made a formal submission to the WTO Panel covering US complaints of unfair EU subsidies to Airbus, which included reference to Repayable Launch Investment. On 22 March 2007 the European Union submitted a parallel complaint against US subsidies for Boeing, primarily through US Government (NASA, Department of Defense) R&D programmes and tax breaks at State

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35 Q 223

36 Q 41 [Mr Godden]

37 Q 42 [Mr Godden]

38 Q 42 [Dr Williams]

level. The Interim Report on the US complaint was issued to the parties by the WTO on 4 September 2009. Its findings are likely to be appealed and the whole process, including the implementation phase, could continue until 2012–14.<sup>39</sup>

24. Although the contents of the Interim Report are confidential, press reports have indicated that the complaint against Airbus has, in part, been upheld. A European source, speaking on condition of anonymity to *EU Business News*, said that “from our reading of this report 70% of the US claims have been rejected.” However, the same source confirmed that government grants had been ruled illegal.<sup>40</sup> The Interim Report on the EU’s complaint against America has been delayed and is not now expected until June 2010.

25. The Government’s memorandum states that it has “consistently argued for a negotiated settlement to the protracted dispute”.<sup>41</sup> When questioned, Ian Lucas MP asserted that “ultimately it is in the interests of all parties to achieve a negotiated settlement in this dispute”.<sup>42</sup> However, he did not believe that this would be possible until the Interim Report on the EU complaint against Boeing had been published:

We are at a stage at the moment where, because there is only one interim report being published, what is happening is that all parties are waiting for the next stage in the formal process to take place before they can assess their full position. Therefore, it is unlikely, until that happens that people will enter into the types of discussions that we would like to see.<sup>43</sup>

26. We asked our witnesses for their views on the potential impact of the WTO complaint, and the Government’s response. In its submission the Royal Aeronautical Society argued that if the US complaint was upheld it would result in “significant changes in the current system to bring it closer to a commercial loan [...] or to shift the nature of the funding to a more indirect form.”<sup>44</sup> Mr Mans expanded on these points in oral evidence:

I think in the long term we may well have to move away from this particular way of supporting the aerospace community as a result of the WTO decision. I am not saying completely, but I suspect that one of the issues that is going to arise is whether our support moves from a direct to a more indirect approach which is one that the Americans adopt.<sup>45</sup>

He remained a firm supporter of Repayable Launch Investment but believed that both Government and industry needed to prepare for an unfavourable ruling “if in fact we find ourselves in a slightly different position in a year or two’s time, we need to be ready now to respond to it.”<sup>46</sup>

39 Ev 69

40 “WTO ruling says Airbus gained for subsidies: sources”, *EU Business News*, 5 September 2009

41 Ev 70

42 Q 227

43 Q 228

44 Ev 132

45 Q 41 [Mr Mans]

46 Q 46

27. We asked the Government whether it was considering changes to its support for the aerospace sector and if it had explored more indirect mechanisms for support. Ian Lucas MP replied that:

[The Government is] not considering that at this stage. Repayable Launch Investment is a long established model. It is not something that is new or has just been introduced. It is a model that we have used successfully in the past and we are continuing to use it at present.<sup>47</sup>

**28. We strongly support the Government’s use of Repayable Launch Investment and the Government’s defence of that investment at the World Trade Organisation. However, the Government cannot rely on a favourable ruling from the WTO. It has to be prepared for all eventualities. We recommend that the Government explore alternative ways for it to channel its support in the event that the WTO rules against Repayable Launch Investment. This should not be seen as the Government abandoning its position, but a sensible and pragmatic precaution to enable it to respond to all possible outcomes. We hope, and suspect, such a plan will not need to be implemented.**

### **Trade support**

29. Another form of government support to the aerospace sector is through the provision of export credit to aerospace customers through the Export Credit Guarantee Department (ECGD). Support for the aerospace industry represents a significant proportion of the ECGD’s work.

30. Rolls-Royce argued that this service is “vital to aerospace manufacturers and their supply chain including SMEs as jobs throughout the supply chain depend on the ability to deliver the end product.”<sup>48</sup> Furthermore, it was highly complimentary of the organisation’s aerospace team, saying:

our experience of working with the aircraft team has been excellent [...] They have been proactively visiting customers on market trips enabling them to develop relationship with the airline and better understand the customer’s credit.<sup>49</sup>

Airbus was similarly complimentary, commenting that the Export Credits Guarantee Department (ECGD) provided an important level of support to the aerospace industry.<sup>50</sup>

31. However, Rolls-Royce noted that unlike other Export Credit Agencies (ECAs) the UK Export Credit Guarantee Department was limited by law in the extent to which it was able to fund loans directly. Rolls-Royce believed this gave aerospace industries in other countries an advantage over the United Kingdom.<sup>51</sup> Airbus also expressed concerns about the “widening pricing gap between American and European aircraft export credit.”<sup>52</sup>

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47 Q 232

48 Ev 130

49 Ev 128

50 Ev 83

51 Ev 130

52 Ev 83

Furthermore, Rolls-Royce was unhappy that the ECGD enforces what they perceived as a more strict interpretation of some OECD codes and principles than its competitors which again disadvantaged British firms.<sup>53</sup> However, we are aware that the ECGD carried out a consultation on this issue which concluded on 3 March 2010.<sup>54</sup>

**32. Export credit is an important mechanism through which the Government supports the aerospace sector. It is therefore vital that it operates in a way which does not disadvantage British firms. We welcome the ECGD's consultation on its interpretation of OECD codes and principles and recommend that it includes, in any subsequent review, the possibility of offering direct support to businesses when a company cannot find a commercial bank loan to finance the purchase of aircraft.**

33. Airbus also suggested several possible improvements to the way in which ECGD operated, in particular how it worked with its European counterparts. It called for greater co-operation between the ECGD and its French and German counterparts to make transactions easier for its customers. It stated that while Airbus customers had to negotiate with three agencies, Boeing's customers only had to deal with one credit agency, the American EXIM Bank.<sup>55</sup> Airbus believed that this gave Boeing an advantage in securing sales.

34. The ECGD and its French and German counterparts have developed working arrangements to counter this and a new method of working is currently being trialled where a single ECA "fronts" a transaction and leads on negotiations, while all three credit agencies provide the necessary finance. Airbus has welcomed this change and has called for it to be made permanent. However, it noted some reluctance on the part of ECGD to participate in this new scheme. It argued that "ECGD alone appears to lack confidence in other ECAs' analysis when not fronting [itself]"<sup>56</sup> When we raised this concern with the Minister he responded that the argument was "noteworthy" and undertook to "look at ways of improving it."<sup>57</sup>

35. Airbus argued that the ultimate outcome of reform of the trade credit agencies should be the creation of a dedicated European export credit agency specifically for the aerospace industry. It argued that the establishment of a single authority dealing with trade credit transactions in the aerospace sector would put them on a level playing field with Boeing.<sup>58</sup> Mr Mans, Chief Executive, Royal Aeronautical Society also believed such a solution would be beneficial to the industry:

I would argue probably there is a stronger case in terms of commercial aerospace particularly when this country is so linked up with other countries in Europe.<sup>59</sup>

However, when we put this proposal to the Minister he was not convinced of its merits:

53 Ev 130

54 Ev 130

55 Ev 83

56 Airbus Customer Finance Briefing, submitted in confidence to the Committee

57 Q 236

58 Airbus Customer Finance Briefing, submitted in confidence to the Committee

59 Q 14 [Mr Mans]

We cannot design an entire strategy based upon the views of one company. It is an extremely important company, and we always take into account their views, but we have to design a model that can apply to our industry generally.<sup>60</sup>

**36. The Government needs to ensure that all three European Export Credit Agencies work together as effectively as possible and we invite the Department to update us on the progress that has been made with the “fronting” system developed by the three agencies. However, we agree with the Minister that it would not be appropriate to accept Airbus’ recommendation to create a pan-European agency. It would not be right to create a new agency which in practice would deal with only one company.**

### **A400M**

37. The A400M is the latest military transport plane to be produced by Airbus. However, the project has been beset by technical difficulties, and it is now €5 billion over budget. Despite initial plans for the plane to go into production last year it is now reported that the A400M will not be ready until 2012 at the earliest. The United Kingdom is one of seven countries that has ordered the A400M aircraft,<sup>61</sup> the original forecast total cost of the UK order was £3,285 million.<sup>62</sup>

38. The increased cost of the project has led Airbus to threaten to cancel the project should European Governments purchasing the plane not agree to make additional financial contributions to meet cost of the project. Speaking to the press the Chief Executive of Airbus, Tom Enders, confirmed that the A400M project could not be delivered without a significant financial contribution from Governments.<sup>63</sup>

39. The Minister reassured us that he understood the importance of the project to UK manufacturing:

It is an extremely important aircraft because of the fact that it has composite wings and it is part of the process of manufacturing of composite wings getting through to the A350 which is so important to ensure that the UK is at the cutting edge of aerospace technology.<sup>64</sup>

40. However when we raised the issue of additional financial contributions he was understandably unwilling to show his hand:

I do not think it would be helpful to speculate on one viable solution rather than any other. At the stage that we are at, I think we need to be very frank and forceful in our commercial discussions, but, as I say, I do not think it is appropriate for me to speculate at the moment.<sup>65</sup>

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60 Q 240

61 “Airbus chief says he ‘may cancel A400M’ military plane”, BBC News, 12 January 2009

62 Ev 70

63 “Airbus chief says he ‘may cancel A400M’ military plane”, BBC News, 12 January 2009

64 Q 247

65 Q 244

It has since been reported that the European Governments involved have agreed to pay an additional €2 billion for their orders and provide Airbus with €1.5 billion in loans, with EADS absorbing the rest of the losses. The total cost to the UK of this new package is estimated to be €250 million.<sup>66</sup>

**41. The current financial problems surrounding the A400M places the Government in a difficult position given its role as both a customer and an investor in Airbus. However, Airbus, and in particular the A400M, are important to both UK manufacturing and national security. The Government is right to be forceful and frank in its commercial decisions, but it also needs to set those decisions in the context of the wider national interest.**

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66 "Britain is facing £220m bill after pact to rescue Airbus project", *The Times*, 2 March 2010

## 3 The Motorsport Industry

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### The current state of the industry

42. The United Kingdom's motorsport industry is a global leader, and is of greater economic significance than is generally understood.<sup>67</sup> The sector consists almost entirely of SMEs, predominately based in "motorsport valley", in southern and central England. It is centred around Silverstone, which forms the hub of the industry. It comprises of approximately 4,500 small businesses involved in both high performance engineering and supporting services.<sup>68</sup> The industry's annual sales exceed £6 billion of which approximately 60% are exports.<sup>69</sup> The industry supports 38,500 full and part-time jobs, including 25,000 engineers.<sup>70</sup> It is extremely R&D intensive, with 30% of sales revenue being reinvested in research.<sup>71</sup> In addition to manufacturing, many businesses deliver services to the sport for example, commercial rights, IP management, race track and events management, public relations, marketing, sponsorship, finance, legal, freight, logistics, insurance. These services account for 30% (£1.7 billion) of the industry's annual turnover.<sup>72</sup>

43. The impact of the recession on the motorsport sector has been far more pronounced than on the aerospace industry. One reason for this is because it is dominated by SMEs. Mr Manahan, the Managing Director of Lola, a motorsport SME, explained to us how the recession had affected his business:

From an SME's perspective in the motorsport world which is not involved particularly in Formula One, it has been catastrophic.<sup>73</sup>

In addition to the fall in orders the recession has had a negative impact on sponsorship, with teams scaling back their operations, and lower turn-out and participation in the sport at the grass roots level. Mr Aylett, Chief Executive of the Motorsport Industry Association (MIA), reported that:

The commercial side of the sport has probably lost 15 to 20% of its sales value. In terms of the UK, whilst we dominate the world of Formula One, which is a high profile statement and is probably the one which attracts most commercial sponsorship, so therefore unfortunately disproportionately as a nation around the world we have been hit probably more definitely than anywhere else. An estimate we have is that Formula One has scaled down its employees from maybe 500 to 600 in a team and they are in a process of reducing that to maybe 250 to 300 per team maximum. So we will see in the order of a thousand to 1,500 jobs dropped out of Formula One alone. Formula One is only the tip of the pyramid; each Formula One

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67 UK Trade and Investment, *The British Grand Prix is an international showcase for UK expertise*, July 2008

68 Ev 120

69 Ev 120

70 Ev 70

71 Ev 120

72 Ev 120

73 Q 124 [Mr Manahan]

team has approximately 200 local suppliers so it will go down to those SMEs to some degree.<sup>74</sup>

44. The Motor Sport Association (MSA) told us that the recession had led to a “predictable collapse [...] in the corporate market both in terms of hospitality and events” which it argued would have a “significant impact” on the associated service industries. It also said that the full impact of the recession on sponsorship would not be fully felt until later in 2010 when current sponsorship agreements expire.<sup>75</sup>

45. The Government has acknowledged that motorsport companies have had to focus on cost issues to mitigate the effects of the recession. They cited a survey conducted in December 2008 which reported that three quarters of motorsport companies were undertaking cost reviews and cost reductions. It also found that companies were also looking at other opportunities with 67% of those companies diversifying into new markets and more than half developing new products and services.<sup>76</sup>

### Government complacency?

46. Despite the world beating position of the UK motorsport industry and the difficulties that the recession has caused, the message we heard repeatedly from industry was one of government complacency. The Motorsport Industry Association argued that:

Many countries envy the success of [the UK’s] high value-added industry cluster and have active Government programmes to try and capture a share—often initiated by investment in hosting an F1 race. Such moves represent a genuine and constant threat to the leadership position enjoyed by the UK—an economic asset which requires less complacency and better awareness and active appreciation from HMG.<sup>77</sup>

47. Mr Aylett of the MIA said that if complacency was a “feeling of contentment and an unawareness of danger”<sup>78</sup> then the Government was certainly guilty of it:

We are in danger, through complacency, of allowing this jewel in the crown, [...] to just slip through our fingers.<sup>79</sup>

He went on to argue that:

The Government does not seem to be aware of the danger and they are allowing the industry to meet these dangers, but [...] that is really where Governments can play a spectacularly effective role.<sup>80</sup>

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74 Q 125 [Mr Aylett]

75 Ev 117

76 Ev 67

77 Ev 120

78 Q 156 [Mr Aylett]

79 Q 156 [Mr Aylett]

80 Q 156 [Mr Aylett]

48. The MIA highlighted the fact that the Government had not commissioned a comprehensive survey of the industry since 2000 as an example of what it saw as complacency. The MIA told us:

Ministers and Departments regularly rely on these (significantly outdated), figures in their answers and speeches—yet they are undoubtedly increasingly inaccurate figures. [...] It is hard to imagine any other country so consistently ignoring such a vibrant and innovative cluster and not wishing to understand and celebrate its growing success.<sup>81</sup>

It is a mark of complacency that you would not wish to look at where we are now because that is really what will set the strategy for the future. I would not now like to hazard a guess as to how valid those figures are.<sup>82</sup>

49. The New Automotive Innovation and Growth Team (NAIGT) Report, published in May 2009, set out the Government’s vision for the automotive industry over the next twenty years, but that did little to address the concerns of the motorsport industry.<sup>83</sup> Mr Aylett reported that the motorsport industry was “not consulted at all”<sup>84</sup> during the drafting process, and that the Report itself contained only a few brief references to motorsport and just one recommendation relating to the industry.<sup>85</sup>

50. Lord Drayson, Minister for Science and Innovation, at the Department has acknowledged that the Department needs a more active engagement with the motorsport industry. In a speech he gave to the European Cleaner Racing Conference in Birmingham on 13 January 2010 he conceded that “UK motorsport and Government aren’t talking to each other enough.”<sup>86</sup>

51. However, Lord Drayson’s concerns do not appear to have reached his Department, which does not seem to be aware of the need to improve the quality of its engagement with the motorsport industry. When we put the accusation of complacency to Ian Lucas MP, the Minister responsible, he merely responded:

Who in the industry thinks it [the Government] is complacent?<sup>87</sup>

We find the fact that the Minister was not already aware of accusations of complacency deeply concerning. The UK motorsport industry is pre-eminent internationally and we would expect the Minister responsible for it to be properly briefed on the industry’s concerns. Furthermore, the Minister confirmed that there was not a specified sector within BIS which was responsible for motorsport but tried to reassure us that motorsport was “very much integrated within the automotive team.”<sup>88</sup>

81 Ev 126

82 Q 159 [Mr Aylett]

83 <http://www.berr.gov.uk/whatwedo/sectors/automotive/naigt/page45547.html>

84 Q 176

85 New Innovation and Growth Team, *An Independent Report on the Future of the Automotive Industry in the UK*

86 <http://www.bis.gov.uk/cleaner-racing-conference>

87 Q 265

88 Q 259

52. We were concerned by the fact that the Minister appeared to be unaware of the accusations of government complacency from the motorsport industry; whether or not such accusations are well founded, the simple fact that they are made so widely should be a matter of deep concern to the Department.

### Government assistance

53. In the following section we consider those government programmes and initiatives which are aimed at supporting the motorsport industry.

### UK Automotive Council

54. The establishment of the UK Automotive Council was one of the key recommendations of the NAIGT Report of May 2009. The Government's response to the Report endorsed this recommendation and organisation is now in the early stage of its existence. It is designed to be "an advisory and consultative forum to ensure a sustained high level conversation with the industry and to put in place a long-term strategic framework for the development of the industry."<sup>89</sup> Its aim is to:

- Create a transformed business environment in the UK to provide a more compelling investment proposition for the related industries;
- Develop further the technology roadmaps for low carbon vehicles and fuels, and exploit opportunities to promote the UK as a strong candidate to develop these and other technologies;
- Develop a stronger and more competitive supply chain;
- Provide a stronger public voice for the industry to support the value of the industry to the UK and to global partners, and
- Ensure a strategic, continuous conversation between government and the automotive industry.<sup>90</sup>

55. In oral evidence the Minister suggested that many of the industry's concerns could be addressed through a sub-committee of the UK Automotive Council.<sup>91</sup>

We want to see motorsport involved in that [the UK Automotive Council] process, but we think that that is a model that motorsport can fit into and we want to have them integrated as part of the way that UK industry is approaching the automotive industry.<sup>92</sup>

56. However, we do not think that this response is adequate. While clearly it is important that motorsport is properly engaged with the Government's strategy for the automotive

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89 Ev 74

90 Ev 74

91 Q 263

92 Q 259

sector, to conceive of motorsport purely as a sub-section of the automotive industry ignores many important features of the industry and is totally misplaced.

57. There is a large area of cross-over between the aerospace and motorsport industries and the industry does not think of itself as merely part of the automotive industry. As Mr Aylett, Chief Executive, MIA, explained:

There is a good relationship between most of the major aerospace companies and most of the leading Formula One companies. British Aerospace is very public in its connection with McLaren [...] Boeing, I know, are related to another Formula One team. These major aerospace companies have gained relationships with the top of our pyramid.<sup>93</sup>

58. During our visit to Airbus in Bristol we saw those relationships at first hand. Both industries are at the forefront of high performance engineering, and we were shown several examples of technologies and production methods that had been tested in the motorsport sector prior to their adoption by aerospace companies. Our visit to Brawn GP underlined for us the similarity between the design of racing cars and aeroplanes—we were told that “a Formula One racing car is only a low-flying aeroplane, except that the aerodynamics are to keep them down rather than up.”<sup>94</sup>

**59. While we welcome the Minister’s promise to ensure that the UK Automotive Council engages with the motorsport industry we do not believe that it should be the primary organisation that takes forward motorsport policy. To treat motorsport purely as a sub-section of the automotive industry would be to ignore many of the features which have made it a globally successful sector, for example its close links with aerospace. We recommend that a separate, dedicated policy unit in the Department be established to ensure that these links are properly made and that the motorsport policy is fully integrated into developments in automotive, aerospace and other high performance engineering industries.**

60. The Minister expressed a hope that the newly established centres of excellence, which are discussed in more detail in paragraphs 141 to 145, would act as a forum to enable cross over between the two sectors:<sup>95</sup>

We cannot take motorsport out of the automotive sector, but clearly we do not want to limit it either because there are specific cross-overs because of the nature of the research and innovation that goes on in motorsport that apply to other sectors.<sup>96</sup>

61. He also argued that there was a large degree of cross-over between the skills of those who work in the two industries, commenting that:

It is quite clear that a lot of people move between the two sectors, because similar skills are involved a lot of the time and, therefore, the knowledge transfers that are

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93 Q 154 [Mr Aylett]

94 Visit to Brawn GP, see Annex

95 Q 260

96 Q 267

happening can be very beneficial to both, and I am sure that both industries can learn from other.<sup>97</sup>

62. **The Minister is right to acknowledge the skills required by the two industries are very similar, and we believe that this should be reflected in the Department’s approach to the industry. The rationale behind the creation of a single department with responsibility for both business and skills was to align skills training more closely with the needs of industry. The Department should no longer merely think of industries in terms of what they manufacture but also the skills they require. Failure to do so would undermine the value of the new arrangement of departmental responsibilities. The skills that underpin both the motorsport and aerospace industries have much in common, and it would be damaging to pigeonhole the motorsport industry in the general automotive sector.**

### ***Motorsport Development UK***

63. The Government has made attempts to engage with the industry. In 2003 Motorsport Development UK (MDUK) was established as a partnership between the sport, industry and Government to “lead, coordinate and prioritise development activities and drive growth and improvement of both sport and the industry.”<sup>98</sup> MDUK received £11.5 million of funding from the then Department of Trade and Industry and from the four Regional Development Agencies in which 80% of the sector is based—East Midlands Development Agency, Advantage West Midlands, East of England Development Agency and the South East England Development Agency. This funding was spent on a range of projects including: improving the skill base of the sector, business development programmes, outreach schemes and improving energy efficiency of vehicles.<sup>99</sup> Its work has now concluded and an evaluation Report produced, in June 2009, commented that:

MDUK was innovative and ambitious, based on a robust rationale to support the competitiveness of a pan-regional industry cluster, and in doing so deliver a national sectoral policy at regional level.<sup>100</sup>

This was also the view of the Minister, who remarked that “it made some very positive contributions to the working relationship between the Government and the motorsport industry.”<sup>101</sup>

64. However, despite this positive evaluation from Government, industry representatives were less than impressed with MDUK. The MIA’s evidence referred to the organisation as the “now, thankfully, defunct Motorsport Development UK”.<sup>102</sup> It clearly believed that MDUK failed to live up to its description as a “partnership” between the sport, industry and government:

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97 Q 260

98 Ev 68

99 Ev 68

100 Ev 68

101 Q 283

102 Ev 122

Despite its Industry Advisory Panel's insistence that any programme must be 'industry-led', the DTI failed to honour this vital requirement. The consequence was an ongoing lack of vision, relevance and industry understanding of the original proposals. The rigid—and seemingly needless—insistence that all project management and delivery be contracted to a 'remote-from-industry' third party, resulted in poor delivery and development of the required aims.<sup>103</sup>

Similarly, the Motorcycle Sport Political Strategy Group (MSPSG) argued that the initiative "did not deliver what the sport or industry required and in many areas sought to re-invent what was already in place, leading to duplication, inefficiency and confusion."<sup>104</sup>

65. The poor administration of MDUK appears to have dampened the industry's enthusiasm for engaging with Government. Mr Aylett said that during the period when MDUK was active his attitude to government involvement had become:

Please stop. Please stop loving us in this manner [...] We'll do okay without the Government's love and affection. We've appreciated it as best we can, but no more.<sup>105</sup>

However, Mr Aylett went on to tell us that the attitude of the industry was now beginning to change:

Now what we are saying [...] is that we would love to re-engage on a national scheme that recognises the national sport, the national industry and the importance of a national cluster of sport and industry.<sup>106</sup>

66. We asked witnesses if they knew how the Government would take forward its work with the motorsport industry following the end of the MDUK programme. Mr Aylett told us:

I had Baroness Vadera's promise in March to deal with it and she then said she would meet in June, and I was reminded on the train this morning that we are now in December, so that is the complacency of which we spoke.<sup>107</sup>

The Minister told us that he did not envisage there being a successor organisation to MDUK, but asserted that: "I think I have made clear already that I would like to see a phoenix rising through the UK Automotive Council."<sup>108</sup> We have already made clear that we are not satisfied with this arrangement.

**67. The clear view we received from industry was that Motorsport Development UK (MDUK) failed in its aim to act as a partnership between industry and Government. We are particularly worried that it might have lessened the industry's willingness to work with Government. The Department needs to reflect on why the evaluation report's conclusions differed so greatly with those of industry. We invite the**

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103 Ev 125

104 Ev 116

105 Q 167–168

106 Q 168

107 Q 170

108 Q 281

**Department to use its response to this Report to outline how it will ensure that future engagement with the motorsport industry is more successful and what lessons it has learnt from the failure of MDUK to do so effectively.**

## Health of the sport

68. The health of the motorsport industry is closely linked with the health of the sport itself. There is an obvious symbiotic relationship between the two; the industry exists to support the sport, and Britain's ability to continue to hold high profile events is based to a significant extent on the strength of its manufacturing base. The Motor Sport Association's submission argued that:

The strength of the UK's domestic motorsport scene is a fundamental factor in the success of the UK motorsport industry. The high-performance engineering sector grew up in the UK precisely because the majority of leading motorsport teams were based here.<sup>109</sup>

Mr Hilton, Chief Executive, Motor Sport Association (MSA) highlighted the importance of a vibrant sport for the security of motorsport manufacturing. He asserted that "if Silverstone were not there I think probably over ten years [the motorsport industry] would start to drift away; the Formula One teams would start to drift away."<sup>110</sup>

69. We embarked on our inquiry at a critical time for motorsport, as Silverstone was in the process of renegotiating the rights to host the British Grand Prix with Bernie Ecclestone. These negotiations were vital, not only for the future of the British Grand Prix but also for motorsport more widely and the industry that supports it. Our visit to Silverstone left us in no doubt about the importance of a successful conclusion to these negotiations, and we called publicly for a swift conclusion to secure the future of the British Grand Prix.<sup>111</sup> We are delighted with the final agreement which has secured the future of the British Grand Prix at Silverstone for the next 17 years. **We congratulate all those involved in the negotiations to retain the British Grand Prix for concluding a deal which has secured the event's long-term future. This was important not just for the sport in Britain but also for the continued strength of the UK's motorsport industry.**

70. The MSA has calculated that their competition licence holders spend a total of £240 million each year on motorsport, the majority of which is put back into the UK economy either through engineering companies or the associated hospitality and tourism industries.<sup>112</sup> Its evidence also contained further information about the economic contribution that the sport makes to the UK economy:

[...] a recent economic impact assessment confirmed that total expenditure of £54m within the UK was directly attributable to the 2008 British Grand Prix, while Wales

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109 Ev 118

110 Q 143 Mr Hilton

111 [http://www.parliament.uk/parliamentary\\_committees/bis/bispn2\\_0910.cfm](http://www.parliament.uk/parliamentary_committees/bis/bispn2_0910.cfm)

112 Ev 118

Rally GB, the UK's round of the World Rally Championship, brings £10m per year into the Welsh economy.<sup>113</sup>

The Autocycle Union has calculated that in 2008 the major motorcycle races generated £100m in the UK.<sup>114</sup>

71. According to the MSA there are currently 33,000 people who hold competition licence holders in the United Kingdom (from eight years of age upwards) and 750 motor clubs which together have a combined membership in excess of 200,000. The MSA issues permits for 5,000 events a year and holds a database of 15,000 registered volunteer marshals and officials.

72. However, despite the relatively large number of people involved in the sport at a grass roots level Mr Hilton expressed concern that high-profile events such as the Grand Prix distorted people's perceptions of the sport, and left them with the impression that it was an activity in which only the wealthy could afford to participate:

People see Formula One and they think that motorsport is a very rich sport. If you come a little way down, just 5% down, for the other 95% it is not a rich sport, it is people from their own pockets paying for their own car and enjoying their sport. It creates that illusion of wealth which the sport actually does not have.<sup>115</sup>

It appears that this is a mistake the Government has made. During oral evidence it became clear that the Minister did not appreciate the number of people involved in the sport:

The peculiarity of motorsport is that, in terms of participation, there is not a large number of individuals who are involved in motorsport compared to most mass participation sports.<sup>116</sup>

**73. We were surprised that the Minister appeared not to be briefed about the level of participation in motorsport. We can only assume that this is again the result of a lack of specialist knowledge about motorsport in the Department, which would be remedied by the presence of a dedicated policy team.**

### ***Government support for the sport***

74. The MSA highlighted the fact that other countries were keen to develop their own motorsport industries and hosted large-scale motorsport events in order to kick-start their industry. It asserted that developing nations "are prepared to invest at Government levels to secure leading motorsport events such as Formula 1 and the World Rally Championship."<sup>117</sup> By contrast, the British Grand Prix is one of only two races on the FI calendar not to enjoy financial support from Central Government. The MSA believed that this "weaken[ed] the position of the UK (and its motorsport industry) in the face of

113 Ev 118

114 Ev 118

115 Q 144 [Mr Milton]

116 Q 286

117 Ev 119

significant and ever-increasing international competition.”<sup>118</sup> That said, our witnesses acknowledged that the Government had provided indirect support for the British Grand Prix through investment to improve the quality of roads leading to Silverstone.<sup>119</sup>

75. However, not everyone was in favour of direct government support. When we visited Silverstone, the site’s Managing Director, Richard Phillips, made it clear that there was no appetite for financial support from the Government. He was intensely proud of the fact that his track was one of the few in the world that made a profit and that it did so without government subsidy.

76. The MSA proposed a number of areas in which Government could support the sport, including changes to regulations that surround the organisation of races and changes to their relationship with the Forestry Commissions in England and Wales.

77. The Motor Vehicles (Competitions and Trials) Regulations 1969 govern the organisation’s motorsport events in the United Kingdom. Under the current regulations it is not possible, outside of the Isle of Man and Northern Ireland, to change the speed limits on roads while races take place. This would require the temporary suspension of the Road Traffic Act. The MSA have argued that this “severely disadvantages the UK against other countries who can make the decision to close roads at a local level. It can also deprive local communities of the benefits associated with creating and hosting suitable events.”<sup>120</sup> Mr Hilton expanded on this point:

In this country, you cannot [use public roads for races] because the Road Traffic Act allows you to close the road, but it does not allow you to suspend the Road Traffic Act, so you cannot do more than, say, 30 miles per hour on the road. You have to have an Act of Parliament to actually close the road and suspend the Road Traffic Act, which is barmy, it is absolutely barmy.<sup>121</sup>

78. On the issue of the Forestry Commission, the MSA was unhappy about the amount of money that they had to pay for access to forests where they stage rallies. Their evidence explained that the Forestry Commission received more than £1 million from UK motorsport for a total of 43 stage rallies which took place on its land. While it supported the common access agreement to maintain safety standards, the MSA recommended that Government “allows for separate negotiations on forestry charges.”<sup>122</sup> They also argued that the flat fee structure was unfair as the repair work that was required after a rally varied depending on the location:

in Scotland you have got granite, so we do not do any damage to the forests. If you come down south to the south coast, it is sand, we do a lot of damage and we have to

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118 Ev 119

119 Q 147 [Mr Aylett]

120 Ev 119

121 Q 148

122 Ev 119

put that damage right by paying for it, so to have a common fee across the whole of the UK cannot be right.<sup>123</sup>

**79. A flourishing and vibrant sport is vital to ensure that motorsport manufacturing remains in the United Kingdom. We have not had time to investigate the Motor Sport Association’s concerns about the regulations surrounding races and Forestry Commission in detail but we recommend that the Department, together with the Department for Culture, Media and Sport engages with the sporting bodies to assess the effects of these two concerns on the sport. We further recommend that the Department provide us with their assessment of these concerns in its response to our Report.**

## Conclusion

80. The Government’s previous attempts to engage with the motorsport industry have worked through regional organisations, primarily the East Midlands Development Agency (EMDA). This has left industry representatives with the belief that it is not being treated or is recognised as a national industry of national importance. We heard that while it was Government’s initial intention to run a national programme for the industry—it did not deliver on that intention:

We steadily drifted away from a national programme run through a national governing body in the national interest to deal with a national cluster. It was eventually handed to a region, which happened [...] to be a region with only 15% of the economic activity.<sup>124</sup>

81. Mr Aylett told us that he believed that the Government had used the motorsport industry as an experiment to see how an RDA might be able to lead a national programme:

At the time a senior civil servant said, “This is going to be an interesting experiment”, and it did prove to be interesting and, I have to say, a failure. Unfortunately, the concept of a region taking a national programme [did not work ...]. I do not blame EMDA [East Midland Development Agency] at all, I do not blame the people who were given the task, they were a region and they were leading it as best they could to fulfil their regional strategy as opposed to their national base. Scotland had nothing to do with it, Wales walked away from it and, instead, here we were with a national industry begging for support for a national sport just tied up in the delivery mechanisms of regions.<sup>125</sup>

82. Additional challenges were presented as a result of this experiment because Silverstone crosses the boundaries of two RDAs, the East Midlands and East of England Development Agency. The MIA said that this caused problems for them as a national trade body because “suppliers never even know where an RDA begins and ends and nor should they care.”<sup>126</sup>

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123 Q 148

124 Q 162 [Mr Aylett]

125 Q 162 [Mr Aylett]

126 Q 164 [Mr Aylett]

83. When we raised this with the Minister, he acknowledged the need to balance regional and national demands. He argued that “RDAs have to be conscious of the national priority that this industry has and bear in mind the overall picture in their dealings with the industry as a whole.”<sup>127</sup> That may be correct, but it is not, and should not, be a substitute for government involvement in an industry of such importance to the United Kingdom.

**84. We have repeatedly emphasised the fact that the UK motorsport industry is pre-eminent internationally, yet the Government continues to perceive it as a niche area of the automotive sector and not as an industry in its own right. We disagree with this assessment. Motorsport is an industry of national importance and it must feel able to engage effectively with Central Government. It should not be restricted to engagement at a regional level. The establishment of a dedicated motorsport policy unit would represent an important first step in ensuring that this happens.**

**85. We remained concerned that the accusations of government complacency are not being taken seriously by Government. The fact that there is no team or section with responsibility for motorsport within the Department only gives strength to that view. We find it hard to imagine another country which would sideline such an important industry. We reiterate our belief that the Department needs to establish as a matter of urgency, a policy team which will have responsibility for the industry. Furthermore, we recommend that the first objective of that team is to commission an updated survey on the health and needs of the industry.**

## 4 Supporting Supply Chains

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86. The aerospace and defence industries have around 9,000 suppliers,<sup>128</sup> and the motorsport industry consists almost entirely of SMEs, with 4,500 small companies making up the core of the industry. Therefore, supply chains play a crucial role in supporting both industries. As we discussed earlier, it is these companies that have borne the brunt of the recession, with those in the motorsport industry being particularly badly affected.<sup>129</sup>

87. The majority of submissions to this inquiry which addressed the role of SMEs in the industry were highly complementary about the contribution that SMEs made to the sector. For example, BAE Systems wrote that: “SMEs play an important role across the complete aerospace supply chain, providing valuable contribution in terms of intellect, technologies and products.”<sup>130</sup> Thales praised the innovative nature and flexibility of SMEs stating that those qualities were “significant factors in our ability to offer tender-winning proposals to our customers.”<sup>131</sup>

88. However, that praise was not universal. During our visit to Derby, Rolls-Royce argued that the British SME supply chains compared unfavourably with those in France and the USA. It argued that the UK supply chains were trading on an historic legacy, and that it needed to invest in new machine tools and equipment. Rolls-Royce also felt that the SME supply chains tended to look to the past not the future and needed to adopt a more scientific outlook. It concluded that steps needed to be taken to drive up the quality of the supply chains.<sup>132</sup>

### “Supply chains for the 21<sup>st</sup> Century”

89. In 2006, the aerospace industry launched the “Supply chains for the 21<sup>st</sup> Century” change programme (SC21) to address shortcomings in the supply chains. The initiative was designed to accelerate the competitiveness of the UK aerospace and defence sectors by raising the performance of its supply chains.<sup>133</sup> The Society of British Aerospace Companies (now part of A|D|S) was the lead organisation on this project. Since its inception 500 companies have signed up.<sup>134</sup> Airbus said that the programme was introduced to “overcome problems of an often disconnected and fragmented supply base operating with non-standardised processes with high levels of waste and duplication.”<sup>135</sup> As part of the project senior personnel from the major manufacturers including Airbus, and BAE Systems, spend time with SMEs acting as mentors.<sup>136</sup>

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128 Ev 79

129 See para 11 ff and para 43 ff.

130 Ev 94

131 Ev 140

132 Visit to Rolls-Royce, see Annex

133 Ev 66

134 Ev 66

135 Ev 86

136 Ev 87, 94

90. The Government has given its support to the project, but what form that support has taken remains unclear.<sup>137</sup> We asked the Minister to clarify whether the Government's support was primarily "moral", or if it had also made a financial contribution to the cost of running the scheme. The Minister responded:

It is certainly morally supported, but it is also supported through regional development agencies that do provide financial support for improvements in manufacturing processes, lightening manufacturing and through improving production techniques and competitiveness for businesses.<sup>138</sup>

In its supplementary memorandum the Government set out the financial support provided by RDAs for the scheme, as set out below:<sup>139</sup>

Regional Development Agency	Support Provided
East Midlands	The total budget for the period 2009-2012 is £375,000 provided to the Midlands Aerospace Alliance for SC21.
North West	The North West Aerospace Alliance runs the Aerospace Supply Chain Excellence programme which is consistent with SC21. Phase One was backed with £4.2 million from the North West Development Agency funding. Phase 2 has now commenced with £7 million from the North West Development Agency.
Scotland	In Scotland the model adopted for the delivery of SC21 is as part of an integrated service offering from the Scottish Manufacturing Advisory Service and therefore not funding separately. SMAS is committed to supporting all companies requiring support for SC21 accreditation
South East	SEEDA let a £6 million three- year contract to the Manufacturing Advisory Service in 2009.
South West	£540,000 over the past couple of years, the programme delivered by the West of England Aerospace Forum and the Manufacturing Advisory Service.
West Midlands	£1.5 million of funding for the period 2009-13 to the Manufacturing Advisory Service for SC21.
Yorkshire	The Northern Defence Industries support SC21 through its £8 million for the Manufacturing Advisory Service, which is open to aerospace companies. In addition, between 2005 and 2008, Northern Defence Industries (for the regional aerospace sector as a whole) was provided with £900k funding to raise awareness of SC21.

91. We also asked the Minister what specific help the Department had provided to SMEs in these sectors during the recession. Ian Lucas MP was not able to provide any specific

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137 Ev 66

138 Q 305

139 Ev 71-72

examples, although he did highlight a number of general schemes, such as Repayable Launch Investment and Train to Gain which the industry as a whole has benefited from.<sup>140</sup> The Department subsequently confirmed that “there has been no specific support aimed at motorsport and aerospace SMEs”,<sup>141</sup> but listed a number of generic support schemes which SMEs were able to access through Business Link. These included the Enterprise Finance Guarantee Scheme; Export Credit Insurance; Grant for Business Investment; Innovation Advice and Guidance; Innovation Vouchers; Knowledge Transfer Partnerships; Manufacturing Advisory Service; Small Loans for Business; Train to Gain, and Understanding Finance for Business.<sup>142</sup>

**92. We congratulate the aerospace industry on the proactive steps it has taken to improve the quality of the supply chain through the SC21 programme. We are encouraged by the steps taken by Regional Development Agencies to support this scheme and by extension small businesses.**

## Diversification

93. One step that SMEs can take to increase their resilience to sudden shocks in one market is to diversify across a number of sectors. Mr Manahan, Managing Director of Lola Group, said that this had been “absolutely and utterly essential” in enabling his company to weather the downturn:

If we were relying on just the motorsport business to keep Lola afloat—it is a very, very simple thing to say—we would be dead.<sup>143</sup>

94. The motorsport industry has been particularly pro-active in encouraging companies to branch out into sectors. The MIA has run a number of initiatives aimed at increasing cross-over between motorsport and other industries. For example, the Motorsport to Defence (M2D) Initiative, launched in 2007, was created to bring motorsport companies into the defence sector. The initiative has seen motorsport-derived radiators, charge coolers, gearboxes, brakes, fuel tanks, telemetry, suspension components and seals being used in defence land vehicles.<sup>144</sup> Similar initiatives have been established to encourage diversification into the aerospace (M2A) and marine industries (M2M). While the Government has not provided financial support for these initiatives Mr Aylett credited Lord Drayson, the current science Minister, as one of the initial driving forces behind the project:

In actual fact it was led by Lord Astor and Lord Drayson, so they were the kind of sparring partners [...] they kicked it off, and then they left it to the intuition of businessmen who needed to face up to business opportunities.<sup>145</sup>

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140 Q 300–301

141 Ev 71

142 Ev 71

143 Q 128

144 Ev 122

145 Q 130

95. The motorsport industry argued that motorsport companies possess a number of qualities which make them attractive suppliers to other sectors. As the Motorsport Industry Association note:

Unlike conventional suppliers, motorsport businesses do not merely produce/manufacture—they focus on fit-for-purpose innovation, where a component produced this week performs better than one made last week.<sup>146</sup>

Mr Manahan, Managing Director of Lola Group, spent a large proportion of his career in defence and aerospace industries before entering motorsport.<sup>147</sup> He argued that the speed with which motorsport companies responded to demands meant that they were well placed to enter other sectors:

something which actually every single day [and] never ceases to amaze me is how fast we do things. It is a bit of a joke that in the defence and aerospace world there is a 16-week rule; if you want to change something on a drawing, put a little bit on a widget, anything, the answer will always be, “16 weeks”. Sixteen weeks is a lifetime in the motor industry; 16 days is almost too late in motor racing. The whole thing about motor racing is innovation and time, and they were two things which from my experience I found sadly lacking in the defence and aerospace industry.<sup>148</sup>

Mr Aylett agreed with this point:

Time is one of the resources we are all running out of and really gaining in value every day, every minute, and motorsport uses its time very profitably and they do not realise how rare that is in an engineering delivery sense—they really do not—because perforce they would lose their customers without delivery on time. Strangely enough, because they are focused, they are so very focused, they never recognised their abilities to diversify, they did not realise these jewels they had.<sup>149</sup>

96. This form of diversification has the potential to deliver significant benefits. In addition to creating more robust and secure supply chains, spreading the “motorsport” ethos—providing rapid, tailored response to engineering challenges—to the rest of the high performance engineering supply chains, has the potential to provide the UK supply chains with a genuine edge over its international competitors. This was not lost on our witnesses who argued that these competitive qualities offered a “marvellous opportunity” for Britain’s motorsport industry to connect with the American defence industry.<sup>150</sup>

97. This is not a new idea. Mr Aylett told us that in 2002 “the DTI, as it was then, came up with a programme of ‘harnessing a world-class industry cluster in Motor Sport Valley, to gain general competitive advantage for the UK’.”<sup>151</sup> The DTI commissioned a report from the MIA, (subsequently entitled *Cluster Development: Industry Commitment Report*) to

146 Ev 121

147 Q 128

148 Q 128

149 Q 129 [Mr Aylett]

150 Q 132 [Mr Aylett]

151 Q 158 [Mr Aylett]

explore how the “concept of harnessing the power of the world-class high performance engineering and motorsport industry cluster, to gain competitive advantage for the connected sectors, and for the UK as a whole”<sup>152</sup> could be implemented. The MIA Report concluded that this concept:

moves the high performance engineering and motorsport industry from its originally perceived position, as a sub-sector of the Automotive industry, and places it at the centre of a new community of advanced engineering and services industries.

In this position, the high performance engineering and motorsport industry will act as a stimulating business catalyst between the other industries, increasing collaboration, and transferring competitive advantages in high added value, knowledge based development; teamwork; rapid innovation; technology and best practice, across all sectors.<sup>153</sup>

98. In producing the Report, the MIA secured written commitments of over £10 million in support, to match government funding to take this work forward. The MIA told us that the details of this funding were passed to the DTI but they were neither utilised nor acknowledged.<sup>154</sup> The proposals in the Report were never taken forward by the Government.<sup>155</sup>

99. In its evidence the Institution of Mechanical Engineers argued that the Government should do more to support knowledge transfer between the industries and to encourage SMEs to diversify. The Institution suggested that more targeted advice and support could be provided through the Manufacturing Advisory Service (MAS).<sup>156</sup> When we asked the Minister if he thought the MAS could help companies diversify he replied “Absolutely. [...] The number of companies that have benefited from the advice of the Manufacturing Advisory Service is enormous and those companies become more competitive, become more productive and real progress is made as a result of the advice that they provide.”<sup>157</sup>

**100. Encouraging SMEs to diversify into other sectors has a number of benefits; it creates more robust supply chains, it can facilitate the spread of best practice and it can drive up the quality of supply chains. However, government backing and support are needed to take this work forward. We recommend that the Government revisit the Motorsport Industry Association *Cluster Development* Report as a matter of urgency and report back on how it will proceed. It is regrettable that the ideas contained in the Report were not acted upon and were instead left to languish on paper.**

101. During the course of this inquiry we heard a specific concern about the difficulties facing SMEs in entering the aerospace supply chain from other sectors. Witnesses highlighted the fact that the level of regulation in the aerospace industry, and costs

152 Motorsport Industry Association, *Cluster Development: Industry Commitment Report*, March 2002, p 11

153 Motorsport Industry Association, *Cluster Development: Industry Commitment Report*, March 2002, p 11

154 Ev 127

155 Q 158 [Mr Aylett]

156 The MAS is a government advisory service for the manufacturing sector. Ev 111

157 Q 308

involved in gaining accreditation were significant obstacles to entry. Mr Aylett, Chief Executive of the MIA, told us that:

Aerospace we found hard [...] because we are an unregulated industry but innovative and in a non-regulated form, so we are really tremendous partners to aerospace because we can go off, test and develop, but the legislation involved in aerospace, the accreditation, the processes through safety, slow it down.<sup>158</sup>

Mr Manahan agreed:

It is not terribly easy for the very small SMEs, the likes of the 20/30 staff SMEs, to embrace and to pay for the accreditations that you need.<sup>159</sup>

While we accept that a high level of regulation is necessary in the aerospace industry to ensure the safety standards are maintained these should not be an insuperable barrier to entry.

**102. We recommend that the Government explore ways in which it can facilitate SMEs entering the aerospace supply chain. In particular, we recommend that it undertakes a simplification review of regulations governing entry to that industry and explores how it can reduce the costs to SMEs seeking accreditation. Guidance on how to comply with existing programmes should be produced as a priority.**

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158 Q 129 [Mr Aylett]

159 Q 154 [Mr Manahan]

## 5 Equipping the Workforces

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103. If the United Kingdom is to maintain its global leadership in these two industries it is vital to develop workforces with the skills to meet the needs of industry. During the course of this inquiry several issues relating to skills and education were raised by representatives of both the industries and academia. Covering all of these issues in detail merits a report in itself. Therefore this Report has deliberately focused on those topics raised by our witnesses: how to encourage more students to embark on scientific, and ideally engineering careers; the current work developing sector skills strategies; and how to ensure that university courses are equipping student with the skills that industry requires.

### Promoting science-based careers

104. The insufficient number of young people studying STEM [science, technology, engineering and maths] subjects was a concern raised several times by our witnesses. BAE Systems argued that “the Government needs to ensure that careers in these sectors are seen as attractive propositions,”<sup>160</sup> while Lola stated that:

engineering which is the back bone of innovation in these sectors is no longer a prized degree [...] with the result that fewer people choose to study for a qualification in the engineering disciplines.<sup>161</sup>

105. Engineering UK, an engineering lobbying group, recently produced a report examining the perceptions of its professions amongst young people, and some of its findings make unhappy reading. Only 12% of 11–16 year-olds claimed to know what engineers do, while:

A worrying 49% of 7–11 year-olds think that it would be ‘boring’ to be an engineer. Their perceptions of engineers revolve around fixing and repairing things in the manual and mechanical sense plus the view that it is a dirty or messy job.<sup>162</sup>

They are not the only voice raising concerns about the image of engineers in the UK. Dick Oliver, Chairman of BAE Systems, was reported in the press complaining that the use of the word “engineer” to describe people in a range of technical jobs had damaged the reputation of real engineers, making it more difficult to attract young people into engineering careers. He said:

Britain suffers from a language problem in that the word ‘engineer’ is applied to a lot of different people who do a range of jobs. Professional engineers need to take ownership of the brand and keep it for themselves.<sup>163</sup>

Other countries draw a much stricter division between engineers and technicians which is articulated in everyday language. Germany has gone even further allowing professional

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160 Ev 93

161 Ev 114

162 Engineering UK, *Engineering UK 2009/10*, p 42

163 “BAE chief throws a spanner in the works for gas fitters and repairmen”, *The Financial Times*, 1 March 2010

engineers to prefix people's names with the title "Engineer", with the abbreviation "Ingr" being used in much the same way that doctors and professors prefix their names with "Dr" and "Prof".<sup>164</sup> China and India have also adopted this practice. Furthermore they are often referred to as "Engineer" when being addressed.

106. We endorse the views of Dick Oliver, Chairman of BAE Systems that there is a need for professional engineers to reclaim the title of Engineer for themselves. One possible solution to this problem which other countries have adopted is the use of Engineer as a prefix to a person's name, in a similar way that doctors and professors use their profession to refer to themselves. The image of the engineering profession needs to be enhanced for the sake of the aerospace and motorsport industries and the wider economy.

107. However, Engineering UK's Report offers some hope that young people can be attracted into engineering careers, if they understood what the work really involved. It found that the same age group chose art, design and technology as among their favourite subjects in school. The reasons they gave for enjoying those subjects included "the design and building element and the opportunity to be creative." These are core aspects of the work of an engineer. During our visits we have constantly been impressed by the enthusiasm engineers had for their work, in particular the intellectual and creative challenges posed by their jobs. This enthusiasm was not lost on the Minister:

One of the joys of my present job is seeing the excellence, innovation and intellectual challenge that exists in manufacturing facilities that I visit. [...] I think what young people need to recognise is that we have got huge challenges ahead—low carbon challenges and the future of the planet—it is ideas, intellect and scientific innovation that will deal with those issues [...]<sup>165</sup>

We agree. However the challenge remains to help children make the link between STEM subjects, the activities they enjoy and a career in engineering.<sup>166</sup>

108. In motorsport and aerospace, both the Government and industry have a wonderful resource to spread this message. The exciting image of motorsport has real potential to get young children interested in science and maths. This has not gone unrecognised. In 2005 the Learning Grid programme was set up to utilise motorsport's image in the promotion of activities designed to engage young people in science and engineering. It encompasses about twenty curriculum-related and quality assured activities from early school age to university.<sup>167</sup>

109. The industry itself is very supportive of the programme. Mr Aylett, Chief Executive of the Motorsport Industry Association, described the sector's efforts to motivate young people to consider a career in science as "the most important thing that we do".<sup>168</sup> The aerospace industry is engaged in similar work. Rolls-Royce told us about projects that it ran

<sup>164</sup> For example, in German, 'ingenieur' means a chartered engineer, and 'techniker' means a technician; in French, 'ingénieur' means a chartered engineer and 'dépanneur' means a technician.

<sup>165</sup> Q 362

<sup>166</sup> Engineering UK, *Engineering UK 2009–10*, p 42

<sup>167</sup> Ev 68

<sup>168</sup> Q 183 [Mr Aylett]

in schools with its graduates going to classrooms to engage with school children and promote scientific subjects with “fun” engineering and aerospace projects.

110. However, some of the evidence we received has cast doubt over the effectiveness of these programmes in influencing young people’s career choices. TTXGP, the organisation that runs the “zero carbon, clean emission” Grand Prix, commented that while programmes such as Learning Grid were to be commended they were “not succeeding in influencing teenagers sufficiently when they are considering their career path.”<sup>169</sup> Mr Dickison, Principle Lecturer in Automotive Engineering at Coventry University described it as “an extremely valuable activity” but concluded that “I think you can do more.”<sup>170</sup> Similarly the Association of Colleges argued that while “the Learning Grid has had a beneficial impact raising awareness” it believed that “more could have been done to invest in and attract the next generation of skilled people to create a sustainable industry.”<sup>171</sup>

111. The Minister told us that the Government had recently established Manufacturing Insight, which was aimed at raising “the profile of manufacturing by enthusing young people so that they seriously consider a career in manufacturing.” He said that it would ensure that media coverage for the sector provides a stronger focus on the positives, particularly in media accessed by young people, their parents and teachers.”<sup>172</sup> Furthermore, he believed that:

the design, the innovation and the levels of intellect that are applied within both aerospace and motorsport to take forward the respective industries is really beguiling and, I think, is something that can draw [in] pupils of the highest intellect.<sup>173</sup>

**112. We support the work of Manufacturing Insight to attract young people into the engineering and manufacturing professions. It is important that young people are made aware of the exciting and rewarding careers that manufacturing has to offer. The Government needs to ensure that the work of this body compliments the many excellent projects already being run by industry. We recommend that the Government sets out how Manufacturing Insight will co-ordinate its work with the existing activities in this area run by professional bodies and companies.**

113. Engineering UK also highlighted the lack of awareness of routes other than higher education into the profession as a barrier to young people pursuing a career in engineering. It argued that the perception that a degree is essential to enter the profession, which combined with the fact that physics, the most unpopular subject amongst 11–16 year olds, is normally a pre-requisite for university engineering degrees, led many young people to think that engineering is not for them.<sup>174</sup> Higher education is one route into engineering but it is not the only one. Many engineers who worked as technicians secured vocational qualifications, and at Rolls-Royce and Filton we saw senior managers who had started their

169 Ev 143

170 Q 181–182

171 Ev 91

172 Ev 74

173 Q 344

174 Engineering UK, *Engineering UK 2009–10*, p 42

career in those companies as apprentices. This alternative route however, is not given sufficient prominence. As UK Engineering's Report notes:

40% of educational professionals and 31% of the general public believe that a first degree is the minimum educational requirement to become an engineer.<sup>175</sup>

Even amongst 16–24 years olds, who had the most awareness of vocational qualifications, only around a third knew about this method of entering the profession.<sup>176</sup>

114. One mechanism which has been successful in raising awareness is the Young Apprentices Scheme. The scheme offers young people at Key Stage 4 (age 14–16) the opportunity to undertake a work-related qualification delivered through a college alongside their school-based GCSE programme. In addition it seeks to provide 50 days of extended high quality work experience with an employer.<sup>177</sup>

115. In September 2009, some 9,000 places were made available and the Government plans to increase this to 10,000 in 2010. Research has shown that 95% of the third cohort's entrants, who completed the Young Apprenticeship programme, progressed to further education or training.<sup>178</sup> The Department for Children Schools and Families is currently exploring the future options for the Young Apprenticeship programme including reviewing the funding arrangement, so that Local Authorities have control of both the funding and the commissioning of the programme.<sup>179</sup>

**116. We congratulate the Government on the Young Apprenticeship Scheme which has been highly successful in attracting young people into further education and training. We recommend that BIS be involved in any discussions about the programme's future to ensure that it continues to properly align the demands of young people with the needs of business. We would welcome an update on these discussions in its response to our Report.**

## Skills strategies

117. The Sector Skills Council for Science, Engineering and Manufacturing Technologies (SEMTEA) leads the delivery of government funding for training and skills development for these sectors. It works with industry, the National Skills Academy for Manufacturing and universities to develop training programmes.

118. Both sectors are currently in the process of designing skill strategies which will identify the skill needs of their industries. For example, A|D|S is developing a Skills Roadmap which will identify requirements to deliver the National Aerospace Technology Strategy. It is intended to inform the work undertaken by SEMTEA to ensure that its skills provision is aligned to demand.<sup>180</sup>

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<sup>175</sup> Engineering UK, *Engineering UK 2009–10*, p 42

<sup>176</sup> Engineering UK, *Engineering UK 2009–10*, p 42

<sup>177</sup> Ev 74

<sup>178</sup> Ev 74

<sup>179</sup> Ev 74

<sup>180</sup> Visit to Airbus, Filton.

119. However concerns were voiced that SEMTA was not properly considering the needs of business in developing its skills programmes. Mr Aylett reported that:

SEMTA did create some very original course structure, but it was disjointed, not connected with industry, there was no other connection with any other sector skills council.

The motorsport industry told us that as a result, it withdrew from the debate:

again we ran up a white flag and said, “There’s only so much one can do. The engineering courses are excellent in the UK, so let us just go with those and allow this incredible complexity of sector skills councils to run its course”. Indeed, in the last few months, since the demise of MDUK, we have tried to re-engage, but we have not had much of an answer yet.<sup>181</sup>

120. When we put the views of the motorsport industry to the Minister he replied that he wanted to see “motorsport companies come forward with what they think needs to be done by Government to support the sector, and we will work to try to provide that.”<sup>182</sup>

**121. The industry’s experience of working with the Sector Skills Council for Science, Engineering and Manufacturing Technology (SEMTA) does not give us confidence that the sector skills agencies have properly engaged with industry, especially in the motorsport sector. The development of a skills strategy for the sector is vital to its success. We recommend that the Minister, as a matter of urgency, facilitate a closer working relationship between SEMTA and the motorsport industry to resolve these differences of views.**

## Higher education

122. Both the aerospace and motorsport industries also expressed concern about the number of university students studying STEM subjects, and highlighted the particular problem of retention. Dr Williams compared the attention given to retention rates in STEM subjects to that of medicine:

if 50% of medical students failed to go on to be doctors there would be an outcry, so why is there not an outcry when 50% or thereabouts of engineering students fail to go on to be engineers?

Rolls-Royce agreed saying that it struggled to find undergraduates with sufficient skills. It believed that the shortage was particularly acute in the aerospace industry, as the positive image of the motorsport industry helped it attract engineering graduates.

123. The *Higher Ambitions* framework has outlined the Government’s proposals for using funding levers in cases where demand-led pressures from employers and students do not stimulate the provision of important skills. The framework stated that it would provide

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181 Q 190

182 Q 353

“enhanced support for the ‘STEM’ subjects [...] and other skills that underwrite this country’s competitive advantage.”<sup>183</sup>

124. The framework also signals the introduction of a greater element of competitive funding, with more money going to universities “who can best respond to these evolving economic challenges.”<sup>184</sup> The Department explicitly stated that:

To allow funds to be diverted to courses that meet strategic skills needs they will be diverted away from institutions whose courses fail to meet high standards of quality or outcome.<sup>185</sup>

125. We asked the Department for more information about how it planned to implement these proposals. We were told that HEFCE (Higher Education Funding Council for England) would keep back £10 million from the funding it gives to universities, which would be directed to help universities increase the proportion of students on STEM courses.<sup>186</sup> However we are not clear whether this is funding for the provision of extra place or funding to promote science to stimulate demand for existing places.

126. In the longer term, the Department has asked HEFCE to report by spring 2010 on a wide range of issues and options aimed at increasing the proportion of STEM students. The Department has made it clear that it expects HEFCE to have a firm timetable, drawn up by autumn 2010, for implementation in the academic year 2011–12.<sup>187</sup>

**127. We welcome the decision by the Government to take steps to encourage more young people to study STEM subjects at university. Equally we recognise that its proposals to provide greater resource to STEM subjects will result in a reduction in funding to some other courses. This is a decision that we support in times of great stringency for public expenditure. We seek clarification on how the £10 million of funding HEFCE has kept back to increase the proportion of students on STEM courses will be used, and whether it will be used to fund additional places or stimulate student demand for science courses.**

### **Motorsport courses**

128. There are already a number of motorsport-focused engineering courses at university, which we were told were popular with students. However, several of our witnesses were not convinced that they fully met the needs of industry. When we visited Silverstone, we heard that employers would rather employ a graduate with a degree in engineering than a motorsport degree. This was because motorsport specific courses tended to drop some of the more complex engineering content, such as thermodynamics, for motorsport specific modules such as motorsport management. The MIA highlighted the fact that:

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183 Department for Business, Innovation and Skills, *Higher Ambition: the future of universities in a knowledge economy*, November 2009, p 45

184 Department for Business, Innovation and Skills, *Higher Ambition: the future of universities in a knowledge economy*, November 2009, p 12

185 Department for Business, Innovation and Skills, *Higher Ambition: the future of universities in a knowledge economy*, November 2009, p 45

186 Ev 75

187 Ev 75

the real quality of the motorsport educational provision is deemed by UK employers to be generally poor and not serving the industry well.<sup>188</sup>

Mr Dickison, an academic who previously worked in the industry expanded on this point:

I have actually been recruiting in people from the university courses for many years and I have found that some of the motorsport courses were very, very light on the real technical subject [...] when you said, “Can you calculate how thick that piece needs to be?” they say, “Oh, I didn’t do that module”.<sup>189</sup>

129. Mr Dickison believed feedback from industry was necessary to ensure that motorsport courses reflected the needs of industry.<sup>190</sup> He argued that:

there is a huge variety of higher education establishments and their courses are not all the same. What is needed is some formal feedback. It is very difficult for the universities to react when it is just really based on maybe sort of anecdotes.<sup>191</sup>

130. Representatives of the industry told us that there had been little consultation with industry over the design of the courses. MDUK, the government-industry partnership body was given the task of helping industry to engage with universities and explain to them the sector’s requirements. However, industry representatives told us that MDUK had not delivered on this objective:

Originally, the idea for MDUK was that industry would help go through the universities and not accredit them, these poor guys are accredited to death, but actually engage with them and explain this fast-moving business, and that has failed to take place.<sup>192</sup>

131. Mr Aylett also expressed concern that the current funding system had led to universities using the motorsport brand to fill spaces on courses rather than focus on training which met industries requirements:

Sadly, during this period the universities have been led on a ‘bums on seats’ reward basis, so they are using the power of motorsport, and it has worked, to attract a lot of students into engineering courses that were otherwise overlooked, but unfortunately the quality and connection with the industry [has not been good enough].<sup>193</sup>

132. The Minister was clear that there needed to be better engagement between universities and businesses. He argued that “the industry needs to engage with the universities, in that case, and say ‘We do not think that what you are providing is right and you need to provide something different and distinctive.’<sup>194</sup> Furthermore, he told us that:

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188 Ev 121

189 Q 186

190 Q 186

191 Q 187

192 Q 189

193 Q 189

194 Q 360

the UK Automotive Council should be involved in that process, or could be involved in that process, so that a more collective view is brought forward. I think that is a good example of how the Council can work.<sup>195</sup>

133. Other sectors have been able to overcome these challenges through the establishment of accreditation schemes. One such example is Skillset, the sector skill council for the creative industries, which established course accreditation schemes in animation, computer design, and screenwriting. Its submission described how through working with industry it:

accredits those practice-based courses that most effectively provide students with the skills and knowledge that employers need. Currently, there are: in Animation seven under-graduate and one post-graduate; in Computer Games five under-graduate and one post-graduate; and in Screenwriting ten post-graduate.<sup>196</sup>

**134. Courses purporting to be “motorsport” engineering must produce graduates with the skills that the industry requires, this is currently not the case. We welcome the approach to accrediting courses that has been taken in other sectors. We recommend that the Government, working with SEMTA, industry and universities explores the feasibility of establishing a similar programme for the motorsport industry.**

### **Overseas students**

135. The aerospace industry highlighted its concerns on the UK’s over-reliance on overseas engineering students, in particular at post-graduate level. BAE believed that the growing dependence on overseas postgraduates for aerospace research was starting to affect the UK’s ability to transfer knowledge to other wealth-creating industries.<sup>197</sup> Mr Keen, its Head of Government Relations, expanded on this point in relation to the defence industry:

That is an issue particularly in the defence field, [...] inasmuch as it is more problematic to have overseas students involved in defence matters. [...] The ideal solution would be to see more UK graduates going into postgraduate study, but it is difficult to see how that is going to happen.<sup>198</sup>

Dr Williams, Head of Business Development, Research & Technology at Airbus agreed that it was a problem and pointed out that Airbus had recruited the majority of its previous year’s intake of graduates from France and Germany.

136. However, when we raised this issue with academics at Bristol University they did not see it as a problem. They asserted that many foreign students remained in the UK after they had trained and made a valuable contribution to the economy. Rather than reducing the numbers they believed that the Government should actively encourage the best overseas students to come to Britain through the provision of scholarships. Furthermore they argued that universities benefited from overseas post-graduates as they made larger contributions to the costs of their education than their domestic equivalents.

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195 Q 361

196 Ev 135

197 Ev 94

198 Q 111 [Mr Keen]

137. Mr Mans acknowledged that there were two sides to this argument:

On the one hand, clearly universities want to attract as many foreign students as possible. There is a high percentage of postgraduates in the UK from abroad. That in one sense is a good thing, but, on the other side, I would argue that there is probably going to be a steady migration of some of the knowledge to our competitors in the medium and long term.<sup>199</sup>

**138. There is clearly a balance to be struck between supporting home-grown talent and utilising the skills which come from overseas students; attracting the best international talent to the UK will enhance our industry's competitiveness but only if those students continue to work for British companies. The Government needs to keep this under review to ensure that an appropriate equilibrium is maintained; it is right that the skills of young people in the United Kingdom are fully developed so that we do not become over-dependant on overseas students.**

## 6 Research & Innovation

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139. The cost of labour in emerging markets means that UK manufacturing will never be able to compete with these markets purely on the basis of costs. Therefore it needs to base its competitive advantage in the value it can add to the manufacturing process. This requires high valued-added manufacturers, and in particular aerospace and motorsport companies, to invest constantly in R&D to discover new and innovative ways to improve their products and processes. Failure to do so would risk losing these industries to other countries. Mr Manahan, Managing Director of Lola Group made this very clear in his evidence. He said that on a recent visit to Malaysia he had seen:

an incredible and politically driven strategic positioning of a South East Asian country [...] taking composites into aerospace very, very seriously. [...] Right now we have, I would say, with a lot of help, a five year lead, maybe more, but they will buy that, they will get it, they will acquire it. Unless we invest in keeping our lead in that innovation, in that design, in that expertise, we are finished in that particular sector because we can never compete on production costs.<sup>200</sup>

140. Both motorsport and aerospace are R&D intensive industries, investing a large proportion of their profits in R&D activity. UK aerospace companies invested £1.8 billion in research and development activities in 2008,<sup>201</sup> and 30% of motorsport sales revenue are reinvested in research.<sup>202</sup> However, as the example above illustrates, this level of commitment must be maintained if the United Kingdom is to protect its leadership in these sectors.

### Centres of excellence

141. Despite these high levels of investment in R&D we were told that there were not enough organisations or institutions with the ability to take projects from the level of pure research to product development. When we visited Bristol University we heard that too often laboratory proto-types were not developed into a technology which industry could exploit. BAE agreed. It believed that:

[A] disproportionate blend of pure and applied research which can cause novel concepts to fail to find their way to implementation and leaving them languishing in a gap between pure research and a level of maturity that allows them to be exploited into real programmes; referred to as the “valley of death”.<sup>203</sup>

Mr Mans, from the Royal Aeronautical Society, agreed that universities were delivering good research but the cost of taking ideas to the demonstration stage was a significant obstacle to development. He argued that “we have to go back to the technology

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200 Q 132

201 Ev 150

202 Ev 121

203 Ev 95

demonstrator programmes we had in the past.”<sup>204</sup> This was a problem that the Minister acknowledged during oral evidence:

Everyone says that we have tremendous universities and that we have tremendous centres of innovation but the commercialisation of the product has been problematic and we have not really made the progress that we would like to have made in that field.<sup>205</sup>

142. The gap in the technological development process was meant to be addressed by a number of technology validation programmes. These were research programmes led by one company in which other businesses in the same sector were invited to participate.<sup>206</sup> However, they have now been replaced by the establishment of a number of national centres of excellence. These new centres include:

- Advanced Manufacturing Research Centre;
- Advanced Forming Research Centre;
- Manufacturing Technology Centre;
- National Composites Centre, and
- Centre for Fluid Mechanics Simulation.

143. During our visit to Derby, Rolls-Royce told us of the leading role that it had played in establishing these new centres. It both suggested their creation and identified many of the subject areas the network of centres needed to address. This was a process championed by industry with Government acting on their suggestions. The Minister was complimentary about the new approach asserting that it would be more cross-sectional and co-ordinated than previous efforts:

I think what we are beginning to see is much more co-operation by different businesses across sectors in particular areas which require very, very high levels of research and investment.<sup>207</sup>

144. Our witnesses were particularly complimentary about the work of the Advanced Manufacturing Research Centre. The Centre is run by the University of Sheffield and is partnered by Boeing. Lola argued that, unlike many other programmes, the Centre encouraged SMEs to engage in its work by providing them with tangible benefits. These included access to a wide range of technologies, a better platform from which to compete for EU grants and, most importantly, production time on the Centre’s machines. Lola explained:

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204 Q 64

205 Q 309

206 <http://www.sbac.co.uk/pages/69836199.asp>

207 Q 310

We could never afford a fibre tape-laying machine, but the fact that the AMRC have got together the funding to buy one and allow us industrial time on it is very useful to people like us, otherwise we would not have a chance to look at that ourselves.<sup>208</sup>

Its evidence concluded that unless there is something “in it” for SMEs such initiatives will struggle to get industry involvement.<sup>209</sup>

**145. We welcome the development of the National Centres of Excellence and congratulate Rolls-Royce on its leadership role in this programme. We see it as a strength, not a weakness, that the idea for these centres came from industry itself.**

## Composites

146. Our support for the development of centres of excellence, led by industry does not mean that we believe Government should take a backseat: it is a vital partner in the process. So we were deeply concerned about the accounts we heard of events leading to the National Composites Centre being established.

147. Composites are produced by combining a number of individual materials together to produce another material which has new properties.<sup>210</sup> The current research focus is on advanced composites<sup>211</sup> which are lightweight, high-performance materials which can be built as large, single-piece, customised shapes. Composite materials have many advantages over traditional materials such as metals. They are lighter, which reduces fuel use and therefore running costs and carbon emissions; they are also highly resistant to corrosion and they have excellent fatigue endurance. These properties give them many potential applications in the aerospace and motorsport industries.

148. Several companies are already deploying composite technology and other countries are also actively seeking to secure a competitive advantage through the development of this technology. During our visit to GKN and Airbus in Filton we were shown how composites were being used in the production of next generation aircraft wings. In motorsport, the core of many high-performance cars’ chassis are increasingly being made from carbon fibre composites. Furthermore, universities are already investigating new applications for this technology. At Bristol University we were shown work they were doing to embed functionality into composite structures, including electromagnetism, sensors and even the ability to self-repair damage.

149. We are in no doubt of the importance of this area of research to the future of the motorsport, aerospace and indeed a large number of other industries. We therefore welcome the Government’s decision to use £16 million from the Strategic Investment Fund (SIF)<sup>212</sup> to fund the establishment of the National Composites Centre in Bristol. The Government’s *Composites Strategy*, which announced the Government’s decision to

208 Q 201

209 Ev 112

210 Department for Business, Innovation and Skills, *The UK Composite Strategy*, November 2008, p 6

211 Structural Fibre-reinforced Polymer Matrix Composites.

212 The SIF is the government’s fiscal stimulus package that is being targeted at investment in new technologies and industries.

allocate funding, also allocated £6 million to the Technology Strategy Board Challenge “to spark innovative solutions for rapid manufacture of composites.”<sup>213</sup>

150. However, this happy ending came after a very muddled process. During our visit to Bristol it became clear that the procedure which led to the establishment of the centre was at best disorganised. The idea to establish a National Composites Centre was not the Government’s, but arose out of discussions between academia and industry on how to use the Strategic Investment Fund money to support industries in line with the *New Industries, New Jobs* strategy.<sup>214</sup> A number of institutions proposed a composites centre, so the Government belatedly became involved and ran a separate competition for this project.<sup>215</sup>

151. The competitive bidding process was shrouded in mystery and large parts of the potential stakeholder group were not consulted. We asked representatives of both the aerospace and motorsport industries, both significant users of composite technology, if they were aware of the project, but neither were. Mr Godden, Chairman of A|D|S asserted:

I do not think industry has had a clear picture on this. It is absolutely essential and I am not sure that we have a clear view about what is really happening.<sup>216</sup>

Similarly Mr Aylett, Chief Executive of the MIA said he was “concerned as to why this industry is not involved in some of these consultations”.<sup>217</sup>

152. There was also a lack of clarity on the specifications, with additional material being requested from bidders at extremely short notice. SWRDA, the regional development agency that co-ordinated the Bristol University bid, gave examples of cases where the Department requested substantial additional information and only gave them 24 hours to reply:

On 22 October BIS raised specific questions about the bid and requested a response by 10:30 on 23rd October 2009. This included information about:

- The amount of money available;
- Skills issues;
- The terms under which existing equipment would be transferred to the NCC, and
- Technology.<sup>218</sup>

153. We asked SWRDA how the management of this bid process compared with those which had been run for similar projects. They replied that:

This project was challenging in that no thought had been given to such an ambitious project in June 2009, a time when the Agency had just announced to partners how it

213 Department for Business, Innovation and Skills, *The UK Composite Strategy*, November 2008, p 5

214 Ev 135

215 Ev 136

216 Q 94 [Mr Godden]

217 Q 173 [Mr Aylett]

218 Ev 136

would cut over £50m from its budget. It proved impossible to convene a meeting of the key stakeholders to discuss this opportunity [...]. Relatively short intervals between requests for additional information and deadlines meant that convening meetings with senior representatives from industry and academia continued to be a challenge.<sup>219</sup>

154. When we put these allegations to the Department it claimed that “the idea for the National Composites Centre came from the analysis of the UK carbon fibre market BIS undertook in preparation of the UK composite strategy.”<sup>220</sup> This seems difficult to reconcile with the lack of consultation with industry about the process. If the idea for the centre had been developed in the normal way, industry representatives would have been consulted at an early stage of development.

155. In respect of the late demands for information, the Department argued that additional information was required at a late stage because not all the information they had requested was included in the initial submissions:

Some of the information received was not complete so BIS sought further supplementary information. Towards the end of the process BIS requested some bidders to clarify certain information, particularly where financial details were unclear or elements key to the assessment process had not been covered. This was to allow bids to continue to be considered.<sup>221</sup>

**156. We welcome the establishment of the National Composite Centre at Bristol University. It has the potential to make a significant contribution to the future development of composite technology in the UK. However, while the right decision was made in the end, the establishment of the National Composite Centre was an episode of worrying mismanagement by Government. We are deeply concerned about the lack of strategic thinking that was present during the bidding process for an institution of such importance to the future of UK manufacturing. The Government must ensure that lessons are learnt, and we therefore expect it to provide us with a clear critique of its management of the competition for the National Composite Centre.**

### ***Aerospace Research Institute***

157. Representatives of the aerospace industry told us of the need to establish an aerospace research institute. They argued that the lack of such an institute placed the United Kingdom at a competitive disadvantage in relation to many of its competitors. For example both France and Germany maintain large, powerful, publicly-funded research institutes in the aerospace sector, the ONERA in France and DLR in Germany,<sup>222</sup> while the UK’s only equivalent, DERA (Defence Evaluation & Research Agency), was privatised during the formation of Qinetiq.<sup>223</sup> As publicly funded institutes ONERA and DLR have access to up

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219 Ev 137

220 Ev 72

221 Ev 72

222 Ev 84

223 Ev 84

to 100% research funding while a limit of 50% support funding for major industrial technology programmes was available in the United Kingdom.<sup>224</sup>

158. Thales told us that the absence of a UK national research establishment meant that the United Kingdom was unable to join Association of European Research Establishments in Aeronautics, the body that influences large EU aerospace programmes.<sup>225</sup> It argued that this was affecting companies' decisions on where to place research work, to the detriment of the UK. Airbus told us that:

Without steps taken to counter the weaknesses in the current UK research infrastructure, this developing relationship with DLR and ONERA will pose a threat to the future of Airbus engagement with Universities in the UK. Cut off from their source of innovation in the UK, other Airbus development activities may follow the fundamental research, to France and Germany.<sup>226</sup>

159. The Royal Aeronautical Society believed that the UK expertise on the Airbus wing technology integrator (including aerodynamic, systems and structural expertise) had already been put at serious risk as a result. This had the potential to put at risk the future of the Airbus UK "Wing Centre of Excellence", with the possibility of responsibilities and jobs leaching out to other parts of the Airbus consortium or to other suppliers in the worldwide supply chains.<sup>227</sup> Rolls-Royce told us that they believed that an investment of £200 million was needed to re-establish an institute which would be able to compete with France and Germany.<sup>228</sup>

160. When we asked the Minister about this proposal we were told that the Government was still waiting for industry to set out a clear vision of what the purpose of the centre would be:

We are waiting for industry to come to us with a sort of consensus view as to what that would do, because I think there are quite different views in industry, at the moment, as to the role that might play, all the way from something at one end which is a smart programme management organisation right through to something at the other end that owns facilities, employs scientists and does its own research. [...] We are just waiting for industry to come back to us with a justification and strong case for doing it and to come up with a model that actually would work and deliver the sorts of benefits that have been proposed for it at the moment.<sup>229</sup>

**161. A dedicated aerospace research institute clearly has the potential to strengthen and secure the UK's aerospace manufacturing base. The industry needs to come together to provide the Government with a clear and detailed proposal for such an institute. The proposal should be used as the basis for an industry bid in the next round of Strategic Investment Fund support. We recommend that the Government looks favourably on**

224 Ev 132

225 Ev 140

226 Ev 84

227 Ev 132

228 Trip to Derby

229 Q 317-18

**such an application. If we do not enable the aerospace industry to compete on an equal level with other nations, it will be difficult for the industry to maintain its strong international position.**

### **Co-ordination**

162. It is important that the work of all these centres is properly co-ordinated; so that the maximum benefit can be extracted from their research and that any areas of cross-over are properly explored. However, Rolls-Royce expressed concern that any large bureaucratic “super-structure” created to co-ordinate work had the potential to slow down the work of the centres.

163. We asked the Minister how the Department was planning to ensure that all the centres worked together to the benefit of all areas of UK manufacturing. He replied:

We have a close relationship with RDAs and try to ensure that they are aware of the role that the centres are going to be providing. We need to get that relationship right. It is a question of balance about the RDAs using their local connections to assist on the ground but, also, being conscious of the strategic role that will be left to the specialist centres to deliver. As you say, that is quite a sensitive balance to get right, and we will be monitoring it very, very closely.<sup>230</sup>

**164. It is important that all parts of the network of Centres of Excellence work together effectively. We recommend that the Government creates a small, lean team responsible for ensuring that the work of the centres is properly co-ordinated, without placing additional burdens on the research organisations. They represent a national resource and cannot be left to work in regional silos.**

### **Government R&D spending**

165. Since 2004, the Government has invested over £270 million in aerospace projects, a figure which has been matched by business.<sup>231</sup> The Engineering and Physical Sciences Research Council (EPSRC) currently funds over £171 million<sup>232</sup> of research with relevance to the industry, and involves over 300 collaborators from industry.<sup>233</sup>

166. However, the total amount spent on R&D as a proportion of GDP had fallen from 2.35% in 1982 to 1.8% in 2007.<sup>234</sup> This compares unfavourably with international competitors. The OECD average is 2.3% while Japan spends 3.2% of its GDP on R&D activities. The Government’s *Ten Year Science and Innovation Investment Framework* published in 2004 set a target of 2.5% by 2014. While this is a step in the right direction it is much less ambitious than the EU target of 3% of GDP by 2010.

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230 Q 321

231 Ev 66

232 Ev 108

233 Ev 66

234 Ev 130

167. Rolls-Royce's evidence laments what it describes as the "long-term, systematic decline in UK R&D intensity."<sup>235</sup> It argued that increasing the UK's R&D spending to the OECD average (an increase of 0.5% of GDP) would result in the United Kingdom conducting £6.5 billion of R&D a year. Furthermore it asserted that an additional 50,000 more graduate engineering jobs would also be created as a result with many more graduate opportunities in production and management positions. Rolls-Royce concluded by arguing increases in R&D spending would have a:

powerful, long-term effect that we believe justify early and sustained action—with emphasis on technology exploitation in the interests of early economic growth.<sup>236</sup>

168. Rolls-Royce also highlighted the fact that the level of funding available through the Technology Strategy Board (TSB) was often insufficient to be the only source of financing for large research projects. This made it necessary to attract funding from other sources, such as RDAs and Research Councils. It argued that this, combined with "the requirement for collaboration", led to "a high level of contractual complexity and this can make the process of commitment too long and wholly uncompetitive with equivalent processes, for example in the USA." Rolls-Royce believed that one solution would be to concentrate a higher level of Government R&D expenditure in the Technology Strategy Board. This would, it argued "bring useful simplification and would also ease the process of prioritisation that is inevitably required in a world of tight money."<sup>237</sup>

169. While we agree that the Government should explore ways of simplifying the funding process for large research project, increasing R&D funding cannot be solved simply by recommending that the Government spend more money on R&D. As we discovered during our inquiry into the higher value-added economy, the amount that the UK Government spends on R&D is not that far out of line with that of comparable economies. That Report noted that UK industry invests less in R&D than other countries, due in part to the makeup of the economy:

Some of the difference 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.<sup>238</sup>

170. However, the Government is currently planning to reduce its research spending as part of the proposals to reduce the budget deficit. The Pre-Budget Report announced that £600 million of savings were to be found in the higher education and science and research budgets.<sup>239</sup> We asked the Department to set out what proportion of these savings would come from the science and research budget, and if this would impact on the availability of funding related to the aerospace and motorsport industries. The Department was unable to provide us with this information and merely stated that:

235 Ev 130

236 Ev 130

237 Ev 156

238 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 "*Risk and Reward: sustaining a higher value-added economy*", HC 746, para 50

239 Treasury, *Pre-Budget Report 2009: Securing the recovery: growth and opportunity*, December 2009, Cm 7747, p 110

This was a 2009 Pre-Budget Report announcement and the decisions on how this is going to be apportioned have not been made.<sup>240</sup>

171. **When the Department decides on the funding allocation to the higher education sector, the science and research savings announced in the 2009 Pre-Budget Report must be managed in a way that minimises the impact on research that supports higher value-added manufacturing, and areas of research which are directly linked to the UK's competitiveness. We also agree with Rolls-Royce that there should be a strong presumption in favour of large research projects being funded, on a national basis, by a single organisation. The Government should use its current review of research spending to investigate ways in which the system could be adapted to make this possible.**

### **Defence research**

172. Even before the Pre-Budget Report cuts were announced the Royal Aeronautical Society had expressed concerns about how future funding for aerospace research might be threatened by cuts in defence R&D expenditure. BAE have asserted that the MoD was reported to be making a 20% cut in its science, innovation and technology budget in 2010–11 compared to 2009–10. This would represent a reduction of £105 million. The Royal Aeronautical Society said that this was in addition to a previous reduction of 7% in both the 2008 and 2009 budgets.<sup>241</sup> Mr Keen, Head of Government Relations, BAE Systems said that this was “an issue of real concern”:

If we are looking at developing UK national capabilities for future defence requirements, it is self evident that if there is less being spent on research and technology now, we will have less UK capability in future.<sup>242</sup>

173. During our inquiry into sustaining the higher value-added economy we visited the Defense Advanced Research Projects Agency (DARPA) in the United States where we saw the powerful role that defence research can play in supporting wider R&D efforts.<sup>243</sup> Discoveries made in defence research often have commercial applications and this is particularly true in the aerospace sector. **While defence research is primarily the responsibility of the Ministry of Defence it is important that the Government acknowledges the fact that defence research has an impact on other areas of R&D, especially other high-tech industries. The Department for Business, Innovation and Skills should be involved in any discussions about funding for defence research to ensure that the impact of any reductions on advanced manufacturing industries is minimised.**

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240 Ev 73

241 Ev 94

242 Q 67

243 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 “*Risk and Reward: sustaining a higher value-added economy*”, HC 746, p38

### Changing priorities?

174. During this inquiry the aerospace industry aired its concerns that there was a more general move away from supporting aerospace R&D. This view was first raised by Bristol University. It believed that there was a perception that aerospace had already received its fair share of funding in previous years and therefore other sectors should now take priority.

175. We explored this issue with witnesses during oral evidence and found this view to be widely held by the aerospace community. Mr Godden reported seeing a similar trend:

I have noticed in my time here, two years, that our success is a problem. [...]. I have seen it happen in front of my eyes. It goes along the following lines: “They’ve got more than their fair share”—whatever that means—“and therefore we need to divert a bit to demonstrate that we are not giving more than a fair share to aerospace.”

Mr Mans argued that the Government “should be backing winners, not picking winners”<sup>244</sup> He claimed that backing sectors which did not have a proven track record could lead to public money being misspent, while previous successes meant that there was less of a risk of research funding not producing the desired outcomes.<sup>245</sup> The Government is wrong to view innovation purely as the creation of new products and processes, it is also about improving the design and manufacture of existing products. There remains much work to be done on ‘green’ issues in the aerospace industry, for example improving on current designs and processes, which we will return to in the next chapter.

**176. The previous success of the aerospace industry should not preclude it from receiving R&D grants in the future. While we understand the desire for Government to support innovative new industries it is important that established sectors—with successful track records—are not disadvantaged as a result. We recommend that the Government ensure that the desire to support new industries is not disproportionately directing funding away from established industries such as aerospace and motorsport.**

### R&D tax credits

177. The motorsport sector does not receive direct R&D funding at the same level as the aerospace sector. However, many SMEs benefit from the R&D tax credit system. The credit can be used to reduce a company’s tax bill or, for 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 (which are defined as companies with fewer than 500 employees and an annual turnover less than €100 million or annual balance under €86 million) can make a deduction of up to 175% of qualifying expenditure incurred on R&D activities when calculating their taxable profit.<sup>246</sup>

178. These tax credits have had a positive impact on SMEs involved in motorsport because they invest a much greater proportion of their profits into R&D in comparison to the

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244 Q 85 [Mr Mans]

245 Q 85 [Mr Mans]

246 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 “*Risk and Reward: sustaining a higher value-added economy*”, HC 746, para 102

average SME. Over 30% of sales revenues are re-invested in R&D by UK motorsport SMEs—double that of the UK’s Pharmaceutical and IT sectors, and ten times that of the automotive industry generally.<sup>247</sup> Lola’s evidence highlighted the importance of the tax credit in encouraging innovation in the sector:

R&D tax credits are the best initiative to maintain an active R&D programme to this sector and it is hoped that a future government will not remove these vital assistances.<sup>248</sup>

Mr Aylett agreed:

I think the whole R&D tax credit programme was good, and in fact our industry has prospered from it, profited from it and innovated because of it.<sup>249</sup>

The 2009 Pre-Budget Report announced that the Finance Bill 2010 would introduce measures to simplify the R&D tax credit system by removing the condition that requires any intellectual property deriving from the R&D to which the expenditure is attributable be owned by the company making the claim. This change would come into effect for any expenditure incurred by a SME company on R&D in an accounting period ending on or after 9 December 2009. The intention is to allow companies to benefit from the UK’s R&D tax credit for SMEs without distorting their commercial arrangements in relation to Intellectual Property. We asked the Government how many businesses would benefit from this change, but they were not able to supply us with this information.<sup>250</sup>

179. However, not all the evidence we received was in favour of the current R&D tax credit system. Rolls-Royce argued that while “in the long term [...] it is sensible to work towards a more generous R&D Tax Credit scheme [...]” it did not believe it was an appropriate way to spend limited financial resources in the current climate.<sup>251</sup> Instead Rolls-Royce believed that it should be redirected to the Technology Strategy Board’s budget, which it believed was a more effective and targeted method of stimulating R&D:

We do believe that resources available to stimulate R&D should be focused to a greater extent on closer-to-market activities capable of generating jobs and value for the UK in the medium-term.

Grants are a more powerful incentive for R&D, typically offering a much higher recovery of R&D costs than tax credits, and the mechanism is inherently more selective. We believe that available resources should be directed towards increasing the TSB’s budget substantially and improving the speed and effectiveness of mechanisms for coordinating support for nationally significant R&D projects—for example, across TSB, Research Councils and Development Agencies.<sup>252</sup>

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247 Ev 120

248 Ev 112

249 Q 210

250 Ev 73–74

251 Ev 130

252 Ev 130

180. When we considered the issue of R&D tax credits in our *Risk and Reward* Report, we were told that the CBI conducted a survey which had shown that the value of R&D tax credits to companies now exceeded the “noise-level for investment decisions”; it was large enough to influence companies’ decisions. The same survey found that 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.<sup>253</sup> We concluded that:

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.<sup>254</sup>

Since that Report the Government has announced that it will evaluate the impact of tax credit schemes. It will focus first on the SME sector and will report by the end of 2010.

**181. We support the Government’s moves to simplify and increase the reach of the R&D tax credit system. We note the arguments made by some that directing resources from tax credits to the Technology Strategy Board would be a more effective use of public funds. We believe that this is something that the Government should address as part of its review of R&D tax credits. However, we remain concerned that such a move could penalise R&D intensive SMEs, including those in the motorsport industry, who would find it difficult to apply for grants through the Technology Strategy Board.**

## Business-academic engagement

182. A recurring theme during this inquiry has been the importance of business and academics engaging effectively with each other to deliver educational courses which produce workforces with the skills which industry needs,<sup>255</sup> and to maximise each other’s strengths in the field of research.

183. On 3 November 2009, the Government published its new strategy for Higher Education, *Higher Ambition*, which addresses these issues. In *Higher Ambition* the Government places great emphasis on “the important role universities will play in securing the country’s economic recovery and long-term prosperity.”<sup>256</sup> It also highlights the importance of a strong relationship between universities and businesses, and acknowledged the fact that the relationship between the two had not previously been robust:

The majority of businesses that invest in high level skills do not make enough use of higher education. This should change: businesses should tap the resources available

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253 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 “*Risk and Reward: sustaining a higher value-added economy*”, HC 746, para 103–4

254 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 “*Risk and Reward: sustaining a higher value-added economy*”, HC 746, para 108

255 See para 128 ff

256 “Mandelson Outlines the Future of Higher Education”, Department for Business, Innovation and Skills press release, 3 November 2009

in universities more effectively, and universities should become more flexible in providing for business demand.<sup>257</sup>

184. While we welcome the Government's focus on the need to improve on the existing relationship, it is not clear how this will be improved in practice. It will not be easy, as our witnesses highlighted several obstacles which had prevented the development of this relationship. During the motorsport evidence session witnesses told us of the difficulties faced by some SMEs when they tried to engage with universities. The MIA explained that "time-constraints and speed to market; development being of more practical and immediate commercial value than research; lack of long-term engineering strategy in the sport's rules [and] limited personnel available to maintain ongoing links" were all factors which inhibited closer working. However, it drew our attention to Imperial College, Cranfield, Southampton, Warwick and Cambridge Universities as universities which had overcome these problems.<sup>258</sup> It concluded that, while it would possibly be of benefit for SMEs to better engage with academic research, it was difficult for individual research institutions to overcome these "understandable" barriers."<sup>259</sup>

185. Mr Dickison, Principal Lecturer in Automotive Engineering at Coventry University, gave us a view from academia. He believed that the unwillingness of universities to change their work pattern to meet those of SMEs was the main reason why universities and SMEs failed to effectively work together:

when it comes to actually contributing to a business, they are probably going to be too slow and not very motivated to actually help. I think the tide is changing.<sup>260</sup>

186. Mr Manahan, Managing Director of Lola group, explained that if SMEs were to engage effectively with universities then it would have to be "financially attractive" to work<sup>261</sup> and that "unfortunately, things like engaging with universities and engaging with organisations that are for the greater good, for people like me, I just cannot afford it. I cannot afford the time and I cannot afford the cost."<sup>262</sup>

187. The Minister remained convinced that employers had "a very strong responsibility to get involved with further education colleges"<sup>263</sup> but that new ways needed to be considered to facilitate that involvement. One possibility offered by the Minister was a campus university whose primary aim was to engage with motorsport SMEs:

We could therefore look at engaging them through having a kind of campus which is dedicated to the approach of linking in SMEs with the university sector and having them attuned.<sup>264</sup>

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257 Department for Business, Innovation and Skills, *Higher Ambition: the future of universities in a knowledge economy*, November 2009, p14

258 Ev 125

259 Ev 125

260 Q 198

261 Q 194

262 Q 194

263 Q 348

264 Q 358

However, as the Department subsequently confirmed “This is still in the early stages of development but part of the support from Northampton County Council is predicated on the development of an educational facility.”<sup>265</sup>

188. We are not convinced that this is the most effective method for linking SMEs and universities. The Government is already doing good work to encourage SMEs and universities to work together through the Innovation Vouchers Scheme. The scheme provides high performing SMEs with a £3,000 voucher which can be used to pay for universities to undertake research for them. We considered the scheme in our Report on *Risk and Reward*.<sup>266</sup>

189. In its response to that Report the Government told us that:

Innovation Voucher pilot schemes have now been rolled out in eight of the nine English regions, with the South West looking to roll out their scheme from April 2010. By the end of June 2009, over 1,300 vouchers had been issued to SMEs with a total value of over £4.5 million.<sup>267</sup>

The Government is also committed to working with the RDA network over the remainder of the current Comprehensive Spending Review period to evaluate the impact of the vouchers and the different pilot voucher schemes. It said that “this evaluation will help inform considerations on whether Innovation Vouchers are developed into a formal product within the ‘Solutions for Business’ portfolio of business support products.”<sup>268</sup>

**190. While improving industry-academia relations is primarily a task for industry and academia, the Government has an important role to play in facilitating engagement and providing a positive policy framework within which this can happen. However, the Government has yet to communicate successfully this need to the SME sector. We have yet to be convinced by the Government’s proposal of an SME university, and we believe that it should instead concentrate on promoting and expanding its existing work in areas such as the Innovation Vouchers Scheme.**

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265 Ev 75

266 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 “*Risk and Reward: sustaining a higher value-added economy*”, HC 746, para 94–95

267 Business and Enterprise Committee, First Special Report of Session 2009–10, *Risk and Reward: sustaining a higher value-added economy: Government Response to the Business and Enterprise Committee’s Eleventh Report of Session 2008–09*, HC 196, para 40

268 Business and Enterprise Committee, Eleventh Report of the Session 2008–09 “*Risk and Reward: sustaining a higher value-added economy*”, HC 746, para 41

## 7 The Green Agenda

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191. During the course of our inquiry it became clear that both industries felt that they were burdened by a “non-green image”, which they believed, put them at odds with government policy. In particular, they were concerned that this public perception placed them at a disadvantage when they applied for research funding and other forms of support. For example, Dr Williams, Head of Business Development, Research & Technology at Airbus told us:

aerospace contributes 2% of CO<sub>2</sub> emissions and yet if you read the newspapers or listen to the radio you would think it produced 98% and not 2%.<sup>269</sup>

Similarly at Silverstone we heard that the environmentally unfriendly image of motorsport was causing car manufacturers to pull out from the sport and to turn attention away from high performance vehicles. This had affected the availability of funding for research and development activity.<sup>270</sup> This was a point reiterated by the MIA:

Motorsport has pioneered rapid development of energy-efficient and clean-burn engines, alternative fuels and power sources. [However] BIS-sponsored organisations such as the Technology Strategy Board (TSB), Low Carbon initiatives and the New Automotive Innovation and Growth Team (NAIGT) have failed to adequately engage with the UK motorsport industry or its trade association.<sup>271</sup>

192. We believe that this image owes much to the “*Top Gear* effect” with people associating motorsport with an image of “reckless petrol-heads”, personified by Jeremy Clarkson, wasting gallons of fuel with no thought or concern about the impact it has on the planet. This is unfortunate because not only are both industries engaged in many activities to improve their energy efficiency and reduce their environmental impact, in many cases this work is actively supported by the Government. When we asked the Minister about this, he said that while he acknowledged the industries had a presentational challenge he was in no doubt about their commitment to addressing environmental issues:

I have been hugely impressed [...] at the seriousness that the aerospace industry applies to the issue of emissions and environmental drivers, and really one of the great intellectual disciplines that exists both in the aerospace sector and the motorsport sector visit [...] is that they look at energy efficiency and they look at low-carbon issues the whole time, and that is one of the major drivers that they have.<sup>272</sup>

193. The Minister and his officials strongly denied environmental issues had affected government support for the industries. In its memorandum the Department stated:

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269 Q 84

270 Visit to Silverstone, see Annex

271 EV 123

272 Q 364

UK motorsport has become a breeding ground for ‘environmentally friendly’ technology; particularly energy efficiency and bio fuel development, as well as super light materials innovation. [...] While its contribution to the development of green technology is therefore considerable, it is important that the industry continues to improve its position internationally and further involve itself with similar collaborative projects in the future.<sup>273</sup>

194. Simon Carter, Business Relationship Manager, AMI Automotive Unit at the Department highlighted the fact that motorsport companies were eligible for funding through the Technology Strategy Board Low Carbon Programmes and that there were also programmes under the Energy Efficiency scheme to support in the take-up of bio-diesel, ethanol and other fuel efficient programmes. He concluded that “a considerable amount has been done; it is just not shouted about and it is not always recognised.”<sup>274</sup>

195. This work has not been confined to the motorsport sector, the National Aerospace Technology Strategy (NATS) recognises the importance for the UK of the development of new technologies to help meet these targets, and a number of organisations have been established to take this work forward. These include:

- OMEGA (Opportunities for Meeting the Environmental Challenge of Growth in Aviation) is a publicly-funded partnership of nine UK universities that works with the aviation industry to improve understanding of aviation’s environmental effects and propose effective and sustainable solutions. The OMEGA programme consists of forty studies and events which address all aspects of the environmental challenge including technology, alternative fuels, policy and economic instruments.<sup>275</sup>
- Greener by Design (GBD) was formed in 1999 by the Airport Operators Association, the British Air Transport Association, the Royal Aeronautical Society and the Society of British Aerospace Companies (now A|D|S). It brings together experts from all parts of the aviation industry with government bodies and research institutions to seek practical solutions, which are environmentally and economically sustainable, to the challenge posed by aviation’s impact on the environment. GBD disseminates technology advice, as well as operational, economic and regulatory advice, about limiting aviation’s environmental impact. GBD aims to promote a balanced understanding of aviation’s true environmental impact and its environmental programmes.<sup>276</sup>
- The UK’s Sustainable Aviation (SA) initiative is a 20-year sustainability strategy (launched in 2005) that brings together the four key sectors of the aviation industry— aerospace manufacturers, airlines, airports and air traffic management providers. Through its integrated approach, SA ensures that the efforts of these individual sectors are aligned and that improvements in areas like technology, operations and air traffic management can be fully integrated and exploited.<sup>277</sup>

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273 Ev 67

274 Q 366

275 <http://www.omega.mmu.ac.uk/>

276 <http://www.greenerbydesign.org.uk/home/index.php>

277 <http://www.sustainableaviation.co.uk/>

- Rolls-Royce have also been successful in winning government funding of £45 million on low carbon aero-engine research from the Low Carbon Strategic Investment Fund.<sup>278</sup>

196. Dr Williams also highlighted the amount of work being done by industry to improve its environmental record:

[...] if you looked at the research and technology into improving that performance, certainly Airbus's efforts towards achieving the [...] goals of 50% reduction in CO<sub>2</sub> and 80% reduction in NO<sub>x</sub> [nitrous oxides] and 50% reduction in noise, you could be forgiven for thinking in fact that all the research and technology effort to improve the environment was only happening in the aerospace sector.<sup>279</sup>

197. While we welcome the efforts by industry to reduce their carbon emissions we are slightly concerned by the sheer number of different organisations and programmes working in this area. When we asked if so many separate initiatives were needed Mr Godden, from A|D|S, told us that he believed that there were benefits to be gained from bringing together a number of the existing programmes: "We should be putting those together and raising our game by doing so."<sup>280</sup> The Minister expressed a willingness to look at the range of existing programmes and said that while he was not "entirely clear about the different mechanisms"<sup>281</sup> he believed this should be reviewed.

It is obviously a very complex area, aerospace, because of the international obligations that exist, and it does mean that we have to combine both domestic pressures with the international obligations that we have, so it is often very difficult to create a simplified system. If there is anything that we can do to try to make that easier for the industry as a whole then we will certainly try.<sup>282</sup>

198. In addition to financial support for "green" research the Government has also been considering the potential for using motorsport to challenge people's perception of environmental issues. In a speech he gave to the European Cleaner Racing Conference, Lord Drayson said:

Motorsport can lend the necessary street cred to going green. You represent the best possible response to *Top Gear* ridicule—to move the low-carbon story away from lentils, sandals and self-sacrifice.<sup>283</sup>

Industry is also aware of this potential benefit. Mr Aylett told us:

Winning in motorsport actually makes energy efficiency cool. If you can win Le Mans in an energy efficient manner, as Audi did, you will definitely do so.

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278 "Advanced Manufacturing – Building Britain's Future", Department for Business, Innovation and Skills press release, 28 July 2009

279 Q 84

280 Q120

281 Q 370

282 Q 370

283 <http://www.bis.gov.uk/cleaner-racing-conference>

199. Both motorsport and aerospace are engaged in a plethora of initiatives aimed at improving their environmental record and “greening” their technologies. However, both industries remain of the view that Government does not fully recognise these initiatives. Government and the industries need to co-operate fully to better articulate the “green” initiatives currently under development in motorsport and aerospace.

200. We also agree with the Government that motorsport has the potential to shift the debate about carbon emissions away from a dry conversation about carbon budgets, towards a more valuable debate on the role that technology and innovation can play in addressing climate change and green issues. We welcome the fact the Government is considering this as an area of action.

## 8 Conclusion

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201. The motorsport and aerospace industries represent two sectors where the United Kingdom has an exceptionally strong global presence. They are two of the crown jewels of UK manufacturing and form a core part of the UK's higher value-added economy. The Government must ensure that the correct public policy framework is in place to promote their future growth.

202. The Government's role in support of the aerospace sector is to enable the industry to compete on an equal footing with its international competitors. Other countries actively support and promote their aerospace industry through the provision of financial support, access to trade credit and funding for R&D work. The UK Government must ensure that the level of support it provides industry does not place the British aerospace sector at a disadvantage.

203. We are concerned that the strength of motorsport in the United Kingdom is due more to serendipity than active government policy. This needs to change. The first step in ensuring that we do not lose this valuable industry is the establishment of a motorsport industry unit within the Department. Failure by the Government to provide a more proactive approach to the industry risks the United Kingdom losing its global leadership.

## Annex: Visit Programmes

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### ***Bristol: Tuesday 27 October 2009***

Tour of GKN Filton.

Tour of GKN Easter Compton site to view development of A350 XWB project.

Presentation by Airbus on skills and research.

Tour of Composite Centre and presentation by EADS.

Tour of A380 landing gear factory.

Tour of A400M factory.

### ***Toulouse: Tuesday 10 November 2009***

Meeting with M. Rainier Ohler, Senior Vice-President, Public Affairs and Communication, Airbus.

Presentation by Airbus on WTO dispute and export credit.

Working lunch hosted by Mr Tom Williams, EVP Programmes & Senior National Representative, Airbus UK.

Tour of A330 and A380 Final Assembly Lines.

Working dinner hosted by British Consul, Alastair Roberts, British Consulate.

### ***Northampton: Tuesday 23 November 2009***

Meeting with Richard Phillips, Managing Director of Silverstone and Emma Thomson, Consultant Development Manager.

Tour of Silverstone Circuit.

Meeting with Professor Kambiz Kayvantash PhD, EMBA (HEC) Head of Centre for Automotive Technology & Director of Cranfield Impact Centre School of Applied Sciences, Cranfield University.

Meeting with Mel Johnson, Engineering Director of Docking Engineering, Jon Hilton, Managing Partner of Flybrid Systems and Simon Dowson, Director of Delta Motorsport.

Meeting with Graham Miller, Director of Special Projects and Wind Tunnel Operations, Brawn GP Formula One Team.

### ***Derby: Monday 18 January 2010***

Meeting with Directors of Rolls-Royce.

Tour of Turbine Blade production facility and Manufacturing Exhibition.

Tour of New Engine production facility.

Lunch with Rolls-Royce apprentices & graduates.

Tour of Operations Room.

# Conclusions and recommendations

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## Space sector

1. Due to time constraints we have not been able to give the space sector the attention it deserves during this inquiry. We recommend to our successor committee that it considers conducting an inquiry into the role of the space sector in the UK economy. (Paragraph 7)

## Aerospace Industry

2. It is clear the aerospace sector is broadly content with the Government's aerospace strategy as set out in the AeIGT Report. However, the report is now five years old and is in need of updating. We recommend that the Government undertakes a short review in order to ensure that its strategy takes account of the latest economic and technological developments. (Paragraph 15)

## Repayable Launch Investment

3. We welcome the Government's continued use of Repayable Launch Investment. This investment has not only been successful in supporting the thriving aerospace sector, but has also delivered a substantial return to the taxpayer. We believe that the Government should continue to offer Repayable Launch Investment to companies—where no viable commercial financing is available—to ensure that the United Kingdom's aerospace industry retains its position as a world leader in the development of new technologies. To do otherwise would put the industry at a serious competitive disadvantage given the prevalence of similar measures available to overseas competitors. (Paragraph 22)
4. We strongly support the Government's use of Repayable Launch Investment and the Government's defence of that investment at the World Trade Organisation. However, the Government cannot rely on a favourable ruling from the WTO. It has to be prepared for all eventualities. We recommend that the Government explore alternative ways for it to channel its support in the event that the WTO rules against Repayable Launch Investment. This should not be seen as the Government abandoning its position, but a sensible and pragmatic precaution to enable it to respond to all possible outcomes. We hope, and suspect, such a plan will not need to be implemented. (Paragraph 28)

## Trade Support

5. Export credit is an important mechanism through which the Government supports the aerospace sector. It is therefore vital that it operates in a way which does not disadvantage British firms. We welcome the ECGD's consultation on its interpretation of OECD codes and principles and recommend that it includes, in any subsequent review, the possibility of offering direct support to businesses when a

company cannot find a commercial bank loan to finance the purchase of aircraft. (Paragraph 32)

6. The Government needs to ensure that all three European Export Credit Agencies work together as effectively as possible and we invite the Department to update us on the progress that has been made with the “fronting” system developed by the three agencies. However, we agree with the Minister that it would not be appropriate to accept Airbus’ recommendation to create a pan-European agency. It would not be right to create a new agency which in practice would deal with only one company. (Paragraph 36)

## **A400M**

7. The current financial problems surrounding the A400M places the Government in a difficult position given its role as both a customer and an investor in Airbus. However, Airbus, and in particular the A400M, are important to both UK manufacturing and national security. The Government is right to be forceful and frank in its commercial decisions, but it also needs to set those decisions in the context of the wider national interest. (Paragraph 41)

## **Motorsport Industry**

8. We were concerned by the fact that the Minister appeared to be unaware of the accusations of government complacency from the motorsport industry; whether or not such accusations are well founded, the simple fact that they are made so widely should be a matter of deep concern to the Department. (Paragraph 52)

## **UK Automotive Council**

9. While we welcome the Minister’s promise to ensure that the UK Automotive Council engages with the motorsport industry we do not believe that it should be the primary organisation that takes forward motorsport policy. To treat motorsport purely as a sub-section of the automotive industry would be to ignore many of the features which have made it a globally successful sector, for example its close links with aerospace. We recommend that a separate, dedicated policy unit in the Department be established to ensure that these links are properly made and that the motorsport policy is fully integrated into developments in automotive, aerospace and other high performance engineering industries. (Paragraph 59)
10. The Minister is right to acknowledge the skills required by the two industries are very similar, and we believe that this should be reflected in the Department’s approach to the industry. The rationale behind the creation of a single department with responsibility for both business and skills was to align skills training more closely with the needs of industry. The Department should no longer merely think of industries in terms of what they manufacture but also the skills they require. Failure to do so would undermine the value of the new arrangement of departmental responsibilities. The skills that underpin both the motorsport and aerospace industries have much in common, and it would be damaging to pigeonhole the motorsport industry in the general automotive sector. (Paragraph 62)

## Motorsport Development UK

11. The clear view we received from industry was that Motorsport Development UK (MDUK) failed in its aim to act as a partnership between industry and Government. We are particularly worried that it might have lessened the industry's willingness to work with Government. The Department needs to reflect on why the evaluation report's conclusions differed so greatly with those of industry. We invite the Department to use its response to this Report to outline how it will ensure that future engagement with the motorsport industry is more successful and what lessons it has learnt from the failure of MDUK to do so effectively. (Paragraph 67)

## Health of the sport

12. We congratulate all those involved in the negotiations to retain the British Grand Prix for concluding a deal which has secured the event's long-term future. This was important not just for the sport in Britain but also for the continued strength of the UK's motorsport industry. (Paragraph 69)
13. We were surprised that the Minister appeared not to be briefed about the level of participation in motorsport. We can only assume that this is again the result of a lack of specialist knowledge about motorsport in the Department, which would be remedied by the presence of a dedicated policy team. (Paragraph 73)
14. A flourishing and vibrant sport is vital to ensure that motorsport manufacturing remains in the United Kingdom. We have not had time to investigate the Motor Sport Association's concerns about the regulations surrounding races and Forestry Commission in detail but we recommend that the Department, together with the Department for Culture, Media and Sport engages with the sporting bodies to assess the effects of these two concerns on the sport. We further recommend that the Department provide us with their assessment of these concerns in its response to our Report. (Paragraph 79)

## Motorsport conclusion

15. We have repeatedly emphasised the fact that the UK motorsport industry is pre-eminent internationally, yet the Government continues to perceive it as a niche area of the automotive sector and not as an industry in its own right. We disagree with this assessment. Motorsport is an industry of national importance and it must feel able to engage effectively with Central Government. It should not be restricted to engagement at a regional level. The establishment of a dedicated motorsport policy unit would represent an important first step in ensuring that this happens. (Paragraph 84)
16. We remained concerned that the accusations of government complacency are not being taken seriously by Government. The fact that there is no team or section with responsibility for motorsport within the Department only gives strength to that view. We find it hard to imagine another country which would sideline such an important industry. We reiterate our belief that the Department needs to establish as a matter of urgency, a policy team which will have responsibility for the industry. Furthermore,

we recommend that the first objective of that team is to commission an updated survey on the health and needs of the industry. (Paragraph 85)

### Supply chains

17. We congratulate the aerospace industry on the proactive steps it has taken to improve the quality of the supply chain through the SC21 programme. We are encouraged by the steps taken by Regional Development Agencies to support this scheme and by extension small businesses. (Paragraph 92)

### Diversification

18. Encouraging SMEs to diversify into other sectors has a number of benefits; it creates more robust supply chains, it can facilitate the spread of best practice and it can drive up the quality of supply chains. However, government backing and support are needed to take this work forward. We recommend that the Government revisit the Motorsport Industry Association Cluster Development Report as a matter of urgency and report back on how it will proceed. It is regrettable that the ideas contained in the Report were not acted upon and were instead left to languish on paper. (Paragraph 100)
19. We recommend that the Government explore ways in which it can facilitate SMEs entering the aerospace supply chain. In particular, we recommend that it undertakes a simplification review of regulations governing entry to that industry and explores how it can reduce the costs to SMEs seeking accreditation. Guidance on how to comply with existing programmes should be produced as a priority. (Paragraph 102)

### Promoting science-based careers

20. We support the work of Manufacturing Insight to attract young people into the engineering and manufacturing professions. It is important that young people are made aware of the exciting and rewarding careers that manufacturing has to offer. The Government needs to ensure that the work of this body compliments the many excellent projects already being run by industry. We recommend that the Government sets out how Manufacturing Insight will co-ordinate its work with the existing activities in this area run by professional bodies and companies. (Paragraph 112)
21. We congratulate the Government on the Young Apprenticeship Scheme which has been highly successful in attracting young people into further education and training. We recommend that BIS be involved in any discussions about the programme's future to ensure that it continues to properly align the demands of young people with the needs of business. We would welcome an update on these discussions in its response to our Report. (Paragraph 116)

## Further Education

22. The industry's experience of working with the Sector Skills Council for Science, Engineering and Manufacturing Technology (SEMTEA) does not give us confidence that the sector skills agencies have properly engaged with industry, especially in the motorsport sector. The development of a skills strategy for the sector is vital to its success. We recommend that the Minister, as a matter of urgency, facilitate a closer working relationship between SEMTEA and the motorsport industry to resolve these differences of views. (Paragraph 121)

## Higher Education

23. We welcome the decision by the Government to take steps to encourage more young people to study STEM subjects at university. Equally we recognise that its proposals to provide greater resource to STEM subjects will result in a reduction in funding to some other courses. This is a decision that we support in times of great stringency for public expenditure. We seek clarification on how the £10 million of funding HEFCE has kept back to increase the proportion of students on STEM courses will be used, and whether it will be used to fund additional places or stimulate student demand for science courses. (Paragraph 127)

## Motorsport courses

24. Courses purporting to be "motorsport" engineering must produce graduates with the skills that the industry requires, this is currently not the case. We welcome the approach to accrediting courses that has been taken in other sectors. We recommend that the Government, working with SEMTEA, industry and universities explores the feasibility of establishing a similar programme for the motorsport industry. (Paragraph 134)

## Overseas students

25. There is clearly a balance to be struck between supporting home-grown talent and utilising the skills which come from overseas students; attracting the best international talent to the UK will enhance our industry's competitiveness but only if those students continue to work for British companies. The Government needs to keep this under review to ensure that an appropriate equilibrium is maintained; it is right that the skills of young people in the United Kingdom are fully developed so that we do not become over-dependant on overseas students. (Paragraph 138)

## Centres of excellence

26. We welcome the development of the National Centres of Excellence and congratulate Rolls-Royce on its leadership role in this programme. We see it as a strength, not a weakness, that the idea for these centres came from industry itself. (Paragraph 145)

## Composites

27. We welcome the establishment of the National Composite Centre at Bristol University. It has the potential to make a significant contribution to the future development of composite technology in the UK. However, while the right decision was made in the end, the establishment of the National Composite Centre was an episode of worrying mismanagement by Government. We are deeply concerned about the lack of strategic thinking that was present during the bidding process for an institution of such importance to the future of UK manufacturing. The Government must ensure that lessons are learnt, and we therefore expect it to provide us with a clear critique of its management of the competition for the National Composite Centre. (Paragraph 156)

## Aerospace Research Institute

28. A dedicated aerospace research institute clearly has the potential to strengthen and secure the UK's aerospace manufacturing base. The industry needs to come together to provide the Government with a clear and detailed proposal for such an institute. The proposal should be used as the basis for an industry bid in the next round of Strategic Investment Fund support. We recommend that the Government looks favourably on such an application. If we do not enable the aerospace industry to compete on an equal level with other nations, it will be difficult for the industry to maintain its strong international position. (Paragraph 161)

## Co-ordination

29. It is important that all parts of the network of Centres of Excellence work together effectively. We recommend that the Government creates a small, lean team responsible for ensuring that the work of the centres is properly co-ordinated, without placing additional burdens on the research organisations. They represent a national resource and cannot be left to work in regional silos. (Paragraph 164)

## Government R&D spending

30. When the Department decides on the funding allocation to the higher education sector, the science and research savings announced in the 2009 Pre-Budget Report must be managed in a way that minimises the impact on research that supports higher value-added manufacturing, and areas of research which are directly linked to the UK's competitiveness. (Paragraph 171)
31. We also agree with Rolls-Royce that there should be a strong presumption in favour of large research projects being funded, on a national basis, by a single organisation. The Government should use its current review of research spending to investigate ways in which the system could be adapted to make this possible. (Paragraph 171)

## Defence research

32. While defence research is primarily the responsibility of the Ministry of Defence it is important that the Government acknowledges the fact that defence research has an impact on other areas of R&D, especially other high-tech industries. The Department for Business, Innovation and Skills should be involved in any discussions about funding for defence research to ensure that the impact of any reductions on advanced manufacturing industries is minimised. (Paragraph 173)

## Changing priorities?

33. The previous success of the aerospace industry should not preclude it from receiving R&D grants in the future. While we understand the desire for Government to support innovative new industries it is important that established sectors—with successful track records—are not disadvantaged as a result. We recommend that the Government ensure that the desire to support new industries is not disproportionately directing funding away from established industries such as aerospace and motorsport. (Paragraph 176)

## R&D tax credits

34. We support the Government's moves to simplify and increase the reach of the R&D tax credit system. We note the arguments made by some that directing resources from tax credits to the Technology Strategy Board would be a more effective use of public funds. We believe that this is something that the Government should address as part of its review of R&D tax credits. However, we remain concerned that such a move could penalise R&D intensive SMEs, including those in the motorsport industry, who would find it difficult to apply for grants through the Technology Strategy Board. (Paragraph 181)

## Business-academic engagement

35. While improving industry-academia relations is primarily a task for industry and academia, the Government has an important role to play in facilitating engagement and providing a positive policy framework within which this can happen. However, the Government has yet to communicate successfully this need to the SME sector. We have yet to be convinced by the Government's proposal of an SME university, and we believe that it should instead concentrate on promoting and expanding its existing work in areas such as the Innovation Vouchers Scheme. (Paragraph 190)

## Green agenda

36. Both motorsport and aerospace are engaged in a plethora of initiatives aimed at improving their environmental record and "greening" their technologies. However, both industries remain of the view that Government does not fully recognise these initiatives. Government and the industries need to co-operate fully to better articulate the "green" initiatives currently under development in motorsport and aerospace. (Paragraph 199)

37. We also agree with the Government that motorsport has the potential to shift the debate about carbon emissions away from a dry conversation about carbon budgets, towards a more valuable debate on the role that technology and innovation can play in addressing climate change and green issues. We welcome the fact the Government is considering this as an area of action. (Paragraph 200)

# Formal Minutes

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**Tuesday 9 March 2010**

Members present:

Peter Luff, in the Chair

Roger Berry

Mr Brian Binley

Mr Michael Clapham

Miss Julie Kirkbride

Mr Lindsay Hoyle

Mr Anthony Wright

Draft Report (*Full speed ahead: Maintaining UK excellence in motorsport and aerospace*), proposed by the Chair, brought up and read.

*Ordered*, That the Chair's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 203 read and agreed to.

Annex and Summary agreed to.

*Resolved*, That the Report be the Sixth Report of the Committee to the House.

*Ordered*, That the Chair 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.

Written evidence was ordered to be reported to the House for placing in the Library and Parliamentary Archives.

[Adjourned till Wednesday 10 March at 10.00 a.m.]

## Witnesses

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### Tuesday 3 November 2009

Page

**Dr Gareth Williams**, Head of Business Development, Research & Technology, Airbus, **Mr Bob Keen**, Head of Government Relations, BAE Systems, **Mr Keith Mans**, Chief Executive, Royal Aeronautical Society, **Mr Ian Godden**, Chairman, Aerospace, Defence & Security Group Ltd (A|D|S)

Ev 1

### Tuesday 15 December 2009

**Mr Chris Aylett**, Chief Executive, Motorsport Industry Association, **Mr Colin Hilton**, Chief Executive, Motor Sports Association, **Mr Andrew Manahan**, Managing Director, Lola Group, and **Mr Mike Dickison**, Principal Lecturer in Automotive Engineering, Coventry University

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### Tuesday 26 January 2009

**Mr Ian Lucas MP**, Parliamentary Under-Secretary of State, **Mr Simon Carter**, Business Relationship Manager AMI Automotive Unit, and **Mr Huw Walters**, Head of Aerospace, Marine and Defence, Department for Business, Innovation and Skills

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## List of written evidence

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\* First Joint Report with Culture, Media and Sport Committee

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

# Oral evidence

## Taken before the Business, Innovation and Skills Committee on Tuesday 3 November 2009

Members present

Peter Luff, in the Chair

Mr Adrian Bailey  
Roger Berry  
Mr Brian Binley  
Mr Lindsay Hoyle  
Miss Julie Kirkbride

Mr Mark Oaten  
Lembit Öpik  
Mr Anthony Wright

*Witnesses:* **Dr Gareth Williams**, Head of Business Development, Research & Technology, Airbus; **Mr Bob Keen**, Head of Government Relations, BAE Systems; **Mr Keith Mans**, Chief Executive, Royal Aeronautical Society; and **Mr Ian Godden**, Chairman, Aerospace, Defence & Security Group Ltd (A|D|S), gave evidence.

**Q1 Chairman:** Gentlemen, welcome to this first oral evidence session of the Committee's inquiry into the aerospace and motorsport industries in particular, looking at the protection and development of high-end engineering skills in the UK, two hugely successful industries. I get really frustrated when people tell me that manufacturing is dead in the UK when my brief reminds me that we have the world's largest aerospace industry outside of the USA dealing with a phenomenally successful sector generating a large number of high end value manufacturing jobs and we set up this inquiry in the spirit of optimism about the prospects for your sector as one of the genuinely world-leading sectors in the UK economy. So, congratulations to you all and all you represent and it is in that spirit that we try everything we can do to try to make sure that we can keep there and even improve our very large share of many of these markets. We had a very good visit last week to Bristol to GKN and to Airbus to see the work being done particularly on composite technology and then on to Bristol University to see the academic work supporting that and other developments in the aerospace industries, and that was a very revealing and important niche visit and we are grateful to all our hosts last week for that. We are grateful now today for you coming before us and may I, as I always do, begin by asking you to introduce yourselves for the record from the left.

**Dr Williams:** Good morning. My name is Gareth Williams; I am the Head of Business Development for Research and Technology at Airbus. I am currently based in Toulouse and moved to that role in June of this year. For the preceding 12 years, I was based at Broughton in a variety of operational roles.

**Q2 Chairman:** Will we meet you next week in Toulouse?

**Dr Williams:** I believe that you will in the evening.

**Q3 Chairman:** We look forward to that.

**Mr Keen:** I am Bob Keen and I am the Head of Government Relations for BAE Systems.

**Mr Mans:** My name is Keith Mans and I am the retiring Chief Executive of the Royal Aeronautical Society.

**Q4 Chairman:** When you say you are the retiring Chief Executive, you have never been particularly retiring! Keith, you are known to all of us in the room and these are your last few days in post I believe.

**Mr Mans:** That is right.

**Q5 Chairman:** Your successor is somewhere in the room, I think.

**Mr Mans:** He is just behind me.

**Q6 Chairman:** No doubt we will meet him in due course as well, but thank you for your work for this sector over the last few years.

**Mr Godden:** I am Ian Godden, Chairman of A|D|S, the trade organisation that represents aerospace defence and security for 850 companies that I represent.

**Q7 Chairman:** The brand new A|D|S.

**Mr Godden:** The brand new A|D|S, a merger between the old SBAC, Society of British Aerospace Companies, and the DMA, the Defence Manufacturers Association.

**Q8 Chairman:** Not to be confused with EADS.

**Mr Godden:** Not to be confused with EADS.

**Q9 Chairman:** A very important distinction! We are going to ask quite a lot of questions about varying subjects today and I want to start with some of the economic background questions and paint a picture of not the underlying fundamental strengths of the sector but the challenges that are being faced at present in the current recession. I wonder whether one of you would like to paint a picture for me of how the recession has actually impacted on the aerospace sector over the last year or so.

**Mr Godden:** I think it is a cyclical industry and we have experienced a cycle effectively peaking in order book terms in 2007 and in production terms in 2008,

and an expectation, albeit uncertain, of a couple of years of continued decline, the period of 2010 definitely being a difficult year for the industry, and 2011 an expected trough beyond which the normal growth, which is quite substantial, two times GDP around the world, so 5–6% long-term growth, would be expected to return to the industry. The net effect has been particularly bad in business jets which the UK is thankfully not quite so heavily dependent on, but nonetheless has some dependency on. In the larger commercial aircraft industry, the order book has held up better than most anticipated. So, it has not been as bad as some people were thinking perhaps a year ago, but nonetheless it is still going to be a tough 18 months to two years.

**Q10 Chairman:** To what extent do the long lead times for commercial airliners in particular make it easier for the industry to plan its way through a recession? Is that a factor?

**Dr Williams:** I guess one of the contributing elements that that brings is that it tends to dampen out the immediacy of any economic changes. The implication therefore is that there tends to be adjustment in the current order book whilst there is a backlog of orders, which fortunately Airbus is in the happy position to have at the moment. As a consequence, whilst there are some cancellations, typically there will be deferrals or movements of orders and there is, through prudent management of that order book, an ability to bring some orders forward and dampen the immediate effect on short-term production. Nevertheless, as Ian indicated, in the longer term, we see the economic impact on the airlines affecting their profitability, as a consequence their ability to invest in the future, and there will be some longer term impact within the commercial sector.

**Q11 Chairman:** I am just looking at Airbus for a second. We were tantalised with the dates when we were down in Bristol last week. When do you expect the A400M to fly, its first test flight?

**Dr Williams:** Before the end of the year.

**Q12 Chairman:** Still the same answer! We will ask you again next week! More specifically, looking at Airbus, and this is relevant to another inquiry we are doing on exporting out of recession as to this inquiry, I want to ask you a few questions about credit arrangements and ECGD in particular and I think you are prepared for this. You suggested in your very powerful evidence, for which I am very grateful, that ECGD is not working closely enough with its European counterparts and that makes it more difficult for your customers to secure credit to place orders with you. What are the current arrangements for co-operation and what changes would you like to see?

**Dr Williams:** Whilst it is not an area of expertise for me, the briefing that I have and would convey to you is that it is not so much that the arrangements are not working effectively, it is intrinsically that there are three agencies through which an arrangement must be made—the Export Credit Agency in the UK,

France and Germany—and the contrast or the comparison that is being made is with the US case where there is a single agency to deal with. We certainly recognise that in the recent months and probably the latter half of this year there has been close co-operation between the export credit agencies in France, the UK and Germany and I have seen some simplification of the process that a customer would engage in to ensure the appropriate financing of their acquisition. Some fundamentals, rather than there being an issue with the detailed transactions between the different agencies, it is the very fact that there are three rather than one to deal with and insofar as it can be made to operate as if it were one that would be beneficial.

**Mr Godden:** Can I just add that I think it is the complication and therefore the delay or the pace at which decisions are made rather than the extent of the decisions and I noticed certainly in the last year when the industry did make the appeal to both governments, the EU and the various banks, it took a bit longer than the Americans to respond to that but they did respond.

**Mr Keen:** I wonder if I can make a couple of points from the defence aerospace point of view. First, in relation to the impact of the recession, the general picture is the same. The long-term nature of the business means that the impact in the short term has been less than it has in other industries but clearly, against the background of the public deficit which the UK is facing, there is bound to be increasing pressure on the defence budget which will in turn affect MoD procurements and indeed investment in research and technology in the long term. So, whilst the short-term effects have been relatively small, the longer term impact could be more significant. As far as ECGD is concerned, I think that our perspective is slightly different in that our principal preoccupation with ECGD is making sure that the UK is operating on a level footing with its European and other competitors and therefore, from our perspective, we are concerned to ensure that the sort of offerings that are available to our European competitors are also available to UK exporters, particularly at a time when I think exports will become more important—your inquiry into exporting out of recession is a very important one—both from our point of view because of the additional pressures that I have spoken about on the UK domestic market but also because, in exporting, being able to offer competitive and attractive financing packages to our overseas customers is going to be increasingly important.

**Mr Mans:** May I add one very quick comment and that is that I think it is important for all governments in the UK to appreciate that this sector is a global sector which affects not just businesses but governments as well. So, you have to look at what everybody else is doing across the world. I also believe that you need what I would term a life-cycle partnership, so that at every stage in the development of a new aircraft right through to ECGD you look closely at what other people are doing to ensure that the industry remains competitive in the UK.

**Roger Berry:** Is the logic of what you are saying about export credit agencies that there should be a single EU export credit agency?

**Q13 Chairman:** Certainly for the aerospace sector.

**Mr Godden:** It is an interesting question. I think it is the pace. If the answer to that is that that increases the pace at which things are done, then the answer, from an industry point of view, would be “yes”, I guess, but there is a fear that that does not necessarily follow what you have just said.

**Roger Berry:** I appreciate that it is a controversial question. I am not highly surprised that there was a long silence afterwards as you looked around the room and wondered what kind of response you would get from various people, but the logic of what you are saying requires me to ask that question.

**Chairman:** We will not tell *The Daily Telegraph* what you say, I promise.

**Q14 Roger Berry:** Yes, we will!

**Mr Mans:** Let me try to offer a suggestion. I would argue probably there is a stronger case in terms of commercial aerospace particularly when this country is so linked up with other countries in Europe. However, when it comes to defence, probably Bob will have a different view because clearly we compete with other countries in Europe and therefore our offer in terms of ECGD should be at least as competitive as those that we are competing with.

**Mr Keen:** I absolutely agree with that. The logic of my argument, which is for a level playing field across European competitors, is that there is a levelling out of the offerings which each of the export credit agencies make and indeed the OECD consensus rules, which do not apply in defence actually but which apply more generally to export credit offerings, do have the aspiration of making sure that those offerings are the same. I am not directly answering your question—

**Roger Berry:** I have noticed!

**Q15 Chairman:** I have a more technical question that I was going to ask about one aspect of the way the system works but I am not going to ask that question and my suggestion is that perhaps our clerks could talk to all four of you and you might like to give a little written note—and Airbus has already done quite a lot already on this—as to how you see this issue for our other inquiry rather than being bogged down today when we are looking at the future rather more. I think that would be helpful. So, we will park that for the time being and would like you to give considered responses to the quite important issues for that inquiry. I think that would be sensible. Actually, looking at Dr Williams and the rest of you as well, is there a difference in the cost of trade credit between the US and Europe? Is there a price difference or is it a bureaucracy question?

**Dr Williams:** I am afraid that I do not have sufficient knowledge to answer that question. Perhaps I could offer to provide some additional information.

**Mr Keen:** A final word on defence. As far as the US is concerned, the EXIM organisation is actually precluded from offering credit for defence programmes. The whole approach to defence exporting in the US is different and based on foreign military sales and a foreign military funding process. So, it is comparing apples with pears.

**Q16 Lembit Öpik:** My question is to Airbus: to what extent are we being insulated against the recession because the A-380 and we can predict the A-350 are actually technologically superior to the main competitors, the outstanding but now venerable 747 which is probably close to its final version and the problems that we all know that Boeing is having with the Dreamliner?

**Dr Williams:** I think certainly there is a large insulation effect and a benefit from technology in the A320 because that, as a family of aircraft, has been highly successful. You will be aware that it has paid back its repayable launch loan many times over now and in fact it is the mainstay of Airbus in terms of production rates. The current production rate for that aircraft is at rate 34, as it is called, which, although it does not sound a lot, is actually large volumes in aerospace terms and we are pleased to hear today that Air New Zealand, I think, have placed an order for another 14 aircraft, so that is another two weeks' solid production added to the order book and is very good news. The linkage between technology and the security of the future order book I think is there, but I would choose to focus more on the A320 as providing the bulk of that security today. I think we would anticipate providing the A380, which is recognised as a superb product, in the next economic cycle, should we reach that point.

**Q17 Lembit Öpik:** A|D|S is obviously a very exciting development because it seems to be trying to create a single narrative for civil aviation, space, defence and security. To what extent do you think it will be possible to create a cohesive strategic narrative? The reason why I ask the question is because I think that the biggest single weakness of the entire sector is that it operates in silos and sometimes it fights itself, whereas, if it worked together, then that would be an enormous force multiple both in terms of its political impact but also its commercial opportunities.

**Mr Godden:** I think that it is very positive for two reasons. One is the historical reason that, in the defence alone, the land, air and sea defence has been differentiated and siloed in the past. The industry itself has consolidated that, so many of the major players do not differentiate between land, air and sea anymore, and that was part of the history, let us say, that we had to deal with. The second is that there are obviously strong links between civil aircraft and military aircraft and that is something we would encourage and we see it on things like the A400M and the importance of composite wings for the future and the UK technology on composite wings versus the very ambitious Spanish and German and equivalent companies keen to establish a position there. So, it is important to keep the link between the

civil and the military as well. Thirdly, the area of defence and security. There is clearly a blurring both in people's minds and in technology terms between those two sectors. Some say that defence is playing away from home and that security is playing at home. That distinction in British terms I think has been unhelpful. For all those reasons, it has been logical to put together but I think that there is a second reason which is perhaps more important in the long run in that there is a recognition, as the Chairman mentioned at the beginning, that manufacturing high value service and the nature of engineering and design and innovation is very similar in those four sectors—civil aviation, space, security and defence—and that, as a major contributor to government policy currently and, as far as I can see, the whole of society wanting Britain to be an innovative nation. So, those four logically fit together. My last point is that supply chain sometimes does not recognise the difference. I think that the major platform and systems integrators and equivalents see the differences there but, when you look at the supply chain, there are 9,000 companies or thereabouts in the UK. If you do it narrowly, you get to 3,000 and if you do it widely, you get to 9,000 companies.

**Chairman:** I am going to cut off there rather rudely because Mark Oaten is going to look at supply chains and I think it is a nice introduction to Mark's questions.

**Q18 Mr Oaten:** Let us pick up on those 9,000 companies. Ian particularly but all of you guys will be in a pretty good position to get an assessment of what impact the recession has had on those who are working in the supply chain. Are there some particularly difficult horror stories that some of those suppliers are going through at the moment?

**Mr Godden:** There have been isolated incidents of significant problems particularly on the civil side over the last year or so and there is an expectation that some aspect of the supply chain will be affected by the downturn in the civil side. If I look at it in holistic terms, a small minority of companies have struggled and I contrast that with the automotive sector, where obviously suppliers have been really badly hit and I contrast that with certain sectors like the business jet market which has been significantly bad. Overall, because of the comments earlier about the lagged effects and the smoothing effects of long-term programmes, the supply chain, although squeezed, has not been damaged in the same way, but my belief, on the civil side next year and on defence probably two or three years from now, is going to be squeezed quite significantly.

**Q19 Mr Oaten:** We have not seen the pain yet.

**Mr Godden:** I do not think that we have seen the full pain yet; I think that is coming next year or the year after.

**Q20 Mr Oaten:** Are these members of your Association?

**Mr Godden:** They are.

**Q21 Mr Oaten:** Have you seen a drop in Association members?

**Mr Godden:** Ironically, we have not but we are looking at 2010 and 2011 as the test rather than 2008 and 2009.

**Q22 Mr Oaten:** But you would presumably have some pretty accurate figures on how many of your members are actually going bust?

**Mr Godden:** We have identified so far six or seven companies that we have passed on to BIS as being in real trouble. There are a number of companies who are exiting markets but not going bust and there are a number of companies that we think may be in trouble in the future. We have not detected huge numbers of companies going bust. The individual companies themselves, it may be best to describe their supply chain because they have kept a close watch on their suppliers obviously because it is very significant particularly in the context of all the new models that have been coming in that the supply chain does not break down at this critical point of the industry.

**Q23 Mr Oaten:** Have you had examples where you have suddenly discovered that a supplier has let you down because they have hit difficulties?

**Dr Williams:** I am not aware of cases where we have suddenly found an example. I think there is a point to being alert to it as a risk and monitoring that risk closely which is something that we have taken very seriously as an organisation. Perhaps a point I should make is that it is not just in respect of the UK companies. So, whilst there may be an organisation such as Airbus which assembles a wing, whilst a good part of the componentry may come from the UK, in fact the componentry may come from other parts of the world as well. So, that watch has to be on the effects of the economic recession on the supply chain wherever that supply chain may be and, as a consequence, managing risk has another level to it and consideration of options as to how to deal with alternative sources of supply clearly come into that pattern. I would reiterate the point that Ian made, that the numbers that we observe so far are relatively small and I think that probably the highlight case that comes to mind within the frame of Airbus was a company that was very close to being taken down because of its commitments in the automotive sector.

**Q24 Mr Oaten:** A similar picture, Bob?

**Mr Keen:** A similar picture. In the North West alone, we have 1,200 suppliers, so we have to keep a very close eye on our suppliers. We have specifically, over the last 12 months, instituted a process through which we have monitored the financial health and indeed general health of the companies in our supply chain.

**Q25 Mr Oaten:** You are both monitoring but are you specifically doing anything to help?

**Mr Keen:** Perhaps if I may go on, we have a watch list of about 80 companies that we are keeping a special eye on, and that we are engaging with on a weekly basis. Beyond that, we have about half a dozen companies that we have more significant concerns about and, in those circumstances, in essence, what we are trying to do is work with them to identify how we can help them through with cash-flow issues, advance payments and that sort of stuff, how we can help through smoothing workloads over a particular programme or a number of programmes and doing senior coaching and mentoring, if you like, to try and help them through their particular issues. So, we have a very pro-active process in BAE Systems.

**Q26 Mr Oaten:** And a similar picture within Airbus?  
**Dr Williams:** Yes, similar within Airbus though I think we differentiate in two ways. The first is that where there is the need for a recovery action and specific intervention to help a company, that will be taken almost in the normal course of events as you would expect as a prime organisation. Secondly and in conjunction with BAE Systems and other companies, we have taken specific measures to assist the supply chain and notably smaller companies in the supply chain adopt newer manufacturing practices and newer industrial practices to help them avoid ever getting into those circumstances in the first place, whether that has been through the provision of training and education for people through the Lean Learning Academy, which is the well-known example within the north-west area, or whether it is by the provision of specific mentoring to senior managers. There is a programme of activity there essentially to prevent the occurrence of the problem rather than just treat the problem when it occurs.

**Q27 Mr Oaten:** If we went to some of the supply chain and asked them if you guys are paying their bills on time, what kind of response do you think we would get? Are you pretty confident that you are paying on time?

**Mr Keen:** Yes. Certainly from our perspective, I would be pretty confident.

**Dr Williams:** I would be confident that we are paying much more on time than we were! Hand on heart, in every circumstance, I could not guarantee it, but we have made significant improvements.

**Q28 Mr Binley:** I have to say that I am particularly concerned. Airbus, for instance, as I understand it, employs about 10,500 people directly but another 140,000 in 400 SMEs. I understand that is your supply chain. You say that you monitor, but do you think that the banks are doing their job with SMEs because there is a real concern there that in fact the problems are not over in any sense at all for that sector and in fact it is going to get worse?

**Dr Williams:** That is a good question and I am afraid that I do not have a ready answer.

**Mr Godden:** I listen and hear a lot about what the SMEs say about what is happening and may be coming back to that question plus also following on

from Mark's question. I think that there is a concern. I am actually quite concerned for next year and the year beyond. There are two parts to that. One is that the banks have made it very difficult for the smaller companies to invest for the future. They may have been able to continue doing business and continue with credit terms although the pressure is on from the majors to really batten down the hatches and take on more risk and be keen on pricing particularly since it is a dollar-denominated market, and that pressure is short term there, but I think that what has happened is that the ability to invest has gone away and that worries me a great deal because I see a number of companies that are not getting the funding for the long-term investment that is required for the industry. The second factor is that while that is happening there are other parts of the world that are grabbing the momentum. So, my worry is not necessarily for the short term next even 18 months, but I think that we are seeing a degradation of investment in the supply chain which is making me nervous for the next few years as to how it will survive that continued pressure and I do not think that the banks are giving that natural investment money. They are shying away from it.

**Q29 Chairman:** This is a lot of reading across from the automotive/automobile sector. We have heard anecdotal evidence I admit that the banks are almost blacklisting the automotive/automobile sector for loans and finance, whereas the aerospace sector is very strong and a growing sector. Is there evidence that SMEs are suffering in their automotive investment that is having an impact on their ability to service the aerospace sector? Do you understand the question? Have I expressed that clearly?

**Mr Godden:** As we are at the peak of the cycle and as the programmes are in place, I do not think that it is a short-term problem, I really do not. I cannot come to you today with evidence that the SMEs are saying that there is no money available from any bank to do anything; that is not the point—

**Q30 Chairman:** The banks say that there is money for good businesses.

**Mr Godden:** Yes.

**Q31 Chairman:** And what you are saying is that that is not the evidence from your members.

**Mr Godden:** There is money for businesses that are continuing to look good in the short term. Secondly, the cost of banking is horrendous. I am on the board of a company which I will not mention and the banking fees and charges and the rates that they are charging for a re-financing are extraordinary. It happens to be in the aerospace and defence amongst other things, but I am actually shocked at the pricing.

**Chairman:** We must not get too bogged down on this issue, but that little exchange has been very helpful.

**Q32 Mr Oaten:** I will try and deal with this very quickly but I want to understand the driving force behind the Supply Chain 21 Initiative set up in 2006 which seemed to have these grand ambitions that

would speed up the supply chain where companies that sign up will work openly and transparently and they will avoid duplication and waste. Why have only 500 companies out of the supply chain signed up?

**Mr Godden:** I will take that one because I am responsible for SC21 but obviously, in the end, the companies are responsible for the supply chains but, in terms of this national initiative, first of all I think that we are regarded around the world as having a remarkable national programme that is the envy of the French and the Germans and the Americans. So, I can put it in the context of saying that the ability to get a national programme embedded into a set of entrepreneurial SME communities is actually quite a task and I have discovered personally and I think all those on SC21 have discovered that, if you think herding cats is difficult, this is quite—It is a glass half empty/glass half full would be my comment about SC21.

**Q33 Mr Oaten:** Hang on; 500 out of 9,000 . . .

**Mr Godden:** You have to consider the tiering of this thing. 500 is probably representing the next 2,000 to 3,000 companies, so it is more like a fifth or a sixth of the next tier, as it were, down the chain and it is right. There are also a number of initiatives going on which are not really part of SC21. So, I think you have to be a little careful when saying that is all. It has taken 18 months to get that momentum. I am confident of the programme, but it is not entirely successful and not entirely unsuccessful; it is half-way through a process.

**Q34 Mr Oaten:** Is it a factor that, when you are looking at suppliers, you would want to have a supplier that is part of the initiative?

**Dr Williams:** It is. I was involved in some of the discussions at the start of the programme and one of the drivers behind it was the supply side for improvement ideas/improvement initiatives was full of offerings. You could go to management consultants, you could go to large companies such as Airbus and pick up improvements and ideas and opportunities, so the supply side was full, but the demand side was weak. It was almost taking the horse to water but would it actually want to drink? So, 500 companies that want to participate see that there is an opportunity for improvement and want to take it because they actually want to be there in five, ten or 15 years' time. I would not be quite as defensive as Ian was about it; I am quite pleased with 500. I would prefer that it was 3,000, but it is 500 active and willing participants.

**Mr Keen:** It is exactly the same story for us. We are committed to it. We actually provide the chairman to the programme.

**Q35 Mr Oaten:** Does the Government help at all?

**Mr Keen:** There is some government funding/matched government funding in there which goes through the regional trade associations.

**Chairman:** Thank you very much. We will turn now to the bigger question of government overall strategy.

**Q36 Lembit Öpik:** In 2003, the Aerospace Innovation and Growth Team report really set some heavy targets and I have a few quotes from it such as: “The UK will offer a global aerospace industry in the world’s most innovative and productive location” and “The UK must sustain a level of focused aerospace applied research and demonstration sufficient to maintain and enhance the UK’s position in the global aerospace market” and: “The UK must systematically and continuously deliver productivity improvement at a rate faster than its competitors . . .” and so it goes on. Has that vision been achieved? Is that vision still valid?

**Mr Mans:** I am certain that some of my colleagues will have something to say about this. Generally, I think that it has. I think that it is still a very relevant document and I think that it really does point the way ahead simply because we are effectively a smart supplier of technology to aerospace companies right across the world, but there are threats. The obvious threat is the cost base and whether in fact you can keep that down and indeed compete with people across the world who have a lower cost base. Equally, the point that Mr Binley made earlier I think is a very good one. You have to continually invest in new technology. If you stop, that is when things become difficult and, if you do not have the money to do so, then again that is going to affect the ability of us to deliver what the Innovation and Growth Team said was necessary. The final point I would make is, if you are designing a new aircraft, you think that you want brand new technology in it and, yes, you do want a certain amount, but you also want tried and tested technology because you want to de-risk it. You can see the sorts of things that can go wrong if you go a bit further than you perhaps ought to with some of the things that have happened to the 787 programme in particular. So, if you are designing a new aircraft, you will look around where the technology is, but you will also check that it is fit for purpose and that it has been properly demonstrated. That costs money and that means investment and you cannot stop—you have to invest right through recessions—because this is a very long-term industry with long cycles. The benefits are of course that you get the money back over a very long term as well. That was the principle behind the Innovation and Growth Team. As I say, I think that it is being met to some extent, but there are threats out there.

**Mr Godden:** I would agree with that, that it has been a very successful programme. It is five years old though and, as we know from our own planning, in corporations and equivalent in government planning, five years is a long time. So, it has been successful in many respects but it does have some gaps, it is time for a refresh and I think that the industry realises that and I think even Government departments that have been involved very heavily with AeIGT recognise that it needs a rethink. I would highlight a couple of areas that I think have changed which need to be examined or looked at differently. It was a little light in terms of the services sector for example. A large part of the industry is services and exportable services, not just services in

the UK. Secondly, it was a little light on the rotorcraft front; it tended to be a little more biased. Although there is a lot of reference to rotorcraft, I think that that is probably not addressed. Similarly, in unmanned vehicles which it did not really address in full measure; it has been added and thought about since. There are certain aspects that I think need refreshing, rebalancing and refocus but, in principle, I think it is a very good process and framework and ambition. The funding issue around the technology I think is one that the industry has continuously worried about, particularly recently, and the issue of skills is probably still a little light in the context of technology, skills and performance—we talked about SC21—and market opportunity. I think the one that is probably a little behind which we are trying to accelerate and have been for the last year and a half is the skills agenda which probably we have not spent enough time on.

**Q37 Chairman:** We will want to ask you about it at great length later on this morning.

**Mr Mans:** May I come back on one point and that is that something that the Aerospace Innovation and Growth Team did not do is look at space and, as you know, there is now an Innovation and Growth Team for space and I think that will fill one particular gap as we are pretty strong in space in certain areas and again I would hope that the same sort of process will go through that particular growth team as went through aerospace and again I would be interested to see what the results are.

**Mr Keen:** From BAE Systems and the defence aerospace perspective, I have three comments to make. The general comment certainly is that the AeIGT set out the right vision. We have a general concern about the level to which the initiatives have been funded since then. Secondly, to pick up Ian Godden's point about unmanned from a parochial perspective for a moment, the Defence Industrial Strategy 2005 set out very clearly the dilemma that the UK has in combat aircraft, which is that we have at least another 30 years of combat aircraft in service now going through to the end of their service life. So there is a need to maintain capability and skills to ensure that they are supported and upgraded and that we allow to ourselves, the UK, the opportunity to participate in future programmes beyond that. The DIS made clear expressly that investment in unmanned technologies was essential to bridge that gap and it led to MoD investment in a couple of programmes which have been very important from our perspective and which have really broken new ground over the last two to three years. We are actually back at the crossroads again on unmanned technologies, to echo Keith's point, and there is a need again to refresh the investment in unmanned technologies and that is an issue of real concern to us in BAE Systems. The third point I would make is the general one again that there is still a sense in which we have not yet got the balance right between pure and applied research pulling through technologies which have real promise into real programmes.

**Q38 Chairman:** Again, we will want to ask you about that later as well.

**Dr Williams:** I have nothing to add to that.

**Q39 Lembit Öpik:** The team has actually been enacted since 2003. By inference, certainly from what Ian Godden has said, it sounds to me as though some work may need to be done by that team. What do you feel?

**Mr Godden:** I feel so and I think that the industry is beginning to feel that. I think it is only relatively recently that that feeling has emerged. So, I think it is premature to say that we have a 100% consensus around that, but I think that it is an emerging view that it is time for a refresh. A re-examination is probably too heavy a word

**Q40 Lembit Öpik:** Now that you are trying to create this cohesive approach through A|D|S, you cannot give the details but things such as airspace regulations have always had implications technologically and actually environmentally. For example, the crazy Balham(?) single engine turbine aircraft and IFR operations which have a direct impact for example on the aircraft that you might want to build and operate.

**Mr Godden:** Yes. Perhaps some of the thinking around the wider aviation issues needs to be brought into that debate. Keith Mans has mentioned space which I think is another one to make sure that the whole agenda gets refreshed from the space perspective as well. So, I think it is probably time to do that for the aviation sector, sustainable aviation, space and a refresh of the basics of the AeIGT.

**Chairman:** We are at present looking at three aspects of government initiatives. We have just looked at the overarching strategy and we want to move to repayable launch investment and then we will move on to manufacturing package and Richard will ask about the repayable launch investment.

**Q41 Roger Berry:** Which has been a very significant instrument of government policy. I would like to take this opportunity of asking for your response to the critics of that programme, of whom sadly I still encounter quite a large number, who basically say that the private sector should be able to fund investment of this kind. It is pointed out that this investment has actually produced a really good return for the taxpayer and therefore why do we still need this programme. Which specific market failures exist that justify this programme in your view? That was meant to be a helpful question! I passionately support the programme.

**Mr Mans:** Let me give a slightly different view. I think in the long term we may well have to move away from this particular way of supporting the aerospace community as a result of the WTO decision. I am not saying completely, but I suspect that one of the issues that is going to arise is whether our support moves from a direct to a more indirect approach which is one that the Americans adopt. It may well help to fill that gap between new technology and pulling it through through technology demonstration and prototyping. Having

said that, I still believe that there should be a life-cycle partnership between government and industry in terms of aerospace. I just feel myself—and I am probably not in agreement with some of my colleagues—that simply to repeat what we have done before in terms of fully repayable launch investment, bearing in mind the WTO ruling, may not be the right way forward. I think that we have to be a little more subtle in the way that we move forward.

**Mr Godden:** You asked about market failure and my view of market failure is that every single government in the world has decided that this is not a free market and a commercial marketplace. That is particularly true not of the developing nations but the developed nations. So, the market failure is that Spain, Italy, Germany, France and the USA have chosen to do this.

**Q42 Chairman:** And Japan.

**Mr Godden:** We sit in the UK and we are in this uncomfortable situation where we say, “We do not want to do this,” and it is exactly what Keith Mans has said. I have the same sentiment. However, I come back and I say on behalf of the industry, “I am not willing to be the first to give up this market failure” because, if we do, I know what will happen. Our 17% market share will end up like our automotive market share which is 4% of the global market and we will slip five years at a time as we watch it slip if we say that we are not prepared to do this anymore. That is the market failure, if you want to put it that way, and therefore, unlike defence where we have had a very open market and I have regretted that to some extent with some of the policies that I would argue, however there is no doubt that we have been the leader in opening the market and, by taking away some of that government support or whatever word you want to use, that is what will happen. So, from my point of view, I would urge this country to remain in the game because it is economically advantageous. It returns two-and-a-half times on investment money for government and the rest of the developed world is still playing this game and, if you want to play the game, you have to remain within the game rules, which are these.

**Dr Williams:** If I may, I would question, why would you not want to invest in success? I think that Ian has made the point. Clearly, there are difficulties in absorbing the risk in the long-term market that we are dealing with. To come back to a point that Keith made, I want to reinforce for the Committee that Keith mentioned in passing “with the WTO ruling”. I do not think that there has yet been a ruling. If I understand it correctly, there has been an interim report on one side of the WTO argument—

**Mr Mans:** I think that is right.

**Dr Williams:**—for which a second report may yet be published coming from the EU side and for which there will be no doubt a prolonged series of discussions thereafter. I would not want the Committee to go away with a view that the ruling had been made. Clearly, there is a model there that works today and one of the arguments that could and should be used, I think, to support that is the

demonstrated performances that it does work. It satisfies the needs of industry and it satisfies the needs of the country as a whole through the basis on which it repays. So, I was very pleased to hear Ian’s robust defence of the approach. It is worth bearing in mind that in the sector in particular with which Airbus deals, the 100-seater plus market, of course there are challenges into that market now from China, Russia and Brazil, so there will be increasing competition in this marketplace. To conclude the point, I would urge sticking with the working model.

**Q43 Roger Berry:** I would like to ask about the WTO in a second but, before that, may I ask for our views about how the UK Government support of the aerospace industry compares with that of our competitors and I guess that there is the obvious question about the States since the WTO issue is on the table. Do you have any further comments about how UK support for the aerospace industry compares with that of governments in our competitor countries that you would care to place on record?

**Dr Williams:** In the written submission that has been made by Airbus, we have identified a significant benefit that our competitor has derived directly from Italy, Japan and the United States and in fact not on the basis of having to repay those funds to the Government but as a direct grant or subsidy. There are clear examples where a different model is used and one obviously that is currently in the process of being challenged. I am not personally familiar with the funding models in China and in Russia, but there is serious competition and the competition from those areas is considered seriously by Airbus.

**Mr Godden:** First of all, the industry is very appreciative of the support that has been given particularly over the last year or two in the difficult time. So, the first statement is that, with the £340 million that has been negotiated for A-350, the £45 million for the facilities for Rolls-Royce, the £60 million for GKN, the 125cc Bombardier, those are large sums which have demonstrated the commitment of society and the Government to staying in this game as we refer to. So, that is positive. I think that the areas for concern are twofold. One is on the technology and research and technology funding. There is a definite concern that that is not any longer competitive in terms of the commitments of the developed nations. Secondly, I am just back from Mexico myself and we had a tour of 25 sites in Mexico seeing what is given by those governments on the ground for SMEs essentially, or large Ms shall I say, and the packages available there are much more significant than in this country and I mean much more. We can always argue about developing nations but Mexico, for example, and South Korea I would mention also, are clearly funding in the form of training, skills and what I would call local not-so-well-seen amounts of money—Rolls Royce, if they were here, probably would quote Singapore—and so we are in a much more competitive world in terms of those levels of support and a bunch of new ambitious countries that are out to get us and the supply chain in particular.

So, whilst we are appreciative, I think that the game is not getting any easier; it is not slimming; the competition with support is actually going on.

**Q44 Roger Berry:** Finally, as Keith Mans said, we have the WTO—like it or not we have the WTO. Are there any comments that you may have on the implications of his deliberations on the aerospace industry would be helpful, but particularly coming back to Keith's point. If current funding arrangements were ruled to be in breach of WTO obligations, how would it be possible to construct and respond to that?

**Mr Mans:** I have indicated that I think we have to be rather smarter. I think that the Americans particularly gained quite a lot of subsidy in one way or another, but it is not as clear to people exactly where it is. It may be transferred from military to commercial programmes, it may be through individual states in the United States providing aid or indeed, as has already been said, foreign countries like Italy. I think that we need to look at exactly what is going on. If indeed the WTO does rule in a way that is not to our advantage, we just have to look at the way that we make certain that the industry in this country remains competitive and, as I have tried to indicate, there is this area, which Ian agreed with me on, where I just worry sometimes. We are very good at producing things in laboratories and showing that it is physically possible to do something rather clever. Pulling it through to something—

**Q45 Chairman:** We want to deal with that later as well.

**Mr Mans:** I had better stop there.

**Q46 Chairman:** That is a really important theme.

**Mr Mans:** And that is an area where I think that we might shift some of the emphasis on to. I am not knocking out launch investment as such, I am just saying that, if in fact we find ourselves in a slightly different position in a year or two's time, we need to be ready now to respond to it.

**Q47 Mr Hoyle:** Keith, can I take you on from what you have said because you have touched on the part that I think is key, that the Americans can hide either behind the NASA programme or, more importantly, the defence programme because they have the military and the civils all wrapped in together. Do you think there is some regret with British industry separating from military and the civils? Maybe Aerospace would like to answer that. Keith or Bob, what do you think?

**Mr Mans:** I personally think that it is important for the two parts of the aerospace community to work very closely together. There has in the past been a general spin out of military aviation into commercial products. I think now that it is not as clear as that. There may well be spin into defence products from new technology in the commercial sector and, for that reason alone, I think that it needs to be closer together and we should have something in this

country, not dissimilar to DARPA in the United States, to take advantage of new technology where we can.

**Mr Keen:** I do not really have much to add to what Keith has said. Obviously, from our perspective, other than in a very small sense, we are not involved in the civil sector any more and, in that sense, it would, I guess, be more difficult to adopt the US approach to this area in the sense that we are talking about separate companies as opposed to one company with a spread across both defence and civil aerospace.

**Q48 Mr Hoyle:** So, it would be fair to say that other countries are better at hide and seek than we are. We are good at seek rather than hide. Is that fair to say?

**Mr Godden:** I would say yes.

**Dr Williams:** I think it is worth noting perhaps as well in that context that France, Germany and the US all have funded national aerospace programmes.

**Chairman:** Once again, that is something we might want to come on to during our future questioning.

**Q49 Mr Binley:** I want to talk about the advanced manufacturing package which was launched at the end of July about which Lord Mandelson said was designed to “help equip British manufacturers of all sizes and sectors, to take advantage of the advanced technologies and new market opportunities . . .” So, we have a clear understanding of what it is supposed to do. Do you believe that the Government's advanced manufacturing package has identified the correct priorities for the aerospace sector?

**Dr Williams:** The view from Airbus would be that, yes, it has.

**Q50 Mr Binley:** I am not surprised!

**Dr Williams:** I think perhaps a consideration is the scale at which that is actually done. With a 20 million budget, there were 400 million-worth of applicants for that budget. There is clearly a pent-up demand to exploit such technologies. The ability or access to do so is perhaps constrained by the way in which the opportunity is presented today. So, in terms of the theme and the topic, by the very over-subscription that we have actually seen, I would suggest that it is hitting the right button. The only question therefore is, at what scale should it be funded?

**Mr Binley:** Can I go on to probe this a little more because much of the package, £90 million out of £140 million, is going to Rolls Royce. Does giving so much money to one company risk distorting the market? Are there concerns there for you?

**Q51 Chairman:** The record will note Mr Mans's laugh, I am not sure whether slightly nervously or what.

**Mr Godden:** Obviously I represent the whole industry and I cannot comment on one company in that sense specifically. I think it goes back to the point that that is at an appropriate—first of all I think that the framework is appropriate—level for the number two worldwide competitor and winner in an aero engine business that has gone from number four to number two—fortunately, in

previous years, the Government chose to rescue that—with a variety of actions. This action for that company is very significant. If you take that money away from them and say, “You’ve got half of it,” I would worry as much as if you say, “Is it good to give it to one company?” My argument would be that is appropriate funding for that worldwide leader. Whether there is enough for other companies in the chain, particularly some of the medium-sized companies, I would come back and argue probably not.

**Q52 Mr Binley:** That is the point I really wanted to get to, because he did say “of all sizes”.

**Mr Godden:** Yes.

**Q53 Mr Binley:** So it is not just for the “biggies” quite frankly. It was meant to filter down to a sizeable number of SMEs. That seems not to be happening; we know they are in trouble with the banks. What should we do with this package to make sure that the people you talk about not having that investment money for three, four, five, six, ten years’ time are a part of this scheme in a more effective way?

**Mr Godden:** I would come back on the skills area. Obviously advanced manufacturing is a set of infrastructures and facilities and so on which will have a spin-out effect on the whole supply chain; it is not just for one or two companies. But the whole manufacturing skill base in the country is the area that I worry about most, particularly in the SME community, and that means probably more for training and skills in advanced manufacturing.

**Q54 Mr Binley:** We are coming to that side, but I am particularly interested at this moment in the SME sector. I am particularly interested that we have money going to that sector to get the sort of development that is going to be vital to us over the next 10/15 years. You have already intimated that the banks are not helping overmuch in that respect. Should we be doing more with this scheme in that respect? Should part of the process be to focus totally on this particular sector and to monitor it to make sure that it is getting what it needs to support British industry?

**Mr Mans:** This is a very difficult problem. I fully agree with you. The fact is that Rolls-Royce is the last major British-owned company in the civil aviation business, number two in the world. They are very good at getting the support they have. I would worry that if that support was spread more widely you might find it damaged their ability to compete effectively across the world, and that would obviously have a knock-on effect on the supply base. Having said that, you are absolutely right, Mr Binley. It needs to be a partnership. I do not know how much of that £90 million that Rolls-Royce gets migrates down the supply chain. Some of it undoubtedly will. Equally, your point about making certain we have a viable supply chain is a very good one. Personally I would like to see that addressed directly but not at the expense of a major player like Rolls-Royce.

**Q55 Mr Binley:** That is very helpful. Thank you. Is there any other comment on that?

**Mr Keen:** I would echo that. You would expect me to probably, as one of the prime contractors in the UK. The SME sector is dependent on the prime sector. Whilst it is absolutely right that there is an emphasis from a policy point of view and a practical point of view that we maintain the health of the SME sector, we really must not forget that certainly in the defence field SMEs are absolutely dependent on the defence primes.

**Q56 Mr Hoyle:** Mr Mans, it is very interesting that you mentioned big investment/number two in the world/major British company. This trickle down to SMEs should come from the £90 million. How many of those SMEs will be in the UK? How many are we helping overseas? That is the first danger. The second is a great amount of money—no problem—backing Rolls-Royce. Do you believe that Rolls-Royce have the loyalty to the UK that they should have? We know they are investing more and more overseas. Do feel they turning their back on the UK at the same time as receiving huge amounts of money from the UK?

**Mr Mans:** No, I do not, Mr Hoyle. I do not think they are turning their back on the UK. They are an international company. They have to ensure that they compete on the international stage and at times it is important to invest overseas. Your point about the supply chain getting investment whether it is in the UK or not, is a very good one. There would be an argument for saying that if it is the British taxpayer that is providing the support for a big company like Rolls-Royce, there should be at least a wish that the vast majority of that got spent in the UK and not spread out across the rest of the world in terms of the way it feeds down the supply chain. It is very difficult to do in practice, but there should at least be the implication that that is the case.

**Mr Hoyle:** Thank you for that answer. I would disagree slightly, because I would say the future is in R&D. The R&D has been moved to Germany. The maintenance for Europe is done in Germany. The ability of only the UK to build the biggest of engines, the Trent engine, has now been transferred to Singapore. There is a lot of danger in that. Where does the future lie if it is not in R&D?

**Chairman:** I think we need to let Rolls-Royce answer this question.

**Q57 Mr Hoyle:** You were quick to defend them, at the same time without recognising the major investment shifts. I will leave that on the table, Chairman.

**Mr Godden:** A successful international company ahead of the game has to invest in multiple places. I disagree with the point about the R&D being taken to Germany. Capital investment has gone there.

**Chairman:** Rolls-Royce will listen to this, I am sure. We have not had written evidence from Rolls-Royce so far, but maybe this will provoke them to give a note on their intentions. We do want to turn to R&D

now. We are going to look at some of the overarching strategic points with Adrian Bailey's questions and then Julie Kirkbride will look at the funding issue.

**Q58 Mr Bailey:** First of all, the National Aerospace Technology Strategy. Do you see the amalgamation of the Aerospace Innovation Networks with the National Advisory Committees as a reflection that the former were a failure? Do you think it has caused a loss of confidence in the National Aerospace Technology Strategy?

**Mr Godden:** I do not have a personal history, but from what I believe, the AIN model was not working well and there has therefore been a desire to change that and implement a different system. That has come from a recognition that the original concepts around AIN and equivalent were not working and I think that has been recognised by all parties. The changes have been an implementation change. The basic structure of the National Aerospace Technology Strategy needs refreshing, I would argue, from time to time, but the principle of it, the structure of it, *et cetera*, are fine, and we are now adjusting the mechanisms to make it work better. Therefore the NTCs which have been set up are, with the KTN, making that work more effectively than the original model. I would say that we have adjusted. There have been some mistakes or implementation problems.

**Dr Williams:** One particular additional strength of the new arrangement is that it allows for the technology roadmaps to be focused into a particular group, so there is a responsibility for ensuring that the technology roadmaps, an integral part of NATS, are maintained in an appropriate manner. Prior to that there was a lack of co-ordination between the operational mechanism and the aims and objectives laid out within the strategy. The co-ordination through the national technical committees now provides that linkage and offers the opportunity for ongoing maintenance of the strategy. I would agree that there is a need to refresh. It is an ongoing process and it will be influenced probably on different timescales according to the different technologies that are being addressed, the different technology roadmaps. It may well be that UAVs take a spurt forward at a given point in time. Then clearly that would afford an opportunity to update and refresh the technology roadmap. Has there been a weakness in the past? Yes, I think there has. Is there an improved circumstance now? Yes. Is there still a remaining weakness? I am going to start sounding like a broken record here, unfortunately, but the linkage between the technology roadmaps, the National Technology Strategy and a funding mechanism is one that is currently weak.

**Q59 Mr Bailey:** Does anybody wish to add to that?

**Dr Williams:** Perhaps I could conclude with one very positive comment. Through virtue of my duties trans-nationally within Airbus, I get to see the French, German and Spanish equivalent activities. The British NATS activity is definitely seen as a role model to be followed, so I think there is something of a lead there which other nations are seeking to

copy and adopt. My concern may be that the funding mechanisms are already in place within those countries to more readily exploit the National Strategy once it is adopted.

**Q60 Mr Bailey:** You have pre-empted my second question: Will the National Technical Committees be more successful? Although it is early days, you would say that they are working better.

**Dr Williams:** Yes.

**Mr Godden:** A lot better.

**Q61 Mr Bailey:** How does the National Defence Industries Council fit with the Aerospace & Defence Knowledge Transfer Network? For the outsider there does seem to be a plethora of networks and councils. Is there overlap and potential confusion?

**Mr Godden:** It is a very straightforward industry view that says there should be a much stronger Aerospace & Defence KTN with the full defence capability that goes with that for some of the reasons we mentioned right at the beginning about aerospace defence and security; the technological links; the ability to get the best out of all of that research and technology that has been spent—particularly given that the defence expenditure on R&T has declined by over 24% in three years, the latest drop being a 10% drop. The funding for defence has dramatically declined in R&D. If that is to continue—which of course we hope it will not and we are arguing very strongly that it should not—then the co-ordination between all the various aspects of technological expenditure in the country need to be brought together more strongly, and the KTN can play a role, albeit a limited role, in itself. It obviously has to go alongside an NDIC commitment to BIS and industrial policy in BIS being well connected to defence industrial policy as well. It would be like the tail wagging the dog if you said the KTN has to heavy lift that whole thing, but it could play a stronger part in that connection. The industry view is fairly clear, but there other constituents that are not sure about that.

**Mr Keen:** The general point is that a proliferation of organisations must run the risk of fragmenting further the alignment between the strategy and individual decisions. From our point of view again, we are centrally involved in the NDIC research and development group and buy in absolutely to the strategy that has developed there. But there is a danger with a misalignment of funding and networks.

**Q62 Mr Bailey:** To follow the logic of your comments, how would you like to see it structured?

**Mr Godden:** The whole technology arena?

**Q63 Mr Bailey:** Yes.

**Mr Godden:** I am not sure I can give you a blueprint of the ideal—and in fact that may be a follow-up to this question—but as a starting point you would say that research and technology, the TSB, plays a role in linking strongly to defence and should do more. The KTNs that you referred to should be more linked and perhaps adopted by both departments.

Second, there should be more cross-connection, as I have said, between BIS-type initiatives and MoD-type initiatives. Those three things should be structured more closely. It would be beneficial for everyone.

**Mr Keen:** We do not have a clearly defined prescription but any approach that were developed would have to address the central point that Gareth made earlier, in some way aligning funding with the overall strategic approach so that somehow those two things have to be brought together. We will talk about the Technology Strategy Board maybe later on, but there is a very good example there. For example, there is not a strategic fund for the unmanned sector, yet there is a strategy for developing the sector generally. Bringing those two things together I think would have to be a key characteristic of a more effective framework in this area.

**Mr Bailey:** Are there any further comments on that?

**Chairman:** I want to discourage the open forum. I did suggest they should not all agree with each other at length. They agree with each other.

**Q64 Mr Bailey:** To move on to another aspect, the development of projects from “proof of concept” to an industry exploitable end product. Bristol University said there is a lack of organisations which will take these projects and develop them. There is a lovely phrase that some “languish in the Valley of Death” from failing to get beyond proof of concept to an industrial developable project. Do you agree with the assessment? Which organisation should be doing this work? Surely under the Aerospace Technology Validation Programme that particular problem should have been addressed.

**Mr Mans:** This is really the gap in what we do in the UK. As you have rightly pointed out, Mr Bailey, there are a lot of good things happening at universities. The problem is it costs a lot more to demonstrate those sorts of things and I think we have to go back to the technology demonstrator programmes we had in the past. We have de-risked them a bit, but the products have been created in the laboratory and you make them available for use across the industry in whatever area is appropriate. It does cost more money and that is why a lot of the R&T has tended to move towards the “R” bit rather than the “T” or the “D” bit. That needs to be realigned. If we do that—and it is a matter of partnership funding between the public sector and, indeed, dare I say it, the banks, then we have a much better chance of at least competing successfully with some of our rivals outside the UK.

**Q65 Mr Bailey:** Obviously there is a funding issue here but there also appears to be an organisational or structural issue as well.

**Mr Mans:** Yes.

**Q66 Mr Bailey:** There would not be any point in putting in the funding if you could not have the other.

**Mr Mans:** Yes.

**Q67 Mr Bailey:** What sort of structural changes do you think should be changed?

**Mr Godden:** As you know, there is a concept of establishing a UK Aeronautics Research Institute to co-ordinate the activities of research particularly in the aeronautics sector. Industry is giving some views on that and it is being discussed at a policy level within government right now. That, in effect, is the organisational part—a missing link, you might say, and certainly versus France and Germany that have obvious vehicles for that with their two bodies.

**Q68 Chairman:** I am going to be discourteous again, Mr Godden. Tony Wright is going to be asking about this at some length later. We see it as very important. You have lifted the curtain on the solution and I will let Tony Wright put it in more detail later.

**Mr Godden:** Okay.

**Q69 Miss Kirkbride:** This question is to Airbus and British Aerospace. You have already mentioned that research and development has been cut in the UK. Why is this and how much have your budgets been cut by research here in the UK?

**Dr Williams:** I will remind myself of the numbers. It was a question I had perhaps anticipated with one of the briefing papers, but in fact the R&D activity from Airbus reported in 2008 but covering the period 2007 was £397 million.

**Q70 Miss Kirkbride:** Is that the spend across the company or here in the UK?

**Dr Williams:** That is the spend here. In 2009, but effectively reporting the year 2008, it had risen to £494 million.

**Q71 Miss Kirkbride:** Then our briefing note is wrong.

**Dr Williams:** In our particular instance—and I cannot say for the industry sector as a whole—there has been an increase over that period. But inevitably the R&D activity does move with the phases of different development programmes for different aircraft. One would anticipate a dip and then a further rise again when the A-350 starts up.

**Chairman:** In defence of the brief, this comes from an old Society for British Aerospace contractors’ briefing from last year. Your figures are more up-to-date.

**Q72 Miss Kirkbride:** Do you have the year before that?

**Dr Williams:** I do not but I am certain that we could furnish it with you if I can give you a written response at a later date (*see Ev 88*).

**Q73 Miss Kirkbride:** Basically your R&D is not dictated by the recession but by contracts and forward planning for your aircraft models.

**Dr Williams:** It would be foolish to say there was no issue of affordability, because quite clearly there is, but the commitment to invest in new product factors

in the state of resources, and the state of resources in terms of technology, skills and monetary resources. The recent experience is that there has been an increase in that. I would not expect that to be a continuing increase at that rate, but as different development programmes dictate the need for investment, if the company can afford to make that investment it will make it.

**Q74 Miss Kirkbride:** Does BAE have the same view?

**Mr Keen:** The position of BAE Systems is that as between 2007 and 2008 it is true to say that R&D spending overall reduced from £1.2 billion to £1 billion.

**Q75 Miss Kirkbride:** In the UK.

**Mr Keen:** In the UK. That reflected, as Dr Williams has said, a change in the maturity of the product cycle. For example, products like Typhoon, Type 45 and Nimrod MRA4 were reaching the end of their development phase. Within that sum, however, the private venture R&D funding to which BAE Systems committed went up. I do not have the figures in front of me, but I think there was an increase from about £150 million to around £200 million year-on-year. If you look at our plan for the next five years, we will be spending around £500 million on development capability and that is out of the category of infrastructure spending, IT spending and that sort of stuff. That is £500 million over a five-year period.

**Q76 Miss Kirkbride:** Yours, again, is dictated by your projects and the maturity of those projects and there has not been a recessionary effect in that cut from £1.2 billion to £1 billion.

**Mr Keen:** There are two or three key factors. One is maturity of projects. The second is defence spending on research and technology which has declined, as Ian said, over the last few years and is projected to again this year. Then there is our own company investment in private venture R&T, based on our assessment of key technologies in the market generally.

**Q77 Miss Kirkbride:** How serious is that cut in the defence element of R&D for the aerospace industry?

**Mr Keen:** It is an issue of real concern. If we are looking at developing UK national capabilities for future defence requirements, it is self evident that if there is less being spent on research and technology now, we will have less UK capability in future. I come back to my hobby horse of the unmanned piece. If you invest less in research and technology in that space, you will have less capability to pull through in future.

**Q78 Miss Kirkbride:** It is saying here that there will be a 20% cut.

**Mr Keen:** In R&T funding, yes. There is a slight classification issue here, because research and development is not the same as research and technology. There are some issues of classification, but certainly the MoD R&T fund is significantly

under pressure and is reducing. If that continues then inevitably it will eat into UK national capability.

**Mr Godden:** Can I clarify some of the numbers. First of all, based on all of the data from a large sample of companies, there was a drop in the UK from £2.41 billion in 2007 to £1.83 billion and that is a 32% drop from 2007–08. The reason for that drop was that two big programmes have moved out of the R&D phase into production. It is very difficult to take one year as a trend. You should not do it in R&D. That is the main reason. Despite what you heard about Airbus going up and BAE Systems going down by only £200 million, the overall effect of the whole industry is that it went down. That is explainable. The comments you have heard are not inconsistent with the data. In fact, it reinforces the fact that some things have come out of production. Secondly, if I might just focus on defence for a minute, the UK has been seen as a very important place to invest for some of the international defence companies. The reason they have come here and invested is not just for the market-place that the UK Government represents as a customer but as a very good base for exports and for research and technology. The cutting of it is symptomatic or symbolic of our commitment to future capabilities in the UK, capabilities in the long run, and there are many companies who are members of A|D|S with headquarters abroad who are taking very serious note of that reduction in the commitment. That is in itself going to affect their attitude to the UK as a base for doing business in defence. It is beyond simply the numbers themselves, and even, you could argue, beyond the minutiae of the detail of what is and is not being done now. I would also say that from my observation the cuts have not been because of the very things that we have just talked about. They have not been because of programmes going from R&T to production; they have been as a result of the cuts overall and the squeeze on the budget. It is across the board, as it were, rather than, “We don’t need to spend this money any more.” I would point that out because there is a difference, therefore, between fluctuations which we do not need to spend, where it could be an absolute right decision not to spend as much this year or over a three-year period as before, but it is the arbitrary nature in which those cuts have been made rather than the specifics that worries the industry.

**Q79 Lembit Öpik:** It would be helpful for the record if you were to explicitly define the difference between R&D and R&T. I ask the question because it is probably quite relevant when we go to Toulouse and Milan next week.

**Dr Williams:** I can give you the definition which Airbus would use: R&T takes you from technology readiness level 1 to 6, a scale which we use to assess the maturity of technologies, and then from 6 to 9 you do R&D, which is translating a generic technology into a specific application of a specific product. The argument is that you put a technology

on the shelf at technology readiness level 6, you take it off the shelf and say, "I'm going to apply it to the A999 through stages 7, 8 and 9."

**Lembit Öpik:** That is very helpful. Thank you.

**Q80 Miss Kirkbride:** That leads into the next question quite well, which is also to Airbus. Mr Keen mentioned the Technology Strategy Board, but in your evidence you say that you are concerned that funding for the Technology Strategy Board is constrained and claim that recent bid subjects have not been linked to the strategies defined in the National Aerospace Technology Strategy. Can you explain that?

**Dr Williams:** Coming back to the point we were discussing a little earlier, the linkage between NATS, the technology roadmaps and then the funding mechanisms, whilst there is undoubtedly a driver within the TSB to demonstrate impact on any funding that it proposes, the linkage between the funding bids that we have seen of late and the NATS strategy have not been explicit and clear—at least, not to us. I do not have an example to hand. Perhaps I could furnish you with one or two specific examples to make that point clearer. That linkage between the National Strategy, the technology roadmap and then bidding arrangements is one that we would like to see far clearer than we are currently seeing today

**Mr Keen:** Perhaps I could give an example from our perspective. It is in the area of unmanned systems again, and it is the ASTREA programme—the Autonomous Systems Technology Related Airborne Evaluation and Assessment.

**Q81 Miss Kirkbride:** What does it do?

**Mr Keen:** It is a programme looking at how in future we can develop the system for the safe, routine, unrestricted use of unmanned systems in UK airspace. If you think about it in the overall scheme of developing unmanned technologies, it is absolutely an underpinning programme. Because of funding difficulties it was first broken into two phases. The first was worth £32 million and jointly funded between industry and government, several regional development agencies, several companies and the TSB. We have just been going around the buoy of the second phase, having successfully completed the first phase, and that would be worth £36 million. Although it is clearly within the overall approach to the NAT Strategy, to put it bluntly it has been like pulling teeth to get the TSB to a position of funding this absolutely central programme. That is not because they do not see the value in the programme, I am absolutely sure; it is because they have a number of different programmes to squeeze into their budget according to key priorities.

**Q82 Miss Kirkbride:** Key priorities set by the Government?

**Mr Keen:** Yes.

**Q83 Miss Kirkbride:** That brings me neatly on to the last question of mine. There is a view that Aerospace has had all the money in the past, that loads of

money has been thrown at it, and you are not fashionable any more because we are doing "green" or something else. Do you think that is true?

**Mr Godden:** Yes. I have noticed in my time here, two years, that our success is a problem. The success of demonstrating our economic impact, the success of getting funding, the success of having a National Aerospace Technology Strategy has created a bit of a benchmark for other industries which have come on very strongly to the TSB and other government bodies with similar sorts of approaches. I have seen it happen in front of my eyes. It goes along the following lines: "They've got more than their fair share"—whatever that means—"and therefore we need to divert a bit to demonstrate that we are not giving more than a fair share to aerospace." This is a bit like the Rolls-Royce argument we were talking about earlier. It is absolutely the right thing to do to fund at this level. It has been thought out. It has a long-term strategy to it and it has short-term programmes against it, and we are in heavier competition with other sectors and we are not as favourable because of two things: the green agenda and the slightly anti-defence culture that still sits somewhere in certain corridors. I answer the question bluntly: yes.

**Mr Mans:** Government should be backing winners, not picking winners. Aerospace is a winner. It has been backed in the past. That means that it is a much lower risk if you back it in the future, so we maintain our position in the world, rather than cast around for something that might possibly be a winner. Bureaucrats are not very good at that.

**Q84 Miss Kirkbride:** Do either of the other two companies want to be so political as to comment on this question?

**Dr Williams:** I wanted to come back on the environmental question that you raised. Aerospace contributes 2% of CO<sub>2</sub> emissions and yet if you read the newspapers or listen to the radio you would think it produced 98% and not 2%. However, if you looked at the research and technology into improving that performance, certainly Airbus's efforts towards achieving the ACARE goals of 50% reduction in CO<sub>2</sub> and 80% reduction in NO<sub>x</sub> and 50% reduction in noise, you could be forgiven for thinking in fact that all the research and technology effort to improve the environment was only happening in the aerospace sector.

**Q85 Chairman:** We are going to end with sustainable aviation. There is a good positive message again, so you can raise it again.

**Dr Williams:** I will try and work myself up again for later on.

**Chairman:** Save yourself for then. We have at least three world-leading industries. Formula 1 is one of them, but on a slightly smaller scale; Aerospace and pharmaceuticals are the other two. If we do not back them, I do not know what we are going to do with our young men and women in the future, but that is pre-judging our report.

**Q86 Mr Wright:** Turning to the question of interaction between the universities and the industry itself, which is directed at Airbus, in part of your evidence you said, “Under the current funding arrangements, there is no mechanism to create any kind of link between the NATS and the publicly-funded research at UK universities.” How can we remedy that situation?

**Dr Williams:** We mentioned briefly the Aerospace Research Institute and we have cast around for different mechanisms for establishing such a relationship. Whilst it is probably fair to say that it still is at an early stage of formulation, having a mechanism in place which could translate NATS into a form which can then be used to guide funding decisions into university bodies is an option that we currently see as attractive. The mechanisms for that are still being explored, to be quite frank with you. There is an industry discussion going on and there are currently marginally differing views. Everybody understands the nature of the problem but has a different view as to how that can be best resolved, so I cannot present to you here today the blueprint for how we should do it for the future. One of the drivers that we would be seeking to ensure that such a body worked towards is ensuring the relevance and impact of the application of that research funding, perhaps better balancing the distribution of research available for research funding between fundamental research and applied research. We heard about the dead zone that was mentioned earlier on. It is probably a classic in the applied research arena, where you can hit that trough. Certainly it would need effort to overcome those dead zones where they do occur, and part of the motivation in the discussion in industry is not to seek to ask for more money but to ask how the existing money can be better applied and directed, so that in fact strategic needs, as expressed by the industry and bought into by the Government—and this through the discussions that have been held—can be clearly understood by all decision makers who may be distributing research funds and then applied in practice by those decision makers. That is a rather roundabout way of answering your question. I do not think I have a definitive blueprint for you today, but certainly it is an area where there is very active discussion to seek better means of distributing existing research funds.

**Mr Keen:** In the meantime, certainly as far as BAE Systems is concerned, it is strategic partnerships with key universities. We have five strategic partnerships, including one with Cranfield on aeronautical engineering, and clearly those strategic partnerships enable us as a company to direct research on to those areas which we consider are of strategic significance and which, broadly speaking, would be within the NAT Strategy. It is not as though there is not a mechanism for doing it but there is not a formal mechanism for translating the NATS into directed funding to the universities.

**Q87 Mr Wright:** I am pleased that the discussions are proceeding. How far down the line are we with the discussions becoming a reality? With the French

and the Germans already having their institute, it is vitally important that we participate in this. The danger is that we could be left behind in decisions that could be taken on a European-wide basis because we are outside of the organisation that deals with this particular area. Is it going to become a reality?

**Dr Williams:** I certainly hope it will. It is fair to say that discussions are slightly behind where we would have anticipated they might have been at this time, but the dilemma that you pose is one that I face practically on a regular basis in my role at Airbus, where it is quite clear that the 100% funding that DLR and ONERA obtain for certain of their research work does place them in a very strong position for undertaking future work and, therefore, does pose a risk to certain of the activity currently undertaken in the UK. I would not want to overstate that from a company basis, but strategically for the country that is an issue to be addressed, and, perhaps ironically, it is an issue that is recognised in Germany and France.

**Mr Godden:** In terms of the expectations timeframe, we are talking weeks and months maximum to have proposals. Whether that is something that happens before an election/after an election I have to pass back to you to say, but in terms of proposals we will have it in the very short term. It is being looked at literally in a matter of weeks and months ahead.

**Q88 Mr Wright:** The information that we gleaned from our visit to Bristol was that this appears to be the cornerstone of the future of the industry—certainly the long-term future and certainly in these difficult times. Mr Keen, you mentioned your work with Cranfield. Is this not one of the problems, that we are dealing with research institutions all over the place and that we should co-ordinate these centres into one centre, wherever it may be. Even at this stage there is this competition for a National Composites Centre between different areas. Perhaps we should look at the whole aspect of the aeronautical industry and have one centre of excellence rather than do it piecemeal and in probably three, four, five, six, eight, ten years down the line lose out to the French and Germans because they are ahead of the game.

**Dr Williams:** Perhaps I could declare an interest, Chairman, because I am Deputy Chair of Council at Cranfield University, so my comments may be somewhat biased, but it is ironic in the 40th year of that university gaining its charter, as it was originally set up as a specialist aerospace institute, that the Higher Education Funding Council for England has removed its special institute status and removed the body of funding as a consequence of that. There are some ironic contradictions in the way that policy is playing out at the moment.

**Q89 Chairman:** I have heard concerns in the way HEFCE is not sponsoring centres of research excellence. It is spreading the pot around perhaps a bit too thinly sometimes.

**Dr Williams:** My understanding of the circumstances at the moment—and they are not complete—is that the special institution status applied as a designation to things like dance schools and music schools, and Cranfield as a technological institution got caught up in the process or rationalisation almost by happenstance, but, nevertheless, it does have an impact on the funding regime.

**Mr Godden:** There is even more reason in the UK for having this because we do have a very healthy regional competition for things and we also have a diversity of companies which are active in the UK, both UK-based and headquartered and international companies around the UK. That in itself creates fragmentation. Therefore, there is a role that government must play in encouraging industry—it is not just industry's role—because of that diversity. A nation must encourage that attitude of being co-ordinated because natural default is not to be co-ordinated because of the nature of our regions and the nature of our international role in this industry.

**Dr Williams:** One further point to add in terms of the strategic significance of that co-ordination is around infrastructure. Rolls-Royce, in particular, were very pleased to secure the noise facilities that are necessary for the development of their engine. Whilst that is a prime example, perhaps, and an obvious example today, there are others which would benefit from co-ordination through such a central Aerospace Research Institute. There are significant facilities. Large wind tunnels may be an example and icing wind tunnels may be another recent example. The UK was fortunate to have one that was needed because of a particular investigation. They happened to be based in Luton. The only other one available is in Canada. Icing as a phenomenon on aircraft is well-known. It is something that needs to be understood to ensure that the appropriate design of the vehicle and yet, strangely, there is one very old and very small icing wind tunnel left over in Luton—not wishing to be disparaging about it—and no real consideration as to whether there are significant facilities of that type which are necessary to underpin and secure the engineering basis of our industry. It would be interesting to obtain a view through a vehicle such as the Aerospace Research Institute as to what were deemed strategically significant infrastructural facilities and how should they be maintained.

**Q90 Lembit Öpik:** I was looking at your biography, Dr Williams. You have spent the majority of your aviation career in or very close to research and development.

**Dr Williams:** I have dotted in and out of it.

**Q91 Lembit Öpik:** Nevertheless, you are very qualified to answer the core question. If you were in charge of the budget for a day, how would you construct this single research facility? Would it be geographically in one place, like Bristol, or would it be multi-located with consideration for the aerospace industry?

**Dr Williams:** First of all, if I was in charge for a day I would spend it quickly. Separate to that point, it is a misconception to think it will be a single physical location, simply because some of these elements of infrastructure are physically distributed around the country. What is more important is to secure knowledge of where they are, what they are, how they are maintained and how they are exploited, and then, in parallel with that, focus the available research funding into probably fewer institutions in a more focused way. It will be unpopular I am sure. There may be even an elitist view on it which says “You back all winners” as was mentioned earlier on. If there is precious little research funding available, which clearly in the economic circumstances there would be, if you look at the majority of the primes in the UK you will find they go to probably five, maybe six, universities for 80% of their business. That does beg the question, therefore: How much of the research funding is going to—and this is going to sound disparaging, but it is not meant in that way—the tail, the distribution, and could that tail funding be more appropriately applied to get a better result for the companies and the country?

**Q92 Lembit Öpik:** People are out there, you are saying. It is a matter of focus and financial strategy.

**Dr Williams:** I believe it is, yes. If you looked at our preferred suppliers from universities, I would be very surprised if it was very different from BAE Systems. I would be very surprised if it was very different from Rolls-Royce.

**Mr Mans:** It is important to look at it from the customers' perspective (that is, the companies across Europe that are going to use this) to see the best way of doing it. It is a co-ordinating role, so that what we have in the UK is matched up to what people want—as happens in France and Germany, as has already been mentioned. It is much easier there: you simply go to DLR or ONERA and that is it. I think that is what is needed in the UK. We may be able to get the benefit of both, a degree of competition in terms of individual agreements between companies and universities but at the same time to have an overarching, co-ordinating institute.

**Q93 Chairman:** The National Composites Centre competition that is going on at present Mr Wright referred to in his questions. My perception—and it could be wrong—is that the Government seems to have stumbled into this competition by accident as a result of the money in the Strategic Investment Fund. It seems to be of huge strategic significance to the whole aerospace sector. Composites is the big game in town, is it not, for the UK? Do you share my perception of the importance of this proposal? If so, is it being developed appropriately or is it a sideshow?

**Dr Williams:** Is it significant, yes, quite clearly. I have to say I am not clear as to the background of how it has evolved quite how it has.

**Q94 Chairman:** When we were in Bristol last week, no-one was clear. We are getting close to it, but we are not quite sure.

**Dr Williams:** It seems to me somewhat perverse that there has been a strategic investment into, for example, Manchester University for a composite certification and test centre, which is linked to Wichita University, which retains NASA datasets on composites. Surely there is an opportunity to use that capability and that expertise in parallel with or in conjunction with the proposal from Bristol. I am not fully familiar with the proposals that are on the table, but it somewhat surprises me that it is an either/or choice when in fact we are talking about a fundamental change in material set which changes every element of the aerospace product. To assume that we go through a single centre that is magically the knowledge source for everything to be understood about that material set processing leaves me somewhat surprised—as you can tell from my open thinking, shall I say.

**Mr Godden:** Unless I am hidden from something that I do not know from certain of our members, I think the industry is surprised. I would echo the fact that I do not think industry has had a clear picture on this. It is absolutely essential and I am not sure that we have a clear view about what is really happening.

**Q95 Chairman:** That was certainly the view we picked up, talking to a wide range of people involved in the sector last week.

**Mr Godden:** On behalf of the membership, unless some of my members have been extremely quiet about this subject, I think I can echo that.

**Q96 Chairman:** The impression we formed is that those who are bidding for it do not fully understand what they are being invited to bid for. It is that level of confusion.

**Mr Godden:** The process.

**Q97 Chairman:** Yes, the process is completely skewed.

**Mr Godden:** They do not understand where we have got to and how we have got to here and what happens next.

**Q98 Chairman:** For something of such important to the sector, it does seem a rather strange way to proceed. Thank you. Mr Mans, you talked about DARPA.

**Mr Mans:** I mentioned it.

**Q99 Chairman:** We visited DARPA 18 months ago. We were hugely impressed. We cannot do DARPA here because the British system would never let you do it. Can the Technology Strategy Board plug those gaps? Is that the nearest thing we can get to DARPA? Is it good enough in the British context? I understand there are constraints we work under here in terms of accountability and so on.

**Mr Mans:** I would think that we can make moves in that direction. I genuinely believe that the technology should not be fragmented; it should be used across the board. As I say spin-in/spin-out in terms of commercial and defence technology. One area where it would work a lot better is what Bob

said about unmanned aircraft. They do not just have military uses: in the future they are being used in the civil sector as well. That seems to have rather got lost in the discussions about funding, particularly the Australian programme.

**Mr Keen:** To be fair to the MoD, the science community in the MoD does see the value of more mission-led funding and it is trying to put in place certain mechanisms. We have mentioned one in our evidence called Capability Visions. It is not a DARPA analogue but it is intended to do the same sort of thing in terms of driving capabilities through from technology into the frontline.

**Q100 Chairman:** My colleagues are being very patient, but we must make more progress. We have two last areas of questioning. The very, very important issue of skills and then sustainability are the two last areas. How good is the Sector Skills Council for Science, Engineering and Manufacturing Technologies for your purposes? Is it working?

**Mr Keen:** As an organisation we operate under the SEMTA sector. That is the basis on which we deliver our apprenticeships. We have about 1,000 of them at any one time. We think that is a pretty effective mechanism for delivering skills. I do not think I would suggest today that there should be any fundamental re-appraisal.

**Q101 Chairman:** That is fine. As long as that is a view shared, I do not want to press that one. I think it is SEMTA itself which developed the workforce planning tool in the rather unfortunate metaphor “the workforce planning tool pilot”—which is not a person but a trial. Have you been involved with the workforce planning tool pilots?

**Mr Keen:** We have not, but others may have.

**Mr Godden:** We have been involved with—

**Q102 Chairman:** Who is we in this context?

**Mr Godden:** The industry, through A|D|S and through DIUS (as it was) and now back in BIS. Our objective was two-fold: one to get a demand-led view of skills.

**Q103 Chairman:** When you say “demand-led” who is making the demand?

**Mr Godden:** The creation of the demand from the industry.

**Q104 Chairman:** Students must also demand the right training as well.

**Mr Godden:** Yes. That aspect we are working on. The second is trying to encourage, along with others, working with the Sector Skills Council on workforce planning. It is a supportive role, really—from our point of view, the Sector Skills Council working with NSAM, (National Skills Academy for Manufacturing) which is now part of SEMTA, to formulate specific sector issues that we are addressing.

**Q105 Chairman:** We know a frequent concern of industry is a shortage of skills across the piece: basic skills, level 2 skills and level 4 and 5 skills. We understand that. Unite have suggested a statutory training levy to ensure the industry continues to train and develop its workforce. What is your view on a statutory training levy? You must have a view on a statutory training levy, I would have thought. Do you have a view?

**Mr Godden:** No. I would say that maybe we need to come back to you, because I have not prepared an answer to that question and I do not think we have one.

**Q106 Chairman:** If you would give us a note on what you think of Unite's proposal that would be helpful. Looking at the broader picture of level 4 skills and above and this question of STEM graduates, I think there has been an increase recently in take-up in numerical terms if not proportionately across the university sector. What is your view of the availability of suitably trained graduates for your sector?

**Mr Keen:** Broadly speaking, we can satisfy our requirements as things stand. There are some specific pockets of skills that we find difficult, but generally speaking it is okay at the moment. Our concern is for the longer term. With increasing demand for STEM skills across the piece, we would find it more difficult over time to deliver what we need from the UK. There is a broad balance but an issue of concern for the future.

**Mr Mans:** We need to be much more proactive in ensuring that we get both genders, women as well as men, coming through that system. Second, what they do must be relevant in terms of both manufacturing/technical knowledge and indeed in respect of the service sectors as well. As one of my colleagues mentioned earlier, a lot of what the industry does now once a product is in service is there is quite an income stream coming back to a company like Rolls-Royce, for instance, and therefore it is a range of skills that people need across both genders.

**Mr Godden:** On the specific question of a growing dependency in the industry on overseas graduates—

**Q107 Chairman:** I want to come on to that, but on the locally grown graduate population, is it enough for the industry's needs? Do we want to encourage more young men and women to take an interest in the sector?

**Mr Godden:** Definitely.

**Mr Mans:** The answer is yes.

**Q108 Chairman:** Do we need to do more?

**Mr Godden:** Yes.

**Mr Mans:** Yes.

**Dr Williams:** I think retention is a bigger issue. A colleague of mine reminds me that if 50% of medical students failed to go on to be doctors there would be an outcry, so why is there not an outcry when 50% or thereabouts of engineering students fail to go on to be engineers? It may be that we do not need more

students but we need a stronger pull through for the people who have studied those subjects to pursue that as a career within industry.

**Q109 Chairman:** Whose "fault" is it that they do not make that jump? Is it the City for paying too many salaries? Is it the careers advisers for not telling them about the existing careers? Is it your fault for not explaining to them the opportunities you are offering to them?

**Dr Williams:** Undoubtedly there will be a responsibility of that in places. The aerospace sector and certainly Airbus is very active in attracting graduates and quite successful in doing so. However, there is clearly a fundamental issue there. It may not be getting the input into the education system that is the problem; it is making sure the output goes to where you anticipated it would.

**Q110 Chairman:** Or is it the "fault" of politicians and the media for talking down manufacturing and the aerospace sector as well?

**Mr Godden:** Recently that has changed, but I think that is a problem. In the 80s there was a decline in manufacturing; in the 90s we were all in consumer boom, we were in financial services and our future was going to be on that. The industry did not respond to that at that point but now is. You could argue we are being a bit late versus when we should have been doing it, which was maybe five or ten years ago, but we are doing it very significantly now.

**Q111 Chairman:** Let us look at postgraduates. There is a conflict of evidence here. Some of you are saying there is a worrying dependence on overseas postgraduates and others are saying—we heard it in Bristol last week—that we ought to get more of them over here getting courses and studying here, and that they would stay here if they came here. What shall we do about overseas postgraduates? Is it a good thing or bad thing? Discuss.

**Mr Mans:** It is a two-edged sword. I do not think it is a conflict, in a sense. On the one hand, yes, there are advantages in having foreign postgraduate students over here. On the other hand, a lot of the knowledge they gain is portable and therefore it gets taken out again. That is a disadvantage. It is a very difficult issue this. On the one hand, clearly universities want to attract as many foreign students as possible. There is a high percentage of postgraduates in the UK from abroad. That in one sense is a good thing, but, on the other side, I would argue that there is probably going to be a steady migration of some of the knowledge to our competitors in the medium and long term.

**Dr Williams:** I remember, as anecdotal evidence, on my last visit to Korea with a Korean aerospace company being introduced to a senior engineering manager in the company. I was not aware of him beforehand, and he turned up and said, "Hello Gareth. How are you doing?" He did his PhD with me. A second anecdote, which is purely anecdotal but nevertheless may give an indication as to the benefit of being a global company but also the disadvantage in terms of the UK, is that for several

of the recent appointments that have been made as graduate entries into Broughton and Filton, we are recruiting French and German European national students rather than necessarily UK students. The feed into UK companies frequently comes out of UK universities but you need not assume that that is a UK student coming out of a UK university.

**Mr Keen:** That is clearly an issue as far as the UK is concerned that it is not directing enough highly qualified graduates into postgraduate study. That is an issue particularly in the defence field, so perhaps that partly explains the difference, inasmuch as it is more problematic to have overseas students involved in defence matters. On the other side of the coin, perhaps we have to find ways of acknowledging where we are in that respect and try to manage our way round it. The ideal solution would be to see more UK graduates going into postgraduate study, but it is difficult to see how that is going to happen.

**Q112 Miss Kirkbride:** Dr Williams, in relation to the French and German students that you have talked about, we all assume that engineering has a higher status in those countries and that is perhaps why they chose those careers. Why do they come to British universities to do that? Is it just because they are leaning English??

**Dr Williams:** Not at all. There is a proficiency in English which is a prerequisite to their enrolling. There is a different style of education in the UK university system, certainly at postgraduate level. Whereas it is certainly true that in the French system there is a very strong emphasis placed on fundamentals and theoretical learning, application of that knowledge is not a strength. If you have a very good fundamental education and then you top it off with a UK application-driven postgraduate qualification, you end up being a very capable engineer and you have a very sound grounding and an understanding of how to apply it. From the company's point of view, it is producing some very, very capable engineers, but it is as well to be aware of that as a feature of the current system.

**Chairman:** We are running a bit later than I hoped and we have one last area of questioning which I know Mr Mans is particularly anxious to discuss and Dr Williams as well.

**Q113 Lembit Öpik:** How are we doing in terms of sustainable aviation versus our competitors? The floor is yours, Dr Williams.

**Dr Williams:** I will try to make it short, given the prompt by the Chairman. Perhaps a word of encouragement. In the European framework at any rate the UK is perceived as leading the charge on sustainable aviation questions. There is a degree of energy and engagement which is evident and which reflects well in the reputation of the UK and which would like to be copied in other places. If I look at the ACARE IT meetings that I attend in Europe, the predominance of attendance is from structural aerospace companies, the participation in the UK is strong and engagement in the UK is strong. So there

is a clear lead given in a number of different arenas on sustainable aviation and the UK can be proud of its record there.

**Q114 Lembit Öpik:** What sort of improvements? If you were to list the hall of eco fame so far as derives from the UK, what would be in there?

**Dr Williams:** You catch me unawares. I have all sorts of statistics running through my head now. Can I please respond in writing?

**Q115 Lembit Öpik:** I would love that. Thank you. Would any of you like to add anything?

**Mr Mans:** This is a real opportunity here, because in fact a lot of the technology that is being produced in any event clearly has a huge benefit to the environment. One of the things I say straight away is that we have to go on investing in technology particularly through this recession, supported by both education and skills. If we can get more new technology into new aircraft, we influence global CO<sub>2</sub> emissions, because there is a very small number of aircraft manufactures—obviously the two main ones being Boeing and Airbus, supported by Bombardier and by Embraer. This country has a very wide supply base, so we supply in to all those companies. If you get a new piece of technology which clearly makes the aircraft more efficient in one sense or another, you can apply it very quickly across the whole new fleet. In the process, of course, that has an effect on global CO<sub>2</sub> emissions, not just UK CO<sub>2</sub> emissions. It is a real opportunity for the UK because of where it is as a supplier into the global aerospace community to have quite an effect on sustainability.

**Q116 Lembit Öpik:** What should government be doing? I suggested before that government should be more supportive about things like direct routing and perhaps relaxing some of the conditions on more eco-friendly aircraft. What would you want to see government doing to make sure that we really press home the environmental advantage?

**Mr Mans:** There needs to be a lot more action on ATM. We know that we can reduce CO<sub>2</sub> emissions by 10% in the European environment if we stop a lot of aircraft sitting on the ground waiting to take off, into flying straight to their destinations and landing without holding patterns. That also has a direct benefit on the customer as well.

**Q117 Chairman:** We saw some very impressive work in Bristol on this issue.

**Mr Mans:** Yes. The regulators, governments, the Commission and bodies like that need to get together. Single Skies Across Europe is a good example where it really needs to happen. There seems to be an awful lot of talk, but at the end of the day we still have queues and those queues result in inefficient use of an aircraft. That is an area where I really think everybody ought to be working together more effectively.

**Mr Godden:** Perhaps I could echo that and say more programmes on wings and engines, because that is what we are good at and those are crucial for efficiency—and composites you would add to that. Unmanned vehicles—a very green idea. Space, which we talked about very briefly, has a role to play. Air traffic control and management systems go with that. If we push on all four of those directions heavily, we can both do things for the environment but also exploit that trend of society.

**Mr Mans:** I do think there needs to be more direction, in terms of whether you are going for an engine that minimises CO<sub>2</sub> emissions but is slightly more noisy than would otherwise be the case. There is clearly going to be a battle between the geared turbo fan which is produced by Pratt & Whitney, which clearly can be made quieter but not as fuel efficient as the unducted fan which Rolls-Royce and GE are working on. Some direction needs to be given as to what is required. At the moment the regulator is saying they want both. That will really affect us if it goes in one direction rather than the other, so I think that really needs a lot more discussion as to the way forward. I am not saying that an unducted fan is not quiet: it meets all the existing noise regulations—but it is unlikely to be made as quiet as a geared fan which has a cowling on it.

**Q118 Lembit Öpik:** That is the challenge. It is a trade-off from the Trent.

**Mr Mans:** Yes.

**Q119 Lembit Öpik:** You did not mention fuel. Is fuel a consideration? Do you think we can get greener fuel?

**Mr Mans:** Yes. One of the most interesting developments that has taken place over the last few years is the possibility of second and third generation biofuels. It has been very interesting indeed how quickly a lot of airlines, together with engine manufacturers, have taken up this particular concept. It really does have at least the opportunity of aviation emitting less CO<sub>2</sub> in the middle of the century than it does now. Two or three years ago it would have been difficult for anybody to make a statement like that. Now I think it is much more likely that that could occur, provided alongside the investment in biofuels we really make a lot more investment, as Ian has said, in the shape of aircraft and the efficiency of engines.

**Q120 Lembit Öpik:** Putting it all back together, there are loads of green initiatives: OMEGA (Opportunities for Meeting the Environmental Challenge of Growth in Aviation), Greener by Design and the UK's Sustainable Aviation Initiative. That last one does seem to be putting together an entire strategic package. It is a bit like what A|D|S is trying to do as well. This is where we started and may be where we finish our discussion now: Is there not an opportunity to put all of it together into one single focus. Would we not make more progress by doing that?

**Mr Mans:** I do not know about that. You could argue that as Greener by Design started out ten years ago it had elements of the manufacturers, the trade associations and universities in it. As the subject has broadened, inevitably it has become more fragmented. OMEGA at the moment is largely restricted to universities, although in OMEGA II it is likely to engage more heavily with industry. Greener by Design is really the link between industry and the universities, so it is a small organisation obviously run by the aeronautical society. Sustainable aviation is much more business-focused. Whether you can put those three back together and still get decent reports that do not take an awful long time to produce and in the process get watered down, I do not know.

**Mr Godden:** My answer to this—and Mr Mans knows my answer—is, bluntly, yes. We should be putting those together and raising our game by doing so. That is a straightforward answer to the question.

**Chairman:** One of the great traditions of our Committee is that Mr Hoyle has the last word.

**Q121 Mr Hoyle:** You can judge whether that is good or bad. You give this positive approach: new aircraft, new design, green aircraft flying around. That is good depending on what you do with the old aircraft. What seems to happen is the value drops because we have a new aircraft out that those who can afford it want and we will end up selling off those polluting aircraft to somewhere else in the world, so we are adding to and not reducing the amount of CO<sub>2</sub> that is being emitted from aircraft. My first question is: Should we say, when an aircraft comes into production, that this is the new standard that we expect people to sign up to and ensure that the older polluting aircraft are taken out of service all around the world? Second, have Virgin got it right in the way they are looking at biofuels? Third, do you think it is unfair that the aircraft industry gets the caning at the same time that world shipping continues to pollute with crude oil being put into basically an old boiler. It does not matter what they throw out in the world, nobody seems to bother. Should we have international standards for shipping at the same time?

**Mr Mans:** Let me answer those questions in reverse order. I entirely agree I think the aviation industry is being picked out unfairly in this respect. Yes, you are absolutely right about international shipping. Second, as regards Virgin, I do not know whether they have got it right yet but they are certainly moving in the right direction. The first question I think is much more complicated. A lot of aircraft go out of service and sit in the desert and they never get used again. I think that is increasingly happening for two reasons. First of all, even operators in places like Africa will still find it increasingly more beneficial to buy new aircraft or nearly new aircraft. Second, we are making some really good progress in terms of what we call aircraft end-of-life issues: intelligent break up of aircraft. I notice that Mr Berry has gone and I was going to make some disparaging comment

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3 November 2009 Airbus, BAE Systems, Royal Aeronautical Society and A|D|S

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about Midland metal-bashing and scrap merchants, but now you see an aircraft broken up very intelligently. All the bits are removed and the ones that can be reused are reused. As a result, the value of disposal has gone up. You find aircraft are newer when they get broken up and I think there is a lot more progress we can make there.

**Q122 Chairman:** I would like to think that this has been the highlight of your career so far.

**Mr Mans:** Of course.

**Chairman:** But I remember in the Eighties, when you and I met the President of Egypt together, that barrel-rolling a Vulcan was the highlight of your entire career. Gentlemen, thank you very much indeed for what has been a very informative and very considered evidence session which has been very good. There are a number of things we are going to correspond about subsequently but this has been a very valuable session and we greatly appreciate it. Thank you.

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**Tuesday 15 December 2009**

Members present

Peter Luff, in the Chair

Roger Berry  
Mr Michael Clapham  
Lembit Öpik

Ian Stewart  
Mr Anthony Wright

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*Witnesses:* **Mr Chris Aylett**, Chief Executive, Motorsport Industry Association, **Mr Colin Hilton**, Chief Executive, Motor Sports Association, **Mr Andrew Manahan**, Managing Director, Lola Group and **Mr Mike Dickison**, Principal Lecturer in Automotive Engineering, Coventry University, gave evidence.

**Q123 Chairman:** Gentlemen, welcome to the last meeting of the Business Innovation and Skills Committee this decade and the last but one of this particular inquiry into the motorsport and aerospace industries. As you know, we are looking at what more, if anything, needs to be done in public policy terms to secure the future of the motorsport and aerospace industries, high in engineering skills and an important part of the economy in the UK, and of course we are aware of the very close relationships between motorsport and aerospace which I am sure we will explore during this session. You have all given us written evidence and we are very grateful for that and appreciative of that. Can I ask you to begin by introducing yourselves one by one and just say a sentence or two about who you are in the broader context of our inquiry.

**Mr Hilton:** Colin Hilton, Chief Executive of the Motor Sports Association. The MSA is the governing body of all four-wheel motorsport in the UK.

**Mr Manahan:** Andrew Manahan, the Group Managing Director of Lola, an SME in Huntingdon, the oldest manufacturer of racing cars in the UK which has recently diversified into the defence and aerospace sector.

**Mr Aylett:** Chris Aylett, Chief Executive of the Motorsport Industry Association, which is the world's only trade association focused on the business of motorsport. We have our international headquarters here in the UK, the majority of our members are British based and we work closely with our sports governing body.

**Mr Dickison:** I am Mike Dickison, I am from Coventry University, I am responsible for automotive R&D programmes amongst other things and I am also responsible for industrial placements of students in the automotive and niche vehicle industries. However, that is a relatively recent post. Up until early this year I was in a vehicle consultancy company for the whole of my career mainly dealing with niche vehicles.

**Q124 Chairman:** Thank you very much. Obviously the Committee, which was in Silverstone three weeks ago, was delighted by the announcement that the Grand Prix has been secured for the UK, which has its own importance in securing the industry in the UK we realise so we are very grateful for that. That is the good news but it has been a bit of a difficult time recently for the industry in many respects because of

the recession. Would any of you like to paint a picture of the impact of the recession on the motorsport sector, both from a sport and engineering perspective?

**Mr Hilton:** If I can answer for the sport side. We have figures because statistics come back to us and we were expecting about a 10% downturn. We have been pleasantly surprised that towards the end of this year against last year we were only about 3% down on licence holders, that is the people who hold licences, and also on activities, which is the number of people entering events across the UK. What we have seen is a big shift in people moving down, so people who are normally at the expensive end of the sport have gone for cheaper opportunities. Also we have seen a huge hit on corporate activities—corporate sponsorship and hospitality—and that is down about 50%. So day-to-day stuff, hardly affected but the commercial end of the sport has been hit hard.

**Mr Manahan:** From an SME's perspective in the motorsport world which is not involved particularly in Formula One, it has been catastrophic; the amount of sponsorship that is now available in motorsport at our level. I am talking basically about the jewel in our crown, our involvement in Le Mans racing teams. From the perspective of an SME such as Lola, and we do not manufacture under the umbrella of sponsorship, we design and manufacture a race car for sale as a commodity to people and teams, be they private or works, who want to buy one to race it. It is a product like anything else. We have seen in everything from the Le Mans series all the way right through to the recent decline of the A1 Grand Prix very, very bad news for Lola on the racing front.

**Q125 Chairman:** It has been very difficult for you?

**Mr Manahan:** Very, very difficult.

**Q126 Chairman:** So have the reductions in sponsorship and team budgets impacted you?

**Mr Manahan:** Very much so. That is the driver for it. Pretty much anybody who is going to go motor racing is either going to be funding it privately or through sponsorship one way or the other. Most publicly you can see things like ING, a financial sector company, pulling out of motorsport, and there are quite a few big name sponsors who have pulled out of motorsport at a very high level. But at a low level as well money is very hard to come by for

the lower formulae, if I can call it that, to achieve sponsorship at this time too. We have seen it even since the time we submitted the written evidence to this Committee when there were still one or two motor manufacturers left in Formula One at that stage and some of them have since gone down the road. It is not the most politically acceptable thing to be seen to be motor racing when you are having cars stockpiled and possibly turning down or losing jobs in companies. So we have seen it certainly on the ground being a motorsport manufacturer; we have certainly seen a big effect in the racing industry.

**Mr Aylett:** Just to explain where we see it, motorsport is split into two sectors in terms of its income-earning, one is in the service sector and one is in the engineering sector. Lola comments very clearly are about the engineering sector. The interesting fact is how the consumer has reacted to sports entertainment, whether people watch more television, and indeed they have because Sky TV has had quite an up-take in that because, sadly, people have more time to watch sport on television but nevertheless sport entertainment has surged, and in that sense it is relatively buoyant. Some of the figures in terms of attendance have been very good this year, and I think Colin will comment on that later. So in terms of the spectacle it has held up, it has not collapsed; it has not boomed as the cinema world has done but it has kept up as entertainment. That is quite critical in terms of resolving the sponsorship problem because the sponsors are involved because they want an audience, so maintaining the audience is quite essential. In terms of the engineering side, it is split into two, the commercial side of motorsport which again Lola work within and then there is the hobbyist, if you like, the people who just enjoy two-wheeled or four-wheeled sport, and I refer back to Colin on both of those. So there are two levels of the sport. In the commercial area, which is the one which creates to some degree the high profile jobs, although right across motorsport there are jobs, there are nearly 4,000 companies in the UK which rely on this industry. The commercial side of the sport has probably lost 15 to 20% of its sales value. In terms of the UK, whilst we dominate the world of Formula One, which is a high profile statement and is probably the one which attracts most commercial sponsorship, so therefore unfortunately disproportionately as a nation around the world we have been hit probably more definitely than anywhere else. An estimate we have is that Formula One has scaled down its employees from maybe 500 to 600 in a team and they are in a process of reducing that to maybe 250 to 300 per team maximum. So we will see in the order of a thousand to 1,500 jobs dropped out of Formula One alone. Formula One is only the tip of the pyramid; each Formula One team has approximately 200 local suppliers so it will go down to those SMEs to some degree. However, it is nonetheless holding up relatively well compared to some other industries, I have to say.

**Q127 Chairman:** I suspect your time will come later, Mr Dickison, unless there is something you want to say now?

**Mr Dickison:** Briefly, our students spend their third year in industry and we have students going into Formula One teams and various motorsport teams, and we have noticed that it is harder to get placements now and sometimes it is on the basis of instead of being paid it needs to be voluntary, so it is getting tougher. But we still have students going out into the industry.

**Chairman:** I am sure these themes we will explore later in the evidence session. I will move on to Roger Berry.

**Q128 Roger Berry:** Since the onset of the recession, many SMEs have diversified into other areas— aerospace, defence and so on—to what extent has that enabled them to weather the recession and to what extent has that compensated for difficulties in motor sports?

**Mr Manahan:** It has been absolutely and utterly essential. We would be dead without it, quite simply. If we were relying on just the motor sport business to keep Lola afloat—it is a very, very simple thing to say—we would be dead. One of the things that motorsport has, and I have come from more than 20 years in the defence and aerospace industry to spending my last two at Lola, and something which actually every single day never ceases to amaze me is how fast we do things. It is a bit of a joke that in the defence and aerospace world there is a 16-week rule; if you want to change something on a drawing, put a little bit on a widget, anything, the answer will always be, “16 weeks”. Sixteen weeks is a lifetime in the motor industry; 16 days is almost too late in motor racing. The whole thing about motor racing is innovation and time, and they were two things which from my experience I found sadly lacking in the defence and aerospace industry. At this time, when we have two active theatres going and urgent operational requirements, it seemed to me a very good proposition to try to sell what we had into the defence and aerospace sector, which has been very successful for us. Everything from UAVs to radar systems to comms systems and underseas systems in marine, and that is one of the things I would like to think Lola pioneered a little bit and certainly Chris and his organisation are extremely active in trying to spread that message into the motorsport arena to try to get others to follow suit, and it has been very successful.

**Q129 Roger Berry:** Have the motorsport to defence initiatives and motorsport to aerospace initiatives been instrumental in bringing this about, or would it have happened anyway?

**Mr Manahan:** For me, I did them because I happened to come from the defence and aerospace sector but for other companies who have not got people running their companies who have been in defence and aerospace, then initiatives like Chris is running, are very useful and valuable and essential I would say.

**Mr Aylett:** It is very interesting. Time is one of the resources we are all running out of and really gaining in value every day, every minute, and motorsport

uses its time very profitably and they do not realise how rare that is in an engineering delivery sense—they really do not—because perforce they would lose their customers without delivery on time. Strangely enough, because they are focused, they are so very focused, they never recognised their abilities to diversify, they did not realise these jewels they had which Andrew has spotted. It probably did need the MIA with Lord Drayson in Defence and Lord Astor but we also pioneered motorsport to aerospace with the SBAC, motorsport to marine with the BMF, and motorsport to defence with the DMA. I think motorsport to defence has captured not the limelight but the heat of the moment because urgent operational requirements were made for motorsport, they are in field, instant demand, requiring innovative engineering solutions, and that is the thing at the moment. We are beginning to build good relationships in marine but there is not quite the urgency. Aerospace we found hard, which we will have to get back to, because we are an unregulated industry but innovative and in a non-regulated form, so we are really tremendous partners to aerospace because we can go off, test and develop, but the legislation involved in aerospace, the accreditation, the processes through safety, slow it down.

**Q130 Roger Berry:** You mention Lord Drayson, to what extent has Government been involved? Could Government have done rather more or less? Should it have done more or less integrating these sectors together?

**Mr Aylett:** I have never sat in one of these chairs before and I suppose one could answer that financially Government has put not one penny piece in this programme and that is probably a death knell for me asking for any further support! They could say, “You are succeeding without it, why would we bother?” In actual fact it was led by Lord Astor and Lord Drayson, so they were the kind of sparring partners in the other place, and they kicked it off, and then they left it to the intuition of businessmen who needed to face up to business opportunities. This is the pump-priming period and I have always thought that if after just one year, maybe two, they have made significant successes together with no money at all other than that we have rented barns and done little table top displays, the lower key we did it the happier we would be, but in actual fact with Government support carefully planned through industry, it would have made a significant effect faster. I cannot deny that. But we did not ask and we did not get.

**Roger Berry:** Thank you.

**Q131 Mr Clapham:** When we look at our competitors, are we unique in that diversification with aerospace? Does it help us to keep the lead because we have some competitors who are chasing close behind us?

**Mr Manahan:** Do you mean competitors internationally?

**Q132 Mr Clapham:** Internationally, yes.

**Mr Manahan:** Absolutely. Outside I was having a chat with Mike. I was in Malaysia last week or two weeks ago, looking at the investments they have put into the composites aerospace industry. What Chris mentioned a while ago about motorsport into aerospace, yes, it is more difficult, yes, there are regulations, but they are achievable. One of the things we did at Lola was to set ourselves up to get AS9100, which we have achieved, and we will achieve NADCAP as well at some stage once I can afford to do it. When I went to Malaysia I saw, quite shockingly for me—I know I am Irish but I am a passionate British industrialist—investment in the composites technology for the future at state level which left me absolutely frightened rigid. What I saw was an incredible and politically driven strategic positioning of a South East Asian Muslim country I know but they are taking composites into aerospace very, very seriously. Where am I coming from? They do not have the front end yet, they do not have the engineering, they do not have the design, they do not have the tooling; when they do we are finished. I know this sounds dramatic but when they get that, we are finished. Right now we have, I would say, with a lot of help, a five year lead, maybe more, but they will buy that, they will get it, they will acquire it. Unless we invest in keeping our lead in that innovation, in that design, in that expertise, we are finished in that particular sector because we can never compete on production costs.

**Mr Aylett:** May I add a motorsport to aerospace thought to Andy’s excellent comment. Malaysia have just acquired their Formula One team through the company that they acquired called Lotus, so they are now going to get access to the red hot kind of competition which Formula One is which drives this innovation. The company called Hexcel, which I met many years ago, do something like 2% of their turnover with motorsport but 98% of the innovation comes out of that relationship. I always remember that over dinner they said, “The things your chaps are doing are way beyond aerospace in innovative terms”, and when you have access to that that will expand their interest. I have to say that as I wander the world of motorsport the question is more about our competitors. I came back from America yesterday and they are in awe and very keen on knowing how to engage their defence industry with their motorsport industry, but their motorsport industry is not as advanced as ours so the engagement is going to be rather more difficult. However, it opens up a marvellous opportunity for Britain’s motorsport industry to connect with the American defence industry. Boeing, for example, and others, are connected to our top level of motorsport. So there is a very exciting opportunity for us with the American defence industry.

**Mr Manahan:** We have re-engineered a radar systems we do a seven-piece petalised gap filling radar system—and each one of those petals has to be handleable by GI Jane as well as GI Joe and we have actually re-engineered the composite (because they

are composite radar panels) in Lola via a UK company in exactly the manner which Chris is talking about for Lockheed Martin.

**Mr Aylett:** I should also say that those of you who know the company Cosworth, which is equally prestigious, if I may say, to Lola, on our Motorsport day in Parliament, the motorsport day, they were very keen on explaining that their defence successes were almost entirely with US defence and almost none with UK defence. They were not critical of it, they were just saying they did not know why it was. That is another company which could replace Andrew and say exactly the same, that they diversified their success and their innovation and have gone into defence very successfully. They make a very good case for the opportunity which exists.

**Q133 Ian Stewart:** In my 20 years as a Transport and General Workers' Union full-time officer, the Working Time Directive was implemented. The Working Time Directive was a health and safety piece of legislation. Why do you think the motorsport industry should have an opt-out?

**Mr Aylett:** We put out a questionnaire to the industry and we have a motorsport employers group in the industry. I would not want to sit and discuss it in detail, as a trade association I wanted to hear the employers' views. We have a motorsport employers group from the top all the way down to the smaller businesses. This is not a question whether it is good or bad legislation, the practicalities of operating in our particular sector and our particular skills base and the way we make our money, simply predicates that we could not do anything other than support an opt-out. For example, a 24-hour race, which if you like is the foundation of the success of Lola, demands that the workers are there for 24 hours, probably in unsociable conditions—I say that gently for those who read this later—and it is the same with Formula One and so on. They are paid well, they volunteer, in fact not only do they volunteer, they line up to volunteer to get involved in this because they want to understand and gain from the skill sets which are attached to team working, rapid delivery, rapid innovation. They are willing to do that. Our difficulty is just simply technical.

**Q134 Ian Stewart:** A road haulage transport driver may wish to drive for 24 hours because he makes more money, but that is not sensible. What is the difference between that scenario and what you are describing?

**Mr Aylett:** If I may say, and Andrew can explain this, a team goes to Le Mans with, say, 10 mechanics, they are looking after one car which is running consistently for 24 hours without a break. There is no tacho in the cab, there are no stops for change of drivers, they have to run that car on television to earn the money from the sponsors who pay for the wages; they have to keep the car running. They cannot change the technological team support for that car in the middle of such an activity.

**Q135 Ian Stewart:** Are you saying that because that is a 24-hour effort from the team they cannot change technical team members? What would you say to the union's assertion that this is just to stop more people being employed, that the contrary to that would be better with more technicians employed and involved in that 24 hours?

**Mr Aylett:** For example, without going into the technology, if a data technician was working on the data for a particular race—and it may be they have flown for five hours, six hours to the other side of the world to deliver—they cannot generally transfer that knowledge to another human being in the middle of a competitive race. It is rather like half way round a relay race saying, "This chap has run too far, find another one to do the next 50 metres". It just would not be a sporting competition in the way it has been conceived. There is no question that you could rewrite the whole structure of motorsport to accommodate changes of mechanics, changes of engineers, but there has never been a proposition that the sponsors would support such a thing.

**Mr Manahan:** It could not be costed. I agree with the extreme example of a road haulage guy who would happily run 24 hours a day if it made him more money. Everybody can see that is obviously an extreme scenario. I would agree with everything Chris has said. If you take a look at any 24-hour race, put it on television, you usually see two or three mechanics asleep in the corner, so they do tend to shift to an extent on the 24-hour race. But the way we have to run the company means we have to be quite lean and contract-in staff when times are demanding and shrink them down when times are not. Actually the contractors which keep a lot of the SMEs going in motorsport are almost like a band of wandering minstrels, and they will work all day and all night. Nobody is advocating that we send them up chimneys or anything like that—

**Q136 Ian Stewart:** And they work on adrenalin? They are excited?

**Mr Manahan:** These people love being in motorsport and they appreciate it is a little bit different—

**Q137 Ian Stewart:** Would it be more costly to a company if they had more technicians employed during the 24-hour period?

**Mr Manahan:** You are asking about the 24-hour race or the manufacturing?

**Q138 Ian Stewart:** Earlier you were describing a situation where there was a 24-hour race and therefore, as Mr Aylett said, you cannot change the personnel.

**Mr Manahan:** Yes.

**Q139 Ian Stewart:** If you did change the personnel, would that be more costly?

**Mr Manahan:** Yes.

**Q140 Ian Stewart:** Is there a financial cost element involved in this decision to have an opt-out?

**Mr Manahan:** I would say so, yes.

**Q141 Ian Stewart:** I think that is very honest. Thank you.

**Mr Hilton:** The same applies with the volunteers. When you have a 24-hour race running, if you had to have, say, three shifts of volunteers, perhaps 500, 600 volunteers around a circuit, you could never do it; you would never get that number of volunteers. They are there because they love the sport and they love what they are doing. You have to manage it so it is safe so you give people time off.

**Mr Manahan:** I have to say, coming from other industries into defence and aerospace, I do find that the motor racing industry is bizarre in that. I have never seen—dedication is probably too strong a word—anything quite like the motivation of being involved in motorsport at the basic factory-floor-worker level; they would not want to do anything else.

**Mr Aylett:** If I may say, I wrote on one of our notes that one of the speeches in the House of Lords pointed out that the success on track is enjoyed by everybody in the factory. There may be some chaps fast asleep in the pits because the wheels have just been changed so they get a catnap, but I can promise you, having been at the factories—I do not mean the front of factories, the Brawn front of house, I am talking about the chap who supplied the brakes—they will stay up all over the weekend just to watch the race and then cheer it home because they are very excited. I am not an engineer, I am an enthusiastic individual in every other way and I was stunned that engineering did not seem to engender that much enthusiasm and when I touched it in motorsport it is palpable. It is palpable and successful and that is something very unique; unique to have that size of workforce who are enthusiastic for an engineering success. It is pretty rare around the world.

**Q142 Chairman:** We saw that for ourselves when we visited Brawn. They are still called Brawn, are they not?

**Mr Aylett:** I think as of this week, yes.

**Q143 Lembit Öpik:** We already have a picture of the health of the motorsport industries which you have described already, how important is the Silverstone 17-year deal to the future of motorsport in the UK?

**Mr Hilton:** It is absolutely critical we have a British Grand Prix in this country. We are one of the founder members of the sport. About five countries came together to form motorsport over 100 years ago and as a founder member not to have a British Grand Prix not only influences the industry in this country, it affects our influence in the world of motorsport as a senior governing body. Also I think there is a halo effect. If you look where the Formula One teams are, mostly down that A43 corridor, it is the halo effect of Silverstone that has attracted them, and all of the companies are based in Silverstone and in the local area. Also I think you have the engineering skills there. Why are they all there? Because it is easy for them to move around. Most companies are within an

hour's drive—High Performance, Formula One, and all the other companies. If Silverstone were not there I think probably over 10 years it would start to drift away; the Formula One teams would start to drift away. That is a personal opinion. I defer to my colleagues.

**Mr Aylett:** We have done some research because we were very concerned whether we were jingoistically saying we needed a British Grand Prix. This is the industry speaking, not the sport and clearly, Colin has explained from the angle of having a major sporting spectacle. The industry felt over a period of time it would erode our international reputation if we lost the Grand Prix. People then said, "How long?" How long is a piece of string? Over a period of time you would find that domination eroded; our friends in Malaysia would make a strength out of our weakness and so on. Would the motorsport value cluster, which is the leading cluster in the world, collapse overnight? Probably not but it would be weakened. Please remember that the battle to secure the Grand Prix is between one British company, CVC, and a British organiser, so Britain actually controls the rights to the event and also organises the event, so it was a win for Britain but rather a hard struggle to get them to agree terms. There was no question that securing it for a long period of time, and 17 years is almost a record—

**Mr Hilton:** It is a record, yes.

**Mr Aylett:** It is the longest they have ever signed. It is a good commitment. We have a good company in CVC and now they are saying, "Let's get on with stimulating the sporting product for the next 17 years." I think you will find, if the Government deals with this correctly, there is a great opportunity to consolidate that over the years ahead and bring more business into Motor Sport Valley with Silverstone as its heartland.

**Q144 Lembit Öpik:** Does our focus on Formula One take away from other motorsports, because we do tend to focus on that?

**Mr Aylett:** I have often asked this about the aerospace business, and it is such a diverse business; does a Fighter Jet take the thing away from the Cessna? I do not know. I think it probably does but you are still in the aerospace business. I am sure Andrew can capture the spirit of that. The industry prospers from the pyramid and trickle down effect from Formula One in every single way, whether it is the hospitality or whatever. It rises to the top. The best people want to be seen in Formula One and they have the budget for it, and then there is the second division and the third division and so on. It is our premier league.

**Mr Hilton:** Just from a sports perspective, it does cause a vacuum underneath Formula One. All the funding is sucked into Formula One, so if you are looking for sponsorship for anything else, or even coverage in the newspapers, it is a really hard battle. It is fantastic to have Formula One and to have teams here but it does have an impact on the sport.

**Mr Manahan:** Formula One is a tremendous jewel in our crown, for sure, in terms of British motorsport and its technology, but it does dominate. It does cause me a curious problem from time to time in that we are very close to that Motor Sport Valley in Huntingdon and if one of my people that I spent a lot of money on training gets—I always call it somewhat comically the Willie Wonka Golden Ticket—the Formula One people knocking on his door, I cannot afford to pay him the kind of money that they pay, so I constantly lose very good, very well trained people to Formula One. I echo what Colin said, there is a vacuum underneath. Look at things like the A1 Grand Prix, which is great racing, really good wonderful racing between countries, a great contest, but, quite honestly, with your average sports fan the budget of attention he has for motor racing is pretty much dominated by Formula One. That is reflected in air time as well I think. It is the same in the States with NASCAR; NASCAR dominates in the States. The other formulae underneath that do struggle a bit for attention. I wish that it was a little more balanced but Formula One has done a fantastic job and no-one can take that away from it.

**Mr Hilton:** It also creates an illusion. People see Formula One and they think that motorsport is a very rich sport. If you come a little way down, just 5% down, for the other 95% it is not a rich sport, it is people from their own pockets paying for their own car and enjoying their sport. It creates that illusion of wealth which the sport actually does not have.

**Q145 Lembit Öpik:** Do any governments actually sponsor their Grand Prix? Do any nations sponsor their Grand Prix?

**Mr Hilton:** All but two, I think, so there is only Britain, I think, that is not getting funding now from the central government funding, direct funding.

**Q146 Lembit Öpik:** Would there be any benefit in it, or would we just be sponsoring something which is happening perfectly well already?

**Mr Hilton:** Well, if you look at motorsport within the United Kingdom, in Ireland you have got the Cross-Border Rally which was brought to bring peace across the border and both governments are funding that, in Wales you have got the Wales Rally GB, funded by local government, and in Scotland now you have got the International Rally of Scotland, which is funded by the Scottish Executive. It is only England which, for some reason, has not managed to get the funding to bring people to this country, to fill bedrooms within 50 miles, and there is a £50 million contribution from the British Grand Prix, so we could never understand why we can get funding for the home countries, but we cannot get funding for England.

**Q147 Lembit Öpik:** Is there any risk that we would lose some of our expertise and some of the industry abroad because we do not sponsor the Grand Prix or given that it is fairly circuitous, as Chris has already suggested?

**Mr Hilton:** I think it is an industry question rather than one for us.

**Mr Aylett:** It is a strange thing. Rather like that steady erosion that I mentioned, having spoken to lots of the other governments who do support, and some to a larger degree than others and some in a situation of sovereign states where they can use their funds and so on, they recognise the complexity of the UK funding, but they are surprised that, as we have the bonus of an industry which is paying its taxes at pretty substantial levels because they are profitable, there seems to be this complacency, the kind of, “Well, we’ll go wherever we go and we’ll see what the commercial world will bring and hope that CVC will strike a deal with these chaps at Silverstone”. Now, again it is rather like my comment about defence, that we can just get on with it, and we have got on with it, and Silverstone has struck the deal, so I do not know whether we shot ourselves in the foot. I do think an interesting thing for Government is that they put in, and I forget the numbers, between £8–15 million to improve the roads to the Grand Prix and that was a bit of a struggle, but it was pushed through. You can now drive from the centre of London, if you are interested, straight up a dual carriageway, straight into the heart of a major event and, since you invested in that, they have pretty much always had a sell-out at the event, so it was in that sense of why are you investing for this single event, but it brought, for those of you who use that road, a very popular arterial trunk road that has improved the rest, so to say that the Government has not been involved in the success would be wrong, but could it be more involved? I would hope, and I am sure we all would, in order to keep the industry here, the sport would benefit from some government involvement.

**Lembit Öpik:** When we question the Secretary of State for Transport, I am sure we will take account of that.

**Chairman:** Perhaps a departure lounge!

**Q148 Lembit Öpik:** This is a specific question for you, Colin. How important for motorsport are the issues you raised about the Road Traffic Act and the Forestry Commission in terms of the Rally? I know in Montgomeryshire that we take a lot of money from having the Rally, but it has always been quite precarious.

**Mr Hilton:** There are two different issues. In the Road Traffic Act, the Motor Sports Association acts as a department of the Department for Transport in that we provide the route authorisation of any event on the public highway, and we have been doing that for over 30 years. We are disadvantaged in this country because anywhere else in Europe and in Northern Ireland and the Isle of Man, you can actually close the public highways off-season. In Wales, for example, perhaps in Snowdonia, you

might wish to have a hill climb out of Betws-y-Coed or somewhere and fill the bedrooms all around for that festival of sport. In this country, you cannot do that because the Road Traffic Act allows you to close the road, but it does not allow you to suspend the Road Traffic Act, so you cannot do more than, say, 30 miles per hour on the road. You have to have an Act of Parliament to actually close the road and suspend the Road Traffic Act, which is barmy, it is absolutely barmy. I have written to every Secretary of State for Transport in the last 20 years to try and get that changed and have failed, so there is a huge opportunity just to make a slight change to legislation so that, with local authority approval, we could use the public highway for major events off-season with the public interest. The Forestry Commission is a different situation where we have a common access agreement for all the forests, apart from in Northern Ireland, and I think it is correct that we should do that because we have to ensure that we look after the environment, that we have health and safety within the forests and so on, but I think it is wrong that there is a monopoly with the Forestry Commission. We put over £1 million into the Forestry Commission every year just for 40 events. That is crippling our clubs, our clubs cannot afford that, and we should be able to negotiate separately with the home countries at least to try and get some different deals. In fact, it is wrong anyway because in Scotland you have got granite, so we do not do any damage to the forests. If you come down south to the south coast, it is sand, we do a lot of damage and we have to put that damage right by paying for it, so to have a common fee across the whole of the UK cannot be right.

**Q149 Lembit Öpik:** You may not know the answer to this, but is the McLaren company which deals with aero-engines the same as the McLaren company which deals with motorsport?

**Mr Hilton:** We may have to defer that; I do not know the answer to that.

**Mr Manahan:** The McLaren company that deal with aero-engines?

**Q150 Lembit Öpik:** Yes, there is a very successful company which deals with aero-engines called McLaren and there is obviously the McLaren in motorsports. The reason I ask that is because, if they are the same company, that is an interesting synergy.

**Mr Aylett:** I believe they are not. It might be Nicholson McLaren. McLaren itself does not make engines. The McLaren Formula One team does not make engines, it has them or had them from Mercedes or others, so I think it is unlikely.

**Q151 Lembit Öpik:** That is a shame because I wanted to say I was flying a McLaren!

**Mr Manahan:** As far as I know, there are three McLarens. Two of them are in the same group and that is McLaren Automotive, who make the McLaren-Mercedes SLR, for which we do the bodywork, there is the McLaren Formula One, and

then there is Nicholson McLaren which was John Nicholson's company that make the engines that are separate.

**Q152 Lembit Öpik:** So I might be flying a McLaren!

**Mr Aylett:** I would say it anyway! I am sure you do!

**Lembit Öpik:** No further questions in that case!

**Q153 Chairman:** Before I hand on to Tony Wright, I would just like to pick up a couple of things which you said earlier which I have just been reflecting on. I do not think this has been in the evidence before, but, when we went to Bristol, we heard a lot of suggestions of the very close relationship between motorsport and aerospace and the wonderful opportunities. When we went to Brawn, we heard about the wonderful opportunities as well of a fast-moving environment that could transfer across into the aerospace sector very easily and actually help the aerospace sector make changes more quickly, and it is just what we heard when you were talking about the defence sector earlier on, but you said that it is actually more difficult than that because of the testing requirements, the safety requirements and legislative requirements in the aerospace sector. Now, I do not think we have had any evidence on that before. Either do you want to expand on that now, or do you want to drop us a note afterwards just explaining what those issues actually are because it is quite an important point you have made?

**Mr Manahan:** For aerospace manufacturing, the traceability of the parts that you are making is critical to anything that flies. At the very minimum, your company, your SME, whatever it is that your company is in the chain, has to be at least AS9100-accredited which is a quality approval in the same way as ISO9001 is, but particularly geared towards aerospace. The Society of British Aerospace Companies, or A...D...S as they are now, I think they are a good port of call for any of them that wants to make that transition as well, and the SC21 initiative that they are running is also quite good and quite healthy there, but yes, there are legislative, if you like, safety/quality requirements that you have to have as a mandatory entrant into the aerospace side of things.

**Mr Aylett:** I think the point I was making, in a sense, Chairman, was that the SME in motorsport tends to enjoy success because of its unregulated environment. In fact, it does, I will not say it tends to, it does, the fact that they can test and try out in probably dangerous circumstances. They move very quickly and then they engage with that, so, when that SME of that kind decides to attack the aerospace industry as opposed to urgent operational requirements in defence which do not need these things, it acts as a barrier. It is relatively expensive to acquire that accreditation, so SMEs, and I am saying that the average size of a company in motorsport is 23 employees with a turnover of £3½ million, that is the average and it is quite an investment for them to head off into the aerospace business, so inadvertently it acts as a barrier.

**Q154 Chairman:** But we were told, and we have heard this on a number of occasions, but we were told, I think, particularly at Brawn, that a Formula One racing car, in particular, is only a low-flying aeroplane, except that the aerodynamics are to keep them down rather than up, which is a very important distinction.

**Mr Aylett:** That, if I may say so, is the higher-ranking companies that could easily do this. There is a connection between them, and I can tell you that Boeing are very closely related to one of the Formula One teams. Some of these things are confidential, but I would be happy if you wrote a note and I would ask the F1 teams to expand on it. There is a good relationship between most of the major aerospace companies and most of the leading Formula One companies. British Aerospace is very public in its connection with McLaren, and I would not wish to go into the relationship, but they might wish to. Boeing, I know, are related to another Formula One team. These major aerospace companies have gained relationships with the top of our pyramid. Would that be right, Andrew?

**Mr Manahan:** Absolutely right, yes. It is not terribly easy for the very small SMEs, the likes of the 20/30-staff SMEs, to embrace and to pay for the accreditations that you need. It is not terribly difficult to do, to be fair, but it is an investment in the future and that would be quite a difficult proposition for some of those people to bridge at the moment. Again, if there were some government-led industrial initiative to make that easier, such as you have done with SC21, then I think that would be a welcome addition.

**Chairman:** Tony is going to ask you about those issues now really, I think.

**Q155 Mr Wright:** Just to expand on the Government's support to industry, I think it has been mentioned, the complacency there appears to be in Government so far as the industry is concerned and certainly about the UK leadership in the motorsport industry. Does everybody believe that the Government is complacent, or is it just ignoring it and, if so, why do you think that is the case?

**Mr Hilton:** To kick off just from a historic point, I do not think the Government has been complacent because it set up MDUK. They had a competitiveness panel, it must be, five or six years ago now and a lot of research was done and MDUK was set up to bring government funding into the sport and the industry, and there were one or two very good initiatives, there was Volunteers in Motorsport and we got some funding for that to get more volunteers into the sport. The problem was, I think, in the correct, transparent way, that a board was set up to direct that group, MDUK, based on the findings they had. It created its own head and went in its own direction and a direction which neither the industry nor the sport actually wanted, so I think that the Government has done the right things in the past, but unfortunately it just went off in the wrong direction.

**Q156 Mr Wright:** Is it the case of putting the wrong people in the wrong place?

**Mr Hilton:** I do not know what happened. I think the people who were actually on the panel, some of them were very experienced people, others perhaps were not, and the group of civil servants who got together seemed to deliver all the things that we did not want or duplicated what we were doing, though Chris may have a different view, but I do not think the Government have been complacent.

**Mr Aylett:** I think you will be returning to MDUK later, but, let me just say, I looked up the word "complacent" so that I knew whether I was being very insulting or very factual and I just wanted to be sure because it was in my report that I said it was. It is a "feeling of contentment and an unawareness of danger", in which case I disagree with Colin and I think the Government has been complacent because I wrote my first report to the Government in 2001 and I had it there for the DTI and the DTI picked up on it very quickly. We are in danger, through complacency, of allowing this jewel in the crown, as Professor Porter of Harvard says, to just slip through our fingers. I hate to say this, I am a strong Brit, but Britain does do that occasionally. It has a jewel and it sometimes does not know quite how to guide one and then it just allows it to slip because it is unaware of the danger. We are undeniably on 150-200 million TV sets every weekend, saying to people, "We're really good at this". Well, do not be surprised if the Chinese, the Japanese and the Germans and everybody else says, "Well, we would like a pop at that. It's a bit of entertainment. They can't even host a Grand Prix, they don't have that much interest, they build roads and so on". If I were a competitor, if I were Chinese or Malaysian, I would rub my hands with glee at the apparent, let us be gentle now, the apparent complacency because the Government does not seem to be aware of the danger and they are allowing the industry to meet these dangers, but in a general form that is really where governments can play a spectacularly effective role, to identify the danger, to help the industry move towards that danger, encourage diversification so that they have a much better base and so on. You allowed us to say where we disagree and I disagree with my good friend Colin; I think that there is a lack of awareness of the danger.

**Mr Dickison:** I think there is a reasonable amount of support, and certainly I am thinking perhaps of lower-level motorsport, like track day cars, and the university is involved with a number of companies that are getting grants from Advantage West Midlands, and it is all biased towards making new vehicles more environmentally friendly, so there is not a sort of, "Here's some money. Go out and race and develop your cars". One example is we are working on a fully electric race car programme which will be the basis of a one-leg series, so yes, there is support there, but you have to make sure that you tailor your activities to suit where the funding is, but, from my point of view, I have found certainly that Advantage West Midlands have been trying pretty hard to do whatever they can to support the local, small vehicle manufacturers.

**Q157 Chairman:** We want to come back and talk about the RDAs at some greater length.

**Mr Aylett:** I must admit, I was talking about national government, just to be clear.

**Q158 Mr Wright:** We will go on to the question of RDAs in a little while, but surely is it not the case that perhaps the Government sees that the industry has been a huge success standing on its own two feet, it is going along, it is providing employment and it has certainly been a huge success on the basis that much of the Formula One companies are based in the UK? If there were an element of support that the Government could give, what sort of support would that take the form of?

**Mr Hilton:** If I can talk certainly from the sport's perspective, I think the first thing would be that UK Sport and Sport England actually recognise us as a sport. We are constantly fighting the battle to say we are a sport, but we have been going through the process of trying to set up a charitable foundation to help young people get into the sport, to train them, to improve safety skills and so on, and continually the Charities Commission say, "Well, sorry, but you're not a sport. We can't allow you. We don't see that motorsport is a charitable activity", even though we have highly trained doctors and incident officers and so on, so I think the first thing would be yes, please recognise us as a sport and we can start working with Sport England and UK Sport. I think also the recognition of the skills that we bring, and I have mentioned that it is engineering, it is incident management, it is medical, there are all sorts of things that motorsport brings to society to help society and gets people out of their homes. The Grand Prix is 1,000 volunteers, the Wales Rally GB is 3,000 volunteers and none of them is paid and all of those people come out to help the sport. It is a social activity, so why not recognise it? That is my position.

**Mr Aylett:** That is a strange thing for the sport, and we work closely through the Motorsport Alliance. As far as the industry is concerned, I just want to read from Brian Wilson, who was the Minister of State for Energy and Industry. In 2002, the DTI, as it was then, came up with a programme of "harnessing a world-class industry cluster in Motor Sport Valley, to gain general competitive advantage for the UK". There was a paper written then by the DTI that was focusing on capturing this value and utilising it for the rest of the UK. It was never taken forward. Unfortunately, it was following that that they created the competitiveness panel and so on and it was never taken forward, but it was a programme led by industry for industry and the DTI on a national basis. I will not go into the details now because you can have access to it, but it was announced that it would go ahead and it was a very simple programme of encouragement for the industry, so prior to this problem with motorsport development in the UK, the DTI, as it was then, was looking at the national programme and there were simple ways that they could help industry. I will not go through the full details now because of the time

limits, but they were to help the industry in some of these strategic areas, but not interfere with its global success.

**Q159 Mr Wright:** How much of the complacency is down to the fact that the Government research on the health of the industry is 10 years out of date? The fact is quite clearly it was 2000 when the last research was actually carried out within the industry. Is it one of the areas where it is the fact that it has gone along and perhaps we need to fund new research to look at the health of the industry to see exactly how it has moved on because, even since Brian Wilson's day, the technology has moved on at such a pace that now we are talking about the aeronautical industry and the motorsport industry coming together because they share technologies?

**Mr Aylett:** You are separating them, and I know Colin would speak up on that too. The MIA led on raising the funds and some came from the MSA back in 2000. It was not a government initiative, it was the industry saying, "Where are we?" but we were funded through DTI, UKTI, some of the regions and some of the universities came together and it was a very thorough bit of research and it has been quoted, as you know, by the day even now, even though it is far out of date. It is an indication of complacency if you have this successful, fast-moving industry and every year we have applied for funding through the RDAs or through MDUK and each time we were turned down, so, as an industry and a sport, we were never able to capture the movement, so yes, it is a mark of complacency that you would not wish to look at where we are now because that is really what will set the strategy for the future. I would not now like to hazard a guess as to how valid those figures are.

**Mr Manahan:** I understand the point as well and I totally agree with what Chris said previously about the complacency aspect. I think there is actually a link to a previous question as well, that a lot of that complacency comes from the fact that Formula One dominates people's views when they think about motor-racing straightaway and, just like Colin said, if you scratch the surface 5% down and if that were all you were looking at, I do not think anybody would be complacent because it is certainly in need of attention.

**Q160 Mr Wright:** Colin, you mentioned earlier the MDUK, Motorsports Development UK, but it is not really doing the job that the industry wanted and, as I understand it, it is now defunct and finished as from this year. Was that the right decision to take?

**Mr Hilton:** I personally believe it was the right decision to close that operation down because it was becoming, I would say, unviable from its overhead costs. They ended up with nearly as many people as we have in the governing body just issuing out these funds to various projects. I think it needs looking at in a completely different way and we would welcome the opportunity to work with Government in that way again, but I think the structure would have to be

different so that the needs of the industry and the needs of the sport are actually delivered rather than this strange concept which came out of MDUK.

**Q161 Mr Wright:** So are you suggesting that there should be a successor organisation being formed?

**Mr Hilton:** No, no, I do not think so. I think the industry and the sport are quite able, working with the departments, whichever department it is, with ourselves, DCMS and DBIS for industry, let us work directly and help those departments direct funding where it should go.

**Q162 Mr Wright:** Because there is a tinge of going back on what you said earlier because, quite clearly, you have mentioned MDUK and the fact that the Government was showing a direct interest by setting up MDUK at the time, but now you are saying that it did not even serve the purpose it was formed for because the wrong people were on the board, there were too many people on there and it did not actually deliver.

**Mr Hilton:** I think the mechanism was incorrect. I think the concept of investing in the sport and the industry was correct, and we all contributed to that and we all contributed to the strategy of where the needs were, but I think the actual delivery mechanism was the problem.

**Mr Aylett:** May I add a comment because to say I was the person involved in this is almost an understatement. The original document that was written from the industry was a strategy document in 2000 which led to the DTI nationally saying, "We'll run a national scheme to help this national cluster develop", and that was Brian Wilson. Then, and I know this was through direct intervention at the highest level, some folk went directly to other ministers and said, "This would be wrong. We now need ..." and the decision was to have a competitiveness panel which took a year or more to review this idea. That competitiveness panel led to Motorsport Development UK and we steadily drifted away from a national programme run through a national governing body in the national interest to deal with a national cluster. It was eventually handed to a region, which happened, on that research you referred to earlier, to be a region with only 15% of the economic activity. The neighbouring region, SEEDA, had twice as much economic activity, but the national programme was given to a region to handle. At the time a senior civil servant said, "This is going to be an interesting experiment", and it did prove to be interesting and, I have to say, a failure. Unfortunately, the concept of a region taking a national programme, first of all, there were the disputes between regions, but also you lost and, if you look at the trail of the board, they thought they were advising a national programme, but found they were driving from Kent to Nottingham for meetings on a regular basis. I do not blame EMDA at all, I do not blame the people who were given the task, they were a region and they were leading it as best they could to fulfil their regional strategy as opposed to their national base. Scotland

had nothing to do with it, Wales walked away from it and, instead, here we were with a national industry begging for support for a national sport just tied up in the delivery mechanisms of regions and, I have to say, I support Colin. We have in the last 18 months done all we can successfully to restore our relationships with DBIS, née DTI, to great success, with sensible dialogue on national issues, and we are beginning to rebuild that relationship for a national cluster, so I think it was, sadly for us as a small industry, an experiment that was just flawed.

**Q163 Mr Wright:** You mentioned the regions and we can go on to the regional development agencies. Have the RDAs caused more problems to the industry in the past, the fact there seems to be this element of competition between the RDAs' role and UKTI's role and the RDAs playing more of an inward investment role which was the domain of UKTI? Is there a degree of hostility in the industry towards them?

**Mr Aylett:** I do not know whether you deal with the RDAs, Mike.

**Mr Dickison:** We deal with Advantage West Midlands and we have found that we have quite a good, close working relationship with them and I would not say that there is anything I would like to raise to say that there is a big problem here. There have been various research initiatives going on and we are currently midway through a £3 million R&D programme for environmentally-improved vehicles. I do not think there is anything that I can think of where I would say that there needs to be some huge change.

**Q164 Mr Wright:** I think in the MIA's evidence, Chris, you mention unhelpful competition between the RDAs, and I think I am right in saying that Silverstone was split between two RDAs because it straddled the border between the two. Did that create problems or is that creating problems?

**Mr Hilton:** I think it caused more complications than problems. I think the mechanism of getting funding or trying to get funding from two caused the difficulties.

**Mr Aylett:** I do not know whether Andrew has something to add, and I do not want to be coy, I just want to make sure my friends are heard. Our difficulty is as a national trade body dealing with a national cluster where the suppliers never even know where an RDA begins and ends and nor should they care. To try to deal with that on an economic growth area is difficult. We work very closely with DBIS/DTI/DBERR and we have consistently worked well with UK Trade & Investment as a national industry. Bizarrely, as you raise UK Trade & Investment, nationally based in Glasgow, we run national programmes. We are often at a show that is being funded nationally by UKTI and there is a regional UKTI activity going on of which we are unaware, the customers, if you like, the international customers were unaware, they do not understand why there would be an East of England UKTI activity, and in fact it has become so complicated

that we just invite anybody with the card of UKTI to anything that we do in the hope that they can work it out because it is very, very complicated. If you are from one region and you strike lucky, you can get an extra £500 to attend the show, meet the chap from the East of England who on that particular show did not get it, they meet on the plane, "Didn't you get the £500?" "No, I'm in Huntingdon", and they say, "Well, is that not AWM?" "I don't know where it is", so, sadly to say and it may belittle my organisation, we simply advise everyone to contact whoever has a card from UKTI and try and gain some funding because it is beyond us to work out, as a national trade body, how you can win the lottery region by region. This is UKTI.

**Q165 Mr Wright:** Yes, I understand that.

**Mr Aylett:** That was not what you raised, but it is a great sadness because it is probably not the most co-ordinated international effort and they are good people. Everyone is motivated as well, but not the best.

**Mr Hilton:** Just to give you an idea of what happens in other areas, this year we have introduced an advanced apprenticeship scheme for young drivers and what we try to do is ensure that they get education when they are enjoying their sport so that they will come out with the equivalent of three "A" levels while they are competing. We find ourselves in a situation where it is very successful and we can go to 100 apprentices next year, but we can only actually get funding for England. We can only fund those kids who are based in England, but we are a UK governing body, so we have got to have separate schemes for Scotland and Wales, and it is bonkers really.

**Mr Manahan:** I am so happy that I am not the only one that is totally confused by the organisation of these because I thought there must be something wrong with me because I have not a clue what half of these people do.

**Mr Aylett:** You should know!

**Mr Manahan:** It is not that I do not try, but I do not know if you guys ever remember *Drop the Dead Donkey*, but I get approached by these agencies who speak like Gus Hedges and you get these hands-on/hands-off interface matrix units, and I have not a clue what any of them are trying to deliver for us. It is bewildering, it is confusing, it is irrelevant, and I am being generous! Like I said, the UKTI people are trying, and anybody who comes to us with a UKTI specific hat on—I even had a very relevant text from one of them first thing this morning trying to help us to do some business overseas, they are trying, but, I must admit, it is the agencies, the regional agencies, which are the confusing aspect for me.

**Mr Aylett:** We are very keen in motorsport on inward investment. We, and you can go back to my first argument, we prosper by attracting inward investment. It is a very courageous statement, but it has come through Professor Porter of Harvard, that really strong global trading clusters welcome international competition into their midst, so actually, as a trade association, and I have spoken to

many others, they say, "We're amazed at how aggressively you go after the inward investment" because there's protectionism, but our members love it, absolutely love the inward investment. They are courageous people, they want to bring these guys in because they know they are the best and then they will gain from them, so we get a lot of enquiries, as a trade body, for inward investment and then we have this rich inward investment opportunity which I have to pass onto UKTI. I know that there will be a national approach, there will be a regional approach, there will then be a county approach and there will be a local approach and, by the time this poor Chinese company has been passed around this group, I am not sure how it really helps, and I have many practical experiences of the confusion that it conveys; all the goodwill intended, but not the most professional approach to an inward investor.

**Q166 Mr Clapham:** If I could just pick up an enormously important issue, Mr Aylett, you seem to be saying, from the letter that Brian Wilson sent out, which seems to hint at a national plan for the motorsport industry and the clusters, in particular, that what we really require there is to say that we need a plan that sort of transcends the regions on the one hand, but at the same time the regions are to be involved in implementing that plan to make sure that this sport is prosperous.

**Mr Aylett:** Yes, I must admit, and I will let you have a copy of the letter, it is very eloquently written actually and it kind of captures with some vision the chaos that did actually arrive because it was taken, if you like, to the next level and it became part of the regional problem. He was saying that it is an industry-led, DTI national programme, but it will engage on a regional basis as and where necessary. Let me remind you, the date of 2002 was in the birthday period, the honeymoon period of regions and this is how it should work and, I have to say, that is probably true of MDUK when I sat with senior civil servants. The way RDAs were going to operate was still, "We presume this will work. We're looking for national schemes to be led by certain regions", and I was intimately involved in those conversations. Sadly, as a businessman, I was able to say, "Are you sure? Are you not motivating these people to compete with each other? Are they really going to be able to stay outside?" "Yes, that's what we're going to do" "Oh good, that's the view of the politicians", but it did not work in practice. It may not be for other industries, but ours is a good case to study. I know there is a report on MDUK, I am close enough with DBIS to know that you have a report, which has not yet come out, but there will be a report which you can read and see how successful it has been in the view of the industry, which is not that good, but I have to give you this information to add to your knowledge.

**Chairman:** We welcome that, and we have the Minister coming in after Christmas. I cannot remember when, but we will be having him in.

**Q167 Mr Wright:** Just in respect of the MDUK, I have just looked at the figures and the actual cost of the MDUK was £11.5 million. It is quite clear, now it is defunct, that that money has gone back into the Department's coffers or perhaps the Treasury's. Would you suggest that perhaps something else should go in its place because £11.5 million is not a small sum?

**Mr Aylett:** To be honest with you, after five years we regularly have meetings on what do we want to do and the 100%, "Please stop. Please stop loving us in this manner", really.

**Q168 Mr Wright:** It was that bad?

**Mr Aylett:** Yes, it was that bad. It was, "Please stop". If we try and negotiate a little bit, someone will say, "Let's build it again", so the decision of our members, not Colin and myself, but our members was, "Let's just stop. We'll do okay without the Government's love and affection. We've appreciated it as best we can, but no more". Now what we are saying, both of us, is that we would love to re-engage on a national scheme that recognises the national sport, the national industry and the importance of a national cluster of sport and industry.

**Q169 Mr Wright:** Has there been an indication that that is actually happening?

**Mr Hilton:** None whatsoever.

**Q170 Mr Wright:** So, since MDUK finished in March of this year, there has been no discussion whatsoever of what is going to replace your discussions or anything else of that nature?

**Mr Aylett:** No. I will not bore you with it, but I had Baroness Vadera's promise in March to deal with it and she then said she would meet in June, and I was reminded on the train this morning that we are now in December, so that is the complacency of which we spoke.

**Mr Hilton:** I have not spoken to anybody in MDUK for over two years.

**Mr Aylett:** Colin and I meet regularly, as you can tell, and there was a period when we said, "Well, I actually haven't heard from MDUK in over a year", and that was the industry and the sport. They were claiming to spend £16 million and it turned out to be 11, but 16 was the illusory promise that disappeared, and we were not in touch with them at all, not slightly but not at all.

**Q171 Chairman:** That is a fairly unequivocal answer you got there, Tony. Can I just ask about something else for consultation and we have some questions which will involve you, Mr Dickison, so do not worry, your moment in the sun will come. Were you consulted about the establishment of the UK Composites Centre actually as an industry because composites are very important to you as well?

**Mr Manahan:** No, we were not.

**Q172 Chairman:** Because you made a very powerful exposition earlier on of the challenge we face from other places to our competitors, and composites are

hugely important for aerospace and for motorsport. We now have the announcement of the Composites Centre at Bristol, which personally I am very happy about, I think it is the right outcome, but no consultation?

**Mr Manahan:** We have not been consulted on it. The first I saw was reading about it relatively recently. It certainly seems to have had a lot of input from the tier ones, as I call them, in the aerospace side of the industry, the Airbuses, the GKNs, people like that. I welcome the concept of it, but I am slightly fearful of what it might mean for our business. I would like to know a lot more about it and I would be very happy to engage with it in a way that I am not threatened by it.

**Q173 Chairman:** If you want to suggest some questions that we might ask the Minister on this when he comes on 26 January, I would be happy to ask them for you, Mr Manahan.

**Mr Manahan:** That would be great, thank you.

**Mr Aylett:** Mr Chairman, may I just say, you are reading my report. I am a little concerned as to why this industry is not involved in some of these consultations.

**Q174 Chairman:** Exactly.

**Mr Aylett:** It is a very strange process. The Technology Strategy Board, Iain Gray, is in another room here today, we have very cordial relations and they do enjoy motorsport and they enjoy talking about it, but they find it very difficult or it is very rare, they do not engage as if we are an industry, and that is the Technology Strategy Board—

**Q175 Chairman:** Well, we heard, when we were in Silverstone, that the innovations in composite use in motorsport were happening faster, to go back to the evidence, and were happening more regularly than they are in aerospace.

**Mr Aylett:** They are.

**Q176 Chairman:** There is a huge amount to learn across.

**Mr Aylett:** Well, it is very strange, these consultations, and the only excuse I can come up with, and I mentioned the Technology Strategy Board, but the Automotive Innovation and Growth Team has just come up with its report and we were not consulted at all, the motorsport industry, not at all about the Automotive Innovation and Growth Team for the next 20 years in the UK. Now, Malaysia, if it discussed its automotive industry, would undoubtedly embrace somebody from motorsport, but we were not, and the excuse that I will give you is, I am afraid, the vacuum of the dialogue all went through MDUK for five years. Would I be right, Colin? In all government departments every discussion was focused on, "We have committed £16 million. These are the people who know. Pass all your enquiries to MDUK" who had no connection going on, and I have a feeling we are in the aftermath of that and we would love to break free of it.

**Q177 Chairman:** I think the timing of our inquiry is serendipitous.

**Mr Aylett:** Incredibly so.

**Q178 Chairman:** That is a word I like using, and I managed to get it out as well! Let us move on to academic issues, broadly defined, and Mr Dickison, I suspect, will have his moment in the sun now and I think others will want to contribute as well. Motorsport obviously, particularly the top-end stuff, is seen as a very glamorous activity that can excite young people's interests in the science, technology, engineering and maths subjects. What can we do to maximise that opportunity and do we need to do more?

**Mr Dickison:** Well, I am not sure insofar as, in the way that we structure our courses, we try and have them so that they are very interesting for the students and they are very relevant to the industry itself.

**Q179 Chairman:** I want to talk about the courses later, but I want to talk about attracting young people into the STEM subjects more generally because motorsport and, for that matter, high-end aerospace, there are some industries which are genuinely exciting to young people and can be used to excite their interest in engineering subjects, so do you think more could be done? I am thinking particularly of the Learning Grid, which I do not know how many of you are aware of, where, I understand, its funding has now ceased from EMDA.

**Mr Aylett:** That was one of the MDUK programmes. You might be interested if I just give you some of the stats of young people. Swansea started its course, its engineering degree, in 1998 with 20 students and it now has 300 going through.

**Q180 Chairman:** You are running ahead of me. I want to do schools. I am talking about kids at schools being excited by engineering because the example of motorsport can show them what the opportunities in engineering actually are more generally, and that is what I am asking about.

**Mr Aylett:** The Rockingham Festival has 3,000 pupils and 300 teachers every year and they say that it enriches the curriculum significantly. Formula Schools started in 1997 and has handled 30,000 pupils and 1,000 schools for Key Stages 3 and 4 using biofuel and electric cars. F1 in Schools with Mr Eccleston and Formula One support now reaches 31 countries and 12 million students and in the UK, in the age group nine to 19, 200 schools and 1,000 students, and Ireland won last year and England won the year before, and that was supported by DCSF, I have to say, and Green Power is another—

**Q181 Chairman:** I have got a document I got from the Learning Grid in the post actually this week which has all of those schemes in it enumerated, so the question is really: how valuable is the activity and could we have more of it, or are we striking the balance about right?

**Mr Dickison:** I think it is an extremely valuable activity and it is very relevant to me insofar as I have two young boys, one in senior school and the other going this coming September, and one of them is running a sort of little race car programme where they build their own car and drive it around, and my son is actually doing a little remote control car programme and they get so enthusiastic and then all of a sudden they realise that this boring maths and sums is actually for a purpose, you are not just punching a few numbers, but you can calculate how to make something work better, how to be efficient. It is all very competitively based. In fact, my son went last week to a competition at Cranfield University where they were competing against other teams in our region, that is the Milton Keynes group.

**Q182 Chairman:** So you agree it works, but are we doing enough of it or are we getting it about right?

**Mr Dickison:** I think you can do more. Certainly I have been looking at the various schools in the area that our youngest son will go to and there was one which really focused on it, whereas other ones did not seem to have any sort of involvement in it.

**Q183 Chairman:** The reason I ask is because are you aware of the Learning Grid itself?

**Mr Dickison:** No.

**Mr Manahan:** I am not aware of the Learning Grid, but we go to local schools, not as part of an initiative or anything, but off our own bat really, to try to get the kids interested in engineering and hopefully we will get some in an attempt really just to try and foster some interest in, as Mike was saying, what numbers and sums can do. We get the local kids in and they see the motor-racing cars, they see all the cool, sexy things that we are doing and we just try and engage them like that, but that is not part of an initiative or anything.

**Mr Aylett:** We would say as the industry that this is the most important thing that we do, motivate schoolchildren. I just had this meeting with the Motorsport Employers Group three weeks ago and they categorically said that this is the area that they would like to see if we re-engage with Government, and these are the leading teams, if you like, for publicity and they recognise this fabulous enthusiasm that motorsport can give. NASA does this very successfully in America, and this is our space race. Whether you like motorsport or not is not the issue; it motivates young people to study those four subjects and compete with one another. Competition is not necessarily bad for them, but the battle to win is good fun for them and, if you come to any of those competitions, you are saturated with the enthusiasm from those kids who hardly know they are doing engineering. I have worked with the Institute of Mechanical Engineers and said, "Creep up on them gently to tell them they're engineers. Don't frighten them off early, but just let them have fun", and they have found a way of having fun with STEM through motorsport because it is pretty cool.

**Q184 Chairman:** Exactly, so that point is well-proven, but we are being a bit anecdotal as to whether we need more of it or not. I do not criticise you for that, but I do not think we are making progress on the issue. The reason I ask is that the Learning Grid is supposed to be a co-ordinating mechanism and the funding mechanism for this and, if funding has just been cut by EMDA, the East Midlands Development Agency, it may regard the fallout from MDUK just as you said, and I want to know whether that matters or not.

**Mr Aylett:** If you read closely the Learning Grid, you will see it is an accreditation scheme for those schemes and that is not what was necessary, so again we have this MDUK involvement where they wanted to accredit these good people doing things, but what these people need to do is more simple support down at grassroots to attract more schools. There are very, very good schemes and those are run by very good people who need much more direct support than an accreditation scheme.

**Q185 Chairman:** Certainly, and I went to see a school in my constituency highlighted in this report under the Engineering Club Scheme, which is one I rate very highly indeed, but I had no idea of the involvement of the Learning Grid in it.

**Mr Aylett:** That particular scheme has run its course and there is an opportunity to do far more with our industry to use the power of motorsport to attract young children into STEM.

**Mr Hilton:** I did not know actually that Williams F1 apparently have launched an educational programme in association with Cambridge University Press aimed at core mathematics and science subjects with motorsport themes.

**Mr Aylett:** It launched it just a few weeks ago.

**Q186 Chairman:** That is very helpful, thank you. Let us move on to the motorsport courses, which I think is something you were trying to get to earlier on. Now, we have heard some scepticism about this, and this is not a criticism of your institution or your courses, but I am asking you to speak for the academic sector now, that actually too many of the motorsport courses are inappropriate and they are not actually what the graduates actually want. We heard actually that the core engineering skills which are often what people need, for example, at Silverstone are not broadly based motorsport courses. Do you want to reflect on the value of the courses offered by universities in general?

**Mr Dickison:** I think you need to bear in mind that the way that these motorsport courses are developed is such that they have all the core engineering subjects in them and then they have additional modules which are supposed to be relevant to the industry, and I think my comment would be that, if it is not relevant to the industry, there is a problem that people are recognising and feedback is needed. In fact, I think it is very difficult for me and the academic institutions to just guess, "Well, we think this is relevant and this isn't. These are the areas that we need to cover", so I think that there needs to be

feedback. Personally, up until this year, I have actually been recruiting in people from the university courses for many years and I have found that some of the motorsport courses were very, very light on the real technical subject to the extent that what they had done is maybe done things which were perhaps relevant to day-to-day working within a race team, but, when you said, "Can you calculate how thick that piece needs to be?" they say, "Oh, I didn't do that module".

**Q187 Chairman:** That is the criticism we heard actually and you have encapsulated it.

**Mr Dickison:** Yes, I think that is actually quite valid probably in some places, but it depends on where you go and there is a huge variety of higher education establishments and their courses are not all the same. What is needed is some formal feedback. It is very difficult for the universities to react when it is just really based on maybe sort of anecdotes and, "I had a student come who couldn't do anything" sort of thing, and I have heard this sort of thing before.

**Q188 Chairman:** The sum of all the anecdotes becomes a pattern of some significance there.

**Mr Dickison:** Yes, but there needs to be a mechanism for feeding back in.

**Q189 Chairman:** We do not want to do any more kicking of MDUK because we have done quite a lot of it already and your views are pretty clear, but it refused to draw up a list of the motorsport industry recognition of academic institutions. Would that be a good idea still?

**Mr Aylett:** The word they overlooked was "industry". The difficulty that the industry has is that it has not been engaged as closely as it should with these courses to make sure that they produce an employable student. Originally, the idea for MDUK was that industry would help go through the universities and not accredit them, these poor guys are accredited to death, but actually engage with them and explain this fast-moving business, and that has failed to take place. Sadly, during this period the universities have been led on a "bums on seats" reward basis, so they are using the power of motorsport, and it has worked, to attract a lot of students into engineering courses that were otherwise overlooked, but unfortunately the quality and connection with the industry, and this is from the industry I am speaking, not myself, the Employers Group say, "Unfortunately, there has been so little engagement. What we've had is lots of young people studying motorsport engineering" and—

**Q190 Chairman:** But you have SEMTA, the Sector Skills Council, you have the Motorsport Academy, so surely this liaison should be happening effectively already?

**Mr Aylett:** Well, originally, a long time ago, we had a meeting with SEMTA and they said, "Well, we look after the students inside the factory gates and the

IMI look after those outside”, I have forgotten the other Skills Council, “that looks after outside the factory gates”. I said, “We have a difficulty because we don’t have any factory gates and we’re quite modern in that sense”, and we struggled. SEMTA did create some very original course structure, but it was disjointed, not connected with industry, there was no other connection with any other sector skills council, so again we ran up a white flag and said, “There’s only so much one can do. The engineering courses are excellent in the UK, so let us just go with those and allow this incredible complexity of sector skills councils to run its course”. Indeed, in the last few months, since the demise of MDUK, we have tried to re-engage, but we have not had much of an answer yet.

**Q191 Chairman:** So Mr Aylett and Mr Dickison are agreeing absolutely here that there is a need for better co-ordination of institutions of higher education and the industry?

**Mr Aylett:** That is the only way to move forward. How you create that—

**Mr Dickison:** I would not want anyone to go away with the impression that nothing is being done. For example, I am actively working with a number of companies and our students are given real, live problems to solve, and the way we term this is “activity-led learning”, so, rather than dusting down some old example where you work through this and end up with the numbers, we are applying students to solving real, live problems with the lecturers acting more as guides to try and help them.

**Q192 Chairman:** That is very good and very commendable, but systemically it is worrying that actually there is not a better assessment of needs of the industry and the ability of the academics to deliver them. I was at another sector skills council who were saying they have a total of 500,000 graduates working in their sector and the universities are turning out 300,000 graduates a year with the qualifications for their sector, so there are a number of mismatches going on here at NVQ Level 4 and higher.

**Mr Aylett:** We have 26 universities in the UK delivering qualified motorsport engineering on a declining scale of employment, so 26 universities and they have all come on stream in the last 10 years, so it is a significant growth in the number of courses, and four of those were at Masters level, so, if you like, the universities are selling the courses very well and filling those, and so they should—

**Q193 Chairman:** But?

**Mr Aylett:** There is a rather obvious “but”.

**Q194 Chairman:** From another aspect of the relationship with academia and the industry, and this is the dialogue I had between Mr Manahan and Chris, when we came to Coventry a year/18 months ago, we were really impressed by the work that Coventry was doing, again with the help of AWM, and other universities in the West Midlands as well,

but particularly Coventry, to engage the SME sector with innovation work in the university, but Mr Aylett’s submission says that the links between SMEs and universities generally, and it is not a Coventry-specific point, do not work as closely or as well as they ought to. Now, what can be done? We all know the reasons why SMEs sometimes cannot do this, pressure of time, it is difficult, or there is the simple fear of engaging with academia which it does not properly understand, so what can be done to build better links in the motorsport sector between SMEs and academia?

**Mr Manahan:** It has got to be financially attractive to do it. It is as simple as that. Nothing would give me more pleasure than to be involved more, and with what we were talking about just now I was just reflecting to myself that actually Lola really has not had any input at all and we have never really been asked about what we would like to see coming out of universities. I know from my own experience, and this might not be what my colleagues around the table would like to hear, but, if I am looking at engineers at the moment, I would prefer to have a very competent aerospace-trained engineer with a motorsports module than a specific motorsport one, but it depends on the position I am put in and that is probably not a fair statement to make. Quite honestly, and I will probably mention this a little bit later on, I view SMEs in a little bit the same way as, and you are probably all familiar with it, Maslow’s hierarchy of needs pyramid that everybody always trots out on various courses, but there is an SME version, and the SME version, at the bottom end of the triangle, you have got survival, so survival, survival, survival, cashflow and orders, whereas innovation, design, development, innovation, the things that the tier ones and the customer wants, are at the top of that pyramid. Their eye is on the top of that pyramid and that is all they want from us. Unfortunately, our eyes are very, very often at the bottom end and, unfortunately, things like engaging with universities and engaging with organisations that are for the greater good, for people like me, I just cannot afford it. I cannot afford the time and I cannot afford the cost. If I go to my board and say that I want to spend £X,000 of somebody’s hours engaging with universities, they are not going to go for it.

**Q195 Chairman:** It is the Innovation Voucher Scheme which works in the West Midlands which, I think, Coventry has made good use of as a university, which actually provides precisely the financial incentive for the engagement you are talking about.

**Mr Manahan:** If that is the case, I do not know about it.

**Mr Aylett:** You are not in the right region.

**Q196 Chairman:** It is in the West Midlands.

**Mr Hilton:** I wonder, Chairman, whether there is a need for a co-ordination role, and it might be MIA, I do not know what Chris’s view is, on the actual resource requirements for the industry. Somebody

should be pulling together the needs of the SMEs and others and saying, "This is the resource requirement that the educationalists have to provide for".

**Mr Aylett:** As I say, I will die knowing the competitiveness panel report intimately. That was what the industry asked. It wished to work closely with quality universities to try and make sure that they matched the requirement not only in the course content, but quantity, but of course that was fool's gold really because, once you have said, "This could attract young engineers into your university", then they took them. I lecture at the Cranfield University and have 30 students, 20 of whom are foreign and 10 from Britain because they have come here to learn all of our secrets and return home. The universities like to have them because of the financial contribution, so it is not a comfortable situation, but Colin is right, there should be a much closer link.

**Mr Manahan:** That said, funnily enough, and you were mentioning the Midlands, we do work with Warwick. We supplied them at a very low cost with a Formula Three car so that they could do some experiments with renewable material body systems, eco-friendly body systems, and it has worked very well actually, that car.

**Q197 Chairman:** How did that process begin?

**Mr Manahan:** They contacted us actually, to be fair, and that is what they did. Initially, they asked for a racing car and we were not in a position to completely give one away, but we more or less did to support them. We have done some other things too, but they have all been on a sort of case-by-case basis and there has not been any great initiative.

**Mr Aylett:** I have to agree and, if my submission is to be read correctly, that is the point. If you take all our SMEs on their total engagement with universities in the area of R&D, it is very scant and it is quite often, "Do you have a gearbox I could borrow? Could you let me have some brakes?" To suggest that was a robust relationship would be foolish; it is friendly.

**Q198 Chairman:** Do you want to make any comment, Mr Dickison, now that you have heard this analysis?

**Mr Dickison:** I think, having been in industry most of my career, certainly the view I always had was that universities are very busy teaching people and, when it comes to actually contributing to a business, they are probably going to be too slow and not very motivated to actually help. I think the tide is changing. Certainly at Coventry we have got a Business Development Office so that we can get good liaison going on between the academics and the companies, and I think there is a tremendous amount of potential there, and all I would say to industry is, "Give us a chance and I think you will find that not just Coventry, but a lot of the universities, will perform very well". Obviously, there does need to be the time made available for the academics within the universities to support these

initiatives, but I think there is very good potential there, and there is a lot of intellectual content that you can tap into.

**Mr Manahan:** Well, in preparation for this, I took my best engineers together and asked them what had been beneficial to them and instrumental to them in their finding their way from the various options that they could have followed and finding their way into the Lola design office. Quite a few of them said it was the Formula Student initiative, and that was one of the things that universally they agreed was an extremely good thing.

**Mr Aylett:** That is one of the competitions using motorsport to attract young people.

**Q199 Chairman:** You yourself, Mr Manahan, speaking for Lola, have praised the Advanced Manufacturing Research Centre at Sheffield University.

**Mr Manahan:** Yes, very much so. That is outstanding.

**Q200 Chairman:** What attracted you to it and why do you praise it?

**Mr Manahan:** Well, I praise it because I think it is a really good, concrete way of delivering something tangible. The AMRC is a department of the University of Sheffield which was very far-seeing and they engaged with Boeing to create the AMRC and, what they call, the "factory of the future". It was, I suppose, a way of galvanising support for the traditional skills associated with that area. You have got a lot of metalwork suppliers and you have got a good tradition of technical industry around there. They established the AMRC, as I said, in conjunction with Boeing. Lola is a board member of the AMRC, but they have various representations from machining companies all the way through to aerospace companies, and they do a number of things. They have composites departments, they have got departments which are trying to bring a link between academia and industry with real relevance to new technologies as well, and I think "relevance" is the key word for them.

**Q201 Chairman:** You said you did not have any engagement with academia, but you have a good relationship with Sheffield and a good relationship with Warwick, two of the country's finest universities, so you seem quite deeply engaged.

**Mr Manahan:** We do, I suppose, in those two instances. The only thing we have done with Warwick is give them a car, to be honest, which was not a great deal of hardship for us. We are very keen on our relationship with the AMRC for a number of reasons. They are very good at getting European grant funding for research programmes. They do not get all of them that they go for, but they have got a better batting average than most, and I think a lot of that comes down to the very excellent work that Professor Keith Ridgeway does. I will give you a small example, if I may. There are new technologies all the time in the carbon fibre world, and you were mentioning earlier on that aerospace is not maybe as

fast as motorsport at embracing some of them, but there are things like fibre tape-laying procedures and things like that which are very interesting to people like us. Now, we could never afford a fibre tape-laying machine, but the fact that the AMRC have got together the funding to buy one and allow us industrial time on it is very useful to people like us, otherwise we would not have a chance to look at that ourselves.

**Q202 Chairman:** I am going to ask you a question I know the answer to before I ask it, but I must just ask it. Were you aware of an advanced manufacturing facility being established by Advantage West Midlands in the West Midlands area?

**Mr Manahan:** Where is it?

**Mr Aylett:** It is in Coventry.

**Q203 Chairman:** It is in Coventry, is it not?

**Mr Aylett:** I was going to ask that too!

**Q204 Chairman:** The Government has just given a big grant to enable the establishment of the advanced manufacturing facility in Coventry, which seems to be doing the same thing as Sheffield is already doing, to me, but that is what I have heard already.

**Mr Manahan:** The answer to the question is no, I was not.

**Q205 Chairman:** Thank you, you are giving the answer I expected.

**Mr Manahan:** I hope it is successful because that would be good news. Is there a danger that it is going to duplicate effort? That is the question.

**Chairman:** That is the question I was asking myself, yes, and that is something we will need to reflect on, absolutely, yes, exactly.

**Q206 Mr Clapham:** Before I look at innovation, just coming back to the education scene and what was said about Sheffield and the factory of the future, it seems that what Sheffield have got is putting together, as you said, things that are relevant. It is looking at, for example, the aerospace industry as well as the motorsport industry and it seems to be that kind of ingredient that makes it very relevant particularly to your industry, Mr Manahan.

**Mr Manahan:** Absolutely. The fact that we can be sitting round the same table as Boeing is useful, though, I have to say, we have not done any business with Boeing yet, but hope springs eternal, with the factory of the future concept and the kinds of things that we can get involved with and the kinds of technologies we will have access to. I will give you another small piece of relevance, if you like, as an example. We won the Watchkeeper airframe programme, so we manufacture and supply the Watchkeeper airframe to U-TacS, which is Thales and Silver Arrow, for the UK's medium-range tactical UAV. Now, there are something like 350 metallic parts on each airframe that we make and we place the order for those parts through the AMRC with one of their constituent metalwork entities that

were set up for aerospace-grade metalwork parts. That is just one good example of how they have helped two of their entities to do good business with each other.

**Q207 Mr Clapham:** And of course the sort of transfer of innovation between the two industries that we are talking about. I do not think that we could over-emphasise the importance of innovation to the motorsport industry, but how do we sustain the momentum of innovation, particularly as we are coming out of a period of recession?

**Mr Aylett:** This is one of those things that, as I am in an innovative industry, you are in the woods, looking out rather more than talking to my friends who are looking in, saying, "How do you maintain that innovation?" so I can only speak on behalf of motorsport. They retain this innovation through competition, aggressive, dynamic, hourly, daily, weekly competition for which they are instantly rewarded either down at the pub with a good story because they won or financially because someone has paid them for winning, but they get an instant reward. I am a passionate believer that there is one area of massive hidden value in this industry and that is the exploitation of IP. If you ever want to have some fun and check out with the Patent Office how few patents have been lodged by British motorsport companies over 50 years, you will be aghast because they spend 30% of their sales revenue, which is twice the pharmaceutical average, on R&D and yet they patent virtually nothing.

**Q208 Chairman:** Because, by the time they patent it, it will have been taken.

**Mr Aylett:** Well, they have found a better way of exploiting than the IP mechanism. Our frustration is that it sits there as this untapped power for Britain that could take it into so many areas, but they are in such a competitive, innovative chase that they put it under the bench, and these are their own words, and they will come back to it one day. As one of the team members said to me, "Chris, your concept of IP exploitation and this royalty business and this publishing it and advertising it and so on, if I just win the race this weekend, I get \$10 million. Isn't that exploitation?" and, as he flew past me in his jet, I thought maybe he does understand the exploitation of IP better than I do! Nevertheless, Britain, if we could ever engage correctly with our national government, this has to be statistically one of the most amazing values that has yet to be taken. We got a little grant from MDUK. We came up with a scheme three years or four years ago where we took 30 companies from Britain's motorsport industry and took them through an innovative IP exercise, and they were our role models. We found these guinea pigs and they signed up, and there was a Formula One team and so on and we got enough money from MDUK to take them through an IP process so that someone like Lola or Williams, it did not hurt, made some money and it happened. Sadly, MDUK, after the first year when they had attracted 120 companies, pulled the plug and said that was it.

We had already stimulated the interest and then it just stopped. I can tell you, having stayed in touch with those companies, that none of them went forward with any exploitation at all because they just needed that guide, they just needed the book at the end of the journey to say, “It worked, you know, and we carried on winning races because the real concern is that, if we fap around with these things called “IP exploitation” or whatever, just imagine if we are beaten on the race track, and the only defence we have for our sponsor is, “But we’re filling in our patent application forms right now”, which would not go very well. In terms of innovation, I have to bring it to you all, there was a super article in the *Sunday Times* this week, when I was with people from X-Prize in America. This business about revolution through competition, I recommend you look at the X-Prize in America where they have put up a prize, do you remember, for this driverless vehicle. Audi are now going to go into this motorsport competition, Pikes Peak, one of the world’s most complicated rallies with a driverless car two years after being involved in that competition, which they failed to win, by the way. I think they lost their car and it is still driving round the desert, but they had a go. Just recognise that competition is a great driver for innovation, and they do not cost vast quantities of money, these are \$1 million/\$½ million, and they just pack innovation into competition because it is what people enjoy, innovators actually enjoy, and they are unique innovators, they are aggressively competitive people and they are very rarely passive.

**Mr Hilton:** They certainly would not want to share it for the next season though, would they!

**Mr Aylett:** Not in motorsport terms, but nevertheless, it is innovation through competition and the encouragement of competition in X-Prize. Virgin Galactic came out of an X-Prize. That whole programme has come out of attacking an X-Prize. Now, Britain would not aggressively attack innovation. Bleriot flew the Channel for a *Daily Express* prize; it has been going on a fair while.

**Mr Manahan:** Survival drives innovation too, and innovation and rapid response has been the vehicle by which we have certainly found success in the defence and aerospace field.

**Q209 Mr Clapham:** So we have got the two ingredients of competition and survival, but we have just gone through a very difficult period and we are just emerging and, given that we were talking earlier about the way in which competitors, like the Malaysians, are breathing down our necks, as we move out of the recession, is there sufficient momentum there to get us back to the kind of innovation that is going to keep us in the lead?

**Mr Manahan:** I have not seen any evidence that we are moving out of recession.

**Q210 Mr Clapham:** Well, there is some evidence that things are beginning to get a little bit better and, okay, some of our competitors may have moved a little bit quicker than we have out of the current

situation, but it is so important that we keep that innovation and, as we move forward, we need to see that the momentum is there. Do you feel that there is such vigour there that we can maintain the momentum as we move forward from the recession?

**Mr Aylett:** No, and I honestly hear more words spoken about innovation than action and it is a very easy word to throw around. You need to sit in a room of innovators to realise how dynamic, aggressive and fast-moving they are. You reminded me that there is a good lesson there, that delivery in a period of time is innovation in itself. I feel that we have read about innovation and we have talked about innovation, but I do not think we are as vigorously pursuing it as we should, and we are talking nationally now. We are human beings as well as running governing bodies and so on and I do not feel an air of vigour in innovation. I was encouraged by the recent change in the R&D tax credits which sounded a little bit of support to help people, but to say that was vigorous support would be generous. It is clever and it is useful and in fact I think the whole R&D tax credit programme was good, and in fact our industry has prospered from it, profited from it and innovated because of it, so it has worked, but to suggest that the word “vigour” comes to mind, not necessarily and it is vigorous opportunity, as I say, where prize awards or something to capture the imagination could work.

**Q211 Mr Clapham:** So how do we do it? Does it need a national plan? You have talked about the ingredients of competition and survival, but those are within a framework, shall we say, so is a national plan necessary for the motorsport industry so that we get competition and we get survival within that framework driving this forward?

**Mr Aylett:** I think that, if you go back to the letter of 2001, that was an integral part of DTI saying, “These are the most innovative people. If only we could capture how they are so innovative, our advanced engineering community”, and that was 10 years ago nearly, “would be better off to understand how they do it, what they are doing and how Lola is able to respond so much more quickly than someone who doesn’t have that motorsport heritage”. We do not have the time to study ourselves, nor the money as a sector, but there are clearly lessons that it could utilise.

**Mr Hilton:** I think that the competition is more at a world level. The French plans, which seem to have gone on hold at the moment, to build a motorsport centre outside Paris, that is trying to create a whole halo effect to draw the engineering into France away from the UK, so I think that is the challenge and it is a world challenge rather than UK.

**Mr Aylett:** Professor Porter of Harvard was very keen to point out that Britain’s success was on a global scale in this particular sector, and not in many other sectors do we succeed on a global scale, but we step up every weekend and put our necks on the line. If I may say, it is a sad demise of Toyota’s Cologne exercise, but the Japanese decided that they would invest outside Motor Sport Valley UK—but billions

of dollars later when they have not won anything. In an engineering competition, if you like, the *Scrapheap Challenge* every weekend on television, they have had a fair go at it and they have retired hurt. We are good at it and really we should know more about it, recognise it on a global scale and then we would have an innovation plan. I am kind of surprised that we are not doing that with the Technology Strategy Board, if I am honest, but, as I have not engaged very closely with them, I am not too sure what we are meant to be doing with them.

**Q212 Mr Clapham:** A little earlier, Mr Aylett, you mentioned the tax credit system. What would be the impact, for example, if the tax credit system were to be stopped? What would be the impact on the industry?

**Mr Aylett:** Well, it is strange, but, when we had our day in Parliament this summer and I wandered around with my friends from Lola and all the others, I do not want to exaggerate, but they said that it would be a disaster, and that is in a relatively short time since, and we had been very proactive working with the Treasury on some of the wording to make sure it helped the sector and then promoted it like hell because it is made for us. Almost every one of our large and small companies is involved in some way. I was trying to get a kind of league table from the Treasury, saying how good are the sectors at claiming the tax credits because I have a feeling that we will be in the premier league of claiming tax credits in terms of R&D. There were many instances reported to the ministers that we met on that day, specific instances where, had we not received the credit for that, we would not have done that, we would not have been able to do that. There were small companies, and I remember one chap who said, "Well, I got £40,000 and that enabled me to buy a design engineer to get to work on a project", which was exactly the concept of the tax credit, and you can ask me for specifics and I could go and get specifics, but they are legion in just three years, so it would be very, very damaging to our competitive position.

**Q213 Mr Clapham:** The tax credit system is not due to be evaluated anyway before 2014. Has there been any particular announcement for the cause of the rumour that the Government may be looking to drop the system?

**Mr Aylett:** I think it was just rumour at the pub, I suppose, that you could put it down to, I do not know. A change in government would be an opportunity to change the bed linen and R&D tax credits may not be there. I could not be more delighted if I were proved incorrect. Certainly we were robustly interrogated by Kenneth Clarke on this matter and you could gain from his robustness that he was not entirely enamoured with the tax credit system. I think he was hinting towards some abuse by larger companies rather more than the smaller companies, "abuse" is probably too strong a word, where the larger companies would be doing it anyway and it is the smaller companies that we are trying to promote, but that was a hint in a

conversation that might have led to a large company saying, "I think they're going to knock this on the head", and that is how we wandered away, as I said, to the infamous pub and we said, "Maybe that's where the story comes from".

**Mr Manahan:** I was at a dinner with Kenneth Clarke not too long ago and it was more than just a robust hint.

**Mr Aylett:** It is obviously developing!

**Mr Manahan:** It was a robust hint with a great big torpedo with a JCB behind it. He left us in no uncertain terms that R&D tax credits were going to be going in the event of a Conservative Government, which is disappointing from my point of view.

**Mr Clapham:** Well, having heard what has been said, Chairman, I think we have got to make sure that they do continue and we have got to emphasise it.

**Chairman:** The Committee will make recommendations on this subject before the election and whoever wins it will listen to our recommendations, I am sure. We are entering the final lap, you will be pleased to hear, and we have negotiated more chicanes getting here than I expected and we are running a little bit longer than I expected.

**Q214 Lembit Öpik:** There is just one question which I have always wondered about in terms of innovation. The industry sets quite specific regulations in terms of what you can do to your cars and limits everything, I guess, from fuel tanks to everything else. Does that stifle innovation? Does that stop development or is it specifically because it enhances innovation and development that you have those regulations?

**Mr Hilton:** It is really to try and get fair play. If you have got a sport, why you have a governing body is to provide rules which are common rules which everybody uses, fair play. If you look at innovation as far as perhaps the environment is concerned, certainly we have changed our regulations that we will accept any alternative fuels as long as they can be used in a fair competition, so we do what we can not to stop innovation, but we have to have rules and you change the rules as you go along.

**Mr Aylett:** So speaks the legislator! I have to say, actually the legislator, and I saw you shaking your head, has been the most stimulating for innovation absolutely because the envelope of the engineer is then defined. Our guys go right to the edge of the envelope and, when they can get away with it with the legislator, they test their innovation by just stepping beyond, but, if you had no boundary, then it would be difficult to know where the effort has to go, so we have investigated that until I am blue in the face because I was, rather like yourself, saying, "Is it good or is it bad?" In actual fact, to say that we will allow kinetic energy recovery from wheels, and not much more than that, within two years they have created kinetic energy recovery systems that they are now exporting around the world.

**Q215 Lembit Öpik:** So you actually feel that what you are doing, that the actual limitations or the defined envelope is the best way to create innovation that can then be reapplied in the commercial sense?

**Mr Hilton:** Some of it is controlling costs as well because certain teams of innovators will spend every penny they have got to win and it is not good for the sport for millions and millions being spent just to win, so you restrict the materials being used, you restrict titanium and magnesium.

**Mr Aylett:** But then we find ways we can make better materials to get around the regulations.

**Q216 Chairman:** I said to you at the beginning do not agree with each other, but I sense that Mr Manahan is just boiling up to say something.

**Mr Manahan:** Really?

**Q217 Chairman:** Are you not? I do not want to cut you off if you are.

**Mr Manahan:** I have got a whole engineering staff who do nothing else but dream up new ways to figure out how to make our cars faster within the confines of the new regulations that come out every single year when something comes along. I remember even as a boy, before I started working at all, being absolutely amazed at how in motorsport each year somebody would come out with a new regulation which would apparently make the cars slower, and one or two years later lap records would fall, and I thought to myself, "Blimey! There's your innovation right there". It is the halo effect of that motorsport brilliance in innovation that has not made us attractive to other industries, such as the defence and aerospace people who design by committee. Our offering in to them has been a breath of fresh air and it has made us hugely attractive and very successful in getting things out, and I am probably getting a bit carried away here, but I believe very strongly in supporting our troops on the ground and we get solutions to them faster than anyone else. The big boys of British Aerospace and Thales, et cetera, et cetera, have seen that now and some of the things that we have done and some of the things that we have achieved I am particularly proud that we have done, and we have delivered real benefit to them in theatre.

**Mr Aylett:** And those deliveries actually are weeks, days. I will not bore you because we are running out of lap time here, but in terms of helping people on the ground in Afghanistan and so on, motorsport innovation has delivered solutions in days that would take months, so say the guys on the ground.

**Q218 Chairman:** We are in danger of going over familiar territory again. You mentioned fresh air and that brings me to the last of the questions on carbon dioxide, being desperate for a link! I will try and wrap this up into one question, if I can. You, I think, the MIA, said in your submission that the Government has failed to engage with the industry on low-carbon technologies. We have heard concerns expressed that the Government has distanced itself completely from Formula One and

high-end stuff because it is instinctively "ungreen", it is quite the antithesis of the agenda. We have also heard that actually the engagement between motorsport and the automotive sector is declining because performance is not the game in town for the automotive sector now and actually it is fuel economy, it is those issues which, although they are important, given the tank restrictions you are facing, it is more about performance and that is more aerospace, so what can you do for carbon? Is the Government disengaging because it feels you are not really green?

**Mr Aylett:** Your legislation has helped, and that is an interesting starting point.

**Mr Hilton:** As the regulator, the FIA set up more than two decades ago an alternative fuels commission to investigate where we could go as a sport. After 20 years, they had realised that it is not about alternative energy, it is about sustainability. It is a bigger thing than just the fuel we burn or the energy that we burn, it is about noise, it is about the use of tyres, it is about the environment, the damage we may do in the forests. All of these issues affect motorsport, but I think motorsport can be used as a pilot. We can very quickly, very rapidly test new ideas through the universities or through the teams, but motorsport will always go where the manufacturers go because it is this 5% on the top which are the single-seaters, the Formula Ones and the F3s and they are not road cars, but the rest of motorsport operates off road cars, so we are really driven by the automotive industry. People are using road cars and modifying road cars for motorsport, so we will never go in a different direction from the motor industry. We will always follow the motor industry because 95% of the vehicles used in motorsport are road cars, modified road cars, so I think let us use motorsport as a pilot as a rapid way to test new technologies, but that is a personal opinion.

**Mr Dickison:** I think certainly in terms of the green environment, concerns that sports cars, race cars, everyday cars, it is not just a question of changing to say, "We're going to have all-electric cars now", but it is getting weight out of the vehicles as well and that is highly relevant to motorsport and it is also highly relevant to aerospace as well, so we see more and more applications where people are trying to get relatively low-cost motorsport vehicles and indeed niche vehicles using exotic materials. Up until now, it has been, "Well, the materials are just too expensive, there's no point even thinking about it", but of course, as time goes on and as people realise they need to find a solution, the innovation comes out. For example, with carbon fibre, it has always been a very labour-intensive process actually making things out of carbon fibre, it has been an expensive material, and it has just been disregarded, "Oh leave that for the top-end cars", but of course now processes are coming into place where you can actually make very lightweight structures at a far lower cost, especially if the volumes are going up, so I think that there is a lot of connection there with the

environmental green issues and with motorsport and not just Formula One, but dropping right down to track day cars and things like that.

**Mr Aylett:** Again, if I may say, going back to my original halcyon days of DTI relationships, the DTI saw a national opportunity that we put to them. I wrote a paper to the industry, saying, “What future is there for motorsport in an energy-efficient world?” and the cumulative opinion was very little, and this was in 2000. Now, that meant that there was no strategy to cope with an inevitability, so it gave an opportunity for the MIA. We went to the DTI and said, “Would you like to fund some research into this because there is a good opportunity here?” and they did. We ran an investigation for a year, 80 engineers from motorsport, tree-huggers to the left, space cadets to the right.

**Q219 Chairman:** Where was Jeremy Clarkson!

**Mr Aylett:** To be honest with you, it was very interesting. En route, we discovered many things and the most important thing I would love the Committee to know is that we uncovered the fact that, since the very first race, at the heart of motorsport has been the efficient use of energy. If I may say, Mr Chairman, you were incorrect and it is not high performance in terms of speed, it is the efficient use of energy. They were only doing 30 miles per hour all those years ago, but they were using their block of energy, which could have been steam in those days or it could have been gasoline or it could have been diesel, ethanol or methanol, but they just used it efficiently and they used it by great aerodynamics. They did not know there were aerodynamics in those days, but they put a pointed bit on the front and a square bit on the back and it went a bit quicker, and they did it with lightweight materials, they did it with better use of tyres and grip. This group uncovered that actually in Britain, if you believe that the motorsport industry is a jewel in the crown, as Porter did and does, then you would utilise the fact that you have over the last 100 years created the world’s greatest pool of engineers, skilled in the efficient use of energy, and it was a most fabulous revelation for us as an industry. Now, they could not care less, that was the sad fact, because they just wanted to race and beat someone and, when we said, “You have an asset that’s going to be valuable to Britain because they will want to know how we efficiently use energy”, they said, “Well, call us when it happens and maybe we’ll sell a bit of that knowledge”. Of course, the date it would happen would be when the cost of energy made it interesting to people to try and save energy, so it was related to that. Hidden in there, we put forward this paper on energy-efficient motorsport and created the brand of energy-efficient motorsport and, I have to say, and Colin and I go back long enough, we were ridiculed to some degree. It was not instantly understood because how could motorsport be energy-efficient, but in fact it was inherently anyway and it was almost just a branding exercise. Since then, the most important thing that came out of it, whether we are at the forefront of the changes, the one thing that we

can do, and Lord Drayson has spoken on this just now, as a passionate convert to this particular line, winning in motorsport actually makes energy efficiency cool. If you can win Le Mans in an energy-efficient manner, as Audi did, you will definitely do so. If 100 years of cars on the forecourts have been sold by winning in motorsport, then clearly, if you win in an electric car, then you will make the public aware of the fact that, “Actually, that is quite a cool solution, I could buy one of those”. We found, and it sounds so obvious now, that actually you can utilise the power of the motorsport brand to make energy efficiency cool. Audi seized on it immediately and used their bio-ethanols, diesel first of all and then second-generation diesel, and a very proud story, a very short one: Shell were dismissive on first being approached by Audi with their diesel and after just 18 months, they said, “You’ll be wrong. If they win, everybody will want it. Every green person, and every minute that we speak there are more people interested in it, they will be interested in this”. They have set up a second-generation biofuel plant in Germany, and at one of my conferences which have consistently been supported by UK Trade & Investment, I have to say, and we run conferences all over the world on this thing, they said, “The first drop of second-generation biofuel from that car will go straight to win Le Mans. We won’t argue it anymore. If we can win Le Mans with our second-generation biofuel”, this is Shell, “then we know that the public will buy it”, so within two years/two and a half years, the power of motorsport can change the public’s attitude. In fact we have a conference in January on this very subject and in the time that the Automotive Innovation and Growth Team has been meeting, motorsport has actually delivered and raced hybrid electric cars, delivered and raced fully electric motorcycles at the Isle of Man TT. We are doers and deliverers, not visionaries, and the asset that Britain has in having this group of doers in the world of energy efficiency is an unbelievable asset, but we have to engage with someone who wants to listen.

**Mr Manahan:** I was going to mention quite a few of the things that Chris has just done as a test-bed, as a test-platform and as an advert for new technologies, and endurance racing, in particular, I think, is fantastic and I really liked Chris’s view that the most efficient use of a block of energy wins you a race, and that is a very interesting way of putting it as well. Going a little bit off the point or a little bit off-track in terms of Lola, we are really a composites engineering company that happens to make motorcars, race cars, as well as making things like UAVs, and one green area that we have contributed to, if I could say, is that a lot of civil aircraft now are going composite for weight purposes and obviously a much more fuel-efficient product, so we have the ability to work with the aerospace companies, such as Bombardier on the C-series aircraft and hopefully some of the other people like Boeing, in terms of manufacturing composite product for aircraft which will be more fuel-efficient. I totally believe in what Mike was saying, that in the future, with the new

production techniques that are coming into carbon fibre technology and some very interesting technologies which I cannot go into for confidential reasons that we are working with some of the automotive OEMs, there is a very, very good possibility that future chassis development is going to get lighter and stronger, which is going to be fuel-efficient anyway or will certainly aid fuel efficiency, and all of that is born from our motor-racing development heritage.

**Mr Aylett:** Just 18 months ago, because I know Lembit is a motorcycle rider, a British entrepreneur approached us to say, "I'm going to run the world's first zero-emission motorsport race", and I laughed at him, no joke, I ridiculed him. Just 12 months later, they ran at the Isle of Man TT a zero-emission Grand Prix. All British entrepreneurialism, absolutely classic motorsport, all the rules said they could not do it and they did it and actually they are pretty close to the performance of a 125cc bike, which, I would just remind us, is the world's biggest-selling category of bike to the Chinese and the Indians, so in actual fact this British entrepreneur has at his fingertips the chance of turning the British motorcycle industry and becoming leaders in zero-emission motorcycles using motorsport to sell back to the Indians and the Chinese. He entered into a contract or an agreement with the world governing body of motorcycling to take it and almost instantly they embraced him, put him on a panel and have

launched the World Championships. Sadly, right now, there is now a dispute because they have decided to run a competition against him, so British entrepreneurialism is now being attacked by the international governing body and he needs our help. UKTI, and I will just underline this, were the first people in Government who put money into that project and helped him to go around the world to go and capture the teams that delivered the Isle of Man that zero-emission possibility of a motorcycle industry born to sell abroad, and it is the speed, that is 18 months from someone getting the idea; pretty revolutionary.

**Q220 Chairman:** Your enthusiasm for your subject has led us to go on much longer than I intended.

**Mr Aylett:** Sorry.

**Chairman:** No, I am very pleased, it is very interesting. I think one of the questions we will ask the Minister is: how come, if we are so brilliant in innovation in the automotive sector in motorsport, have we got so little R&D outside the premium brand sector and the UK for the automotive sector in general? We are not very good at transferring these skills across, clearly. It has been a fascinating session and we are very grateful to you. It is frustrating that we have to draw this to a conclusion and, if there are things you want to tell us in writing afterwards, we would like to hear from you, but we really do appreciate the trouble you have gone to. Thank you very much indeed, gentlemen.

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**Tuesday 26 January 2010**

Members present

Peter Luff, in the Chair

Mr Michael Clapham  
Mr Lindsay Hoyle

Lembit Öpik  
Mr Anthony Wright

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*Witnesses:* **Ian Lucas MP**, Parliamentary Under-Secretary of State, **Mr Simon Carter**, Business Relationship Manager AMI Automotive Unit, and **Mr Huw Walters**, Head of Aerospace, Marine and Defence, Department for Business, Innovation and Skills, gave evidence.

**Q220 Chairman:** Minister, thank you for coming yet again before the Business, Innovation and Skills Committee. You are a frequent visitor, but we do not have a loyalty card system yet. If we did, you would do very well.

**Ian Lucas:** I look forward to that.

**Q221 Chairman:** This is a concluding session for what has been a fascinating inquiry into the aerospace and motorsport sectors. Our questions have been structured into three. We will start with some specific aerospace issues and then turn to some specific motorsport issues and conclude with the over-arching cross-cutting issues. That is how we will focus the questions. You have been joined at the eleventh and a half hour by two officials from the Department, which we welcome. Some of our questions may prove to be relatively technical and require further information to be provided to us today. If that is the case and we do ask you for any letters, could we please get them as soon as possible. There are only about 37 parliamentary days before the election and we need to get the report done and dusted, so speed would be appreciated. What I would like to do is to ask you to introduce your colleagues. They may not be able to do so themselves because the microphones may not work, but you can give it a try, whichever you think is best.

**Ian Lucas:** I am Ian Lucas, the Minister for Business and Regulatory Reform. On my right is Simon Carter, who is an automotive specialist, and on my left is Huw Walters who is from the aerospace team.

**Q222 Chairman:** Thank you. I hope you may get a chance to speak for yourselves later. Can we begin with questions on government support for aerospace. I am going to ask you a specific question about Repayable Launch Investment. It used to be Launch Aid when I was a special adviser to the Department.

**Ian Lucas:** Yes. We like to say “investment” because it is repayable.

**Q223 Chairman:** I understand that. What I really want to ask you is how important is Repayable Launch Investment? Is it just government investment in something the private sector could provide anyhow?

**Ian Lucas:** The important issue to bear in mind as far as the aerospace industry is concerned is that it operates on very long timeframes. The time that is spent in terms of bringing new aircraft to market is

very, very long indeed and requires long-term investment, which is very strategic investment but is very important in terms of maintaining the position of the UK as a major aerospace manufacturer. Of course, we are behind the United States, the major manufacturer in the world, and I think we have got a record to be proud of, and for a very long period under both Labour and Conservative Governments Repayable Launch Investment has played a very important part in that. It has meant that Airbus, in particular, has been able to develop models which are competitive and aircraft which compete with Boeing. It is because of the long-term nature of the industry that, I think, the governmental role is particularly important and why it is necessary that the Repayable Launch Investment is there.

**Q224 Chairman:** I understand that, but is it a question of a nuclear arms race going on? Do we have to do it because everyone else is doing it around the world and we just have to keep to our highest pitch to be competitive, or does it have an inherent merit? Is there a market failure that would have to be addressed irrespective of whether or not other governments were doing it for their industries?

**Ian Lucas:** I think there is market success in the model that we have.

**Q225 Chairman:** Market failure in the funding mechanism.

**Ian Lucas:** I understand that, but I think that the model that we have operated has been very successful and, on the basis of success that we have had in the past, I think that is a powerful argument for continuing to use the model, which is why we have stuck with it.

**Q226 Chairman:** The A320 has been quite profitable for the Government, I think, has it not?

**Ian Lucas:** I think it was a wise and prudent man or woman who made the initial decision to take that forward, and it has been extremely successful in terms of taking forward Airbus as an equal competitor and, some would say, in front of Boeing.

**Chairman:** Let us turn to the issues in dispute between Airbus and Boeing.

**Q227 Lembit Öpik:** The context for this dispute, of course, can be discussed at length. To set the background, Ian Godden, the Chairman of ADS, actually believes (and I quote him), “My view of market failure is that every single government in the

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world has decided that this is not a free market in a commercial marketplace”, a viewpoint indirectly reflected by Dr Williams from Airbus, who basically highlighted the significant returns that Government receives on its investment, to use your phrase. Clearly they are defending what the Government is doing, but let us look at the possibilities here. In your submission you argue that you want to see a negotiated settlement to this very long running dispute which actually has its roots many years back. How likely do you think that negotiated settlement is?

**Ian Lucas:** I think that ultimately it is in the interests of all parties to achieve a negotiated settlement in this dispute and because of that it is likely that at some stage a negotiated dispute will be reached. It is a very complex and difficult process and it is clouded by the fact that we have different legal proceedings going on in different places at different times and the various interim judgments and final judgments are being delivered at different times. It is very difficult to get a full picture of what the position as far as both types of aid is concerned is at any one time. All of that makes the negotiation very difficult, because one party has a better position at one time and then another party may have a better position at another time, but, as I said earlier, I do believe that it is in the best interests of both parties to resolve this by negotiation and I am optimistic that at some stage that will happen.

**Q228 Lembit Öpik:** Has any progress been made since the publication of the first interim report?

**Ian Lucas:** We are at a stage at the moment where, because there is only one interim report being published, what is happening is that all parties are waiting for the next stage in the formal process to take place before they can assess their full position. Therefore, it is unlikely, until that happens, that people will enter into the types of discussions that we would like to see.

**Q229 Lembit Öpik:** Of course, the \$64,000 question is to what extent do you think that this is politically motivated rather than simply a concern about the economics?

**Ian Lucas:** I think this has all sorts of factors playing into it. We all know that these industries are extremely important, not just economically but also politically. There are hundreds of thousands of people employed in lots of different countries in the industry and it is an industry which is not only very important now but is increasingly going to become more important on a worldwide basis in years to come. It is for that reason that it is such an important matter to resolve and it is such a complex matter.

**Q230 Lembit Öpik:** That is very diplomatic of you. The European/US conflict on this has got form because something similar happened with Concorde when the US failed, despite actually a larger investment than we put in, to create supersonic transport. Is this a re-run of the same kind of issue?

**Ian Lucas:** I only remember the Concorde dispute very dimly—I seem to remember grainy pictures of Gerald Kaufman in the 1970s—so I cannot say whether it is a parallel dispute, but I think that the stakes on this are very high. It is something that politicians on both sides of the Atlantic are very interested in and, I think, ultimately politics will play a part in resolving this dispute.

**Q231 Lembit Öpik:** Your polite answer to my question makes me realise I should have declared a professional interest in aviation and also as an aviation anorak. I apologise for proceeding too far on that one. I do not think this will happen myself, but we have to consider this. What assessment have you made of the potential consequences to Airbus were the European Union to lose the case?

**Ian Lucas:** I think at this juncture that is really an impossible question to answer. The question is very complex, even at this juncture, and with a timeframe that we do not know, I do not think it is helpful to even try to answer it.

**Q232 Lembit Öpik:** I am not going to pursue that because I think that is a fair point, but we can ask ourselves: are you exploring the possibility of shifting the funding to more indirect support, notwithstanding the outcome of the result, whether or not the WTO uphold the US complaint? If so, how might you do that? You may not have considered it, of course.

**Ian Lucas:** We are not considering that at this stage. Repayable Launch Investment is a long-established model. It is not something that is new or has just been introduced. It is a model that we have used successfully in the past and we are continuing to use it at present.

**Q233 Lembit Öpik:** That is your answer to those two hypotheticals. One other very shorter question is: are you satisfied that the investment which has been made by the EU and the UK into Airbus has been worthwhile and is justified on economic grounds?

**Ian Lucas:** Yes.

**Q234 Chairman:** Could we turn quickly to export financing. We have got three national export credit agencies involved in providing support for Airbus when they export their aircraft. I know there have been attempts to simplify those funding arrangements, and one ECA typically fronts the negotiations now. The trouble is what we are told is the Export Credit Guarantee Department (ECGD) here in the UK—and we were told this by Airbus themselves—“appears to lack confidence with other ECA’s analysis when not fronting themselves”. Do you know why that might be the case? Why would ECGD not have confidence in the other two national ECAs involved?

**Ian Lucas:** I am slightly surprised and disappointed to hear that because I think we feel that we are as assertive as any other.

**Q235 Chairman:** It is only when ECG are doing it they are confident. They do not feel the others are up to it, putting it in crude terms.

**Ian Lucas:** As far as we are concerned, of course we have three separate sovereign states and we need to have, therefore, an arrangement whereby the sovereign states have their different methods respected in the way that they apply the funding.

**Q236 Chairman:** It is a complex model for an international aircraft.

**Ian Lucas:** Airbus is a complex animal. It is an international company and it is a very unusual company.

**Q237 Chairman:** It is up against a single entity—the United States of America and some Boeings—so anything that gets in the way of its export success we need to worry about. Are you happy that the current export credit arrangements of Airbus work effectively, are properly co-ordinated?

**Ian Lucas:** I am sure they could be improved and their co-ordination could improve. It is noteworthy that the point has been made, and I will certainly look at ways of improving it, but, bearing in mind that Airbus is an international company, I think we have made progress and Airbus has made progress as an international company and has done pretty well in the past 20 to 30 years in competing with Boeing and, whilst we want to improve the model and to work even better with Airbus, I think we have supported the company in the UK directly and indirectly very, very well, and that is part of the success story.

**Q238 Chairman:** ECGD is also important for other companies apart from Airbus?

**Ian Lucas:** Yes, of course.

**Q239 Chairman:** Rolls-Royce, for example. Do you benchmark ECGD against other international export credit agencies to ensure that its work is of the highest order?

**Ian Lucas:** We are certainly aware of the competition, and if presentations are made to us or representations are made that we are falling down in any way in the delivery of export guarantees compared to our opponents, then we want to improve them.

**Q240 Chairman:** But there is no formal benchmarking by the sounds of it. When you are looking back at Airbus, again, Airbus would actually love to have one single export credit agency for the exporting of their aircraft. Obviously, I can see from their point of view how attractive that would be. It would have some quite big implications for the Member States, I would have thought. Have you looked at the proposal? Is it right to give a single export credit agency, a pan-European export agency, effectively, one company. Is that right? Is that the model that should be explored?

**Ian Lucas:** I think, Chairman, you have answered the question yourself in the question. We cannot design an entire strategy based upon the views of one

company. It is an extremely important company, and we always take into account their views, but we have to design a model that can apply to our industry generally.

**Q241 Chairman:** You would not count on a single agency for Airbus?

**Ian Lucas:** It is not being considered.

**Chairman:** There are lots of issues we could ask about Airbus but in the interests of time we are going to concentrate on one issue in current contention, which is the possible cancellation of the A400M.

**Q242 Lembit Öpik:** You know the background to this. As with just about every single aircraft design project in history, it has gone over budget and Airbus think they are going to make a loss if they are tied to the financial arrangements that they committed to about six years ago, and so they are saying that they would consider closing down this project if they do not get more support from government. Are you in discussions with Airbus about providing additional funding?

**Ian Lucas:** There are commercial discussions going on with EADS at this moment which are very detailed discussions. It is difficult for me to speak very specifically about the content of those discussions.

**Q243 Lembit Öpik:** When I say “what form might this take”, you are not going to be drawn on that?

**Ian Lucas:** What I would say is that the A400M is a very important project for the UK, and we understand that, but also there is a very strong imperative at this time, perhaps even more than usual, that we secure value for money for the British taxpayer and we have those competing pressures at the present time. That is the background within which we are in discussions with, of course, other Member States who are involved in the A400M project, which is a very wide ambit of states way beyond France, Germany and Spain. We are in discussions at the present time to try to resolve the situation.

**Q244 Lembit Öpik:** You can confirm, nevertheless, that the two viable options, without committing to either of them, and may be others, would be to simply pay more for the aircraft, which, quite clearly, would not contravene any WTO rules, or, alternatively, just increase the Repayable Launch Investment scheme investment, in which case the money would obviously come back.

**Ian Lucas:** I do not think it would be helpful to speculate on one viable solution rather than any other. At the stage that we are at, I think we need to be very frank and forceful in our commercial discussions, but, as I say, I do not think it is appropriate for me to speculate at the moment.

**Q245 Lembit Öpik:** Speaking bluntly, you are basically saying you do not want to compromise the negotiations.

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**Ian Lucas:** I think that these are very complex negotiations with the number of parties involved, they are continuing at the present time and we need to resolve those discussions rather than talk about them independently before the Committee today.

**Q246 Lembit Öpik:** That is a “yes” then.

**Ian Lucas:** I do not think it is appropriate to talk about the details today.

**Q247 Lembit Öpik:** Fair enough. The only other question is this. Have you made an assessment of the impacts of the A400M to British industry and the potential return of making sure that it does go through, to put it in a positive way?

**Ian Lucas:** As I said earlier, it is an extremely important aircraft because of the fact that it has composite wings and it is part of the process of manufacturing of composite wings getting through to the A350 which is so important to ensure that the UK is at the cutting edge of aerospace technology. That is a tremendous asset for the UK aerospace industry, and that is why the A400M is so important and why we want to ensure that the manufacture of the A350 and the composite wings relating to the A350 happens in the UK and is of benefit to UK industry both at Filton and at Broughton in North East Wales.

**Q248 Lembit Öpik:** But the initial test flights with Ed Strongman at the helm seem to have gone very well.

**Ian Lucas:** Yes, I saw from the reports of the last meeting the expectation that the Committee had about the flight, but I am glad to see that it did happen before Christmas, as they promised.

**Chairman:** I think Lindsay would like to push you a little bit more on this question.

**Q249 Mr Hoyle:** I think we need to push a little bit more. I like the Welsh love-in between MPs, it is absolutely marvellous, but I think we need a few more answers and I think what we have got to do is tickle the Minister a little bit more. It has been very gentle so far. I started this campaign back in 1977, so I have a long history on that, I have not just jumped on it at the last minute, but what I would like to know is how much has been committed from the Government so far to this?

**Ian Lucas:** To the project, in terms of pounds, shillings and pence?

**Mr Walters:** I do not have the figures at the moment, but it is being done through customer contracts rather than through any form of launch investment on the A400M programme.

**Q250 Mr Hoyle:** What we are saying is that it is no use the Minister being allowed to say this is the best deal for the time, it is what we are going to look at if the Minister is not aware of the figures. I think the officials should have given the figures to the Minister today, because it seems a pretty obvious question. If the Committee could be given that information,\* that would be helpful, but it does actually stop some of the questions I wanted to follow up. Also, I notice we have concentrated on wings. What we have got,

though, is a major investment into the most powerful turbo prop engine in the world, the Rolls-Royce Snecma engine that is going on to the A400M, and we are in danger of losing that as well because this is the only vehicle that it will fit on, the only platform. Have you any concerns for Rolls Royce as well, because if it goes outside Derby, we have got brown holes with the fan technology. Lancashire is one of the main supply chains to this plane and I just wonder if you could just say a little bit more on that.

**Ian Lucas:** We have profound concerns about the project as a whole because it is a project that shows UK manufacturing at its best: cutting-edge technology, a broad range of companies involved and high skill levels which show the way ahead in terms of the development of aerospace both in terms of engines and in terms of wings. It is a strategic aircraft and it is very important, therefore, that if at all possible we ensure that the project goes forward, and it is for that reason that we are so closely involved with other nations which are involved in the discussions, in the negotiations with EADS at the present time.

**Q251 Mr Hoyle:** Let us take it a little bit further. Who has got the stronger arm in this arm-wrestling competition: yourselves or MoD? My understanding of the situation is that it is not so much about money; the money is already there. It is not an increase in money; it is not a reduction in money; what we have said is that we will reduce the number of aircraft. What I am hearing is it is the MoD who are saying, “We do not want this aircraft. We would sooner have another set of 130Js, or another C17”, or whatever, “as an alternative”, and we seem to be driven by the boys in light blue who actually want to see what platforms they want to be using rather than what is in the best interests of the British taxpayer at this point in time. It is that concern that I have, because I think we have got to see a little bit more beyond this and, you may agree, Minister, this is not purely a military aircraft, far from it, this has a great advantage as an aircraft that can be sold around the world for cargo companies, which is one of the faster growing areas where we can actually sell in with a mid-range heavy lift capability. Is that fair to say?

**Ian Lucas:** The Ministry of Defence is the lead department—

**Q252 Mr Hoyle:** That is what worries me.

**Ian Lucas:**—as far as this is concerned, but I have to say the Ministry of Defence is very committed to the A400M project and I have discussed this very closely and remain in very close touch with Quentin Davies, the Minister who is dealing with it. At all stages I have made very clear (and I think Quentin, the Minister, fully understands this) that this is a strategically important aircraft for UK industry. My role, as the Minister for Business, Innovation and Skills, is to ensure that, in addition to the importance of the A400M as a military aircraft, the strategic importance for British industry is taken into account too, and that is why I have referred to the A350 project too. I also think you are absolutely right in

saying that this is a cargo aircraft which is of tremendous capability and novel capability, for example, in disaster relief situations and is, therefore, a product that has a great future as far as aid and assistance across the world is concerned—not just in defence situations, but in humanitarian situations too. It has a strong future and it is for that reason that we are so committed to resolving the present situation.

**Q253 Mr Hoyle:** The point I am also trying to touch on is if we take a company like DHL, or somebody who specialises in air cargo, is there not a real gap in the market that this aircraft can fill?

**Ian Lucas:** Absolutely. That is an interesting point. One of the things that I have been doing since I have been appointed is ensuring that the export potential of products is taken into account when I have been attending defence committees at the Ministry of Defence, that we look at the benefits to British industry of products of all types, and you have just quoted an example where this can have a commercial potential that needs to be taken into account when weighing all the decisions that need to be made about the future of the aircraft.

**Q254 Chairman:** Could I draw one question out of that and then move to one more subject before I move on to Mick. I have been struck by how much the MoD has been reducing its research expenditure, how challenging its procurements are for British industry. When you look at what the United States of America does in terms of the feed through from its defence programmes to particularly the aerospace sector but other parts of industry as well, do you have a concern that the Ministry of Defence on this issue and others is perhaps not properly understanding the long-term consequences of sometimes what seem to be short-term decisions?

**Ian Lucas:** I said earlier that I think it is very important that the industrial strategic role for British industry is taken into account when decisions are made, not just by the Ministry of Defence, but by all departments within government, and that is a very strong message that has come down to me from the Secretary of State and which I am carrying forward to all departments across government. I do take your point on the research budget, because that point has been made to me. I think that we need to take into account the pressures that are there on the military budget at the present time. We also see the development of, for example, markets in security broader than military that are happening at the present time, and one of the reasons we are looking so closely at the commercial aspects of aircraft and the commercial potential of products is because we recognise the pressures that are there on the defence budget.

**Chairman:** I will not get into a long debate about this because it takes us into rather broader areas, but it does seem to me our almost pre-eminence in aerospace, after the United States of America—as you rightly say, we are the second most successful aerospace nation in the world—think owes a lot to

its historic relationship with the Ministry of Defence and I am concerned that short-term pressures might endanger that long-term position.

**Lembit Öpik:** I was not going to come to this, but, now that we are on it, it probably needs to be recorded at least. Are you aware—you may not be but I am sure Huw will be—of the very close relationship between US Government military spending and the Boeing civil airliner project? KC135 came from the 707 and something called the Stratocruiser came from something called a C47. Time and time again Boeing have converted military projects into commercial returns. You may want to confirm this in writing, but, if so, is there any cross-over between what we were discussing about WTO before and the Airbus situation now with the A400M?

**Q255 Chairman:** That is almost a rhetorical question.

**Ian Lucas:** Actually that is a rhetorical question.

**Chairman:** Yes, I think it answers itself.

**Lembit Öpik:** I feel better for having shared it. Thank you.

**Q256 Chairman:** We will not labour the point. It is an interesting point. Before we move on to Mick Clapham and motorsport, one thing. We have been talking about aerospace but we have not mentioned space at all. I have become worried during our inquiry that we have not mentioned space. I have a view (and I wonder if you share it) that actually space now belongs to mainstream manufacturing and industry; it is not any longer a scientific issue. Do you think we parliamentarians and ministers should spend more time worrying about space now it is a major part of our lives?

**Ian Lucas:** I think that is right. We meet on the day of the inaugural aerospace defence and space member organisation being set up, and it is very important indeed. I tend to associate space with the Apollo missions still, but I think there is a much more basic involvement of space in industry as a whole now, and I think that we need to reflect that in our thinking. When I visited aerospace manufacturers I saw examples of the importance of space and how the scientific developments related to satellites and launching and the hugely important role that UK has in the sector is really enabling us to be upfront, or certainly near the front, of the manufacturing nations in this area. I think we need to shout out a bit louder than we do at the present time, because it is also a good way of showing the innovation that there is in UK industry and attracting more scientific minds to it.

**Q257 Chairman:** There is always a point at which pure science needs to move to applied engineering, and we have done that, I think, in space; that is what is happening. Surrey Satellite Technology, for example, is a fantastic company. They are doing incredibly well. I think we need perhaps to start thinking a bit more about space and Britain's very strong place in space as a business, not just a scientific endeavour.

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**Ian Lucas:** Yes.

**Chairman:** That is enough of that. Let us turn to motorsport.

**Q258 Mr Clapham:** Minister, one of the industries that we actually lead the world in, of course, is motorsport. There are many countries that are envious of our leadership, and when we took evidence we were told that some of those countries were breathing down our neck. Malaysia, for example. Yet there is a feeling out there in the motorsport industry that they are being ignored. Are they being ignored and what are we doing to ensure that we keep that leadership?

**Ian Lucas:** I do not think that they are being ignored. We have just set up a UK Automotive Council that met before Christmas. The deputy chairman of that is Gordon Murray, who has profound involvement in motorsport, and we see motorsport as extremely important, with around 36,000 people employed in it, annual turnover 4.6 billion, a very, very important industry, and indeed, of course, as you said, we are right at the forefront of this industry. It has tremendous examples of innovation and modern thinking. I went to McLaren last week and saw the innovation there and the skill levels that are involved there, so I am concerned if they think they are being ignored. I really want motorsport companies to become involved in the UK Automotive Council and its sub-committees to ensure that they become part of the mainstream in terms of exerting pressures on government through the UK Automotive Council.

**Q259 Mr Clapham:** Is there a particular sector in BIS that deals with the motorsport industry?

**Ian Lucas:** Not a specified sector within BIS, but it is very much integrated within the automotive team. One of the great successes of the past year, I think, has been the way the automotive industry as a whole has worked together, industry, unions and government, to deal with the very, very severe pressures it has been under, and we have had great competitor companies in Toyota, BMW, JLR companies sitting round a table and finding a way forward together, through setting up the UK Automotive Council to deal with a very difficult situation. I think that has been a tremendous model. We want to see motorsport involved in that process, but we think that that is a model that motorsport can fit into and we want to have them integrated as part of the way that UK industry is approaching the automotive industry.

**Q260 Mr Clapham:** One of the unique features of the motorsport industry, of course, is the linkage that there is with the aircraft industry, and it is that which helps to keep British motorsport a world leader. Are we able to do more to ensure that synergy continues between the motorsport industry, the aircraft industry and then, of course, the spin-off back to motorsport?

**Ian Lucas:** I am sure that we can do more. If we have the motorsport industry involved in the automotive sector within the Department, I think that we can

use that as a model to bring them into cross-sectoral organisations, for example, like the National Composite Centre that was set up in the autumn. One of the striking things when I was at Aston Martin and McLaren last week is the development of composites, which we have just been talking about in terms of aerospace, and the real prize is to use the skills that exist in motorsport for the benefit of aerospace, and vice versa. I was very struck in McLaren at the skill transfer between the staffing in both aerospace and the motorsport industry. It is quite clear that a lot of people move between the two sectors, because similar skills are involved a lot of the time and, therefore, the knowledge transfers that are happening can be very beneficial to both, and I am sure that both industries can learn from other.

**Q261 Mr Clapham:** Of course, very important for engineering skills and the apprenticeship schemes.

**Ian Lucas:** Absolutely. One of the great things about motorsport is that it has an incredibly high profile, and I think there is no shortage of people who want to be involved in the industry both at apprenticeship level and degree level.

**Q262 Chairman:** We will do that in more detail in the cross-cutting sections.

**Ian Lucas:** I think that is a great benefit, and again we can draw people across the aerospace sector.

**Q263 Mr Clapham:** I hear what you say, but when one looks at the last research reports that were done into the health of the motorsport industry by government, they are 10 years old. Given that technology and the innovation that has driven that technology has really changed the whole set-up of the industry, it seems that that is a little outdated. Are there any plans for further research to be carried out into the motorsport industry?

**Ian Lucas:** I think, since those specific research projects that you have been talking about, we have had the Automotive Innovation and Growth Team, more generally, and also the setting up of the UK Automotive Council. I think it would be really good to have motorsport companies involved in the Council to get the more up-to-date research, because 10 years is obviously a decade, but it has been a lifetime as far as the development of, for example, low carbon technologies have been concerned and that is an area that we are investing in heavily a government, in the automotive sector as a whole. I think there is a role also within motorsport for that to be investigated more fully, and I welcome the involvement of the industry in saying what they believe should be the correct approach for motorsport, and I think the best model to use for that is through the sub-committees of the UK Automotive Council.

**Q264 Mr Clapham:** Overall, you feel that the rapport between government and the industry is sufficient to make the industry feel that it is wanted as an important sector?

**Ian Lucas:** As far as motorsport is concerned, I know there have been tensions about the relationship between motorsport and government and the MDUK in recent years. What I would say is that I want those tensions to be eased. It is very clear that engagement between government and the industry is working in the context of the automotive industry as a whole and I want that engagement to be happening with the motorsport industry as well. If there are issues, then I want to hear about them.

**Q265 Chairman:** Before I hand on to Lindsay Hoyle, who wants to ask you about MDUK and so on, I want to push you a bit more on this. The reason these two industries are linked to our inquiry is for the reason you just gave in very good answers to Mr Clapham about the strong cross-over in terms of skills and engineering techniques, manufacturing techniques, science base, and all those things, and of course we have the second biggest aerospace industry in the world and the biggest motorsport industry in the world. Here we are, world leaders, absolutely right at the top of the tree, but the rest of the world is snapping at our heels to take back that pre-eminence to the Far East or countries in Europe. We cannot be complacent. The industry thinks the Government is complacent.

**Ian Lucas:** Who in the industry thinks it is complacent?

**Q266 Chairman:** The Motor Industry Association tell us, for example, the Technology Strategy Board is not engaging with motorsport, and that is a worry. They say the Automotive Innovation and Growth Team's report last year had one sentence in it about motorsport, and that was it, and they were not consulted by the team at all at any stage. To the Government's credit, Lord Drayson said on 30 January in a speech to a motorsport conference that "UK motorsport and government are not talking to each other enough". I think there is a problem—the industry says, the Government says—but here is industry, we have it by happy accidents of history; we would lose it by accident very easily just by pushing. You given all the right answers, but what evidence do we have of the Government's commitment to address what seems to be a real problem?

**Ian Lucas:** You referred to Lord Drayson's speech that I discussed with him before he made it. I am aware of concerns that have been expressed. I have said that I want the motorsport industry to be involved and engaged to the same extent, if not more so, than the automotive industry as a whole, but I am very keen that they be involved in the strong relationship that is developing. I am very well aware that when we are at the front and we have got our competitors breathing down our neck from Malaysia and from other parts of the world, we need to up our game the whole time, and I am very keen indeed that motorsport companies should get involved with the Council.

**Q267 Chairman:** I agree, but you said, very rightly, there is a very strong link with aerospace, and in a way it sits in the middle, it is a buffer zone between

these two industries, is it not? It is neither fish nor fowl, it is both, and both can learn from it and it can learn from both. Is it right to pigeonhole it within the Automotive Innovation Growth Team's work? Does it need a higher profile within the Department to ensure this centre of excellence is maintained?

**Ian Lucas:** I think this. Clearly, there is a cross-over with the automotive sector as a whole. We have companies like Aston Martin, dealing with composites again. It is more of a mainstream motor manufacturer and is not involved directly in motorsport, and so there is a cross-over with automotive. We cannot take motorsport out of the automotive sector, but clearly we do not want to limit it either because there are specific cross-overs because of the nature of the research and innovation that goes on in motorsport that apply to other sectors.

**Q268 Chairman:** When we think of motorsport we think of Formula 1, but it is much more than that, of course.

**Ian Lucas:** Yes.

**Q269 Chairman:** Formula 1 are more like low flying aeroplanes—the Engineering Board told us that—so it is more about aeroplane technology, so it is difficult to pigeonhole or generalise.

**Ian Lucas:** Yes. We want to have motorsport, for example, involved in the national composite centres and other sectoral innovations and cross-sectoral innovations that are taking place.

**Chairman:** I will not go on too much or I will steal Lindsay's thunder.

**Q270 Mr Hoyle:** Minister, once again, Motorsport Development UK was heralded as a way forward. Obviously £11.5 million was placed into MDUK. The interesting thing is the evaluation report for MDUK was produced in June 2009. I think more or less seven months after that the Department's written submission to our inquiry stated that ministers were currently considering the results and recommendations of the report. Have you now come to a conclusion? What has the Government learnt from this?

**Ian Lucas:** It has learnt that Motor Development UK was able to contribute to the perception and realisation that motorsport is an important part of the UK automotive sector and that it was an important way of attracting talent and innovation to the industrial sector. For example, the learning grid at the Rockingham Festival was very successful indeed, bringing young people together to develop an interest in engineering, and there were aspects of the project that benefited motorsport as a whole.

**Q271 Mr Hoyle:** You are no longer considering the results and the recommendations of the report, you have actually now evaluated it.

**Ian Lucas:** We have now evaluated it.

**Q272 Mr Hoyle:** Can the Committee have that?

**Ian Lucas:** The Committee has had a copy of the report.

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**Mr Hoyle:** Have they got that report?

**Q273 Chairman:** Could I be clear what this is. We do not think we have the Government's evaluation of the report, no. I want to make sure our understanding is correct.

**Mr Carter:** There is no written evaluation report.

**Ian Lucas:** Sorry, we have evaluated the report, but there is no written response.

**Q274 Mr Hoyle:** We are still waiting for that, so we can have that at some point, can we? You have got to do that in writing, or is it just something that will be passed round the corridors in whispers?

**Ian Lucas:** No, it will not be passed round the corridors in whispers.

**Q275 Mr Hoyle:** So we will have a hard copy.

**Ian Lucas:** I do not believe that there was an intention to print a written evaluation response in the way that one would, for example, respond to a select committee report.

**Q276 Mr Hoyle:** We thought that there may be something put down in substance. The £11.5 million investment and the fact that you have actually scrapped the MDUK, we think, is worthy of something that ought to be in some kind of paper form.

**Ian Lucas:** I would be happy to present a response to the Committee.

**Q277 Mr Hoyle:** Excellent. Minister, you stated that you were considering the report and that you had not evaluated it, we have already been told in the answer that you have not had time to do that, but you failed to tell us that MDUK had been wound up. Why?

**Ian Lucas:** It was felt that the structures which are developing, which I have referred to already, enabled the motorsport industry to be heard through a different forum.

**Q278 Mr Hoyle:** Do you not think as a Committee we deserve to have that information shared with us, or do we have to go through Mystic Meg to find information? That is what is worrying. It seems a bit clouded around here and we are not having the honesty that I would have thought. First of all, I would have thought we would have had a report back in writing, and, secondly, I think it would have been quite a good way to start by saying, "By the way, we have wound this up", and give us what will follow, if anything. Do tell me.

**Ian Lucas:** I am sorry if there was any misunderstanding, but I do not think there was any lack of clarity about the fact that MDUK had been wound up. I did not specifically say, because I had not been asked, whether it had been wound up or not, but it has been wound up. I have talked about the different structures which have developed, most recently the UK Automotive Council which had its

first meeting in December, and there are sub-committees linking into that which I would like to see motorsport involved in and I hope that the motorsport sector will get involved in that.

**Q279 Chairman:** I do not want to join in on the rather narrow and technical point about the Committee for Business, Innovation and Skills, but Lindsay is right. Your submission to us talked about MDUK being established in 2003 as a key recommendation. I think it went on to say the administration costs, in the present tense, are £0.9 million. The clear implication of your submission was that MDUK still existed; in fact, it had been wound up. It may be unintentional, but it was not helpful.

**Ian Lucas:** I will take that into account.

**Q280 Mr Hoyle:** It is not a personal criticism of yourself, Minister—you are a very busy person—but I think the people around you ought to have said, "Look, Minister, I think we ought to be a bit more upfront", and put this in writing to us. You sign the reports off. You are not responsible for doing them—I understand that. I think you need to go back and just have a word with your officials and tell them to be a bit more upfront with the Committee. I think it would do us all the world of good. Is there a successor body to MDUK, or not, to come out of the ashes?

**Ian Lucas:** No.

**Q281 Mr Hoyle:** Is there a phoenix coming out of this?

**Ian Lucas:** No, but I think I have made clear already that I would like to see a phoenix rising through the UK Automotive Council.

**Q282 Mr Hoyle:** That is excellent. The strategy will be built around that for the future.

**Ian Lucas:** Yes, I would hope that the level of engagement between government and the industry that is taking place in the broader automotive sector will be reflected in activities between the motorsport sector and the Automotive Council as a whole.

**Q283 Mr Hoyle:** Quite a big chunk of money went into MDUK. Do you think it was value for money, a good investment, or not?

**Ian Lucas:** I think it made some very positive contributions to the working relationship between government and the motorsport industry.

**Q284 Mr Hoyle:** But was not good enough to keep it in place.

**Ian Lucas:** I think the rest of the sector had moved on and there are different structures in place now which were not there five years ago.

**Q285 Mr Hoyle:** No problem, I am not trying to score points, but I do think there are some messages to go back that I am sure you will pass on and kick somebody when you get back in the Department. Could I take you on to the health of motorsport. It is obviously important, a big key area, the health of

the industry reliant on the health of sport. What discussions have you had with the Department for Culture, Media and Sport on the issues of motorsport? Of course, the big question is when will motorsport be officially recognised as a sport?

**Ian Lucas:** I have met with the Sports Minister, Gerry Sutcliffe, to discuss the motorsport industry as a whole, particularly when there was doubt around the British Grand Prix and its continuance and, obviously, we welcome profoundly the importance of that as a great boost and essential to the future of the UK industry. I work closely with Gerry across a number of different areas, including this particular one, and I have had discussions with him. I am not exactly clear what you mean by the statement that motorsport is not a sport.

**Mr Hoyle:** It is not officially recognised within the sporting body.

**Chairman:** UK Sport and Sport England do not describe it as a sport.

**Q286 Mr Hoyle:** The department basically.

**Ian Lucas:** The peculiarity of motorsport is that, in terms of participation, there is not a large number of individuals who are involved in motorsport compared to most mass participation sports, and I think that this is the reason.

**Chairman:** If you have done all the training through carting, you get thousands and thousands of people in the UK involved in motorsport activity.

**Q287 Mr Hoyle:** If you look at some of the Olympic sports, you might find there is a lot more than synchronised swimming. I do not think that is a good example personally.

**Ian Lucas:** I will be interested to know the figures, and I will try and find those out.

**Q288 Mr Hoyle:** Take motorbiking, scrambling at weekends, trials bike riding, carting, autocross; you can go on forever. It goes on and on and on. I think it is much greater than when you first look. Would you describe the Sports Minister as a petrol head?

**Ian Lucas:** As a petrol head?

**Q289 Mr Hoyle:** Yes. Is he a big supporter of motorsports?

**Ian Lucas:** I would never describe the Sports Minister as a petrol head.

**Q290 Mr Hoyle:** So we have got a weakness in getting recognition then!

**Ian Lucas:** No, I do not think that is fair. I have met with Gerry specifically to discuss motorsport. As far as I am concerned, he is interested in most sports and certainly he is interested in this one too.

**Q291 Mr Hoyle:** What about yourself? Are you a petrol head?

**Ian Lucas:** I would not describe myself as a petrol head. I watch the occasional grand prix, although I have not visited one.

**Q292 Mr Hoyle:** Quite rightly, being a Welsh MP, I am sure you are well aware the World Rally Championship brings £10 million per year into the Welsh economy and the Autocycle Union calculated in 2008 that Major Motorcycles generated £100 million for the UK. It is big money, big bucks, and that is why I think it is important. You do take that on board?

**Ian Lucas:** Absolutely. I think it is very important. I said it was not a mass participation sport, but it is certainly a mass spectator sport and anyone who has ever been in the vicinity of a grand prix knows that.

**Chairman:** Lembit wants to come in.

**Mr Hoyle:** He is a petrol head as well.

**Chairman:** Yes, he is a petrol head.

**Lembit Öpik:** I pay my environmental offset with pride! I declare an interest in motorbikes as well.

**Chairman:** Get on with the question.

**Q293 Lembit Öpik:** I am sorry, Chairman. In 1997 the Government said it would put motorcycles at the heart of its transport strategy. It is quite obvious that motorcycles have got a very valuable on-road profile but the off-road development—that means racing tracks and dirt tracks—are the single fastest development technology with the resurgence of the British motorcycle industry. I have not seen a major strategic commitment to investing in cutting-edge motorcycle development now that we are back in the market big time. Does the Government have a particular position about economic or the technological development of two-wheeled vehicles, not least because they provide an environmental advantage in commuting terms?

**Ian Lucas:** I do not think we have a distinct policy relating to two wheels rather than four. I think that any of the benefits that will apply to a successful automotive industry with four wheels should apply to those with two. I note the enhanced environmental concerns and issues that you refer to and certainly we will do what we can for the motorcycle industry as well.

**Q294 Lembit Öpik:** So it is not a case of four wheels good; two wheels bad?

**Ian Lucas:** That sounds like a sound bite. With due respect to George Orwell, no, it is not.

**Q295 Chairman:** Just for the record, the Motorsports Association told us that they have 33,000 competition licence holders from eight years of age upwards and 750 member clubs with a combined membership in excess of 200,000, and the MSA issues permits to the organisation for 5,000 events every year and boasts a database of 15,000 registered volunteer marshals and officials. It is quite a big sport.

**Ian Lucas:** I stand corrected then.

**Lembit Öpik:** It is more than tennis.

**Chairman:** I doubt that very much. We will move on. Cross-cutting issues now. Anthony Wright is going to talk to you about the supply chain.

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**Q296 Mr Wright:** Minister, industries that really takes a big hit are those in small to medium enterprises, and certainly within the last recession they are the first ones to have been hit. What action has the Government taken to support the SMEs? There are around 9,000 SMEs that support the motorsport and aerospace industry.

**Ian Lucas:** I think you are absolutely right, particularly in the automotive sector, the impact on SMEs has been very immediate and very profound and we were very concerned at the effect that the recession was having on them. Of course, the introduction of policies such as the scrappage scheme has benefited not just the prime manufacturers but also the supply chain as a whole.

**Q297 Chairman:** We are not scrapping many aeroplanes or former racing cars under the scheme. We are talking about the aerospace and motorsport supply chains here, not more generally: the supply chain into the sectors that are the subject of this inquiry.

**Ian Lucas:** So you are talking specifically about motorsport.

**Q298 Mr Wright:** Aerospace and motorsport, yes.

**Ian Lucas:** I think the recession, as far as aerospace is concerned, although it has affected the sector as a whole, has had a more limited effect on the aerospace sector than certainly the automotive sector. I think within the motorsport sector the profound effects have been on the levels of income from areas like sponsorship. Have you heard evidence that the level of manufacturing in the supply chain for motorsport has diminished?

**Q299 Mr Wright:** Yes. We have taken evidence from both sides. The fact of the matter is that once there was a drawback in terms of the orders book in the aerospace and, indeed, the motorsport industries, the first companies to be affected were, indeed, the small to medium enterprises. There is a considerable number of them. It was quite clear that they were not putting the orders in, and so it did have a profound effect on much of the industry, and I would suggest that perhaps a number of those have probably gone to the wall because they relied really on their particular industry because it was specialised and they had their orders at that particular time.

**Ian Lucas:** What we are trying to do is to encourage supply chain companies to develop more formal relationships with the major manufacturers, the Airbus and GKNs of this world, to try and have them working together over longer periods to develop sharing of technologies and working together on the supply chain to make sure that they have sustainable relationships which can deal with the problems that a recession imposes.

**Q300 Mr Wright:** That is asking the company. What I am asking is what has the Government actually done to help support? You mentioned the scrappage scheme in terms of the motor car industry, which is one sector we are not looking at at this stage, but this is specific to the aerospace industry and there are

considerable numbers—as I said, 9,000 in total—that actually rely on these industries. We met some companies, in terms of the Formula 1 engine, that employ four to five people to companies that employ 50 or 60 people. They are the companies that rely on these. What I am after is has the Government given any initiatives or any help and support to help these SMEs?

**Ian Lucas:** Launch investment in Airbus, GKN and Rolls-Royce assists supply chain companies involved in those projects. The fact that launch investment is made with a large company means that the supply chain that supplies into those companies benefits as a consequence of the investment that the Government has made; so the Government has provided support in the long-term for the long-term projects that the industry is involved in. The industry itself has worked, through the SC21 project, really looking at improving the work that needs to be done to build better supply chains, because supply chains are now internationally competitive. It is very important that British companies are able to work with the major manufacturers to compete with foreign companies in providing support and the products that the big companies need to manufacture successfully.

**Q301 Mr Wright:** One company in particular, Lola, have said quite clearly that the depression has been quite catastrophic for them because, obviously, their race cars are for sale to clients as any commercial product is, and what they say is that large work opportunities have all but dried up as it is not politically acceptable and unsold cars are being stockpiled and people are being globally laid off in their thousands. There is the evidence that the recession has had a drastic effect on one company which is a recognised company. If you translate that across the whole of the SMEs, quite clearly there is a serious issue here. What I would seek, if we have not got the answers now, is to see how many of those companies have actually gone to the wall, what support there has been out there from the Government to give them specific help to ensure that they continue outside of what the private sector has given them.

**Ian Lucas:** The other area in which the Government has acted is that we have invested in training through the Train to Gain scheme in England and through schemes such as ReAct and ProAct in Wales to provide support to industry to upskill the workforce at this particular time when there are real pressures on the companies themselves and, where there is available time, to use it effectively and productively to develop the skills of the workforce which are very important in these high-tech areas.

**Q302 Mr Wright:** I would suggest that is probably driven more by the large manufacturers rather than the smaller companies. Moving on, one of the initiatives that the industry took on board in 2006 was the supply chains for the 21st century. The Government in a note said that they you were supporting this. Could you give us details of how the Government was actually supporting that initiative?

**Ian Lucas:** It has been an industry-led initiative but we have been discussing with ADS, who have been leading on this, ways of looking at the type of training and skilling that is needed amongst the workforce and using the free time that may be available because of the impact of the recession to upskill the workforces that are operating in these skilled areas. We link in very closely to the aerospace industry as a whole, try to identify the skills shortages that are there and work with them to try and fill them.

**Q303 Mr Wright:** Has there been any financial remuneration directly into this particular scheme?

**Ian Lucas:** In different areas we have increased the level of funding that has been available for apprenticeships, and through organisations like Centre we have been trying to support the industry as a whole in ensuring that apprentices can be kept on as far as possible and that the type of support that companies need to maintain skills at the time of financial pressure is actually there.

**Q304 Mr Wright:** Has there been any encouragement from the Government to extend a similar programme into other industries, such as automotive sports?

**Ian Lucas:** I think that the automotive sector as a whole has been very good at looking at trying to maintain and develop skills and, for example, extend procedures such as new manufacturing and the management involved in that during this very difficult time. There has been a lot of work done with regional development agencies to try and improve the performance of companies and to focus on more competitive modes during the last year. I think that any company that comes forward, including from the motorsport sector, could benefit from that sort of advice.

**Q305 Chairman:** Could I push this for a bit longer. This is what you actually said in your memorandum to us: "The industry-led 'Supply Chains for the 21st Century' change programme designed to accelerate the competitiveness of the UK aerospace and defence sectors by raising the performance of its supply chain is supported by the Government." If the answer is it is moral support, I do not mind that, but I want to know what the nature of that support is. Is it just really, when it comes to it, moral support: "It is a good idea. We congratulate you in doing it"? Perhaps these things are best done by industry rather than by government. There is no right or wrong answer, I just want to know what that phrase "is supported by the Government" actually means.

**Ian Lucas:** It is certainly morally supported, but it is also supported through regional development agencies that do provide financial support for improvements in manufacturing processes, lightening manufacturing and through improving production techniques and competitiveness for businesses.

**Q306 Chairman:** What you are saying is that the big companies leading this initiative can say, "Hey, you need this particular help and you can get it from the RDA." They can signpost them to the other more cross-sectoral initiatives of government. Is that what you are saying? Because they are available, that is the nature of the support you are giving.

**Ian Lucas:** Yes, that is the focus of the support that we have been providing through the Regional Development Agencies.

**Chairman:** That is fine; there is nothing right or wrong; I just wanted to understand what you meant by the phrase.

**Q307 Mr Wright:** One of the things where industries can help each other is to diversify. Unfortunately, I think, as you have said, many of the industries that have been attached to one particular industry and rely on that become entrenched within that particular area. What can the Government do, or what are they doing, to encourage SMEs to diversify to other sectors—in particular, into the aerospace sector? One of the problems there is that there are regulatory burdens which become prohibitive to them. Is there something that we can do to ease the way through to different sectors to protect them? Clearly, one of the issues that has been raised in the evidence is that once we lose the skilled personnel we lose them forever; they have gone forever and it is very, very difficult in a very competitive market to get them back. Quite clearly, there is competition throughout the world in this particular area. So what can we actually do and what are we doing to help these companies to diversify?

**Ian Lucas:** Firstly, the establishment of the cross-sectoral bodies, such as the National Composite Centre that I referred to earlier, is very important because it creates an opportunity for a business, for example, that might be involved in the motorsport sector to become engaged in a body that operates across a number of sectors. So it creates relationships with organisations from different sectors to that which the company normally operates with. That company will then be able to see opportunities developing in different sectors. As you say, spreading the benefit of supplying to a number of different sectors will be very positive for any company because it means it will not be adversely affected by diminution of work in one particular area. Now, there is a lot of very innovative and positive work going on in, for example, composites, which has been happening in different institutions in different places in recent years. We are trying to bring that together and encourage individual companies to become involved in the process and to secure work and access to innovation and skills because of that.

**Q308 Mr Wright:** Is there a role for the Manufacturing Advisory Service to help diversification?

**Ian Lucas:** Absolutely. They are providing advice to companies on a day-to-day basis. I think the figures are there somewhere. The number of companies that have benefited from the advice of the Manufacturing Advisory Service is enormous and those companies

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become more competitive, become more productive and real progress is made as a result of the advice that they provide.

**Q309 Miss Kirkbride:** All the companies that we went to visit—Rolls Royce and British Aerospace (I did not go to Bristol)—said that there is a real problem in an idea that was conceived and workable to the point where it actually could be put into manufacture before a company could make money from it. There used to be the Aerospace Technology Validation programmes, which have now been overtaken by these new centres of excellence. What do you think was wrong with the old scheme and why will these new ones be better, do you think?

**Ian Lucas:** I think they very correctly identify a difficulty that UK industry has had for many, many years. Everyone says that we have tremendous universities and that we have tremendous centres of innovation but the commercialisation of the product has been problematic and we have not really made the progress that we would like to have made in that field. It is for that reason that we do feel that we need to be doing things differently. What we are doing through creating centres of excellence is looking at bringing together the skills, for example, of universities and industry and trying to get them to collaborate—perhaps through the creation of companies involving universities and industry together—to take forward and commercialise the product in a more successful way. So that is the sort of model we want to see developing. That is the line that we are pursuing as a government.

**Q310 Miss Kirkbride:** What is it about the new centres of excellence that is different to the old programme that is going to make this difference? There is clearly a gap at the moment, and there was a scheme to address it.

**Ian Lucas:** Yes. I think what we are beginning to see is much more co-operation by different businesses across sectors in particular areas which require very, very high levels of research and investment. I visited in Bristol the establishment of the National Composite Centre and saw the level of innovation and research that has been going on, and what we are doing is drawing together investment and commitment from different companies who are operating in that sphere to benefit from the research that is taking place in the university sector so that they can be internationally competitive in the product that is going to come out of the work that is taken forward.

**Q311 Miss Kirkbride:** It is interesting you raised the Bristol centre because, of course, that was quite controversial in that whilst it ended up being sited in Bristol there was quite a push for it to go elsewhere. Yet that is rather illogical, bearing in mind that the main composite centre with Airbus is down in Bristol and it could benefit from those synergies of being around those companies doing that. Why was there such controversy surrounding the siting of the Bristol composite centre?

**Ian Lucas:** Firstly, it had to be somewhere but, secondly, because we are so strong in aerospace, there are very, very strong geographical areas, not least the north-west of England, and, also, north-east Wales, I might add.

**Q312 Miss Kirkbride:** What about Sheffield, Minister, which is where it was likely to go? Why was that a runner? Why was it not given to Lindsay's constituency? If you are going to have two potential sites why was Sheffield the runner versus Bristol when there is no obvious cluster in that area?

**Ian Lucas:** I think that there are a lot of factors involved, both in terms of involvement of universities and the involvement of particular companies—and I should stress that this is a national centre. It happens to be sited in a particular place.

**Q313 Miss Kirkbride:** What was the case for Sheffield?

**Ian Lucas:** Sheffield has a very strong manufacturing base.

**Q314 Miss Kirkbride:** Any composites?

**Ian Lucas:** I actually visited the Advanced Manufacturing Centre in Rotherham, which had some very innovative and exciting work going on in composites in the visit that I made.

**Q315 Miss Kirkbride:** So it was not political then?

**Ian Lucas:** It was not political? I do not know. The decision was made to site this for a multiplicity of reasons and when you see the level of expertise that is within the sector, both in terms of the university and also industrially in that area, I think it is perfectly reasonable to suppose that the centre would have been sited where it is.

**Q316 Chairman:** This is a happy ending to a very muddled and bad story. There was not going to be a National Composites Centre at all. Actually, the idea came to government from academia and industry during the discussion on how to use the Strategic Investment Fund money; it was not part of a great strategy, it was not there. The Government rightly embraced the idea but it came by accident—and thank God it did because it is really important to our competitiveness. Then there was, I think (as Julie said, rightly) one logical place to put it, which was Bristol. Had it gone to Rotherham where Boeing have very close relationships with university, Airbus would have had nothing to do with it because of the competitive issues. Yet, the procurement process—the competitive bidding that went on—was shrouded in mystery for all those involved; they did not know the specifications, they would change at the last minute; they were asked to resubmit their bids—it was chaos. Bristol felt they were being actively discriminated against by the Government in an attempt to gerrymander it to Rotherham. Despite that, in my view (I think Members of the Committee may disagree), the right decision was reached. However, this was a shameful episode of mismanagement by government. Surely, it really

should have been done much more strategically and much more efficiently, but thank you for the right outcome.

**Ian Lucas:** They were very happy when I went to visit them when this centre was opened, but I will certainly look into the issues that you raised and discuss them within the Department.

**Mr Hoyle:** The Chairman is correct in what he said but everybody recognised that, really, it should have gone in the North West because there is a composites site that is already being used in military aircraft, we had already got the expertise there and we have got the universities. So we could all argue for where it should have gone but, in the end, it is at Bristol and it is working well.

**Chairman:** The process was, in my view, appalling. I do not think we will get many more of these national centres. We were at Rolls-Royce on Monday and we were told that they felt the right sort of framework was now in place; they were content with the arrangements (and I think Julie may be asking about that). Please, if ever there is another one, do make sure this process is run better, more openly, more transparently and more efficiently than it was this time.

**Q317 Miss Kirkbride:** I suppose, on that point, is the Government contributing to the establishment of a UK aeronautics research institute? If not, why not?

**Mr Walters:** Yes, we are. We are talking to industry, at the moment, through the aerospace knowledge transfer network about the proposal that there should be some form of a UK national aeronautics research institute. At the moment, we are waiting for industry to come to us with a sort of consensus view as to what that would do, because I think there are quite different views in industry, at the moment, as to the role that might play, all the way from something at one end which is a smart programme management organisation right through to something at the other end that owns facilities, employs scientists and does its own research. I think, at the moment, there is not a single consensus view that we have had from the companies that we are talking to (a) about what it would and (b) about what would be a sustainable business model for it. So we are talking to them about it at the moment.

**Q318 Miss Kirkbride:** Conceptually, the Government thinks that is necessary? It is a desirable thing to happen?

**Mr Walters:** I think, at the moment, we are just waiting for industry to come back to us with a justification and strong case for doing it and to come up with a model that actually would work and deliver the sorts of benefits that have been proposed for it at the moment.

**Q319 Miss Kirkbride:** When we went to visit Airbus they argued that “there is a lack of an authoritative voice to speak on behalf of UK excellence and scattered islands of capability may never achieve ‘critical mass’”. Is that true?

**Ian Lucas:** I am aware that they expressed that view. I think that the Innovation and Growth scheme in 2003 has been a basis for what has been a quite successful relationship with government, and we have tried to engage on a strategic basis with the aerospace industry as much as we can. We met with many of the leading CEOs only last week to discuss the future progress of the industry. So we try to take a strategic approach and to engage. I think that is very important to do. I do not think we have got a “scattered” approach—I do not think that is fair—but we are conscious that there is a feeling that there does need to be a more formal, co-ordinated body.

**Q320 Chairman:** On the question of co-ordination, there is a risk here because all the RDAs involved in it, and the sector, obviously want their fair share of the cake, and the North West is very strong, the East Midlands is very strong, the South West is very strong and the South East is very strong. There is an issue here about making sure that a national industry is properly tended to at a national level.

**Ian Lucas:** Yes, and I think that the RDAs have to be conscious of the national priority that this industry has and bear in mind the overall picture in their dealings with the industry as a whole.

**Q321 Chairman:** On that subject, before Julie goes on to another area of questioning, the new centres of excellence, these institutes that have been set up, one is coming to near Coventry on advanced manufacturing, which I welcome and is very good. We must make sure that that network is properly co-ordinated but lightly co-ordinated; it must not become a huge bureaucracy. That was the concern that Rolls-Royce had, who have been very much driving the establishment of these various centres of excellence. How are you planning to co-ordinate these various bodies to make sure they do not duplicate each other?

**Ian Lucas:** We have a close relationship with RDAs and try to ensure that they are aware of the role that the centres are going to be providing. We need to get that relationship right. It is a question of balance about the RDAs using their local connections to assist on the ground but, also, being conscious of the strategic role that will be left to the specialist centres to deliver. As you say, that is quite a sensitive balance to get right, and we will be monitoring it very, very closely.

**Chairman:** The network has grown by happy accident, really, but we now need to make sure it works effectively for the national interest.

**Q322 Miss Kirkbride:** An idea crossed my mind while the Chairman was asking you about that. Are you fully satisfied that the RDAs have co-operated over a national industry rather than competed with one another to grab stuff?

**Ian Lucas:** I think there is always a desire for any organisation, including RDAs, to try and attract as much resource as possible to its particular area. That is natural and one would expect that to happen. What I think is very important is that we recognise that these will be national centres and that the mere

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fact that they are geographically situated in one place should not exclude a business which is clearly allied with that national centre from benefiting from its existence. That is why they are national centres. I think RDAs have to be attuned to that in their day-to-day operations.

**Q323 Miss Kirkbride:** There is nothing about the structure of the way they are set up that would allow that to happen, is there, in terms of the cost access to the centres? What kind of propriety do the RDAs have over the centres in their region which might prevent companies from other regions accessing the facility?

**Ian Lucas:** I am not aware of any restrictions at all in accessing.

**Q324 Miss Kirkbride:** Or cost differentials?

**Ian Lucas:** I am not aware of those at all. I think the geographical situation will not affect the accessing by other geographically situated companies or businesses.

**Q325 Miss Kirkbride:** I am sure you will be aware that the cuts in science and research funding in your department have agitated people rather a lot. I wonder if you could tell us exactly which areas will bear the brunt of the £600 million cuts that were announced.

**Ian Lucas:** Can you help me?

**Mr Walters:** In terms of aerospace, there has been a lot of investment over the last four years which is round about £270 million, I think, that has gone into projects that are part of the National Aerospace Technology Strategy, and that is the sort of blueprint that government and industry has agreed as to how the funding is chunked up, to make sure that we are heading the most important programmes. I can only speak for the aerospace side. The way it operates, at the moment, is that aerospace companies put projects into the TSB for funding, and it is a competitive process, at the moment, so we do not know what the outcome of that process will be for aerospace companies. All we can say is that because we have got this National Aerospace Technology Strategy we are in quite a good position for aerospace because we can demonstrate how those things flow through into future products and affect the UK's position on future aircraft.

**Q326 Miss Kirkbride:** Can you help the Committee by giving us some perspective as to what this might mean? You said that aerospace has had £270 million over the last four years. That is out of a global pot of how much? How much were they getting as a share of the pot that was available into which they were bidding? How much is that pot worth now? So we can get some perspective as to how serious (or not serious, perhaps) these cuts are for that sector.

**Mr Walters:** I am afraid I cannot give you the detailed numbers, at the moment.

**Q327 Miss Kirkbride:** You could give me the back numbers, though, could you not? What was the global pot? What was their share?

**Mr Walters:** In terms, actually, of how aerospace has done, it has probably done better than most of the other sectors, I think, in terms of the proportion of funds that have gone into the aerospace programme industry.

**Q328 Miss Kirkbride:** Did they get 10% of the pot that was available or 20% or 50%?

**Mr Walters:** We think it is round about a quarter, roughly.

**Q329 Chairman:** Can we confirm that subsequently?

**Mr Walters:** Yes, we can.\*

**Q330 Miss Kirkbride:** The new pot is worth how much then? The new pot that will go with the TSB that can be bid for by aerospace. How much is that pot now worth, given the £600 million? Or is there not one any more?

**Ian Lucas:** For what period?

**Q331 Miss Kirkbride:** For the next year; for the year that the £600 million cut is announced. What financial year does that cover? Does it cover 2010-2011? How much is the TSB pot, into which companies bid, now worth? How much money is in that pot?

**Ian Lucas:** I cannot give you that figure now, I am afraid. So I will have to come back to you with that figure and the representation of the proportions for you.

**Q332 Miss Kirkbride:** We might not know the proportions until the bid has been successful, I suppose, will we?

**Ian Lucas:** No, because the TSB is an independent organisation that will make its assessments on the basis of the bids that are made to it.

**Q333 Miss Kirkbride:** You are, presumably, intending to give them some kind of grant this year?

**Ian Lucas:** Yes.

**Q334 Miss Kirkbride:** However, you cannot tell me what that grant is?

**Ian Lucas:** I cannot tell you, at this moment, what that will be, but I can provide you with the information.\* I am sorry I cannot.

**Q335 Miss Kirkbride:** When this was announced, did you talk to your colleagues across government (wherever that might be) about the impact this might have on the higher value added sector?

**Ian Lucas:** The overall position was discussed in government before the announcement was made.

**Q336 Chairman:** The Secretary of State was very honest with us last week about how the figures are arrived at.

**Ian Lucas:** Good.

**Chairman:** He lost to the Treasury!

**Q337 Miss Kirkbride:** The PBR also announced £200 million investment from the Strategic Investment Fund to support innovation industrial projects. What projects will this be used to support? Or is that subject to bids that we do not know yet?

**Ian Lucas:** I think the projects will be assessed as they come forward and it will then be determined how the money is applied. So I cannot give you an example because we need to see what the bids are before we can say how the money is going to be spent.

**Q338 Miss Kirkbride:** What is the difference between the TSB and the Strategic Investment Fund, just so that I understand? There seems to be an awful lot of stuff around.

**Ian Lucas:** The Strategic Investment Fund is there not just to use to lever in public money but, also, to lever in private investment to support that as part of a larger fund that business can access for large-scale projects.

**Q339 Miss Kirkbride:** Is it match-funding, 50/50?

**Ian Lucas:** We are hopeful that it will actually—

**Q340 Miss Kirkbride:** Be more?

**Ian Lucas:**—be more than that.

**Mr Walters:** Some of the bids, I think, are match-funded and the SIF is primarily focused on capital investment programmes rather than research programmes. So that tends to be the difference with what the TSB is doing.

**Q341 Miss Kirkbride:** You say the SIF is capital investment rather than research.

**Mr Walters:** Yes.

**Miss Kirkbride:** So it is research that is going to take the hit.

**Chairman:** I think I would like a more detailed note from the Department about how this £200 million Strategic Investment Fund is actually going to be used. You have given some helpful answers but I think I would like more detail because it is talking about innovative industrial projects and if it is all going to be capital, given you are cutting research funding, just explain to us in a little more detail how you expect the process to work and who will make the awards.\* That would be helpful.

**Q342 Mr Hoyle:** Just a quick one. If there was inward investment coming to the UK would they also apply through the SIF fund?

**Ian Lucas:** If match-funding, for example, were being provided then the source of the match-funding could be from abroad or from within the UK.

**Q343 Chairman:** Without reopening on the subject, the reason I am concerned about this is that I was not persuaded that the original pot of money from the SIF used for the Composite Centre was used strategically and effectively, and I want to make sure the bidding processes are more transparent this time and that what you are seeking to achieve is more obvious. Anything you can say about it, I think, would be really helpful just to clarify our thinking

for our report. One quick question from me before I hand on to skills: I was very interested by the strong support among the motorsport SMEs for the R&D tax credit system. They say it works well for them. The Pre-Budget Report said you are going to simplify the system by removing the requirements for intellectual property. This is a question I do not need an answer to now—if you cannot give it to me now. How many additional businesses do you think will benefit from that change? How good will it be for motorsport, that change?

**Ian Lucas:** I cannot give you an answer to that now but I will certainly look into it and try to give you a response on it.\* I have to say that the strong view that is coming through to the Department is that the R&D tax credit is very strongly supported.

**Chairman:** I have to say, the only criticism I have heard from the small business sector is they are not soon enough. I cannot remember what year they are coming in now, from memory. I think 2013. They said: “Why not next year, they are so beneficial?” So it will be interesting to know what impact you think that will have on motorsport.

**Q344 Mr Clapham:** On skills, Minister, if we could look at, first of all, the two industries, we hear, for example, science, engineering and maths students are in short supply and it seems that one of the reasons for this is that there is a real lack of interest in those subjects. Yet here we have two industries that have got an enormous image in terms of their reach to young people. How is government using that image of motorsport and aerospace to actually encourage young people to come into the study of engineering, science, etc and to work within the industries?

**Ian Lucas:** I think we are beginning to turn the ship round in terms of the attraction of science to school students, in particular, in that there has been some movement towards more science-based subjects in schools. You are absolutely right there; we need to do more about this. We have set up a body called Manufacturing Insight to promote amongst young people the attractions of the manufacturing industry and the excitement of what I see when I visit these factories (and I am sure you feel the same when you visit them, too); the design, the innovation and the levels of intellect that are applied within both aerospace and motorsports to take forward the respective industries is really beguiling and, I think, is something that can draw pupils of the highest intellect in. We want to do that and we are doing that through the Manufacturing Insight team led by Nick Hussey.

**Q345 Mr Clapham:** It is enormously important that we do this, not just in terms of the two industries but in terms of how those skills can spread out as we move out of the recession as well.

**Ian Lucas:** Absolutely. I discussed with McLaren the attractiveness of the industry, and they said that they actually had a lot of demand from individuals who wanted to work in their industry. But, of course, it is also true that once one gains skills in a very specialist area of that nature we have learnt that those skills are

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transferable; that they can go across to different sectors—aerospace is one sector. The fact that someone may be drawn into the industry as a whole by motorsport will benefit UK industry as a whole and it is, therefore, hugely important that we give support and promotion to the industry to show people how attractive they are.

**Q346 Mr Clapham:** I want to come back to that point in a minute when we look at what the Association of Colleges have said. When the Committee went to Rolls-Royce one of the things that I think impressed them is the very fact that the young apprenticeship scheme works well, but what we were finding is that some young people were saying they were the only students out of one class yet there were many other students at their school that actually wanted to come on to the scheme that could not get on to the scheme. What is the Government or BIS doing in terms of future expansion of the young apprenticeship scheme?

**Ian Lucas:** We recognise that, particularly with the smaller businesses, it is much more of a challenge to provide apprentices in smaller manufacturing businesses than the larger businesses. So we are increasing levels of support through the sector compact; there is a £100 million package of support which is support for Level 2 and Level 3 priority qualifications. That is something that we strongly believe in.

**Q347 Mr Clapham:** That will be aimed, really, at the young apprenticeship scheme?

**Ian Lucas:** Yes, that is Level 2, which is GCSE equivalent, and Level 3, which is A-level equivalent. So that is taking young people who are leaving school and developing from 16 the skills that they need to support these industries.

**Q348 Mr Clapham:** Returning to what you said earlier, and looking at what the Association of Colleges have said regarding much of the internal training that goes on, it tends to be closed in the sense that if a person is learning the new skills within an industry and then comes, at some time, to move on, those skills are not always transferable. What we really need to do is to look at what is going to be a better fit for what we require in terms of skills. The Association of Colleges was saying that what government needs to do is to improve the relationship between industry needs and FE. I remember going to an FE college many years to learn skills in relation to a given industry, but at that time what would happen is, for example, electricians, fitters, blacksmiths would all be trained at a college or the educational side of the college and it meant that when they left an industry, of course, they took those skills with them because they were universally applied, whereas when the training is internal it is not universally applied. What are we doing to look at how we might take on some of the ideas from the Association of Colleges and further education to give that sort of universality so that we can ensure that our skills go further than the two industries that we are talking about?

**Ian Lucas:** I think employers have a very strong responsibility to get involved with further education colleges. I would like to see more of that happening than does at the moment. I think sometimes some employers talk more about engagement with education colleges than actually do it. One of the complaints that you sometimes get from business is that the courses supplied are not appropriate to what they actually need. However, I find that colleges in my experience, within my constituency, have been very responsive to employers' demands if the engagement is there from the employers. So I do urge and encourage employers to engage with local further education colleges to try and devise courses that are appropriate to their needs, and I think if they do work together it is a willingness on both sides. Sometimes I think that businesses are under pressure and it is difficult to set aside the time to spend with colleges, but I do think it is worth spending that time and putting the effort in.

**Q349 Mr Clapham:** Of course, any change in that relationship between business and the colleges would mean a funding issue as well. Are we looking at all at funding to ensure that we are able to make the fit better?

**Ian Lucas:** If the relationship changes then there may be implications but I am not sure this is really a funding issue.

**Q350 Chairman:** It is not the level but the structure, or model.

**Ian Lucas:** Certainly the model of funding. If there is a different model that would work better then certainly I would look at it. Getting this close linkage between the industry and the education provider is hugely important.

**Q351 Mr Clapham:** What about training levies? I think there are just two training boards now: the Agricultural Training Board and the Construction Industry Training Board. One of the things that one of the unions within the two industries has suggested is that we might look at a levy with regards to training. Is this something that BIS has considered?

**Ian Lucas:** At the moment, financial pressures on businesses are very intense, as we all recognise, in a recession, and although we want to improve the take-up of apprenticeships and develop the relationship with employers and their local colleges we are encouraged by the progress that has been made in apprenticeships. Therefore, certainly at this time, we do not think it is appropriate to impose levies which would be an additional cost at this juncture.

**Q352 Mr Clapham:** It could be something that we might look at as we start to see a sustained recovery from the recession.

**Ian Lucas:** If we can pursue the voluntary route and if that is working, then I think that is the avenue that needs to be pursued.

**Q353 Mr Clapham:** Just turning now to the motorsport industry in particular, there is the need to develop a skill strategy for the industry. Is that something that you are now looking at—to develop a strategy that is going to ensure that our motorsport industry keeps its lead, a lead that we have currently got but we have got our competitors breathing down our necks? It does seem, looking at what is required for the future, that we do need a skills strategy. Is that something that is on the board?

**Ian Lucas:** I think it is something that the industry, certainly, has to have. I talked earlier about the Automotive Council and how engagement from sectors is very important in that. I would like to see motorsport companies come forward with what they think needs to be done by government to support the sector, and we will work to try to provide that. You are absolutely right that to stay ahead of the game in a very, very competitive business that everybody else wants we have got to do things better the whole time. The industry will know what needs to be improved, and we want to hear about it.

**Q354 Mr Clapham:** The engagement between the industry and the Government, of course, is going to be so important as we move forward because, as you say, you want to know about it, the industry knows what it requires, so there is a need to ensure that there is an avenue where government is in contact and engaging with that industry so we are able to work out what really is required.

**Ian Lucas:** Absolutely. The purpose, the strategic importance, of the UK Automotive Council is to provide a forum through the Council itself and through various sub-committees through which industry can present to government collectively what needs to be done, as far as it is concerned, so that we can hear a cohesive voice and work more effectively with industry.

**Chairman:** Lembit wants to ask some questions before I move on.

**Q355 Lembit Öpik:** Just one, about the young apprenticeship scheme. Rolls Royce told us (I think the figure was) that they achieved a 96% retention rate in their apprenticeship scheme. Even if that figure is not exactly right it is extremely high, and higher indeed than many universities achieve on some courses. Also, the British aerospace industry was a key driver in apprenticeships for many decades. Would you consider having a more formal strategic relationship with Rolls-Royce and similar aerospace companies to achieve the very kind of results that the Government has now said it wants to achieve?

**Ian Lucas:** I think if Rolls-Royce were achieving those levels of retention that must be something that we need to learn from. It is always unfortunate when someone starts off on an apprenticeship and, for whatever reason, does not continue with it because it is bad not just from the individual's point of view, not just from the company's point of view but from UK industry's point of view as well. We want to up

our retention rate as much as we possibly can and I would be very interested in looking at all models that provide the positive results you have just described.

**Q356 Chairman:** We have to have a frustratingly brief discussion about higher education now. I want to look specifically at the aerospace and motorsport perspective, so just a narrow focus on those issues. We all agree that there is a need to get universities and businesses to work more closely together, and you have reiterated that ambition as a government in the Higher Ambition Policy document only—what was it—two weeks ago. About two weeks ago. In practical terms, in these two sectors, what more needs to be done in the aerospace sector that links up, probably, quite close already, and what needs to be done in the motorsport sector, in particular, where the links are much more difficult to achieve, for a variety of institutional reasons? I am told it was November, the Higher Ambition Policy! It was three months ago. Doesn't time fly when you are enjoying yourself! In three months' time the election will have come and gone.

**Ian Lucas:** I could not possibly comment.

**Q357 Chairman:** I think you probably could, actually. It would be a Bob Ainsworth moment! Seriously, there are issues about engagement in the SME sector and in the motorsport sector and universities, in particular. How can that very laudable ambition we all share be achieved better in these two sectors?

**Ian Lucas:** I think, dealing with motorsport first, we have got a very fixed 17-year period as far as the Grand Prix is concerned now, and I think that in that stable context it would be good to have some kind of formal link-up between the motorsport industry and universities, maybe through a campus—something to do with Silverstone.

**Q358 Chairman:** The particular issue that concerned me from the evidence is the fact that a lot of SMEs in the motorsport sector find it particularly difficult to engage. They have a very different structure and way of working to the universities, and other SMEs elsewhere in other sectors as well might be easier to engage. That means a missed opportunity there.

**Ian Lucas:** Yes. We could therefore look at engaging them through having a kind of campus which is dedicated to the approach of linking in SMEs with the university sector and having them attuned. I think the larger businesses do tend to have quite successful links already and you are absolutely right the smaller businesses are the ones we have to work on. If we could create some kind of centre where they could interact with each other, that would be very positive. The other thing that I think would be of assistance is something that I draw on in my own constituency, which is the development of foundation degrees, which can carry people on apprenticeships through to degree level and, thereby, use an alternative way of linking in, perhaps, individuals who would not have thought of going to university themselves at 16 but who would then go through to university by the route of the foundation

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degree and develop the link between their particular business, which might be a smaller business, and a university through that route. I am a great believer in foundation degrees which can take forward the skills of people who, perhaps, do not see themselves as academic but actually develop in a distinct way at a different pace.

**Q359 Chairman:** Let us look at courses in a moment in just a little more detail. You are saying you are looking at ways of improving the SME engagement with universities, which is encouraging. Are we broadly content with the engagement in the aerospace sector with the universities? It can always be better but in the great scheme of things.

**Ian Lucas:** It can always be better. I tend to raise this subject when I go and visit places, and one hears constantly of links between particular universities and aerospace companies.

**Q360 Chairman:** Let us look at the courses. You can help us with that. I think the only real concern we had in the aerospace sector is: are there too many foreign students on the courses? In fact, we heard that often in aerospace that is quite a good thing because those people quite often stayed here and kept their skills here (there is an immigration question lying behind that). I do not think we had many concerns about aerospace courses. We did hear a lot of concerns about motorsport courses; that there are too many generalised motorsport courses available and, actually, most people going into motorsport as engineers should go in with specialised engineering qualifications. I love this quote we got from one of our witnesses: "I have actually been recruiting in people from the university courses for many years and I have found that some of the motorsport courses were very, very light on the real technical subject . . . when you said, "Can you calculate how thick that piece needs to be?" they say, "Oh, I didn't do that module", and they did motorsports management instead. I do worry that, perhaps, universities use motorsport to attract students in—perhaps on a slightly bogus perspective—and actually are not offering the courses motorsport really needs to keep its cutting edge.

**Ian Lucas:** I think what needs to happen in that circumstance is what I said to Mr Clapham; essentially, the industry needs to engage with the universities, in that case, and say: "We do not think that what you are providing is right and you need to provide something different and distinctive."

**Q361 Chairman:** Can you help that process?

**Ian Lucas:** Absolutely, I would be very keen to. Again, the UK Automotive Council should be involved in that process, or could be involved in that process, so that a more collective view is brought forward. I think that is a good example of how the Council can work.

**Q362 Chairman:** Excellent. I think that is very helpful. Thank you for that. I went to see *Avatar* in 3D on Saturday and I really enjoyed it—a very

predictable story but brilliantly told. The audience of 12, 13 and 14-year old boys, largely, were completely spellbound for two-and-three-quarter hours. I was delighted to see at the beginning of the programme an advert from the Government encouraging young people to go into STEM subjects. Not a bad ad, actually—I thought it was quite good. However, there is this continuing problem to get STEM subjects. You cannot inquire into aerospace and motorsport and not acknowledge the question about keeping science alive in schools, about encouraging children to engage. Just give us a sense of your commitment to making sure that there is a flow of young people wanting to do the STEM subjects, so aerospace, motorsport and the other industries that rely on these subjects are actually getting that supply coming through.

**Ian Lucas:** I think science is a hugely exciting area within which to study and within which to work. One of the joys of my present job is seeing the excellence, innovation and intellectual challenge that exists in manufacturing facilities that I visit. At school I was always an arts student, and I do not think I was taught science particularly well. Certainly I think there has been a development in recent years in popular science which has presented science much more accessibly. I think what young people need to recognise is that we have got huge challenges ahead—low carbon challenges and the future of the planet—and it is ideas, intellect and scientific innovation that will deal with those issues, and the position that we have created now needs to be resolved by youngsters with those ideas.

**Q363 Chairman:** So the Higher Ambition document published in November (I am helpfully reminded) did talk about changes to funding arrangements to attract highly skilled STEM undergraduates. What are the changes that are being proposed? Again, this may be a question you may not be able to answer today but what are the changes? It is a very tight Public Expenditure Settlement we are facing at present; we have talked about cuts to the university sector. If you can answer now, fine, but if you cannot perhaps you can give us a note.

**Ian Lucas:** I cannot give you an answer now, I am afraid, but I will certainly give you a note about what sort of thinking we are moving towards in terms of providing funding.

**Chairman:** Before I hand on to Lembit for the last area of questioning, can I repeat something which has been explicit throughout (and I think I have said it before): aerospace, second in the world, motorsport, first in the world. It depends absolutely on having high-level graduates to keep it at the front end, absolutely. It is, I would argue, one of the most important issues we face as a nation, so I am fascinated to know what you are doing about it—and funds are being cut. That is not a party political point; it is a factual observation.

**Lembit Öpik:** It is an observation from the Committee's investigations. Finally to green issues. The motorsport industries have, clearly, heralded the way and been ambassadors for dramatic steps

forward in terms of green technologies, and that is something the Government itself has acknowledged. Yet we have learnt that some manufacturers seem to be concerned about their association with motorsport because of the perceived environmental unfriendliness of the sector. You can imagine the same is true of aviation.

**Chairman:** I think these are very clear messages we have had. Whether they are fair perceptions or not, wherever we have gone the industrialists we have spoken to have said: "We do not think government is on our side because we are not green". I just want to reiterate Lembit's point; it is a powerful message that has come through to me; subliminally they feel you are not on their side.

**Q364 Lembit Öpik:** The Chairman sums it up exactly. So although there are quotations from the Government saying: "We understand there are lots of good things happening in motorsport", they do not really think that you are ambassadors for the work that they are doing. The same goes for aviation; although aviation produces, in my judgment, 2–3% of the climate change pollution in the world they are concerned that a lot of the mood music is not in favour of the benefits of aviation. To what extent do you feel the industries have suffered from their non-green image?

**Ian Lucas:** I think they do suffer from it but I think that that is unfair. I remember my first visit to Airbus shortly after I was elected, just down the road from me, and I raised environmental issues with them on that visit. I have been hugely impressed ever since at the seriousness that the aerospace industry applies to the issue of emissions and environmental drivers, and really one of the great intellectual disciplines that exists both in the aerospace sector and the motorsport sector, which came up again when I visited McLaren last week, is that they look at energy efficiency and they look at low-carbon issues the whole time, and that is one of the major drivers that they have. We need to say this. I need to say it more on behalf of government and we need to say it more widely so that the general public see this; that the research that is going on and the innovation that is going on is being driven by low-carbon imperatives. There is a great response to that in the industries, and I think we need to shout out much louder about it than we do at the present time. I think Lord Drayson, who you mentioned earlier, gave a speech about the importance of motorsport and embracing technologies that are low-carbon and, also, broadcasting that fact more than perhaps they have done in the past, and I think there will be some exciting innovations which achieve that coming along very shortly.

**Q365 Lembit Öpik:** They will be pleased to hear that in the record. It has to be said that the Government has been accused of failing to engage with motorsport, for example, in developing low-carbon technologies. Is that a fair attack or criticism? I see your colleague shaking his head.

**Ian Lucas:** He does not think so. You have not said anything yet.

**Q366 Chairman:** Join the party, please!

**Mr Carter:** No, I do not think it is very fair. I think there has been a lot of engagement with various motorsport companies. Do not forget a lot of motorsport companies in developing a lot of this innovation also crossover in the supply chain into the automotive industry, so there has been a lot of engagement. I cannot give you details of the companies because I do not know but if you look at some of the contracts that have been let, for example, under the TSB Low Carbon Programmes there will be motorsport companies that have benefited from those as part of a package of companies that are looking at developing technologies. I think the big problem, as the Minister rightly said, is that there is a broad public perception that motorsport, particularly, is not a very green industry, but I think when you look at what motorsport has done, when you particularly look at some of the programmes that were run under the Energy Efficiency programme by MDUK, in the take-up of bio-diesel, ethanol and other fuel efficient programmes, a considerable amount has been done; it is just not shouted about and it is not always recognised. Again, to reiterate what the Minister said, through the technology working group of the Automotive Council this will be a key area for motorsport SMEs to become engaged even further and to become more deeply entrenched into what is going on and to take advantage of the opportunities that will come from there.

**Q367 Lembit Öpik:** Can you give us some specific examples of the engagement? You have inferred it but are there specific projects you could point at where the Government has worked with, in this case, the motor industry on green technology? You can drop us a note.

**Mr Carter:** I think it will be easier to send you a note on that.\*

**Q368 Lembit Öpik:** We are not trying to corner you, it is just it would be great to have those solid examples, not least because the motorsport industry would appreciate being able to use them in the public domain. Does the Government recognise the importance of the motorsport and aerospace industries in terms of innovating to cut carbon emissions? If so, what are you actually doing to support that? It might, to some extent, tie in with the previous conversations.

**Ian Lucas:** Many of the innovations that are taking place in both sectors are, as I have just said, driven by environmental targets and the compelling targets that we have through the Climate Change Act and our international obligations. Certainly in the aerospace field, which is such an international industry and operates in a national context, the driver is that we have emissions targets that have to be met and this is, of course, relevant in terms of not just making more efficient engines but, also, development of composites makes aeroplanes lighter, and all of that is geared towards having a more environmentally compelling case for green travel by aircraft and, also, within the motorsport

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sector, again making progress to more efficient engines and lighter materials. Those are imperatives that really are quite consistent with environmental challenge.

**Q369 Lembit Öpik:** Do you think this is something you could tie in with the benefits of the apprenticeship schemes? I put that forward as a suggestion for your consideration. You could actually achieve government targets at the same time as quite responsibly and, in terms of competition law, quite legally, investing in the aerospace and motorsports industries at the same time, in very attractive study areas.

**Ian Lucas:** This really returns to what I was saying about the challenges ahead, and attracting young people as being the people who are going to bring the solutions. The apprentices and the students who will be studying for degrees to deal with these problems and get involved in the industries, that is a great goal and, really, something that individual students can look at as something that they need to work towards to achieve and would be a great goal to actually get to.

**Q370 Lembit Öpik:** I am pleased to hear that. Finally, why are there multiple initiatives in aerospace looking at reducing the environmental impact of aerospace which have not been brought together to a cohesive whole? I do not blame the industry for that and I do not really blame the Government, but in effect I am asking whether you could take a more holistic approach towards the entire aerospace screening strategy which aerospace itself agrees with and, obviously, airlines agree with because it saves them money, and the Government wants.

**Ian Lucas:** I am not entirely clear about the different mechanisms that you are describing. It is obviously a very complex area, aerospace, because of the international obligations that exist, and it does mean that we have to combine both domestic pressures with the international obligations that we have, so it is often very difficult to create a simplified system. If there is anything that we can do to try to make that easier for the industry as a whole then we will certainly try.

**Q371 Lembit Öpik:** There may be some specifics we can consider there. One statistic for you: an A380 Airbus travelling from London to Singapore uses the same amount of fuel as we use on Britain's roads roughly every nine seconds. Do you think there is an opportunity to provide a real sense of perspective about the relative economic and social importance of aviation versus the environmental cost? Given that aviation is working proactively to try and reduce its footprint, is there a chance, perhaps, of rehabilitating aviation's image which some would say is disproportionately negative in the eyes of its environmental impact?

**Ian Lucas:** I think the A380 that you mention is a remarkable aircraft, not least because of how quiet it is, in addition to what you said about emissions. I think there does need to be some sense of scale in

terms of our appreciation of aviation. I do not think that people in the world are going to travel less; I think the challenge is that we have to devise an aerospace industry that will meet the challenges of the environmental targets that we have whilst allowing people to travel in the way that they want to. That is a difficult challenge but it is achievable, provided that the intellect and resources are put into meeting that challenge, and I think that is what we have to face going forward. We need to have a more intelligent and calmer debate about aerospace than sometimes we do have.

**Lembit Öpik:** Is it not really more feasible for any government to seek to make the environmental impact of flying lower rather than seriously pretending that they are going to embark on a major strategy of reducing people's ability to go on holiday if they want to? Can any government really, politically, achieve the latter? I do not think so, myself, but maybe you have a different view.

**Q372 Chairman:** We are going into rather broader territory now.

**Ian Lucas:** I do not like to stop people from going on holiday; I am a politician.

**Chairman:** I think it is a question for DECC or Transport.

**Q373 Mr Hoyle:** Minister, you have quite rightly said the benefits of A380. Who has got it right? Boeing with Dreamliner or Airbus with the A380?

**Ian Lucas:** Is that not, ultimately, a question for the customer?

**Q374 Mr Hoyle:** One is saying you carry more passengers in the bigger aircraft—

**Ian Lucas:** I know what the argument is. I think that people will travel long distances more, and there is the appeal of travelling a very long distance, to the Far East, to Australia; I think more people in the Far East are going to travel more, so I am very hopeful that the A380 is the right approach.

**Q375 Mr Hoyle:** The right choice. I will go with you; we are backing Airbus.

**Ian Lucas:** Particularly as the wings for that aircraft are made about five miles from my constituency.

**Lembit Öpik:** Declare an interest!

**Q376 Chairman:** Most of the clever stuff is made in the UK.

**Ian Lucas:** I declare an interest.

**Q377 Chairman:** Mr Carter, did you have a hand in Paul Drayson's speech to the European Cleaner Racing Conference?

**Mr Carter:** A small input.

**Q378 Chairman:** I just want to end with what I thought was a marvellous quote. You are one of the petrol heads, are you not, Lindsey? I thought Paul Drayson's speech was excellent. I think the message of some of Lembit's questioning and much of what we have heard today is in this last substantial paragraph of the speech: "Motorsport can lend the

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necessary street cred to going green. You represent the best possible response to *Top Gear* ridicule—to move the low-carbon story away from lentils, sandals and self-sacrifice.” I think we can all agree on that! Look at Lembit—he does not look good in

sandals and he certainly does not do self-sacrifice! Gentlemen, thank you very much for a very useful session. We have been promised quite of lot of material to exchange but we have found it very helpful. Thank you very much indeed.

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# Written evidence

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## Memorandum submitted by Department for Business, Innovation and Skills

### INTRODUCTION

The Department for Business, Innovation and Skills supports industry through the Government's active industrial policy designed to increase competitiveness and productivity. The aerospace and motorsport industries are important elements of the UK's manufacturing base providing high value, high quality jobs that tap into our strengths of industrial and academic research and development. They are integral to the UK's advanced manufacturing sector and to maintaining a balanced economy. The Government's Advanced Manufacturing package published on 28 July set out a number of new initiatives to build on work to support manufacturing to ensure companies will be in a position to take advantage of opportunities once we come out of recession.

### AEROSPACE

2. The aerospace industry employs over 100,000 people of which some 36% hold a university degree or equivalent, and has an annual turnover of around £20.5 billion. The United Kingdom is one of only a small number of nations involved in the design, manufacture, marketing, and maintenance and support of the full range of aircraft products—from complex composite aero-structures, wings; aero-engines; aircraft systems and avionics; rotorcraft; through to maintenance, repair and overhaul services.

3. The Government recognises the importance of the aerospace industry to the economy, and is an active partner in helping the industry to build on its existing world class expertise, in a global market now acutely focused on more environmentally friendly products.

4. As part of its commitment to the sector, Government has recently agreed to provide funding for a number of major repayable launch investments (bringing the total repayable launch investment since 1997 to around £1.5 billion; with receipts during the same period totalling £1.7 billion):

- £114 million to Bombardier Aerospace (Shorts) in Belfast towards the design and development of CSeries composite wing (July 2008).
- £60 million to GKN for the design and development of A350XWB trailing edge and rear spar composite wing components (September 2008).
- £340 million to Airbus towards the development of the A350XWB (August 2009).

5. In addition, as part of the wider Advanced Manufacturing package, the Government announced in July £45 million of Grants for Business Investment to Rolls-Royce, which will see the company build four new manufacturing facilities over the next five years creating and securing 800 jobs for the long-term. Three of these facilities are for aerospace: for military fan blades at Barnoldswick; aero-engine discs and single crystal castings—locations for which will be announced shortly. The fourth facility to be built is for new civil nuclear manufacturing.

6. The aerospace industry has also been successful in winning government funding for strategically important collaborative research ie £50 million in composite wing on Airbus led projects; and £45 million on low carbon aero-engine research, led by Rolls-Royce, funded by the Low Carbon Strategic Investment Fund.

7. UK Trade & Investment continues to work closely with the Society of British Aerospace Companies to promote the UK aerospace sector to a global audience. The Society of British Aerospace Companies' international strategy recommended where best to deploy UK Trade & Investment resources, which has resulted in a number of missions to key markets. UK Trade & Investment's support for the Farnborough air show, facilitating networking and business to business meetings, runs well into six figures. In 2009–10, support for aerospace activities amounts to some £300,000, which includes a major presence at the Paris air show, upfront costs for the Farnborough air show 2010, missions to China, Russia, Brazil and the USA and hosting Chinese, Spanish and Brazilian delegations. Additionally aerospace companies are forecast to receive around £80,000 from the Tradeshow Access Programme.

8. The financial markets crisis in 2007 saw a sharp reduction in commercial banks' willingness to fund aviation sector transactions, and led to the significant rise in the demand for export credit support, which is expected to be even higher in 2009–10. In 2008–09, the Export Credits Guarantee Department's support for the civil aerospace industry was around 20% higher on the previous year, at over £1 billion. It guaranteed financing for more than 100 aircraft deliveries, of which approximately 40% had UK built engines. This represented the largest number of aircraft ever supported in a single financial year.

9. The Aerospace Innovation & Growth Team report of 2003 has provided a shared industry and government action agenda that has proved resilient in standing the test of time. Its purpose is to ensure the UK aerospace sector increases its global competitiveness and maintains its leading world class capabilities. Action is focused on four main areas: technology, skills, business process & supply chain improvement, and sustainable aviation. BIS will continue to work closely with the UK Aerospace Industry, including through

the Aerospace Leadership Council, to consider strategic issues affecting the sector and how these should be addressed. This will build on our strong recent support to strategically important advanced composite wing and propulsion projects as outlined in paragraphs 4 to 6.

#### *Technology*

10. The industry has a National Aerospace Technology Strategy roadmap that identifies the critical aerospace technologies required to ensure UK competitiveness in the global aerospace market, and to meet ambitious environmental performance targets. The Aerospace & Defence Knowledge Transfer Network manages the relationship with the aerospace industry, government and universities. Since 2004, the Government has invested over £270 million in aerospace projects, which has been matched by business. This includes the launch of a number of Aerospace Technology Validation Programmes identified in the National Aerospace Technology Strategy, such as Integrated Wing, Environmentally Friendly Engine and ASTRAEA (Autonomous Systems Technology Related Airborne Evaluation & Assessment). The industry has secured support for further large projects, such as Next Generation Composite Wing, Environmental Lightweight Fan and REACT (Rotor Embedded Actuator Control Technology).

11. In 2007, the Aerospace & Defence Knowledge Transfer Network amalgamated the various Aerospace Innovation Networks and National Advisory Committees, drawing on the strengths and successes of both communities, into a series of National Technology Committees. These now have the responsibility of translating National Aerospace Technology Strategy roadmap priorities into applied research projects.

12. Aerospace is a key industry for the Engineering & Physical Sciences Research Council (EPSRC), and a major strength of the UK academic research base. EPSRC currently funds over £200 million of research with relevance to the industry, which involve over 300 collaborators from industry.

13. The Government's strategy for the defence industry was published in 2005 as the Defence Industrial Strategy (DIS). The DIS stated that there was no requirement for a new design of manned aircraft beyond the Ministry of Defence's existing plans and envisaged the future need being for helicopters and increasingly for unmanned aerial vehicles (UAVs)—pilotless aircraft for attack, reconnaissance and civil patrol. However, the retention of an aerospace engineering and design capability remains critical for through life capability management of aircraft with a service life of 30 years or more, in order to provide for maintenance, major upgrade and integration of new weapons systems, avionics and defensive aids. The current research and development for defence aerospace emphasis is on the development of unmanned air vehicles through programmes such as "Taransis", the development of an unmanned combat aerial vehicle and ASTRAEA which is addressing key technological and regulatory issues to allow unmanned air vehicles and manned aircraft to use the same (non-segregated) airspace. The DIS recognised that these trends, combined with increasing market globalisation and escalating development costs, posed a tough challenge for the industry. The MOD has undertaken to work with companies in the defence aerospace sector so that it can reach the appropriate size and shape for the demand. With this process, the sector can be helped to remain a healthy, competitive and profitable and one that can survive into the long term to meet changing future requirements.

#### *Business process and supply chain improvement*

14. The industry led "Supply Chains for the 21st Century" change programme designed to accelerate the competitiveness of the UK aerospace & defence sectors by raising the performance of its supply chains is supported by the government. The programme has been successfully running for three years, with over 500 companies have now signed up.

#### *Skills*

15. The Sector Skills Council for Science, Engineering and Manufacturing Technologies (SEMTE) leads the delivery of government funding for training and skills development, and works with industry, the National Skills Academy for Manufacturing and universities to develop training programmes for the long term. The Society of British Aerospace Companies is developing a Skills Roadmap that identifies requirements to deliver the National Aerospace Technology Strategy roadmap, so that SEMTE's skills provision is aligned to demand. The Society of British Aerospace Companies and SEMTE have also developed a strategic workforce planning tool to help companies match needs with training courses that in the medium term will provide a clearer demand signal of employers' needs. It is being piloted with several companies, with a target of 200 companies to be using the tool by the end of 2009 with results feeding into the roadmap.

#### *Sustainable aviation*

16. The sector operates across international borders and serves global markets—and consequently we consider that action to reduce environmental impacts is best taken at international level. The UK plays a strong role in the International Civil Aviation Organisation—the global forum for civil aviation—in formulating new policies and adopting new standards on aircraft noise and engine emissions, ensuring that the UK industry can continue to operate competitively. We are pressing for international aviation to be included in a new global climate change deal to be agreed at Copenhagen in December 2009, and are

supportive of the decision that carbon dioxide (CO<sub>2</sub>) emissions from aviation will be subject to a legally-binding, tightening cap from 2012 through the EU Emissions Trading System, as an initial step towards a global trading scheme. We recognise that technology and operational improvements, supplemented by market-based measures, will be required to deliver the scale of the emission reductions required, and are working with the aerospace industry through the National Aerospace Technology Strategy programme to develop technologies that will assist in meeting environmental targets, including the ambitious 2020 environmental goals proposed by the Advisory Council for Aeronautics Research in Europe (ACARE). The UK government has announced a new target to bring CO<sub>2</sub> emissions from UK aviation below 2005 levels by 2050, and the Committee on Climate Change is currently identifying how this could be achieved.

#### *Recession*

17. The effects of the recession on the aerospace industry have lagged behind other sectors, primarily due to record order books secured between 2004 and 2007, which saw Airbus outpace Boeing. However, the industry is now experiencing the onset of the globally-synchronised recession, with plummeting orders, and some deferrals and cancellations. Business and regional jet manufacturers have been impacted the most so far while the large aircraft manufacturers have only made modest changes to production rates despite the severity of the current economic downturn. Companies began making recession related job cuts late last year and are continuing to do so. The government continues to work actively with companies across the sector to understand the challenges they face and ensure that they are reflected in initiatives such as the Advanced Manufacturing Strategy and as part of the New Industries New Jobs approach.

#### **MOTORSPORT**

18. Motorsport and high performance engineering is a genuine cluster of passionate, like-minded technology companies and organisations with core engineering capabilities. There is no one single “sector” or statistically acknowledged single industry classification—it is a cluster of firstly engineering companies that are directed toward the development of, or who contribute to the development of advanced or high performance engineering, many focusing on automotive products, cars and motorbikes with a broader application in for example aerospace and marine and applied in a variety of applications in military, medical, everyday transport and sporting products.

19. In 2009, work commissioned by the Advanced Institute of Management research suggests 4,500 companies are involved in what it terms the UK motorsport and high performance engineering industry—with an annual turnover of £6 billion and a contribution to the UK economy of £3.6 billion through exports. The report suggests the industry employs 38,500 full and part time jobs, including 25,000 engineers.

#### *Mitigating the global economic slowdown*

20. Unsurprisingly companies in the motorsport and high performance engineering sector are focusing on cost issues to mitigate the effects of the recession. Around three-quarters of companies surveyed by Experian in December 2008 as part of the Motorsport Development UK Motorsport 100 survey—see below reported undertaking cost reviews and cost reductions. However companies are also looking longer term with 67% diversifying into new markets whilst more than half of companies are developing new products and/or services.

21. Encouragingly the slow down forced companies to adapt existing technologies to create opportunities in markets which were less affected by the recession. For example UK Trade Investment Passport to Export programme is helping one company expand into the highly affluent, fast moving markets of the Middle East, where the motorsport sector is said to be booming. Indeed, 38% of companies now see their major opportunities over the next 12 months being in the overseas motorsport sector, followed by 35% who see opportunities in the UK motorsport sector and 28% in other industries in the UK.

#### *Crossover and collaboration*

22. A number of leading motorsport companies are spearheading innovative practices, and undertaking collaborations with other industries. Williams F1, for example, is working with Airbus and Rolls Royce to develop the next generation of computational aerodynamic technology. Similarly, Renault has worked alongside Boeing, Force India with Airbus and McLaren with BAE Systems on collaborative projects.

23. Undoubtedly the most pressing area for transferable technology innovation is environmental development. UK motorsport has become a breeding ground for “environmentally friendly” technology; particularly energy efficiency and bio fuel development, as well as super light materials innovation. The Motorsport Development UK initiative to support the Energy Efficient Motor Sport project sought to encourage the application of energy efficient technologies into motorsport, focusing on the development of hybrid race cars. While its contribution to the development of green technology is therefore considerable, it is important that the industry continues to improve its position internationally and further involve itself with similar collaborative projects in the future.

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## MOTORSPORT DEVELOPMENT UK

24. Motorsport Development UK (MDUK) was established in 2003 as a key recommendation in the Motorsport Competitiveness Panel to act as a partnership between the sport, industry and government to oversee the implementation of the recommendations to “lead, coordinate and prioritise development activities and drive growth and improvement of both sport and the industry”.

### *Funding*

25. £11.5 million of funding for MDUK came from the then Department of Trade and Industry and from four Regional Development Agencies where 80% of the sector is based, ie East Midlands Development Agency, Advantage West Midlands, East of England Development Agency and the South East England Development Agency.

### *Programmes*

- *Learning Grid*: Set up in 2005 to utilise motorsport to help support activities designed to engage young people in science and engineering. The Learning Grid encompasses about twenty curriculum-related and quality assured activities from early school age to university; project costs: £3.6 million.
- *Motorsport Academy*: Established in 2006, following a number of developmental projects, the Academy stemmed from the sector’s Workforce Development Plan and aimed to address the education and skills needs of the sector (ie act as the national “virtual” umbrella for the range of related activities); project costs: £3.1 million.
- *Energy Efficient Motorsport*: Drawing from early Motorsport Industry Association work, and initial development of a strategy, the project has aimed to put energy efficiency at the heart of modern motorsport by demonstrating and supporting alternative fuels and technologies; Project costs: £1.8 million.
- *Business Development*: A range of activities focused on improving business practice and performance in the sector and supporting continued competitiveness through innovation, technology transfer, and diversification, and utilisation of the full range of business support services; project costs: £1.2 million.
- *Widening Participation*: Activities focused on expanding the number of participants in the sport, especially through broadening the socio-economic profile of participants and including both under-represented groups and potentially new forms of racing. Project costs: £0.9 million.
- *MDUK Administration*: costs £0.9 million.

### *Results*

26. An evaluation report produced in June 2009 commented that “MDUK was innovative and ambitious, based on a robust rationale to support the competitiveness of a pan-regional industry cluster, and in doing so deliver a national sectoral policy at regional level”. Ministers are currently considering the results and recommendations of this report.

### *Support for Formula 1*

27. The UK is home to six of the Formula 1 teams and it was estimated that in 2008 the total economic impact on the UK economy was £816 million of which £54 million is directly attributable to the British Grand Prix that helps sustain 1358 jobs.

28. It has been estimated that were the British Grand Prix cease, the net impact on the UK economy would be the loss of 245 FTE jobs and a loss of up to £6.1 million of expenditure. This does not take account of either the reputational damage to the image of the UK as a premier sporting location or the wider impact that this would have on the motorsport industry.

29. Minister’s and officials in BIS, the Department for Culture, Media & Sport and local government agencies have been pro-actively working with the owners of Silverstone and Donington race circuits and other key players to secure the long-term future of the British Grand Prix to ensure that it remains a key sporting fixture in the UK calendar, as part of the Prime Minister’s “decade of sport”. At the time of writing Donington look to have secured the rights to host the Grand Prix until 2017.

30. BIS has recently been supportive of the new Brawn Team helping through the intervention of Ian Pearson to secure additional time for Ross Brawn and Nick Fry to put together a proposal to buy the team from Honda. BIS, working with South East England Development Agency has helped to secure new facilities for McLaren to build its new sports car at its base outside Woking safeguarding investment and jobs.

## CONCLUSIONS

34. The aerospace industry lagged behind other sectors in the recession, primarily due to record order books. The industry is now experiencing the onset of the recession, with plummeting orders, and some deferrals and cancellations, and as a result will probably be later than other industries to come out of the recession. The government is a strong supporter of aerospace, and fully recognises the importance of its contribution to the UK economy. It has invested heavily in new aircraft programmes and collaborative research projects to ensure that the UK is at the forefront of new technologies in engines, wing, systems, unmanned air vehicles and helicopter design and production. The UK aerospace industry has secured work on the CSeries and A350XWB aircraft and is positioning itself to gain work shares on the future single aisle replacement aircraft programmes.

35. Motorsport and Formula 1 provide high performance engineering jobs in the UK. The recession has had its impact, but they are diversifying into new sectors and international markets. Transferable technology innovation is of paramount importance particularly in the environmental field. The UK motorsport is at the forefront of “environmentally friendly” technology, such as energy efficiency, bio fuel development, and super light materials innovation. All of which will have applications in other sectors. The government is pleased that it looks as if Donington has secured the rights to host the Grand Prix until 2017.

17 September 2009

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### Supplementary evidence from Department for Business, Innovation and Skills

Further to the Department’s memorandum to the Committee on 8 May we are providing additional information on the World Trade Organisation investigation into government support given to Airbus and Boeing.

#### BACKGROUND

1. The EU and US are in dispute over government support given to Airbus and Boeing respectively. The two sides took their complaints to the WTO in 2004 where a long and increasingly complicated dispute settlement process is underway. Each case individually represents the largest the WTO has ever handled and the unprecedented drawn out timescales reflect the complexities of the cases.

2. The European Commission Legal Services leads on trade issues before the WTO on behalf of the EU.

#### *“Defensive” case*

3. On 15 November 2006, the US made its first formal submission to the WTO Panel covering the US complaints of unfair EU subsidies to Airbus (primarily launch investment from France, Germany, Spain and the UK, but also infrastructure support and R&T support from both the four “partner” governments and the European Framework Programme). The EU has strongly defended its actions. The WTO Panel met for the first time in March 2007 to hear the arguments from both sides and the second hearing was held in July.

4. The confidential interim report was issued to the parties by the WTO on 4 September 2009. The report is currently in the factual correction stage and will be finalised—and translated for distribution to the WTO membership in the Spring. The findings in the report are likely to be appealed and the whole process, including the implementation phase, could be dragged out until 2012–14

#### *“Offensive” case*

5. The EU has a parallel case against US subsidies for Boeing, primarily through US Government (NASA, Department of Defense) R&T programmes, but also tax breaks at State level. The EU case against the US will be carried out in a similar timescale, but started four months later. The EU made its first formal submission to the WTO Panel on 22 March 2007, the US responded on 9 July 2007 and hearings before a (separate) WTO Panel were held 26–27 September 2007 and 15–16 January 2008.

6. Europe claims a total of US\$23.7 billion in subsidies to Boeing over the past 20 years, including:

- US\$17 billion in funding and support from NASA, DOD, Dept of Commerce and Department of Labor—with the bulk coming from NASA/DOD R&D subsidies. The latter two also grant Boeing IPR to valuable research results including patents, trade secrets and data rights.
- Local/State level support from states of Washington, Kansas and Illinois of over \$800 million in benefits (primarily tax breaks), and commitments of over \$4 billion in additional benefits beginning in 2007.

*UK Position after issuance of interim report*

7. The first report issued earlier this month is a confidential, interim report and only the first of two being considered by the WTO in relation to large civil aircraft.

8. The defensive case was a mixed result and it is not yet clear what the full implications are for either previous RLI commitments or the A350 XWB/work in this regard is ongoing with other Member States, Airbus and the EC. Due to highly confidential status of report, it is not possible to go into any further detail as to what interim report contains.

9. The WTO process, including appeal and implementation stages, could run for at least another three years. The case against Boeing is expected to report in the coming months. It is only when reading the final reports of the two cases (and perhaps following review by the WTO Appellate Body) together that the full impact on funding structures for large civil aircraft will be understood.

10. We have consistently argued for a negotiated settlement to the protracted dispute. It is still seen likely that both parties will enter in negotiations to settle the case, although the US will be unwilling to come to the table until at least after the second case reports.

22 October 2009

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**Supplementary memorandum submitted by the Department for Business, Innovation & Skills**

BIS is grateful for the opportunity to provide additional written evidence in reply to the transcript of this session. This is set out below, together with references to the transcript where appropriate.

1. *How much is the UK currently paying for its A400M order*

Q249 and Q250

The current forecast cost of A400M for the UK, including initial training and support, is £3,285 million, as published in the Major Projects Report 2009.

2. *Motorsport Development UK evaluation report*

Q270 to Q276

The Motorsport Development UK Evaluation Report undertaken on behalf of the East Midlands Development Agency by GHK (a firm of consultants) was formally presented to Ministers in December 2009 by the outgoing Chairman, Bob Gilbert.

Motorsport Development UK (MDUK) oversaw the implementation of the recommendations of the Motorsport Competitiveness Panel that reported to Government in 2003 through five work streams: Learning Grid; Motorsport Academy; Energy efficient Motorsport; Business Development and Widening Participation.

The Government has reviewed the Evaluation Report and its comments on those programmes and considers that its findings were on the whole balanced. The report notes that “MDUK can claim clear achievements against the majority of the Motorsport Competitiveness Panel recommendations and point to innovative and potentially far reaching activities which have delivered across the industry/sport value chain”.

Whilst there were some positives to come out of the programme, the Government also considers such strict adherence to implementing the Motorsport Competitiveness Panel recommendations potentially meant an opportunity to have a wider impact on the industry could have been missed.

The Government continues to recognise the importance of motorsport to the economy. An industry that supports 4,500 firms employing 38,500 people with an annual turnover of £6 billion with exports worth £3.6 billion.

Looking to the future the Government will continue to have a relationship with the motorsport industry and is in dialogue with the Motorsport Industry Association and others in the motorsport field about the work of the Automotive Council and about motorsport companies engaging directly with the Council and its working groups.

Work is also in hand to identify ways to boost the role of motorsport within the low carbon agenda with the Office for Low Emission Vehicles (OLEV). OLEV is keen to hear from industry representatives how motorsport can support the move to high-efficiency, low carbon transport.

### 3. *Government support for motorsport and aerospace SMEs*

Q296

There has been no specific support aimed at motorsport and aerospace SMEs. Information on the support mechanisms relevant to all SMEs in England can be accessed through Business Link, and are:

- Accessing International Markets;
- Business Collaboration Networks;
- Business Growth: Specialist Facilities and Environments;
- Business Premises;
- Coaching for High Growth;
- Collaborative R&D;
- Designing Demand;
- Developing your International Trade Potential;
- Enterprise Finance Guarantee;
- Export Credit Insurance;
- Finance for Business;
- Grant for Business Investment;
- Grant for Research and Development;
- Improving your Resource Efficiency;
- Innovation Advice and Guidance;
- Innovation Vouchers;
- Knowledge Transfer Partnerships;
- Low Carbon Energy Demonstration;
- Manufacturing Advisory Service;
- Maximising Foreign Direct Investment;
- Networking for Innovation;
- Rural Development Programme for England Business Support;
- Small Loans for Business;
- Train to Gain; and
- Understanding Finance for Business.

The Solutions for Business brochure is attached for reference. Support mechanisms in Wales, Scotland and North Ireland are available via the devolved administrations.

### 4. *Regional funding for Supply chains for the 21st century (SC21)*

Q305–Q306

The regional development agencies have supported SC21 with funding for lean manufacturing, and training in business improvement techniques.

#### EAST MIDLANDS

The total budget for the period 2009–12 is £375,000 provided to the Midlands Aerospace Alliance for SC21.

#### NORTH WEST

The North West Aerospace Alliance runs the Aerospace Supply Chain Excellence programme which is consistent with SC21. Phase One was backed with £4.2 million from the North West Development Agency funding.

Phase 2 has now commenced with £7 million from the North West Development Agency.

#### SCOTLAND

In Scotland the model adopted for the delivery of SC21 is as part of an integrated service offering from the Scottish Manufacturing Advisory Service and therefore not funding separately. SMAS is committed to supporting all companies requiring support-for SC21 accreditation

#### SOUTH EAST

SEEDA let a £6 million three year contract to the Manufacturing Advisory Service in 2009.

#### SOUTH WEST

£540,000 over the past couple of years, the programme delivered by the West of England Aerospace Forum and the Manufacturing Advisory Service.

#### WEST MIDLANDS

£1.5 million of funding for the period 2009–13 to the Manufacturing Advisory Service for SC21.

#### YORKSHIRE

The Northern Defence Industries support SC21 through its £8 million for the Manufacturing Advisory Service, which is open to aerospace companies. In addition, between 2005–08, Northern Defence Industries (for the regional aerospace sector as a whole) was provided with £900k funding to raise awareness of SC21.

### 5. *National Composites Centre*

#### Q309 onwards

The idea for the National Composites Centre came from the analysis of the UK carbon fibre market BIS undertook in preparation of the UK composite strategy. This analysis showed that there was a clear need for the UK to develop the ability to produce composite structures cost effectively and quickly. The Strategic Investment Fund funded Technology Strategy Board Grand Challenge on affordable composite structures is also designed to develop this ability. Funding in principle for the National Composites Centre was agreed under Strategic Investment Fund prior to receiving bids from regional development agencies. The UK composite strategy which was published in November 2009 was well received by industry.

BIS sought bids from regional development agencies and the devolved administrations, for all projects that could be delivered within the Strategic Investment Fund funding period to the end of financial year 2010–11 that would contribute to the overall objectives of the Strategic Investment Fund. As part of this general Strategic Investment Fund process, five regional development agencies put forward proposals for funding to support composite development.

As BIS was developing the composites strategy, and the need for a national composites centre became clear, these regions were asked if they would be interested in developing their proposals to be consistent with this approach. BIS put in place a process to allow the composite centre bids to be considered consistently and fairly and set out the criteria that would be used to assess proposals. One region subsequently withdrew its bid as it did not fit with the emerging national composite strategy and two of the remaining regions combined with universities with composite specialisms to put forward a single proposal for a national centre. This provided three proposals covering a good mix of sectors, including aerospace and automotive, and offering access for developing UK offshore wind turbine blades.

Some of the information received was not complete so BIS sought further supplementary information. Towards the end of the process BIS requested some bidders to clarify certain information, particularly where financial details were unclear or elements key to the assessment process had not been covered. This was to allow bids to continue to be considered.

The bids were assessed against common criteria drawn up by BIS analysts and sector representatives. This assessment took account of the costs and benefits of each bid and assessed key criteria such as ability to disseminate knowledge across the range of sectors using composite materials. BIS sector representatives and analysts, including representatives from the Technology Strategy Board were involved in the assessment.

### 6. *Any financial or access restrictions on firms engaging with Centres of Excellence*

#### Q323

There are no access or financial restrictions to centres of excellence (such as the Advanced Manufacturing Research Centre) on the basis of geographical location of businesses. These are national resources and maximum participation is encouraged by BIS and the regional development agencies through our strong links with the companies.

7. £600 million cuts on higher education, science and research announced in *PBR*, what proportion is coming from science and research?

Q325

This was a 2009 Pre-Budget Report announcement and the decisions on how this is going to be apportioned have not been made.

8. *Technology Strategy Board's funding for aerospace.*

Q326–327

The Technology Strategy Board has a remit covering the whole economy and companies in the aerospace sector, as well as participating in specific aerospace projects, can and do benefit from funding from the Technology Strategy Board in other areas such as high value manufacturing, energy and space and also through other activities of the Technology Strategy Board such as the Knowledge Transfer Networks and Knowledge Transfer Partnerships. The amount of funding therefore available to companies in the aerospace sector from the Technology Strategy Board is in part determined by the breadth of the interests of the companies.

Due to the high level of funding required to support specific aerospace projects, the Technology Strategy Board is now taking decisions on such projects outside of normal competitions, including projects such as ASTRAEA (Autonomous Systems Technology Related Airborne Evaluation and Assessment) where the Technology Strategy Board has funded the first phase and recently offered £4.5 million funding for the second phase.

Since the Technology Strategy Board was established in July 2007, funding committed to aerospace projects was £38.5 million in 2007–08, £46 million in 2008–09 and for this current financial year £36 million, with additional funding of £95 million including funding from the Strategic Investment Fund, on behalf of BIS, for research in advanced composite wing development (Airbus led) and low carbon aero engines (Rolls-Royce led). The additional funding is supporting two projects involving Airbus and Rolls-Royce and is helping to maintain a level of investment in the aerospace sector.

9. *How the £200 million for the "Strategic Investment Fund" would be targeted.*

Q337–Q341

The Strategic Investment Fund is the Government's support for a range of targeted investments across the UK economy to support growth. The additional £200 million will be used to support the following projects:

£50 million for the further development of the offshore wind industry in the UK, focused on funding for new off-shore wind energy manufacturing facilities;

£5 million additional funding to the Technology Strategy Board to set up new prize funds for emerging technologies;

£30 million to support low carbon transport projects including an expansion of the Technology Strategy Board's current ultra low-carbon vehicles competition;

£40 million for other low carbon projects;

£30 million for the chemicals industry on Teesside to lead the way in demonstrating how to decarbonise the process industry, while maintaining competitiveness; and

£45 million is as yet unallocated but will be spent on other industrial projects of strategic importance. A number of bids have been received and are being considered.

10. *R&D tax credits*

Q343

The 2009 Pre-Budget Report announced that legislation will be introduced in the Finance Bill 2010 to abolish the condition requiring that any intellectual property deriving from the R&D to which the expenditure is attributable be owned by the company making the claim. The change will have effect for any expenditure incurred by a SME company on R&D in an accounting period ending on or after 9 December 2009. This will allow companies to benefit from the UK's generous R&D tax credit for SMEs without distorting their commercial arrangements in relation to Intellectual Property.

In 2008, amongst a number of changes, the following enhancements were made to the schemes:

From April 2008 the rate of relief for qualifying R&D activities in the large company scheme was increased from 125% to 130%. From August 2008 the SME scheme has been extended so that a company may be regarded as a SME for the purposes of R&D tax relief if it has up to 500 employees and has either an annual turnover of less than €100 million or a balance sheet total below €86 million. At the same time the rate of relief for the SME scheme was increased from 150% to 175% of qualifying expenditure. The payable credit available to loss-making SME companies was also increased to 24.5% of qualifying expenditure.

All companies claiming under the schemes will benefit from the enhancements to the rates of relief. In 2008–09, over 7,500 companies claimed around £790 million of relief, supporting almost £8.7 billion of R&D expenditure.

It is estimated that around 200 companies benefited from the increase in the size of a company that can claim through the SME R&D tax credit scheme.

For a chronological list of changes to the schemes made since their introduction, please see the following link:

<http://www.hmrc.gov.uk/manuals/cirdmanual/CIRD98900.htm>

The Government currently has no plans for any further reforms to the R&D tax credit schemes but, as with all tax policy, will keep the effectiveness of the schemes under review.

#### 11. *Manufacturing Insight*

Q344

Manufacturing Insight is an independent organisation set up by industry and representative bodies with the support of government. This was a commitment in the Manufacturing Strategy. Its role is to raise the profile of manufacturing by enthusing young people so that they seriously consider a career in manufacturing. It will also ensure that media coverage for the sector provides a stronger focus on the positives, particularly in media accessed by young people, their parents and teachers. Since Manufacturing Insight was established in November 2009 it has developed a business plan and moving forward to deliver against its commitments.

#### 12. *Young Apprenticeships Pilot Programme (14–16 year olds).*

Q347

The Young Apprenticeship pilot programme began in 2004. It offers young people at Key Stage 4 (age 14–16) the opportunity to undertake a work related qualification delivered through a college alongside their school based GCSE programme. In addition it seeks to provide 50 days of extended high quality work experience with an employer.

In September 2009, some 9,000 places were made available from the £31.75 million budget. In 2010, further efficiencies will mean some 10,000 Young Apprenticeship pilot places will be available supported by the programmes planned £32.75 million budget.

The programme is widely valued by employers involved in the programme as offering the occupational skills and experience they seek. Research shows that 95%<sup>1</sup> of cohort three entrants, that completed the Young Apprenticeship programme, progressed to further education or training.

The Department for Children Schools and Families is currently exploring the future options for the Young Apprenticeship programme including mainstreaming the funding, alongside the programme commissioning, to local Authorities.

#### 13. *Automotive Council.*

Q353 and elsewhere

The Automotive Council is set up to provide an advisory and consultative forum to ensure a sustained high level conversation with the industry and to put in place a long term strategic framework for the development of the industry. It exists to help:

- create a transformed business environment in the UK to provide a more compelling investment proposition for the related industries;
- develop further the technology roadmaps for low carbon vehicles and fuels, and exploit opportunities to promote the UK as a strong candidate to develop these and other technologies;
- develop a stronger and more competitive supply chain;
- provide a stronger public voice for the industry to support the value of the industry to the UK and to global partners; and
- ensure a strategic, continuous conversation between government and the automotive industry.

In May 2009 the New Automotive Innovation and Growth Team produced a 20 year vision for the UK automotive industry. The key recommendation was to establish the joint government and industry automotive council to help create a transformed business environment in the UK to provide a more compelling investment proposition for related industries. The Government response to the New Automotive Innovation and Growth Team report was published in November 2009 endorsing this recommendation. Richard Parry Jones was appointed Industry Chair alongside the Government Chair, the Secretary of State for Business, Innovation and Skills. In the months ahead the Council will have a leading role in working

<sup>1</sup> National Foundation for Educational Research ongoing evaluation: report not yet published.

with academics, the Research Councils, Office for Low Emission Vehicles, the Technology Strategy Board and others to build on the existing industry consensus on key technology priorities and opportunities, particularly relating to the development of low carbon vehicles.

#### 14. *Campus university based near Silverstone*

Q357

This is still in the early stages of development but part of the support from Northampton County Council is predicated on the development of an educational facility.

#### 15. *Uptake of Science Technology Engineering and Mathematics (STEM) courses at university*

Q362–Q363

We want the increases of recent years in the number of students taking STEM subjects to continue. The number of first degree STEM entrants increased by 7% in 2008–09, relative to 2007–08.

Many subjects have seen an above average increase in entrants. These include:

Mathematical sciences (+ 12%).

Engineering (+ 8%).

It is worth noting that the number of Computer Science entrants has increased for the first time since 2002–03 (by + 7%). This may be an indication of a reversal in the previous downward trend.

The following subjects have seen an increase, however, they are below the average of all STEM subjects:

Chemistry (+ 6%).

Biology (+ 4%).

Physics (+ 3%).

The number of students on higher education STEM courses (ie not just first years) was up by 3% at undergraduate level and 7% at postgraduate level relative to the previous year.

The key issue was that the popularity of STEM subjects was growing less quickly than other subjects, but as student demand has picked up, we do need to make sure that the availability of places keeps pace. That means a number of things:

Firstly, we have asked the Higher Education Funding Council for England (HEFCE) to devise new funding incentives that give priority to higher education programmes that meet skills needs in key sectors.

... as a first step, HEFCE will keep back £10 million from the total money to give to universities, and will then use the money to help universities increase the proportion of students on STEM courses ie the same number of places per university, but more of them will be on STEM courses ...

... beyond this, we said in the grant letter to universities that we need to make rapid progress. We asked for a report in spring 2010 on the issues and options, and by autumn 2010 HEFCE will have a firm timetable for implementation in the academic year 2011–12.

Secondly, we continue to believe a system based on a block grant is appropriate, allowing universities to shape their provision in response to changing demand. But it needs to be calibrated so that there are no disincentives to offer STEM provision.

Thirdly, we have asked HEFCE to make its approach to supporting Strategically Important and Vulnerable Subjects more proactive. We have asked HEFCE to identify areas where there is a mismatch between available places and student demand.

In addition, in July 2009 Lord Mandelson commissioned a review of postgraduate provision in the UK. The review, led by Professor Adrian Smith, will consider how to ensure that prospective students are aware of the benefits of undertaking postgraduate study—particularly in those areas that are highly valued by employers—and assess whether there are any barriers affecting participation. The review will report in the spring and feed its findings into the Independent Review of Higher Education Funding and Student Finance.

#### 16. *Collaboration programmes on green technology*

Q367

AEROSPACE

- (i) Environmentally Friendly Engine programme led by Rolls-Royce to create a brand new large core-engine test facility at Filton. The demonstrator will help develop Rolls-Royce's large engines of the future leading to reduced emissions and fuel burn.
- (ii) Next Generation Composite Wing led by Airbus UK will develop the UK industry's capability on composites for wings and the affordable manufacture of composite components and wings.

- (iii) REACT (Rotor Embedded Actuator Control Technology) programme led by Agusta Westland is developing active rotors which reduce noise, vibration and fuel consumption.
- (iv) There will be at least £40 million investment in SAMULET Research and Technology programme—a collaborative aerospace project focusing on productivity and environmental improvements—with £28.5 million from the Technology Strategy Board, £11.5 million from the Engineering and Physical Sciences Research Council, and further support under discussion with regional bodies.
- (v) The Environmental Lightweight Fan programme was conceived by Rolls-Royce and GKN Aerospace through a collaborative partnership to develop composite fan blade design and manufacturing technologies. The Technology Strategy Board contributed £15 million to the cost of the programme.
- (vi) Electric Landing Gear (ELGEAR) is an Airbus led project to replace aircraft engine driven hydraulics with electrically operated systems to improve efficiency and reduce emissions.
- (vii) Integrated Wing developing a step change in wing technologies and configurations, addressing “Sustainable Aviation” issues.

#### MOTORSPORT

The Formula One teams have worked with aerospace companies on flight physics; Computational Fluid Dynamics, Smart Systems, composite structures and sensors.

#### 17. Repayable Launch Investment

- (i) £114 million to Bombardier Aerospace (shorts) in Belfast towards the design and development of CSeries composite wing (July 2008);
- (ii) £60 million to GKN for the design and development of A350XWB trailing edge and rear spar composite wing components (September 2008), and
- (iii) £340 million to Airbus towards the development of the A350XWB (August 2009).

25 February 2010

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### Memorandum submitted by A|D|S

#### INTRODUCTION

1.1 A|D|S is the trade body advancing UK AeroSpace, Defence and Security industries with Farnborough International Limited as a wholly owned subsidiary. A|D|S brings together the combined strengths of the long-standing Association of Police and Public Security Suppliers (APPSS), the Defence Manufacturers Association (DMA) and the Society of British Aerospace Companies (SBAC).

1.2 Aerospace, Defence, Security and Space industries are major UK business sectors based on high-value engineering. With a turnover of £20 billion a year, UK aerospace companies continue to invest c £1.8 billion in research and development and sustain 223,000 UK jobs. Aerospace turnover was evenly divided between civil and defence sales in 2008 with exports making up a considerable share of income, accounting for 69% of UK aerospace sales.

1.3 The UK has a 17% global share of the civil aerospace market, 10% of the defence market and is well placed to provide the equipment and necessary expertise to take the lead in the increasingly significant security and space sectors. UK companies also have a significant share of the global aftermarket (service) sector, including maintenance, repair and overhaul of both fixed-wing and rotary-wing aircraft providing significant components of the UK industry.

1.4 As well as being substantial generators of activity in their own right, the four sectors also stimulate GDP and employment in other parts of the economy. For example, the Space sector whilst supporting 70,000 jobs, also generates an additional £1.6 billion a year through R&D spill-over effects.

#### 2. THE EFFECTIVENESS OF GOVERNMENT POLICIES IN SUPPORTING THE SECTOR

2.1 There are many cross cutting Government strategies that have an impact on the UK aerospace industry including the Advanced Manufacturing Strategy, Low-Carbon industrial strategy, High-level Skills Strategy & Leitch review, the Defence Industrial Strategy and the developing Space Innovation and Growth team process.

2.2 Industry and Government developed a joint strategy for the sector which was published in 2004 as the Aerospace Innovation and Growth Team report (AeIGT). This publication identifies the key strengths of the UK industry and identified what was needed to ensure the UK maintained and grew its global position. Both technology and skills investment were identified as being of paramount importance. These

conclusions have been reviewed and underpinned by the development of a National Aerospace Technology Strategy report and the development of a set of Technology Roadmaps, which link collaborative research programmes to business opportunities worth \$3.15 trillion.

2.3 The overall trend is for strong order growth over the next 20 years, Airbus forecast that 25,000 new passenger and freighter aircraft valued at US \$3.1 trillion will be delivered between 2009 and 2028. Getting the right levels of investment in UK research programmes is fundamental to UK based companies winning work on future programmes and securing high-skilled manufacturing jobs.

2.4 UK aerospace companies are world leaders in the rotorcraft (helicopter) market which is forecast to be worth £30 billion, up to 2027. Whilst the Defence Industrial Strategy does include rotorcraft and identifies the need to retain skills onshore to provide through life support for the Armed Forces, there is no specific rotorcraft strategy designed to support the development of the UK civil market.

2.5 Unmanned Aerial Systems is another key market for the aerospace sector estimated to be worth \$20 billion up to 2020, due to emerging developments in security and surveillance. A key element to UK companies winning work in this market in addition to sustaining the right investment into technology development programmes is ensuring a supportive Air Traffic Management framework which permits both flight and testing of unmanned systems.

#### *Technology Strategy Board*

2.6 There are a range of existing government support mechanisms that aerospace companies can apply to for investment in research and development. The Technology Strategy Board (TSB), has been the main source of research funding for early stage collaborative research. Aerospace companies have been successful in bidding into relevant themes and those that have received funding since 2004, include the Environmentally Friendly Engine, Next Generation Composite Wing and the SAMULET (Strategic Affordable Manufacturing in the UK through Leading Environmental Technologies). A sum of £270 million, which has been match funded by industry has been invested in early stage research.

2.7 Since receiving independent status the TSB is moving broadly in the right direction although its budget is inadequate to fulfil the task of investing in Advanced Engineering success stories like aerospace. Moreover, the widening brief of the TSB has led to less opportunity for the Aerospace sector to bid.

2.8 Additional parallel investment in programmes has been provided by Regional Development Agencies (RDAs). There is generally a constructive view towards working with the RDAs, however there is scope for improvement, as companies working with multiple RDAs have found that this can bring complexities, for example there are no standard contracts across all RDAs.

#### *UK Aeronautics Research Institute proposal*

2.9 The Aerospace and Defence KTN are brigading government, industry and academia to develop a proposal for a UK Aeronautics Research Institute. This will deliver leadership in aeronautics research excellence and address fragmentation that exists in the UK today.

2.10 Aeronautics expertise is currently scattered across a large number of university departments. This dilution of academic excellence threatens to degrade UK capability and disable strategic inward investment from industry. In a number of cases, technology “push” from publicly funded research is currently disconnected from applications.

2.11 The absence of such a body means there is no national organisation mechanism to undertake a programme of underpinning research of national strategic importance which can safeguard strategically important facilities and sustain and grow National capabilities in composites, flight physics, electronics and many other areas.

2.12 Other nations such as France and Germany have maintained large, powerful, publicly funded research institutes in the Aerospace sector (eg DLR and ONERA), which has given them greater influence on the European stage, eg in shaping the Framework Programme.

2.13 The proposals are still being developed but the objective is that an institute would reduce complexity and encourage greater industry and university collaboration. The ease of working through a central point of contact in comparison to separate negotiations with multiple universities is attractive to industry and academia. In addition, the institute would provide a stronger link between academic research and the market-driven National Aerospace Technology Strategy. The NATS roadmaps span more than a decade but research grants usually last a few years. The institute would provide continuity to research programmes and a stronger link between academic research and commercial applications.

2.14 Currently, the UK is strategically disadvantaged with respect to influencing EU Aeronautic Strategy for two reasons.

- (i) the UK is not represented on influencing bodies such as the Association of European Research Establishments (EREA); and
- (ii) we are unable to attract anything more than 50% EU funding in the absence of a Public Research Institute.

2.15 There is a real opportunity to address these gaps and deliver greater linkages between academia and industry and to increase the ability of the UK to achieve greater EU support for research funding. The objective is not to duplicate or competitively undermine the excellence already established within Industry, Academia and RTOs, but to create coherency between these individual entities, thus ensuring UK Aeronautics remains globally competitive and sustainable. Initial proposals will be finalised in October, 2009.

#### *Advanced Manufacturing Strategy*

2.16 The UK aerospace industry is recognised as one of the key sectors in the Government's Advanced Manufacturing Strategy. As part of this approach Government and industry have committed to significant investments in research and development programmes.

2.17 These programmes will help to mark the UK out as an international leader in wing technology, advanced composite materials and aircraft engine technology. Investment has been channelled through different mechanisms including both repayable launch investment and research and development funding.

2.18 Support from Government is matched by significant investments from the companies involved and is crucial. These joint commitments include £340 million from Government, for new A350 wing technology to Airbus, £45 million for new manufacturing facilities to Rolls-Royce, £60 million to GKN for trailing edge and rear spar components and Bombardier received £125 million for C-Series wing development.

#### *R&D tax credits*

2.19 R&D Tax Credits are also fundamental in supporting investment in research and development and are particularly attractive to SMEs. In addition, they contribute in helping to make the UK an attractive place to carry out research and development.

#### *The need to reaffirm the Defence Industrial Strategy*

2.20 In the development of defence equipment and technology the Government through the MoD has a direct influence on aerospace through both procurement and research investment. There has been much public discussion about the need for a Strategic Defence Review and A|D|S supports this process. Since our armed forces cannot do their job without defence equipment provided by industry it is essential that a renewed and refreshed Defence Industrial Strategy is an integral part of the SDR process.

2.21 Research and Technology investment is the key to future capability and responsive kit. It is the investment that turns innovative ideas and theory into equipment that saves lives on the battlefield. The erosion of research investment, down 7% last year and the same degree of decrease expected next year, is a major concern to industry. It not only affects the ability of industry to deliver world class equipment, but also sends a negative signal about the commitment to developing future capability.

2.22 In this context, A|D|S believes that wider cross government objectives should be involved in the SDR. As set out in Innovation Nation (2008), published by the Department for Innovation Universities and Skills, "The Government's aim is to make the UK the leading place in the world which to be an innovative business, public service or third sector organisation".

2.23 Defence equipment like health and IT procurement programmes is a direct means by which Government investment has the ability to channel investment into skilled jobs, technology and innovation, whilst at the same time delivering world-class equipment to our Armed Forces.

2.24 A recent report by Oxford Economics produced an analysis of how a range of sectors contribute to the national economy. The report concluded that relative to other parts of the economy, the defence industry generates significant benefits consistently across a range of comparators. These include: returns to the Exchequer, impact on GDP, number of jobs, skill development, research and development investment and export potential. Across all these criteria, defence is judged the third most attractive sector out of 27 included in the study.

2.25 Defence equipment also provides export opportunities as equipment that is tried and tested in the UK is more likely to attract export customers. Defence exports in the UK account for 55,000 jobs and additionally encourage innovation and contribute returns to the Exchequer.

2.26 As further recognised in the Innovation Nation report (2008), "Government procurement can drive innovation through creating 'lead markets' for innovative products and services. Regulation can drive or get in the way of innovation depending on conditions. Government has a role in creating markets where they may not exist or demonstrating the viability of innovations that others will not necessarily adopt. Through procurement Innovation Nation, it has the potential to act as a leader on its own, pulling innovative products and services through from the UK economy in areas such as defence, health or the environment."

### 3. THE IMPACT OF THE RECESSION ON THE SECTOR

3.1 The UK based civil and defence aerospace industry is well-developed and corporate strategies are responsive to the cyclical nature of the industry.

3.2 The sector is characterised by long programme cycles so that in addition to managing its way through the downturn, the industry is continuing to maintain investment in vital research and technology programmes. This investment will ensure that the industry is best positioned to compete for work on future programmes. So when other industries might naturally cut back on research investment in difficult periods aerospace companies maintain commitment.

3.3 The industry experienced a difficult year in 2008, and many companies, particularly those that supply into both aerospace and automotive experienced a marked impact from the downturn. This has continued in the first half of 2009 where the downturn has been felt most markedly in the business jet, general aviation, civil fixed-wing and rotary-wing sectors.

3.4 The long term nature of large-scale projects means that effects can be delayed. The industry is working hard to minimise the impact through traditional means, including laying off temporary/contract workers and offering voluntary redundancies. However, it is inevitable that there will be some compulsory redundancies and where this is the case, work is progressing to ensure that skills are retained in the industry.

3.5 Liquidity poses a significant problem. The low availability of commercial credit continues to pose a threat as it affects the potential purchase of commercial and corporate aircraft. The demand for support provided by the Export Credit Guarantees Department has increased significantly over the last nine months and A|D|S anticipates that this level of support will remain crucial for the foreseeable future. The ability of companies to access short-term credit to sustain and/or restructure their business is important to the continuity of the aerospace and defence supply chain.

3.6 Supply-chain continuity is one of the most significant factors affecting the productivity and competitiveness of the UK industry as well as its long-term survival at its current world-class level.

### 4. THE ROLE OF SMEs IN THE SUPPLY CHAIN SUPPORTING THESE TWO SECTORS

4.1 The aerospace and defence industry comprises c 9,000 suppliers. SME's in particular play an important role in supporting manufacturing operations and provide a degree of flexibility, responsiveness and agility that is rarely found in larger corporations.

4.2 In particular, manufacturing SMEs who are local to the main production facility provide a valuable source for one-off manufacture or re-work of small components which may be required to keep the production line flowing. Additionally, SMEs in the systems and software arena provide a level of innovation into the business, leveraged from their work in other sectors.

4.3 The SME community is valued by the Aerospace Community as a whole, evidenced by the commitment of the major players to the industry's SC21 programme, which is a programme designed to increase the efficiency and performance of the supply chain and eliminate duplication in auditing processes.

### 5. WHAT BARRIERS ARE THERE TO FURTHER INNOVATION AND WHAT CAN BE DONE TO OVERCOME THEM?

5.1 Innovation is driven by numerous parameters, and a number of the barriers have already been noted.

5.2 The UK has an excellent academic base, however international competition is intensifying. Full economic costing is making the UK a more expensive place to do academic research, and protracted negotiations with some Universities over intellectual property rights are hampering the pace at which new programmes can be launched.

5.3 Research Councils are increasingly receptive to the needs of industry, and initiatives such as EPSRC Strategic Partnerships are welcomed and should be encouraged.

5.4 The benefits of a strong Aerospace industry have been recognised by other nations. The global nature of the industry enables companies to make choices as to where they invest, including in innovation. The UK must remain vigilant and agile to respond to the increasing threat of very attractive propositions being tabled overseas. It is inevitable that manufacturing will follow where innovation takes place.

5.5 Innovation in the UK rotorcraft sector has largely been driven by the military market. Technology pull-through has however been sporadic, hampered by a lack of clear exploitation strategies. This situation has worsened over the last two years with MoD investment switched almost entirely to resolving urgent operational requirements. There is now little if any MoD funding being invested in long-term rotorcraft development. This is a key point, and one that has to be addressed if we are to provide cutting edge platforms.

5.6 The technology and innovation created by aerospace research often transfers between civil to defence applications and vice versa. For example composite materials developed in civil aerospace are used in defence applications, defence technology has a role in security applications. The same is true of skills and process improvements. There is an opportunity to achieve more efficient investment in government

supported research through bringing together joint defence and civil programmes. The Technology Strategy Board which has a coordinating role in investment is the natural body to bring these different objectives together. Advancing this goal does require the engagement and support of MoD.

#### 6. WHAT STEPS CAN BE TAKEN TO ENCOURAGE THE APPLICATION OF TECHNOLOGY DEVELOPMENT IN AEROSPACE TO CREATE NEW DESIGNS, PRODUCTS AND PROCESS IN OTHER INDUSTRIES?

6.1 The network of Advanced Manufacturing Research Centres have an important role to play in creating new designs, products, processes and skilled employees for both aerospace and wider applications, as many technologies from the sector spill over into other sectors.

6.2 The proposed Manufacturing Technology Centre (MTC) in the Midlands, along with the Advanced Manufacturing Research Centre (AMRC) in Sheffield and the Advanced Forming Research Centre (AFRC) near Glasgow, will provide a powerful network linking companies, industrial sectors and Universities and spanning a range of high integrity, high productivity process technologies. At several levels, the network will provide an infrastructure capable of supporting future public and privately supported manufacturing technology research.

6.3 Industry experience with the Advanced Manufacturing Research Centre (AMRC) an initiative led by Sheffield University and Yorkshire Forward has been very positive. The centre which opened in 2004 operates as a department of the University around a partnership of some 40 industrial companies. The focus is on machining processes, composites and automated assembly.

6.4 The programme has already been expanded with a £10 million additional investment earlier this year, by Yorkshire Forward with support from Rolls-Royce. The Rolls-Royce Factory of the Future, has delivered a four-fold expansion of the AMRC on the same Sheffield site. Further plans are also being formulated to further expand facilities with two further buildings providing a 40% increase in floor space.

6.5 The compelling characteristics of the model are pace and scale underpinned by industrial leadership and a very non-traditional and results-led approach from the University.

6.6 This successful model has been built upon and scaled up to bring a broader range of technologies whilst preserving the benefits of specialisation within each Centre. In 2007, industry achieved agreement with Scottish Enterprise and Strathclyde University to launch the AFRC—a Centre that will focus on advanced forging and forming processes with an initial capital input from Scottish Enterprise of £17 million. Land preparation is now complete, construction has started and the Centre will open during 2010.

6.7 The Manufacturing Technology Centre (MTC) represents an ambitious step towards completing the first stage of a UK network. The proposal is to bring together three Universities—Nottingham, Birmingham and Loughborough along with The Welding Institute and a more broadly based, cross sector industrial partnership. The scale of the Centre reflects the very rapid growth seen in Sheffield and an intention to straddle a broader range of process technologies including high integrity joining, net shape fabrication and automation.

6.8 The programme is now at an advanced stage with the East Midlands Development Agency and Advantage West Midlands. A final formal decision on funding is expected during Q3 2009 with MTC research projects being launched during the second half of 2009 and the facility to be opened early 2011. The MTC was “announced” as part of the Government’s manufacturing strategy in September 2008.

6.9 A|D|S expects that industrial support for the manufacturing research network will be strong and international. As with the AMRC in Sheffield, we believe that industrial membership of the new Centres will grow rapidly once the facilities are open.

6.10 A number of leading industrial companies are already committed to centres within the emerging network (including Rolls-Royce, Airbus, Boeing and BAE Systems) with significant interest from a wider group of cross sector industrial partners.

6.11 At an industrial level A|D|S believes that there are strong overlapping interests in high integrity, high productivity manufacturing technologies that will continue to attract a range of industrial sectors—including automotive, heavy vehicles, nuclear, oil and gas and aerospace.

6.12 In summary the benefit of these centres to industry include:

- Access to world-class research facilities and academic staff supporting fundamental and applied research in manufacturing technology.
- Strong market pull and industrial leadership from partners, especially the larger Original Equipment Manufacturers.
- Leverage knowledge from cross-sectoral collaborative partnerships between leading academic institutions and major industrial companies.
- Rapid “technology pipeline” from concept—demonstration—exploitation, bridging the gap between University research (MCRL 1–3) & industrial application (MCRL 7–9).

## 7. HOW EXISTING INITIATIVES SUCH AS THE AEROSPACE INNOVATION NETWORKS AND AEROSPACE VALIDATION PROGRAMMES HAVE BEEN TRANSFORMING NEW CONCEPTS INTO MARKETABLE TECHNOLOGY

7.1 The AIN model was not successful in supporting aerospace innovation as it was not viewed as a means of channeling government funding for research programmes. The outcome is that a disconnect was created between technology push (as funded by EPSRC and TSB) and application pull (as demanded by the National Aerospace Technology Strategy). The Aerospace and Defence KTN has been developed to bringing together the best aspects of National Advisory Committees (NACs) and AINs. They formulate roadmaps in particular topics which represent the pan sector needs in terms of R&T. These are then used to advise agencies of priorities so that they may accommodate relevant topics and themes in funding calls.

7.2 Once competitions are launched, NTC participants have already created a collaborative ethos that enables them to form relevant and appropriate consortia to bid for funding. NTCs are not pre-assembled consortia, but the breeding ground for partnerships. Moreover, the road mapping process which had brought them together embeds the spirit of collaboration, partnership and risk-sharing within those Committees.

7.3 NTCs are already spawning collaborative research; the Witness programme recently announced emerged from the Health Management and Prognostics NTC. NTCs enable the strategic fitting (ie alignment to NATS through roadmapping) of smaller programmes.

7.4 Aerospace Technology Validation Programmes has some deficiencies. The concept is good but the lack of a relevant validation specifically for rotorcraft makes it difficult to support the Vertical Lift sector.

24 September 2009

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### Memorandum submitted by Airbus in the UK

Airbus welcomes the opportunity to give its views to this inquiry. Airbus in the UK is a subsidiary of Airbus SAS and owned by EADS NV, a global leader in aerospace, defence and related issues. Airbus is a global company with design and manufacturing facilities in France, Germany, the UK and Spain as well as subsidiaries in the US, China and Japan.

Since its advent 40 years ago, Airbus has become a model of multi-national enterprise by developing the most modern family of aircraft in the world, securing market parity with Boeing in a market previously dominated by companies from the US. Airbus delivered 483 aircraft in 2008, surpassing its previous year's total by 30, achieving the highest ever on-time rate and quality level. As of the end of August 2009, Airbus had delivered a total of 5,820 aircraft and had total sales of more than 9,340.

Airbus is the market leader in the civil aerospace industry in the UK with a workforce of over 10,000 on its two sites at Filton (Bristol) and Broughton (North Wales). Airbus in the UK has a highly skilled workforce, responsible for wing design, manufacture and assembly for all Airbus aircraft, including responsibility for landing gear and fuel systems integration.

The submission gives a general view of Airbus' position in the UK aerospace industry and future goals. It sets out Airbus' views on the effectiveness of Government policies in supporting the aerospace industry and provides responses to some of the specific questions posed by the Committee.

#### SUPPORTING LOCAL ECONOMIES

The two sites of Filton and Broughton have been a home to the UK's aerospace industry for 100 years and 70 years respectively; since 1979, when British Aerospace joined Airbus Industrie, the UK has developed its technical expertise to the point where it designs and builds Airbus' wings, affording the UK the title of Centre of Excellence for "Wing and Pylon".

The history of the plants has led to significant industrial investment within the areas surrounding the two sites, driving and supporting the local economy. In the South West, for example, the world-class Airbus cluster at Filton is of regional as well as local significance, as it is estimated to support around 37,000 jobs (directly, indirectly and induced in other companies) and sources 40% of its total supplies in the South West.

#### INVESTING IN PEOPLE

Airbus in the UK has an award winning apprenticeship programme responsible for enrolling more than 6,000 apprentices over the last three decades. They also operate a two-year graduate programme employing around 60 graduates each year. The company is currently in The Times Top 100 Graduate Employers.

Through its engineering activities, Airbus in the UK generates at least 2,500 high quality job roles with the majority of the employees holding degree level or equivalent qualifications. In addition, Airbus in the UK employs a highly experienced work force; 30% of employees have 15 years or more experience and 10% with 25 years or more experience in the company.

In 2009, Airbus in the UK recruited 67 graduates to its Direct Entry Graduate programme, more than 100 interns for short-term placements and 94 apprentices to its Apprenticeship programme. Airbus currently employs more than 500 apprentices, not only is the scheme recognised internally (70% of senior managers at Airbus started their career as apprentices), but also externally with annual success in the EEF Apprentice of the Year Competition.

#### WORKING WITH UK UNIVERSITIES

R&T The research relationship between Airbus and UK-based universities is very strong. The company has R&T links with 35 UK universities, including Bath, Bristol, Cranfield, Imperial, Manchester and Southampton.

The main mechanisms for partnership with universities on R&T include: direct research contracts; sponsorship of PhDs; support to university bids for funding from the Engineering and Physical Sciences Research Council (EPSRC); as well as inclusion of Universities in TSB and EU supported collaborations. In a recent move, Airbus is also in the process of establishing a Chair in Aerostructures Design for Assembly & Systems Installation at Cranfield University. This position is funded by Airbus with support from the Royal Academy of Engineering through their Research Chair scheme.

- Airbus directly funds University research at a rate of about £2 million per annum<sup>2</sup> for PhD and postdoctoral research.
- EPSRC support to Universities adds another £1.5 million per annum.
- Airbus also helped Universities, through in-kind contribution; win further grants from EPSRC adding another £1.5 million per annum.
- University participation in TSB collaborative projects led by Airbus adds about another £1 million per annum.

Hence, Airbus is helping to support about £6 million of university research pa and in addition, many UK universities receive research funding from involvement in EU Framework projects led by Airbus.

#### FLY YOUR IDEAS”—STUDENT COMPETITION

In order for Airbus to maintain its excellence within the aerospace sector and further develop Airbus’ relationships with universities and students alike. Airbus launched, in January of 2009 “Fly Your Ideas”, a global competition designed to engage university students to develop eco-efficient ideas to improve the aviation industry. The competition, made up of three rounds, proved hugely successful attracting 2,350 students (225 teams) from 82 countries. The UK saw seven teams from Bath, Bristol, Southampton and London through to the second round of the competition, with ideas ranging from windowless cabins to formation flying. The ideas generated by the competition are being reviewed and some will become collaborative research projects to ensure that the aerospace industry meets its environmental commitments.

#### UNDERGRADUATE SUPPORT

The partnership between Airbus in the UK and universities is not restricted to the development of new technologies; Airbus in the UK provides large amounts of resource in developing undergraduate curriculum and the undergraduates themselves.

The interaction between the company and the leading engineering universities ensures that the curriculum taught to undergraduates is the current and relevant to the work climate. Airbus is also committed to the development of engineering undergraduates, with the introduction of their mock interviews and CV workshops, benefiting the whole engineering and undergraduate community.

#### SUPPORTING GROWTH

Since the creation of Airbus, technology has played a major role in the success of its products. From the supercritical wing of the A300, the fly-by-wire flight control system first seen on the A320, through to the composite centre wing box on the A380, successful development and application of technologies has been a huge part of Airbus’ success.

Such successes are only possible through continued investment and support into R&T; The £12 million Airbus Composite Structures Development Centre (CSDC)—a 4,500 square metre facility at Filton—is the hub of a regional alliance of companies, universities and colleges in the South West, which was formed to provide world-class capability in the field of composites technology.

In recent years Airbus has consistently been one of the UK’s top 10 largest investors in R&D. The BERR 2008 Scoreboard shows Airbus in eighth place, with an annual investment of £397 million. The company’s R&D investment represented about 2.5% of the total annual R&D performed by UK businesses in that year, thereby making a significant contribution to the Government’s stated aims of securing a substantial increase in the scale of private sector investment in R&D.

<sup>2</sup> Note that the figures vary greatly from year to year so these figures are three to five year averages.

## INQUIRY QUESTIONS

### 1. *The effectiveness of Government policies in supporting aerospace*

#### 1.1 Government Investment

The announcement in August 2009 by the Government of a £340 million loan (subject to final terms and conditions) to Airbus was an important development for the aerospace industry in the UK. The loan will support the development of the A350 XWB wide bodied aircraft and the funding was drawn partially from the Government's £750 million Strategic Investment Fund. The Government gave close scrutiny to the case made by Airbus. Overall this signal of support will ensure that UK industry is well placed for Airbus products in the future. Airbus A350 XWB is a family of three large civil aircraft ranging in capacity from 270–350 passengers. It is being supported by four partner nations, UK, France, Germany and Spain. France announced at the Paris Air Show, on 15 June, support of €1.4 billion for the A350 XWB programme. Germany proposed in principle support of €1.1 billion. The Spanish Government is still in discussions with Airbus.

Government investment takes the form of risk-sharing participation in the design and development of specific civil aerospace projects in the UK. The Launch Investment of £340 million is repayable, not a grant, and earns a real rate of return. It is available only to the aerospace sector and stems from the provisions of the Civil Aviation Act 1982.

At present there is a clear distortion of competition in terms of global government investment in civil aerospace. The 787 has received over \$5 billion in subsidies from the U.S., Italian and Japanese governments, none of which is repayable. The decision by the UK government brings Airbus closer to a level playing field with Boeing.

#### 1.2 Sales Support

The UK Government is briefed on Airbus sales campaigns on a regular basis. From time to time the Government makes representations to other governments where there is an active sales campaign. Airbus works actively with the Advanced Manufacturing team at UKTI to ensure that all Airbus in the UK export and inward investment opportunities are maximised.

The Export Credits Guarantee Department (ECGD) provides an important level of support to the aerospace industry. Airbus in the UK has been working with the ECGD to enable them to work more closely with their French and German counterparts, thus ensuring a more straightforward transaction for its customers. In comparison Boeings customers only have to deal with one credit agency the EXIM Bank.

It is crucial to Airbus that the long anticipated switch to a “one agency fronts all” system being fully implemented in relation to all airbus export credit cases, in partnership with the other airbus export credit agencies. Airbus also look forward to the ECGD renewed efforts in allowing its guarantees to be used in more cost-effective capital markets structures, as is the case with the US Eximbank but not, so far, with the European export credit agencies. The widening pricing gap between American and European aircraft export credit is of serious concern to Airbus.

It is the ECGD's staunch support to Airbus that has enabled a high level, predicted to be around 35% to 40%, of Airbus deliveries financed by export credit in 2009.

Airbus is making representations to the Government at the moment on the matter of whether the Bombardier C-Series should be allowed to remain in Category 2 of the new OECD agreement on Export Credit financing. As the C-Series is a direct competitor to Airbus products which are in Category 1, Airbus feels that this contravenes the “level playing field” principle which is part of the new agreement.

#### 1.3 R&T Support

As was briefly covered in Section 4 above, Airbus is a huge investor in R&T in the UK.

The Airbus R&T Strategy and plan is developed and updated on a yearly schedule, giving increasing detail for the coming year and updating the mid and long term goals. The main focus of the R&T strategy for 2009 is ensuring Airbus is in position to deliver the next product (A30X) that can deliver the ACARE targets, which will only be possible by implementing some “game changing” technologies. The Strategy also considers the development of in service aircraft, support for A350XWB and studies for post-A30X technologies.

The UK National Aerospace Technology Strategy (NATS) encompasses an important partnership between UK industry, academia and Government. The Strategy addresses the critical aerospace technologies required to both ensure UK competitiveness in the foreseeable global aerospace markets, and helps industry to meet the ambitious environmental performance targets of aviation.

To ensure the UK retains it's ranking as the world's second largest aerospace economy in an increasingly globalised and competitive market, it will need to be at the forefront of innovation. Focusing on UK strength areas, NATS provides the framework to enable the translation of science through to innovative technologies and processes, from the research base through to market, to deliver that competitive edge.

The following objectives encompass the joint Government/industry approach to Airbus R&T:

- Airbus in the UK will be the technical and economic choice for future Airbus wing, landing gear and fuel system design and wing manufacture and final assembly.
- Ensure that higher value-added design, production engineering and manufacturing for all elements of the wing remain in the UK for future programmes.
- Maintain Airbus in the UK's track record as a high performing component of the Airbus business, including the UK supply chain, the UK's currency position, and the UK's ability to maximise the opportunities of globalisation.
- Deliver low carbon and eco-efficient aircraft and manufacturing activities in order to meet the global climate change challenge.

This strategy has over the past five years seen the investment by Airbus and the Government in the following R&T programmes:

- Establishment of Composite Development Centre in partnership with South West RDA and other composite partners. Motorsport companies are also involved in this project.
- Announcement of Next Generation Composite Wing project.
- CFMS—new project set up for alternative fluid mechanics design. This includes involvement by partners from outside aerospace eg Microsoft and Williams F1.
- £50 million “Protocol” agreement. It is likely that this funding will go towards projects related to structures technology and for projects pertaining to Low Drag Aircraft (Laminar Flow studies).

Looking to the future however, Airbus is concerned that the funding of the Technology Strategy Board is constrained. Recent bid subjects have not been linked to the strategies as defined in the National Aerospace Technology Strategy.

#### 1.4 International Regulatory Support

The UK Government has played an important role in the WTO issue concerning support for civil aerospace and the WTO.

In 2005 The US Government lodged a subsidies case against Airbus at the WTO. The EU promptly retaliated with a counter claim against Boeing. This was despite the 1992 Bilateral Agreement on funding. The problem was difficult to resolve because the US perspective was strongly embedded within a free-market, neo-liberal economic philosophy, while the Continental view was more in tune with a social democratic model of the mixed economy, where government has a key role.

The WTO continues to have the pivotal role in policing and disciplining illicit forms of state support for business. But in the context of the world recession the survival of strategic industries creates a new and pressing agenda. Airbus believes that the political and economic premises that underwrote the US/EU WTO case are no longer valid and make the legal challenge largely irrelevant, if not obsolete and meaningless. When governments are nationalising leading banks and putting money into major car companies, a case at the WTO over repayable loans for aircraft development seems mired in contradictions, especially when one of the protagonists in the case receives grants that are not repayable.

Despite the attempts by Boeing and their US political supports to portray the recent WTO Interim report as supporting their position on this issue, it is important that the Committee understands that this is the first non binding interim report on the US. Its findings have no legal or financial impact on either company.

The interim report on the EU counter case is expected in the next few months.

By abandoning the Airbus/Boeing WTO case the relevant authorities would have an opportunity to assess the current and future levels of funding that are now being given to the aircraft industry in Canada, Japan, Russia and Brazil. With ever more countries seeking to play in the 100 plus seat commercial aircraft sector a truly multi-lateral solution to government funding is now called for. The Airbus/Boeing dispute lags behind the new market reality in large commercial aircraft. It is also a major distraction for the Western Alliance.

## 2. *How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and businesses still further*

### 2.1 Threat to Continued UK Engagement

Unlike the UK, which privatised the DERA (Defence Evaluation & Research Agency), France and Germany have maintained large, powerful, publicly funded research institutes in the Aerospace sector; ONERA (French) and DLR (German).

Attracted by the large, strategically directed and publicly funded research programmes at these institutes, Airbus has established an engagement strategy—linking these institutes to the EADS corporate research centres.

Without steps taken to counter the weaknesses in the current UK research infrastructure, this developing relationship with DLR and ONERA will pose a threat to the future of Airbus engagement with Universities in the UK. Cut off from their source of innovation in the UK, other Airbus development activities may follow the fundamental research, to France and Germany.

## 2.2 Fragmentation and Lack of Strategic Direction at the Level of Key Technologies

There can be no doubt that there is world-leading expertise in UK universities in many of the fields of interest to Airbus. There is also a very substantial amount of public funding supporting that research, the majority of it coming in the form of grants from the EPSRC. In these two aspects, the UK universities are clearly competitive vis-à-vis the institutes noted above.

However, the expertise in the UK is scattered throughout a large number of university departments. There is a lack of an authoritative voice to speak on behalf of UK excellence and scattered islands of capability may never achieve the “critical mass”. This leads to a situation where it is difficult for industry to engage with (or in some cases even to find) the expert “community” in the UK. Furthermore, the different research groups are competing with each other for funding which is a disincentive to them truly collaborating on research. Compared to the perceived ease of working through a central point of contact to access capabilities in DLR or ONERA, the prospect of separate negotiations with multiple university enterprise & development teams in the UK is not an attractive one.

Currently, comparison with the perceived strengths of DLR and ONERA, calls into question our ability in the UK to develop the sort of joined up research programmes of which they are capable—ie research that constitutes a purposeful development of knowledge, technology and skills towards some future application. Historically, public funding has been allocated to support proposals from academics—which could be broadly classed as “curiosity driven”—provided that they align with broad programme goals and that they meet required standards of excellence.

As mentioned in Section 1.3, in 2004, the UK Aerospace Innovation and Growth Team established a National Aerospace Technology Strategy (NATS), including a set of roadmaps linking aerospace market opportunities, through aerospace products to drivers for validation programmes and the underpinning, fundamental research.

Under the current funding arrangements, there is no mechanism to create any kind of link between the NATS and the publicly funded research at UK universities. Grants awarded may only last a few years whereas the NATS roadmaps span more than a decade. In summary, a fragmentation of UK excellence threatens to disable strategic inward investment from industry and technology “push” remains disconnected from application pull.

## 2.3 The Proposal for a “UK Research Institute”

Airbus is working with other UK industries to support the Aerospace & Defence Knowledge Transfer Network that is leading the development of a proposal for a UK Aeronautics Research Institute.

It is hoped that different research groups can create an entity to orchestrate in some way the research carried out at scattered locations. It should also provide a mechanism to ensure the publicly research funding can be applied in a strategic, purposeful fashion.

Some preliminary thoughts as to what such a centre might do include:

- Create and deliver strategic long term research programme (five to 10 years) delivering the key National Aerospace Technology Strategy themes at Technology Readiness Levels (TRLs) 1 to 3.
- Direct and commission public funded research to enable a focus on application led requirements whilst fostering curiosity driven research.
- Manage delivery of the publicly funded National Aerospace Technology Strategy TRLs 1 to 3 including the transition to higher TRLs.
- Manage delivery of the academic contribution to industry led collaborative programmes through to higher TRLs.
- Provide a legal entity such that strategic partnerships can be established with industry enabling fuller disclosure of industry’s strategic priorities.
- Provide a framework for multiple research establishments and funding bodies to collaborate to deliver industry requirements.
- The National Technical Committees within its governance and strategy and recognises existing research intensive organisations to promote and access as appropriate.
- Periodically benchmark research capabilities in the UK to ensure promotion of best in class researchers into the institute and to protect strategic research and test facilities.
- Provide a catalogue of public funding, capabilities and outputs delivering TRLs 1 through to 3.
- Promote and represent world class UK aeronautics research capability.

### 3. *The impact of the recession on the aerospace industry*

Historically growth in global air traffic volume has averaged around 5% per annum over a number of decades. The typical air traffic growth pattern correlates closely with the rate of increase in world GDP. As markets have matured in the advanced Western countries the highest levels of growth in recent years have been seen in the emerging economies of the Middle East and the Asia-Pacific region.

Periodic crises associated with war, economic downturn, health scares or terrorist events such as 9/11 have interrupted the air traffic growth trend at various times in past decades.

In 2008 the global economy has suffered a sharp and synchronised downturn. Much of the world economy has remained in recession in the first quarter of 2009, with levels of activity in many countries significantly lower than a year ago. However, recently there have been some encouraging signs that the recession may have bottomed out, with some countries having returned to growth and others expected to follow in the near future.

The current economic downturn is having an adverse impact on the demand for international air travel. Figures released by the International Air Transport Association (IATA) for international scheduled traffic show that passenger demand for June 2009 fell by 7% compared to the same month in the previous year, with air freight demand showing a 17% fall in the same period.

Accordingly airline revenues and profitability are under severe pressure, with IATA forecasting a global loss of \$11 billion in 2009. Responding to the reduction in demand, some airlines have cancelled orders or re-phased the schedule for the delivery of new aircraft. Consequently both Airbus and Boeing have taken steps to adjust their near-term production build rates to reflect the current economic situation.

Earlier this year Airbus announced that the build rate for the A320 single aisle family will be set at 34 aircraft per month rather than increasing further, and the build rate for the A330/A340 long range family will remain at around 8 per month for the moment. Some airlines that have ordered the A380 have pushed back their deliveries due to the impact of lower passenger numbers and consequent decisions to delay the launch of some of their anticipated new routes. Consequently, earlier this year Airbus announced a reduction in the numbers of A380 aircraft to be delivered in 2009.

Nevertheless, Airbus has a strong forward order book for more than 3,500 new aircraft, with the position at end July 2009 being shown below. Airbus made record deliveries of 483 new aircraft in 2008 and expects to achieve a similar output this year.

#### 3.1 Airbus Order Book—August 2009

	<i>A320 Family</i>	<i>A300/A310</i>	<i>A330/A340</i>	<i>A350 XWB</i>	<i>A380</i>	<i>Total</i>
Total Orders	6,418	816	1,413	493	200	9,340
Total Deliveries	3,985	816	1,001	—	18	5,820
Forward Orders	2,433	—	412	493	182	3,520

In this challenging business environment Airbus is maintaining its drive further to improve its productivity so that it may continue to offer high quality products at competitive prices. The Airbus Power 8 performance improvement programme launched in 2006 has already significantly reduced Airbus' cost base through the adoption of a streamlined organisational structure, leaner processes and strict cash management. In 2008, Power 8 delivered cost savings of approximately €1.3 billion, which is more than half way to the €2.1 billion objective for 2010. The Airbus team in the UK has made a significant contribution to these performance improvement goals. These actions will make Airbus well positioned as it returns to growth.

In furtherance of the aerostructures reorganisation strategy initiated under Power 8 to allow Airbus to focus on its core business, part of the Airbus facility at Filton was sold to GKN in a deal that was completed in January 2009. GKN Aerospace's new facility at Filton will continue to supply major aerostructures to the Airbus wing assembly line at Broughton in North Wales. Airbus looks forward to working in partnership with GKN on advanced wing production for many years to come.

### 4. *The role of SMEs in the Supply chain supporting the sector*

Airbus was one of the 19 founder signatories to the SC21 national strategy. Since the launch of this programme, there has been some real tangible improvement within the UK supply chain but there is still a lot of work to do, particularly against the background of challenges faced from operating within a global environment.

SC21 was actively embarked upon by Airbus to overcome problems of an often disconnected and fragmented supply base operating with non-standardised processes with high levels of waste and duplication. Business relationships were often considered to be poor and the interests of different parties

often mis-aligned. Airbus has actively encouraged its supply chain, including SME's to sign up to the SC21 programme as it firmly believes that without a common and coordinated improvement programme with involvement of all tiers of the supply chain, the continued success of its industry could be put at risk. It is for this reason that, in conjunction with the North West Aerospace Alliance, BAE Systems and Rolls Royce, it has encouraged a cross section of its supply companies to participate in its Aerospace Supply Chain Excellence Programme located on site at Broughton within its Lean Learning Academy.

The aim of this programme is to build a world competitive supply chain through the introduction of senior operational /manufacturing mentors into selected companies to provide world class training and coaching across a number of key foundation processes to drive business excellence and continuous improvement within the supply chain. Companies are strategically selected, based on capability and core competency and positioned into a tiered structure. Senior Airbus personnel have acted as mentors to supply chain companies. Typical involvement is two days a month for two to three years. As the majority of supply chain companies to Airbus are also suppliers to other primes, this provides an opportunity to show suppliers joined up thinking in terms of the Primes approach to supplier development.

Companies need to develop strong and robust business processes and continue to improve these processes to remain competitive. It is also clear that loosely coordinated companies cannot compete with a well-organised supply chain acting as a team. Supply chains must be integrated from the largest prime contractor to the smallest SME, with companies accepting responsibility for providing a total design, manufacture and support service that is 100% on time, 100% on quality and with all work taking place at the appropriate level (in terms of competence and capability) of the supply chain to ensure optimum cost with acceptable risk. In order for this to happen, key skills and processes within all companies need to include: leadership, strategic business planning, project and risk management, manufacturing excellence (including LEAN), supply chain management and strategic "make versus buy" decision making, skills assessment and development, innovation, e-procurement and collaborative working

*5. What barriers are there to further innovation in these sectors and what can be done to overcome them?*

A key enabler from government is financial support to the industry players. R&T grants play an important role in both "oiling the wheels of collaboration" as well as demonstrating UK's commitment to the industry in a competitive market. Major industrial companies have a choice over where to carry out research and subsequent product development, with R&T work tending to migrate to those locations with the most favourable business environments. By supporting R&T not only is the technology/capability itself developed but also the UK is perceived as supportive and a good place to do business. The lack of a specific aerospace strategy can impede successful collaborations and R&T projects

*6. What steps can be taken to encourage the application of the technology development in both sectors to create new design, products and process in other industries?*

It should be recognised that Aerospace already has a good track record in working with other sectors in collaborative R&T programmes. Projects like CFMS Core Programme—a collaborative projects developing new methods of analysis and data handling which will improve processing time by 1000 times include as partners Airbus, Rolls-Royce and BAE Systems from aerospace, Williams from F1 and Frazer Nash (Maritime) together with software and hardware suppliers. The spill over from the sector is significant. Similarly some of the projects related to composites materials have application into other sectors—for example Wind Turbines, F1 and Marine. Simplified mechanisms for IP ownership, protection and exploitation, which recognise the sensitivity within sector, whilst supporting exploitation in other (non-competitive) sectors could help.

A study commissioned by the SBAC with Oxford Economic Forecasting demonstrated that the aerospace industry generated very high spillover returns for other sectors of the economy.

*7. How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

The National Aerospace Technology Strategy is without doubt the benchmark for industrial collaboration. The recently produced Technology Roadmaps are a significant result of NATS.

The Technology Validation programmes in being large integrated and higher-level technology Readiness levels have been important, as they required large investment from both Government and Industry. Through strong lobbying at the outset, a new funding mechanism was established—Validation of Complex Systems—which was the umbrella funding scheme for the TVPs. Collaboration and 50% industry contribution was still required however it was possible to "bid" for substantial grants to support these large projects which proved effective and efficient. These programmes have been the first R&T programmes to make leverage regional support.

The technology derived (typically from Integrated Wing in Airbus' case) has made contributions to A400M, A380 and A350 development and production. The size of the programme has meant that "full scale" validation is being carried out which inevitably makes the technology more immediately available for product development.

The Aerospace Innovation Networks were looser arrangements. Individual projects were established under the umbrella of and AIN with government and industrial support but the overall activity and funding levels were not achieved. CFMS Core Programme is an example of a project created within the Aerodynamics AIN. The AINs and the National Advisory Committees were in some cases duplicating activity. This has lead industry to propose the re-vamping of the Aerospace and Defence Knowledge Transfer network. National Technical Committees are now in place that carries out the advisory role of the NACs together with the more operation role of the AINs in creating R&T projects. The NTCs also maintain the specific technology Roadmaps of NATS. There is a risk that if the A&D KTN is subsumed into a Transport KTN that the focus of the KTN will be diminished.

The value of the AINs has been that the technical leaders within industry, together with academics have been able to share technical developments and opportunities and create new R&T projects. They have not however achieved the overall level of activity and hence funding hoped for. As the projects tend to be a lower Technology Readiness levels they have not delivered so directly into product but are supportive of the technology validation projects.

22 October 2009

### Supplementary evidence from Airbus

Thank you for allowing us the opportunity to provide oral evidence on 3 November for the motorsport and aerospace industries inquiry. I have reviewed the transcript that you provided and I do have some corrections that I would like to submit;

P14, Q26; In Dr Williams' response he mentions our Lean Learning Academy, you have it recorded as "Lean Learner Academy".

P15, Q28; Mr Binley states that Airbus in the UK employs 13,000 people, this figure is in fact 10,500 people.

During the session we committed to providing you with further details on a couple of points;

1. Q13/15. *Export credit—is there a difference in the cost of trade credit between the US and Europe? Is there a price difference or is it a bureaucracy question?*

As discussed in our meeting with the committee in Toulouse Airbus supports the principle of having an Airbus "home countries" joint ECA but not a single European ECA. The presentation that was delivered by Sangeeta Rughooputh on this topic from the meeting is to follow.

2. Q35. *More information required about SC21*

We request ADS to provide a response for this.

3. Q72. *A figure for Airbus' R&D expenditure for 2006 was required. This figure was £445 million.*

4. Q80. *A more specific example of linkages with the TSB funding and NATS strategy was required.*

Response to this question to follow.

5. Q105. *Re: View on statutory training levy*

Will request ADS to provide a response to this.

6. Q114. *Airbus offered to write a "hall of fame of eco improvements" in aviation.*

Airbus is committed to ensuring that aviation remains a sustainable mode of transport through various internal projects and through cross sector and cross industry collaboration.

Some of the projects which Airbus believes will help to support the sustainability of aviation are:

(i) Project Pamela

- Project Pamela (Process for Advanced Management of End-of-Life of Aircraft) has demonstrated that for A300 type aircraft 85% of weight can be turned into value and 65% of materials can be recycled.
- More than 5,200 aircraft will definitely be retired in the next 20 years so the need for this process will become ever increasing.
- Parts of Airbus' A380 static frame have already been sent to PAMELA highlighting the complete life cycle approach towards aviation.
- PAMELA is now being commercialised through TARMAC AEROSAVE.

**(ii) CO<sub>2</sub> Impact by Aviation**

- Aviation currently contributes 2% of man made CO<sub>2</sub>;
  - however this figure is expected to rise to 3% by 2050—although the amount is rising, this is not in line with the expectation that air traffic will double in the next 15 years. The comparatively low rise in CO<sub>2</sub> will be achieved by innovative technological advancements.
- Air travel is often heavily criticised but this figure of 2% that it currently contributes to CO<sub>2</sub> emissions is in comparison with road transport at 18%, industry at 23% and power generation at 35%.
- Given aviation's relative low impact on emissions (in comparison to other transport modes) it is clearly a sustainable option especially as it is expected to contribute US\$1 trillion to world GDP.

**(iii) ACARE Targets**

- Airbus is in line with ACARE (Advisory Council on Aeronautical Research in Europe) targets for 2020; 50% less CO<sub>2</sub> emissions, 80% less NO<sub>x</sub> and 50% less noise than aircraft designed in 2000.
- Airbus aims to achieve these targets by adopting a lifecycle approach to all operations—environmental considerations are central to Airbus' processes and products.
- In order to aid the achievement of these targets Airbus is investing 80% of its R&D budget towards technology to directly benefit the environment.
- So far the achievements to date are a 70% reduction in fuel burn in 40 years (since the introduction of the jet engine) and 75% reduction in perceived noise in 40 years.

**(iv) Aircraft Performance**

- Aircraft performance is clearly crucial to achieving the above targets. Such measures being taken by Airbus are:
  - Investigation into Laminar Flow wings to reduce drag and thus fuel burn,
  - Collaborative research into bio-fuels which is producing promising results—Last year an A380 engine was powered with 40% bio-fuel and tests showed that it behaved in the same way as the other engines powered with standard Jet A1 kerosene,
  - Research into Fuel Cell technology—Airbus have an A320 fitted with Fuel Cell technology—the technology enables hydraulic and electrical systems to be powered by fuel cells of which are emission free and the only bi-product is water which can be used for the aircraft water and waste systems, reducing weight and increasing fuel efficiency; and
  - Composite research is ongoing to try and introduce composites into more areas of the aircraft to reduce weight—currently the A380 has 25% of composites in terms of weight and the A350 will have 52% of composites,
  - This demonstrates the progress that has been.

**(v) SUMMARY**

- To aid the realisation of the targets being set upon aviation more funding needs to be assigned to both R&D and R&T.
- Technologies that are currently available need to be more widely used to help reduce emissions . . . this can be achieved by the procuring new aeroplanes to replace aging fleets.

13 November 2009

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**Further supplementary evidence from Airbus**

During the recent visit to Airbus' facilities in Toulouse, Peter Luff MP asked a question regarding export credit which we agreed to respond to.

Q: *“What is the difference in the cost of trade credit between the US and Europe?”*

There is a difference between the US and the three European ECAs (with the UK being somewhat the weaker credit out of the three). This has a natural impact on a bank's margin when differentiating between two guarantees of the US and of France, Germany and the UK.

A difference in financing tools also exists between each country. For example, the US Ex-Im Bank has a “put” option which reduces the risk (and hence the bank's pricing), whereas the European ECAs do not. The US Ex-Im Bank also has the ability to grant its guarantees to bond holders—in Europe only ECGD can currently do this. The result of this is liquidity is added cutting costs resulting in lower pricing than the US Ex-Im Bank.

Whilst we are pleased that ECGD can temporarily grant its guarantee to bond holders, we are at a disadvantage because we need France and Germany to also be able to do the same to be on a level playing field with Boeing. France is working towards this but Germany cannot.

In times of crisis we are at a further disadvantage because we have three decision making bodies instead of one, therefore the US can react quicker than the European ECAs. Our customers who have had experience of the US Ex-Im Bank also report the ECA process to be much smoother in the US. Decisions appear to be made much quicker but here in Europe we see, in some cases, some inconsistent approaches to fundamental aspects of financing with our three ECAs.

During Hilary Clinton's visit to Russia in October she publicly indicated that the US Ex-Im Bank could support a potential order by Rosavia. This highlights a clear example where Airbus lags behind on securing potential future orders.

10 December 2009

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### Memorandum submitted by the Association of Colleges

The Association of Colleges (AoC) represents and promotes the interests of Further Education Colleges and their students. Colleges provide a rich mix of academic and vocational education. As autonomous institutions they have the freedom to innovate and respond flexibly to the needs of individuals, business and communities.

The following key facts illustrate Colleges' contribution to education and training in England:

- Every year Colleges educate and train three million people.
- 737,000 of these students are aged 16 to 18 which compares to 487,000 in schools.
- 39% of entrants to higher education come from Colleges.
- More than half of all Foundation Degree students are taught in Colleges.
- 172,000 students study higher education in a College.
- Colleges teach over 56,000 students from outside the UK.

Colleges are centres of excellence and quality. 84% of employers training through a College are satisfied with the service provided. 96% of colleges inspected in 2007–08 were judged satisfactory or better by Ofsted for the quality of their provision. QAA judged 99% of HE courses in Colleges to be “commendable or approved”.

For more information on Colleges please see [www.aoc.co.uk](http://www.aoc.co.uk)

#### INTRODUCTION

1.1 Motorsport and Aerospace Engineering courses are available in 27 of AoC's member Colleges with over 1,235 learning aims.<sup>3</sup> The vast majority of students on these courses are studying at level 3,<sup>4</sup> but a significant number are studying for level 4, 5 or higher. Examples of courses include the BTEC National Diploma in Aerospace Engineering and the Foundation Degree in Automotive Engineering with Motorsport.

1.2 Colleges work predominantly with SMEs unable to nurture the talent they employ, in the main due to cost of training. Colleges are able to offer a combination of work based learning and specialised short courses which will enable employers to update their staff skill levels or introduce new technologies and materials; Foundation Degrees in particular have enabled Colleges to work closely with SMEs to develop the courses, skills and infrastructure to support them.

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<sup>3</sup> Note that learning aims indicate number of places filled on a course and an individual student may have more than one learning aim.

<sup>4</sup> Level 3 qualifications include:

- A levels
- Advanced Extension Awards
- GCE in applied subjects
- International Baccalaureate
- Key Skills level 3
- NVQs at level 3
- BTEC Diplomas, Certificates and Awards
- BTEC Nationals
- OCR Nationals

[http://www.direct.gov.uk/en/EducationAndLearning/QualificationsExplained/DG\\_10039017](http://www.direct.gov.uk/en/EducationAndLearning/QualificationsExplained/DG_10039017)

#### CASE STUDY: WILTSHIRE COLLEGE MOTORSPORT

Initially the course was designed around the BTEC First and National Diploma syllabus; the qualification base has subsequently been extended to include a two year Foundation Degree in Motorsport Engineering in 2007 and now in 2009 a BSC honours year top up both being accredited by Bath University.

The students work within teams on a wide variety of projects, both College and customer driven. This teamwork is central to all their activities and requires the teams to not only understand the technical complexities of the Motorsport industry but also the business and financial structure of an organisation.

Entry qualifications for the National Diploma have been raised to 2 B's and 2 C's at GCSE (to include Maths, English and Science). This higher entry qualification has not however slowed the rate of applications, currently running 50% over available places (the First Diploma is limited to 25 places per year, Nat Dip 45 per year and the Foundation Degree 22 per year). This year though the College has seen over 80 applicants for Foundation Degree.

The course structure therefore provides progression routes from GCSE Engineering (also delivered within the college) through to Degree level courses.

#### MOTORSPORT EDUCATION IN COLLEGES

2.1 In 2003, as a result of the findings of the Motorsport Competitiveness Panel,<sup>5</sup> the Government injected a large sum of money into motorsport education and business support. The Department of Trade and Industry announced a £16m fund<sup>6</sup> to help sustain and develop the UK motorsport cluster.

Various organisations were formed, Motorsport Development UK, The Motorsport Academy, Energy Efficient Motorsport and the Learning Grid being the most prominent amongst them.

2.2 Colleges report that the effectiveness of the organisations formed to support and develop the motorsport industry has been very mixed, in particular motorsport education in the UK. This seemed to be focused on reviewing the provision of education rather than supporting it.

Though there was a hire scheme set up whereby Colleges and Universities could hire examples of technology, which had been loaned to the Motorsport Academy, this was at quite a high price.

There was also concern that following the demise of Carter & Carter, who were awarded the £2.6 million contract for the Motorsport Academy, the emphasis has changed to supporting the industry rather than supporting education.

Carter & Carter, who provided outsourced training services and apprenticeships on behalf of various international companies and UK government organisations, went into administration in March 2008 and the contract to run the Motorsport Academy was subsequently awarded to Pera Business and Innovation Centre. In a press release at the time Colin Moody, the Director of Pera, said that Pera would "provide more of a business focus than it previously had".<sup>7</sup>

Although Energy Efficient Motorsport and the Learning Grid have had a beneficial impact raising awareness within the industry of the need to develop new technologies and existing school learners about the possibilities of engineering, more could have been done to invest in and attract the next generation of skilled people to create a sustainable industry.

2.3 It is imperative that universities and Colleges are able to invest in capital expenditure for automotive and autosport technologies as industry-standard technology is advancing at an incredible rate and learners must have up to date and advanced skills and abilities to compete in the global market place. Partnerships between universities, Colleges and companies including purchasing tooling, equipment and premises would be of great benefit to both research and industry in the UK.

Colleges should be supported to continue training in Motor Sport and Aerospace not just to furnish the industries with the next generation of employees, but to ensure that young people are engaged in learning for longer and acquiring the skills they will need for adult life.

#### CASE STUDY: THE NATIONAL COLLEGE FOR MOTORSPORT

The National College for Motorsport (NC4M) was created as part of the Government's drive for "Centres of Vocational Excellence" (CoVE) in 2003 by three FE Colleges, Tresham Institute (lead College), Oxford & Cherwell Valley College and Milton Keynes College. The goal was to work with the motorsport industry to determine the engineering skill shortages and fill the void with quality vocationally trained young people up to level 3. The Colleges were also given the task of creating motorsport specific vocational qualifications agreeable to the industry through apprenticeships.

Tresham Institute has continued with the National College for Motorsport brand training Race Technicians through Programme & Employer Led Apprenticeships. Every year NC4M increases its intake and now has 60 students between 16 and 25 years old with a passion to follow a career in motorsport. They all become programme led apprentices and as such complete a motorsport specific underpinning knowledge

<sup>5</sup> <http://www.autoindustry.co.uk/docs/motorsportpanelreport.pdf>

<sup>6</sup> [http://www.autoindustry.co.uk/press\\_releases/11-07-03\\_1?s=biasnkv0n1gr536](http://www.autoindustry.co.uk/press_releases/11-07-03_1?s=biasnkv0n1gr536)

<sup>7</sup> <http://www.englandseastmidlands.com/News.aspx?ID=249>

qualification at the Silverstone centre before embarking onto work experience and ultimately an apprenticeship with a race team. Once their apprenticeship has been achieved they move onto the Advanced Apprenticeship at level 3, which continues for another two years.

Employer engagement is crucial to the success of the programme which is why NC4M spend as much time as possible working directly with the motorsport industry creating work experience, apprenticeships, gathering technology updates and putting the educational programme into the minds of Race Teams.

At present the NC4M has working relationships with 32 motorsport organisations nationwide (all SME's) employing over 50 Race Technician apprentices. The Government does provide some financial support for these apprentices for accommodation/ travel allowances etc, but it's quite small and often difficult to access. All SMEs work to a very tight budget where even an apprentice can tip the financial balance too far, unfortunately this is the "breeding ground" for good quality Race Technicians so it is important that this environment is kept alive and accessible to education.

#### AERONAUTICAL EDUCATION IN COLLEGES

3.1 Aeronautical engineers are in high demand within the industry and Train to Gain, a free skills brokerage service that helps employers find the training they need for their employees and subsidise the training, has been widely welcomed by the aerospace industry and has aided Colleges to access businesses and forge relationships. However it is difficult for Colleges to match pay levels offered in the industry therefore it is difficult to attract skilled people into teaching.

3.2 Much training takes place internally within the aeronautical industry therefore it is often unaccredited and restricts the ability of staff to gain new employment. Funding from the Learning and Skills Council is for training is very narrow in terms of scope and Colleges report that that wider curriculum funding could be advantageous to the aerospace industry.

Funding needs to be on a national basis, since some companies within the aircraft industry though national in scope, do not exceed 5000 employees. This causes standardisation issues across the company in terms of training.

3.3 There is a degree of mis-alignment between the Civil Aviation Authority (CAA) and the European Aviation Safety Agency (EASA) legal training requirements and the funded qualifications available through the LSC. Foundation Degrees/Degrees can be designed to cover some aspects of CAA/EASA requirements however this is not ideal for all.

We believe that the current FE funding model doesn't fit the industry's needs. The NVQ Level model doesn't map conveniently against the Aero qualifications the CAA recognizes, and the funding model is not fit for purpose. Currently colleges have to either ask for special dispensations on an annual basis or do their best to twist the mainstream model to produce a funded answer. This is further exacerbated by the fact that the route to the main qualification will take young people three years to achieve, and unless the route as a whole is funded as one entity, with qualified "dropping off" points, then learners will end up having to be funded and charged fees as 19+ learners.

If Colleges were funded to deliver CAA/EASA qualifications, this could innovate these sectors.

3.4 Further links and relationships with manufacturers and industry and Colleges and universities must be fostered to identify skills and technology gaps and share the common technology across different industries. This will help raise awareness, particularly amongst SME's within the aeronautical industry, which are not always aware of the training available to them and many have not accessed external training for many years.

#### CASE STUDY: BLACKPOOL AND THE FYLDE COLLEGE AVIATION ACADEMY

The "Aviation Academy" at Blackpool and the Fylde College is now in its third year of operation and has four main courses:

- Aeronautical Engineering—apprenticeship and full-time.
- Aviation Ground Operations—NVQ.
- Cabin Crew training—NVQ.
- Customer Service Check-in—NVQ.

Additionally, the Project Management degree programme could be loosely associated with Aeronautical as the course was designed for, and is delivered to, BAE Systems. It is not however part of the Aviation Academy as such.

The Academy was developed as an extension to the existing, successful Engineering department in light of having an airport situated locally. Aviation-related training is capitolly expensive to resource and development funding was partly achieved through the Local Enterprise and Growth Initiative (LEGI) in Blackpool.

To date, approximately 150 people have received training across the disciplines. As the Academy is only in year three, most learners are still in the training process. Strong links with BAE Systems, Blackpool Airport and a national SME based at several UK airports exist.

## Aeronautical Destinations:

- Aeronautical Engineering—Level 3 learners have either progressed into apprenticeships or have applied for higher level Engineering programmes.
- Aviation Ground Operations—Continuing in employment.
- Cabin Crew—Further training or employment.
- Customer Service Check-in—Still in training.

18 September 2009

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**Memorandum submitted by BAE Systems**

## INTRODUCTION

The purpose of this paper is to provide the BAE Systems Military Air Solutions (MAS) response to the Business and Enterprise Committee inquiry into MotorSport and Aerospace. MAS provides advanced military air capability by successful delivery of design, development, manufacture and support contracts with the UK and overseas customers. MAS has proven capabilities in prime contracting, systems integration, rapid engineering, manufacturing, maintenance, repair and upgrade, and military training. As such it is established as a World leader in the Defence Aerospace industry and an employer of circa 17,000 people across the UK. BAE Systems as a whole is a substantial contributor to the UK economy, through employment, value added (GDP), taxes, investment and R&D spending. In 2006, BAE Systems directly employed 35,000 people, with a value added (GDP contribution) of £2.4 billion, exports of £4.1 billion, a contribution to taxes of nearly £500 million and R&D spending of nearly £900 million.<sup>8</sup> However, its total economic impact is much greater than this, as its activities also support other firms' businesses. When these "indirect and induced" effects are taken into account its overall effect on the UK economy is significant.<sup>8</sup> The indirect employment impact of BAE Systems as a whole on the UK is 46,000 jobs, with every 10 BAE Systems jobs in the North West supporting 13 jobs indirectly.<sup>9</sup>

The following response focuses on the Defence Aerospace impact in the key areas identified by the Committee, including the impact to the wider economy and the effects of the recession on the industry.

1. *The effectiveness of government policies in supporting these sectors*

1.1 The Defence Aerospace sector is heavily dependent on UK MoD procurement policy as the development of new products is determined by the home customer requirements and investment. Export success is also dependent on UK Government support; first securing home customer orders as endorsement of the product or service and then on backing specific campaigns. It is not clear that a policy or process is in place to ensure that all relevant areas of UK Government and UK Industry are aligned to support Export Campaigns.

1.2 A clear policy from the UK on its long term requirements in the Aerospace Sector is needed to support the long term sustainment of capability. Without specific guidance and management there is a risk that critical skills, knowledge and facilities will erode to a point where they are lost. BAE Systems recognises that the MoD is undertaking an activity to define a Fixed Wing Sector Strategy (FWSS); however, the extent to which this will encompass the wider economic and export positions remains unclear. The publication of a revised industrial strategy by the MoD would assist industry in defining their investment strategy and help avoid the loss of such key industrial capabilities.

1.3 BAE Systems viewed the decision to move Defence & Security Organisation (DSO) out of the MoD into UK Trade & Investment (UKTI) as flawed, but to date evidence suggests that it can be made to work. To ensure this continues, it is essential that the MoD remains closely involved with the promotion of UK equipment, products and services.

1.4 The open Defence procurement policy in the UK is not mirrored in other "competitor" nations (eg US, France, etc) which can put UK industry at a disadvantage.

2. *How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business still further*

2.1 BAE Systems has a long record of working with Schools and Universities in both the field of R&T (eg Systems Engineering Innovation Centre at Loughborough) and a range of Schools programmes (eg BAE Systems Schools Roadshow) and sponsored University courses.

2.2 In order to sustain these institutions as vibrant areas of national excellence the Government needs to ensure that careers in these sectors are seen as attractive propositions. Setting the environment from an industry and a government perspective in an aligned manner is key to achieving this. Incentivising the correct

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<sup>8</sup> The Economic Contribution of BAE Systems to the UK in 2006. April 2008. Oxford Economics.

<sup>9</sup> The economic case for investing in the UK defence industry. Final Report September 2009. Oxford Economics.

blend of pure and applied research is another fundamental contributor as this supports the further alignment of government funds with that of industry in order to create research capable of exploitation and creating national advantage.

2.3 The growing dependence on overseas postgraduates for aerospace research challenges our ability to transfer the knowledge to wealth creating industry in the UK. Government leadership, providing direction and support, is needed in the Aerospace Sector to give Industry the confidence and guidance needed to continue to lead and fund initiatives with Universities and Schools.

2.4 Continued investment in Research and Technology is also a growing concern for the sector, with the MoD reported to be making £439 million available for its science, innovation and technology budget in 2010–11, almost 20% less than the £544 million set aside for this year. The MoD has already cut Research and Technology spending, with reductions of 7% for each of the 2008 and 2009 budgets.

2.5 Whilst BAE Systems appreciates the near term pressures placed on the MoD, spending reductions are detrimental to academic research initiatives and risk a decline in the UK's technology pull through and industrial exploitation. BAE Systems welcomes the development of Technology Route Maps by the Science & Technology Community which should help to develop a clearer view of the allocation and nature of future funding, and help maximise the level of investment through identification of exploitation routes.

### 3. *The impact of the recession on Motor Sport and Aerospace industries*

3.1 The long term nature of many Defence Aerospace programmes has provided an element of stability during the recession. However, it is likely that national budgetary pressures caused by the recession will ultimately flow down through further challenges on the relevant government budgets; with MoD procurement and R&T funding likely to receive disproportionate cutbacks.

3.2 From a supplier perspective, the status is mixed. Where suppliers serve multiple sectors, their vulnerability is driven by the recession impact on those other sectors. For example, a supplier serving automotive and aerospace sectors will be more at risk than one wholly dependent on aerospace due to the dramatic downturn in automotive demand. Due to the complexity of the products that the sector provides it is often a capital intensive industry both in terms of finances and R&D. To date we have seen a tightening in the availability of funding both from government and through the capital markets which has in a number of cases had a considerable impact on the supply chain.

3.3 The above means that BAE Systems has, in particular with SMEs, had to take action to more closely monitor the financial health of our supply chain and associated risk. Whilst there has been a slight increase in the number of "risk" suppliers identified, there has not—to date—been any sudden and dramatic increase in suppliers suffering financial difficulties. We are, however, being more proactive in mitigating/managing the financial vulnerabilities in our supply chain.

3.4 Commentators widely predict that the pending general election will result in a number of cuts in public spending to help reduce the deficit in public finances. These cuts, coupled with a Strategic Defence Review, are expected to result in a reduction in defence budgets which the Royal United Services Institute (RUSI) estimates at 10–15% from 2010–16. Any such reductions would inevitably have a direct impact on BAE Systems and consequently its extensive supply chain reliant on their ongoing contracts.

3.5 When the world emerges from recession, sectors that are export and R&D intensive will provide the greatest benefits for the UK economy. When considered together, the levels of export and R&D intensity exhibited by the defence industry show the future benefits from supporting the sector during the recession are relatively larger than for other parts of the economy.<sup>10</sup>

### 4. *The role of SMEs in the supply chain supporting these two sectors*

4.1 SMEs play an important role across the complete Aerospace supply chain, providing valuable contribution in terms of intellect, technologies and products.

4.2 BAE Systems has strong links with a range of development agencies and trade associations. In the Aerospace Sector we work closely with North West Aerospace Alliance (NWAA), whose membership is largely made up of SMEs. MAS along with Airbus and Rolls Royce have been actively supporting NWAA's supply chain excellence programme (ASCE) for the past five years. Our most tangible contribution is the provision of mentors to the ASCE programme—10 to 12 senior managers from MAS who typically spend one or two days a month helping SMEs to address businesses issues and develop more competitive businesses. This is a clear indication of the value which MAS places on SME contribution to its business.

4.3 BAE Systems MAS' key role in the Aerospace Sector as a prime contractor and systems integrator results in a strong reliance on the supply chain. As such there are strong interdependencies between BAE Systems and a large number of SMEs for ongoing financial survival in the sector. In 2006 it was estimated that BAE Systems spent some £3.3 billion on procurement of equipment, components, raw materials, rent,

<sup>10</sup> The economic case for investing in the UK defence industry. Final Report September 2009. Oxford Economics.

energy and services from its suppliers. Distributing BAE Systems' UK procurement spending across industrial sectors and examining the impact of that spending on total sales of different industries, suggests that a typical job in BAE Systems in the UK supports a total of 1.3 jobs elsewhere in the economy.<sup>11</sup>

5. *What barriers are there to further innovation in these sectors and what can be done to overcome them?*

5.1 Innovation is fundamental within the Aerospace sector and occurs at all levels within the supply chain. An example where progress is being made in this area is through the National Defence Industries Council focus on future business models in the R&D area. This joint MoD-industry work is developing a framework and guidance to allow a coherent approach to issues such as IP and joint funding. However, whilst much work has been carried out there is a considerable way to go in order to ensure that further innovation in the sector continues.

5.2 In order to maximise value from investment for all stakeholders the critical driver is the speed with which innovations can be realised and then exploited. Barriers that are evident today include:

- A lack of coherence and alignment between the various funding sources and stakeholders which leads to a fractured exploitation pipeline.
- A culture in which early engagement between the customer and the supply base in developing requirements is discouraged.
- A disproportionate blend of pure and applied research which can cause novel concepts to fail to find their way to implementation and leaving them languishing in a gap between pure research and a level of maturity that allows them to be exploited into real programmes that is often referred to as the “valley of death”.
- Risk averseness in the buyer community, bolstered by the level of scrutiny placed on MoD spending.

5.3 Possible approaches to overcome these barriers include:

- Creating a common R&D framework across both government and industry is critical in order to best leverage the funding, both government and industry, available to generate national value for all stakeholders.
- Encouragement for closer working between stakeholders across the enterprise to ensure close alignment between future needs and emerging technologies and a higher pace to the pull through and exploitation of innovation.
- Overall, recent initiatives such as Capability Visions are a good step in the right direction but need to be properly funded to be effective.

6. *What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

6.1 No response.

7. *How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

7.1 It is difficult to measure the success of initiatives in the Aerospace Sector due to the long lead times associated with it. Looking beyond the tangible output of marketable technology we recognise the success of these projects in terms of allowing the UK MoD and Industry to maintain a position of “intelligent customer” in the sector and as an excellent field for developing people in the industry.

7.2 The DTI's Aerospace Innovation & Growth Team was very successful in developing a National Aerospace Technology Strategy and a set of route maps for its deployment. However, the level of public sector funding and the time taken to deploy it has been disappointing. An example has been the ASTRAEA programme that, with funding limitations, had to be split into two halves and has since struggled to gain its second half funding, risking the loss of a World leading position for the UK.

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<sup>11</sup> The economic case for investing in the UK defence industry. Final Report September 2009. Oxford Economics.

### Memorandum submitted by Coventry University

Coventry University is at the forefront in automotive design and engineering. The automotive courses are world-famous, professionally accredited courses taught in a problem-based environment to develop your practical and problem solving skills in real situations.

Our Automotive Engineering and Automotive Engineering Design graduates command senior positions in vehicle manufacturing and automotive supply chain companies, and find themselves in demand within both engineering and business management fields within the automotive industries worldwide. Motorsport courses cover Motorsport Engineering, Motorsport and Motorcycle Engineering and Motorsport and Powertrain Engineering.

Our Aerospace courses are accredited by the Royal Aeronautical Society, the Institution of Mechanical Engineers and the Institute of Engineering and Technology and are tailor made to meet the needs of our students. These courses cover Aerospace Systems and Technology, Aviation Management and Avionics Technology.

Our response to the specific topics highlighted are as follows:

#### *The effectiveness of government policies in supporting these sectors*

Recent government attempts to support the Motorsport Industry were deemed to be largely unsuccessful. The support for aerospace is much more systematic and widely distributed. Uncertainty over defence budgets are a significant barrier.

#### *How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business still further*

The active engagement of industry in academic developments is largely done at 2 levels: Nationally through eg EPSRC, TSB, professional bodies etc, and locally through personal or local corporate initiatives. Typically these rely on strong motivation from both parties and this is what needs to be encouraged and developed.

#### *The impact of the recession on Motor Sport and Aerospace industries*

Motorsport is subject to International factors as well as its own organisational (competition rules) factors. Any downturn feeds through quickly and generally affects businesses fairly and equally. Aerospace is more reliant on direct government initiatives at a strategic level, and these have a longer term effect, and perhaps a phase lag. In other words, it is too early to feel immediate changes.

#### *The role of SMEs in the supply chain supporting these two sectors*

The role of SME's in Motorsport is almost 100%. There are almost no large companies in the sector, either at OEM or supplier level. In aerospace, it is more evenly split. In both cases it is therefore absolutely essential.

In terms of activity in the West Midlands, the Aerospace sector is probably better understood as there have been a number of specific Business Support initiatives delivered in the region, primarily through the Manufacturing Advisory Service, under the "Lift Off" programme header. The most recent of these is support to achieve accreditation to the SC21 supply chain standard, which has also engaged a number of non-SME tier 1 suppliers.

The two sectors are potentially very important to the supply base in the WM (and UK generally) as they are high value and "niche" in their nature. They also require their suppliers to be innovative as well as high quality; innovation is, I believe, going to be an even more important differentiator for UK businesses in the future, if we are to remain ahead of low cost economies.

#### *What barriers are there to further innovation in these sectors and what can be done to overcome them? What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

The barriers to innovation are a lack of funding being made available for research. Maybe not such a problem at the top level of motorsport where the influence may be more down to changes in rules influencing the research input. For Aerospace clearly there is a desire for a high level of research and innovation but insufficient funds. For example, a recent FP7 call where funding was only sufficient for 10% of the submitted proposals.

Motorsport clearly can contribute to developing technologies for the "green" future. An example of this is a recent project developing a niche vehicle Electric Vehicle racer. Also the impact of technologies such as KERS being applied in the mainstream market.

The creation of the “High Performance Engineering” concept or brand has been helpful in bringing these sectors closer together. Innovation is now seen to be flowing two ways. It can be supported through technology transfer mechanisms at all levels. This is exactly in line with the Faculty’s thinking around the “High Performance Engineering Centre” (HPEC) in our new Engineering and Computing building.

18 September 2009

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### Memorandum submitted by EADS Astrium

I have pleasure in enclosing Astrium’s written submission to your inquiry dealing with the aerospace sector and the impact of the recession on its outlook. As the UK’s leading manufacturer of spacecraft and satellites, our response focuses on the space sector. The space and aerospace sectors have long enjoyed close industrial ties, and both sectors face similar challenges in these times. However, this submission focuses mainly on the principal challenges specific to the UK space sector that we believe pose the greatest risks to the sector’s long-term prosperity.

Astrium strongly welcomes this inquiry, as a timely reminder of the importance of the aerospace (and space) sectors to the UK economy. There is a need for remedial action in these extraordinary times, if the UK is to emerge from the current recession with a healthy and balanced national economy with a vibrant and competitive manufacturing sector at its heart. We welcome in particular your focus on innovation and on the role of universities. As one of the most R&D intensive sectors in the UK, employing the most highly skilled workforce in UK manufacturing, both the knowledge base and the skills base of Britain’s space sector are vital to its future.

This is a good time for your Committee to consider the many challenges and opportunities facing the space sector. In the creation of the new Department for Business, Innovation and Skills, space is once again within your department’s area of scrutiny. Indeed, I believe that since your Committee last looked at space a decade ago, we have seen a growing awareness across Parliament and, Whitehall and the public at large of the economic, social and political importance of the UK’s leadership in the global space sector. Your inquiry also takes place during the lifetime of the Space Innovation and Growth Team, a joint inquiry by Government (headed by BIS) and by industry that aims to elaborate a twenty year roadmap for the UK space sector. I would be delighted for the opportunity to give oral evidence before the Committee, with colleagues from the Space IGT, to elaborate on the findings of the IGT as they emerge towards the end of this year.

#### 1. EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS

1.1 Astrium is the world’s biggest spacecraft manufacturer outside the US, and is wholly owned by EADS, Europe’s biggest aerospace and defence company. Astrium is a \$3 billion global business, directly employing over 3,500 people in the UK. This submission focuses on the state of the UK space sector within the current recession, and makes recommendations to boost the long-term prospects for the UK to be a leading space nation—an ambition which Lord Drayson, Science Minister, has this year placed at the heart of Government space policy. This inquiry comes at a time when Government and Industry are conducting the most ambitious joint study ever undertaken into the future of Britain’s space sector—the Space Innovation and Growth Team (IGT).

1.2 Space-based applications provide an essential enabling function, and underpin three growing needs in modern society: the need for accurate information, the ability to connect and communicate, and the ability to locate people, goods and structures. Distinct characteristics of satellite applications are accuracy, global coverage, reliability, rapidity and resilience.

1.3 Space is one of the UK’s most hi-tech, high-skilled, high-growth, value adding and strategic sectors, adding £6 billion to the UK economy in 2008 (including £500 million directly in the manufacturing sector), and supporting over 18,000 direct jobs, and 60,000 jobs indirectly. The UK has built up a 7% slice of a fast-growing global space market, estimated to be worth €500 billion by 2020. Space is one of the UK’s most R&D intensive industries, on a par with pharmaceuticals and aerospace and six times the national average.

1.4 Astrium has so far weathered the global recession well, due to a number of factors. The space sector operates along longer lead times than most industries. A typical turnaround between order and delivery of three years, combined with Astrium’s healthy order book and backlog at the outset of the recession, has given Astrium a cushion against the recession’s short-term effects on demand. Astrium also entered the recession with a strong cash surplus, allowing it to withstand the credit squeeze afflicting other manufacturing sectors. Although Astrium has detected some reduction in contracts and bidding at a global level this year, Astrium has still won two major commercial export contracts this year, and anticipates a year of minimal growth next year followed by a return to strong long-term growth thereafter. The 2008 Council of Ministers of the European Space Agency (ESA) set budgets for investment in European space programmes for three to five years ahead, providing the European space sector with vital stability and certainty in the institutional market during the recession.

1.5 The recession has not dented Astrium's optimism for long-term growth. In 2008, Astrium recruited 450 personnel in the UK, and there are no plans to reduce this new UK employment level. With two thirds of our workforce holding at least one degree, our graduate and apprentice recruitment programmes remain vital to our future, and we plan to continue to recruit between 30 and 40 graduates and 12 apprentices per year over the coming years.

1.6 Space is innovation rich and innovation dependent. Current technology leadership is the fruit of a longstanding partnership between industry and Government, through joint investment in programmes such as ARTES (Advanced Research in Telecommunications Systems), ESA's space technology programme for satellite telecoms, and other smaller ESA and national programmes. The commercial satellite communications market represents 70% of the turnover and employment of UK space manufacturing, and provides the critical mass for it to remain viable, sustain its technology bank, and bid for exports. ARTES is a very successful Government backed technology transfer mechanism and has generated returns of 7:1. Astrium would also point to the national MOSAIC programme, which provided seed funding that ultimately helped the UK dominate the small satellite market.

1.7 Clear challenges exist in driving space innovation into the marketplace in the UK. While the Space IGT considers these challenges in greater detail, Astrium makes the following key recommendations for the Committee's consideration:

- 1.7.1 The lack of a national space technology programme in the UK, or any technology demonstration, leaves UK industry at a clear disadvantage in bringing technology into the marketplace. Technology demonstrator programmes should be a critical component in a new National Space Technology Programme (NSTP).
- 1.7.2 The UK should build on the opportunity afforded through the establishment of the ESA Facility at Harwell by establishing a complementary UK space innovation centre, situated alongside it, within which the NSTP would be housed.
- 1.7.3 To promote a more space-friendly procurement culture across Whitehall, Astrium recommends a Government Office for the Promotion of Space Based Innovation in Public Services, supported by an annual audit of space-based innovative procurement across Whitehall. Departments with strong potential for space-based innovation should include a standing chapter on space-based procurement within their annual Innovative Procurement Plans, and appoint a point of contact. In particular, the Department for International Development and the Foreign Office should conduct their own space innovation reviews to exploit the significant opportunities within these departments.
- 1.7.4 A National Space Technology Programme should include dedicated competitions for public space-based innovative procurement, modelled on the Technology Strategy Board's SBRI programme.
- 1.7.5 A review should be set up to look at opportunities for major space-based infrastructural projects, and should be included within the Government's proposal for establishing flagship pilot examples of Forward Procurement Commitment.

1.8 Universities play an important role in supplying the high-skilled graduates that the space sector relies on, and early technology, especially for science missions. The UK needs to encourage a greater flow of both people and ideas between industry and academia:

- 1.8.1 The UK should look at ways in which the flow of people between schools, higher education, and business, can be encouraged, as a critical component of a National Space Education and Skills Strategy.
- 1.8.2 An annual compendium of intellectual property held by Higher Education Institutions should be compiled, with HEIs being called upon to justify the retention of all IPR, and being rewarded for demonstrating the successful migration of IPR into the commercial sector.
- 1.8.3 The UK should consider holding an annual auction of IPR held by HEIs, for those extreme cases where evidence exists that IPR has been stubbornly retained without plans to exploit it.

## 2. FOCUS OF ASTRIUM'S SUBMISSION

2.1 As the UK's leading manufacturer of spacecraft and satellites, our response focuses on the space sector, which has close links with the aerospace sector. Referring to the Terms of Reference of your inquiry, we have focused on:

- 2.1.1 The role of the space sector in the broader UK economy.
- 2.1.2 The effects of the recession on the UK space sector and Astrium specifically.
- 2.1.3 Overcoming the barriers to promoting space-based innovation.
- 2.1.4 The role of the universities in supporting the space industry.

2.2 This submission is produced within the context of the recent launch of the Space Innovation and Growth Team. The Space IGT represents the most ambitious attempt to create a long-term vision for the UK's role in space, and to look at the main underlying factors that will determine its success. This is a joint

review, undertaken by Government, through the Department for Business, Innovation and Skills, and industry, and will look more deeply into all areas touched on within this document. Given the importance of the Space IGT to the sector's future, Astrium encourages the Committee to engage with the SIGT, as its findings emerge towards the end of 2009.

### 3. ABOUT ASTRIUM

3.1 Astrium is a \$3 billion business, it is the No.1 space company in Britain and Europe, and No 3 worldwide, after Boeing and Lockheed-Martin. Astrium is wholly owned by EADS, Europe's main aerospace and defence company. As such Astrium is embedded at the heart of the European aerospace and defence sectors.

3.2 Astrium is one of the few organisations worldwide to offer an end-to-end space-based capability. Astrium provides a full range of space products from civil and military telecommunications to Earth observation, science, exploration and navigation programmes. Astrium is capable of competing across the world space market, a market forecast to grow to at least \$500 billion a year by 2020. Its bank of world-leading technologies and its critical mass underpin the future competitiveness and viability of the sector.

3.3 A quarter of Astrium's 12,000 global workforce, around 3,500, work in Britain, mostly in our key sites at Portsmouth and Stevenage. This workforce, together with Astrium's latest UK acquisition, Surrey Satellite Technology Ltd (SSTL) in December 2008, represents more than half of the total direct workforce in the UK Space manufacturing (or upstream) sector, and the largest national workforce in Astrium's worldwide satellite operations. The UK is home to Astrium's centres of excellence for all military communications satellites, antenna systems, digital processors and for the design and manufacture of the advanced communications, and navigation payloads.

### 4. ABOUT THE SPACE AND AEROSPACE SECTORS

4.1 Britain's UK space and aerospace sectors share common technologies, parentage and much history in common. Both sectors share some of the biggest names in both our industries—in particular EADS, BAE Systems, QinetiQ and Thales. Shared technologies include composites, propulsion and autonomous robotics.

4.2 However, it is also important to stress the significant differences between the two sectors. The UK aerospace sector employs around seven times as many people directly as the UK space sector. However, the economic value of the space sector can never be adequately measured in pure direct employment terms. The value of Britain's space sector is its broader and unique economic reach, into many other parts of the UK service and knowledge economies, yielding an economic multiplier significantly greater than almost any other hi-tech sector.

### 5. WHY SPACE?

5.1 Space-based applications provide an essential enabling function, and underpin three growing needs in modern society: the need for accurate information, the ability to connect and communicate, and the ability to locate people, goods and structures. Space is also a vitally important laboratory available for fundamental science, from understanding our place in the Universe to our effects on Planet Earth. Distinct characteristics of satellite applications are accuracy, global coverage, reliability, rapidity and resilience. They also offer independent and impartial information, such as on emissions or deforestation. Similarly, global, gradual changes in our climate such as sea temperature and ice-cap melt can only be measured by satellite.

### 6. THE ROLE OF THE SPACE SECTOR IN THE WIDER UK ECONOMY

6.1 The space sector plays a key role in underpinning our migration towards a "smart" society, where non-essential smart appliances turn themselves off at peak energy demand, where goods and services are inter-connected and always connected, and where technologies and platforms converge, such as TV, the internet and telephones. Within this information and communication revolution, the global, mobile and accurate space-based services become increasingly essential to deliver our quality of life, to underpin our national competitiveness, to deliver efficiency savings in public services, and to safeguard our environment and critical infrastructures from natural and man-made threats. It is for these reasons that UKspace has talked about a "space-enabled future", with UK innovation and enterprise at the heart of one of the most dynamic sectors in the UK and global economies.

6.2 Today, space-based innovation helps to boost productivity throughout the UK economy, such as through supporting smart transport infrastructure. The Met Office, for example, has estimated that satellite data has enabled them to improve weather forecasting by 25% in the last ten years. The OECD has estimated that an improvement in weather forecasting by 1 degree Fahrenheit would save the US energy sector \$1 billion a year, by better forecasting demand.

## 7. ABOUT THE UK SPACE SECTOR

7.1 Space is one of the UK's most hi-tech, high-skilled, high-growth, value adding and strategic sectors, adding £6 billion to the UK economy in 2008 (including £500 million directly in the upstream), and supporting over 18,000 direct jobs, and 60,000 jobs indirectly. The UK has built up a 7% slice of a fast-growing global space market, estimated to be worth €500bn by 2020. Space is one of the UK's most R&D intensive industries, on a par with pharmaceuticals and aerospace and six times the national average. Its added value per worker stands at four times the national average, at £135,000. The UK space industry boasts a complete suite of space technologies and capabilities, from civil and military telecommunications to Earth observation, science, exploration and navigation programmes. This critical mass of technologies and skills allows UK Space to bid for—and win—the world's largest satellite contracts worth £'00s of millions to the UK economy, from the Inmarsat 4 series of commercial communications satellites, to the Skynet 5 military communications system and services.

7.2 The UK space sector enjoys its own unique characteristics, setting it apart from both the rest of the global space sector, and the rest of the UK economy:

- 7.2.1 The UK is home to the most commercial space sector in Europe, with around 70% of the UK workforce manufacturing satellites for the commercial market.
- 7.2.2 The UK has built up a bank of world-leading space technologies, including advanced payloads (the heart of the satellite), space science, specialised earth observation instruments, including both radar and optical, secure military telecommunications and software systems.
- 7.2.3 UK enterprise has repeatedly entered and reshaped the global space market, creating better wealth creating opportunities than elsewhere in Europe. Surrey Satellite Technology Ltd (SSTL) created and still dominates the small satellite market. Similarly, Virgin Galactic is creating a new, mass-market space tourism industry. Paradigm, the military satellite communications service, has injected private capital and risk-sharing into public procurement. And Avanti has conflated the route-to-market for space technology, through innovative funding models.
- 7.2.4 The UK's downstream footprint of space users is the most extensive and profitable in Europe. These include the world's most profitable mobile satellite operator (Inmarsat), Europe's biggest satellite based broadcaster (Sky), and the leading space tourism operator, Virgin Galactic. This provides the UK space sector with a unique route to market that aids wealth creation.
- 7.2.5 UK space policy has so far focused investment on “value for money” space programmes with clear policy benefits, excluding major investment in costly, “prestige” space spends, such as the International Space Station.
- 7.2.6 The UK space sector is clustered around the East and South East of England, with 90% of the manufacturing industry located within a twenty-mile wide corridor between Astrium's two main UK sites, Portsmouth and Stevenage, drawing on a nationwide supply chain. This is a dynamic cluster, comprising key aspects from the entire value chain, including academia and research centres, manufacturers, operators and service companies, the financial and insurance community in the City, and the public sector nexus of Whitehall, and the regulators (notably Ofcom). This natural clustering plays an invaluable role in the exchange of skills, ideas and business opportunities and should be encouraged. Other parts of the UK, such as South Wales, the East Midlands, and others, are developing dynamic regional space capabilities, particularly in downstream applications such as sat-nav devices.
- 7.2.7 Space is typically embedded within larger businesses. Only a third of companies in the UK Space Industry are mostly dependent on space business, and for 40% of companies supplying space products, space represents less than 25% of their business.<sup>12</sup> EADS Astrium, QinetiQ, Logica and Vega are four examples in UK space manufacturing where the parent companies offer a portfolio far broader than space. Similarly, leading SMEs in the UK space sector, such as SEA, supply products into a variety of hi-tech sectors, including aerospace, IT, defence, security and energy. UK space industrial capabilities are therefore an integral part of much of the UK's hi-tech value chain.

## 8. THE EFFECTS OF THE RECESSION ON ASTRIUM AND THE UK SPACE SECTOR

8.1 A typical satellite manufacturing contract will be from three to five years duration from order to launch, making the space industry intrinsically resilient to short term perturbations in market conditions. Astrium entered the recession with a very strong order-book, a healthy backlog and a cash surplus, so that the recession and shortage of credit has not had any impact as yet on financial results. Astrium has booked two commercial export orders for satellites this year, demonstrating there is still market confidence amongst the commercial satellite operators. In the “institutional” space market, budgets are generally committed for

<sup>12</sup> The Size and Health of the UK Space Industry, 2008, BNSC.

between three and five years ahead so that there is a stable perspective until at least 2011, when it will be time again for the European ministers to agree the joint programmes to be funded through the European Space Agency (ESA), and what each nation's share of that will be.

8.2 Looking further into the future, Astrium has noted a decrease in the level of bidding for new satellites and for equipments to other satellite prime contractors, indicating that procurement plans are being slipped by some operators. However, a number of recent market surveys and analyses have predicted continued strong growth and see the current financial conditions as causing only a short dip in the growth path. Astrium remains confident that the overall business perspective remains extremely positive although a year of zero growth in 2010 is likely.

8.3 Astrium recruited 450 personnel during 2008 and taking account of natural "wastage" from people leaving the company, the net increase in staff was around 350 people, mostly technicians, engineers and scientists. This large increase in staff numbers was in response to the record order book. Astrium has continued recruitment this year although at a much reduced rate and will likely hold at the present numbers looking forward and into early next year.

8.4 Astrium continues with its graduate and apprentice recruitment programmes and will be targeting 30 to 40 graduates and 12 apprentices again this year. The apprentice intake and graduate recruitment levels are stable and likely to continue at this level next year. Graduate recruitment is focused on UK universities where Astrium maintains very strong research links.

## 9. CURRENT LEVELS OF PUBLIC INVESTMENT ON SPACE

9.1 By international standards, UK investment in civil space is relatively small, falling behind 15 other countries as a proportion of GDP, including Finland and Belgium. The UK's civil space spend is approximately £240 million per year, or around a penny per person per day. By comparison, France spends around €1.9 billion and Germany €1.4 billion. The US is believed to spend around \$25 billion on defence space programmes, and \$17 billion through its civil space agency, NASA. Japan, China and India all spend significant sums on space. Global space spend is also characterised by a strong increase in interest by other developing countries, including Brazil, South Africa and Nigeria. These global trends pose increasing challenges on the competitiveness of the UK space sector, as well as export and partnership opportunities.

## 10. OVERCOMING THE BARRIERS TO UK SPACE-BASED INNOVATION

10.1 The UK space sector is innovation rich and innovation dependent. Indeed, innovation is critical to the success of the UK space sector—speed to market underpins the competitiveness of the sector, as with all hi-tech sectors. As David Williams, chief executive of Avanti plc, told the Commons Science and Technology Select Committee inquiry on space policy, in December 2006, "the Indians and the Chinese will not have this technology for at least five or six years because it will take them that long to copy what we have done. In the meantime, we will have launched the first one and hopefully Astrium will have sold a half a dozen more to other operators around the world, bringing in a vast amount of earnings to the UK".<sup>13</sup>

10.2 Innovation occurs throughout the UK space sector, in the form of "spin-in innovation" using technology from other sectors, breakthrough innovation and science led innovation, stemming from the interaction between academia and industry, and policy led innovation, where current prospects include smart metering, the rollout of broadband, creating a smart transport infrastructure and the policing of international agreements on cutting carbon emissions. Various mechanisms exist to support each of these strands of innovation both in the UK and abroad, with the US Defense Advanced Research Projects Agency (DARPA) and Small Business Innovation Research (SBIR) mechanisms providing two models of best practice. However, if the UK is to achieve the challenging objectives of global leadership and wealth creation laid out in the UK Space Strategy and in the new Space Innovation and Growth Team, Government needs to revisit and strengthen all mechanisms supporting the UK space value chain, in particular, in the giant leap required of technology from industry into the marketplace.

10.3 The competitiveness of the UK space industry ultimately lies in its technology base. The greatest opportunities and the greatest current failures lie in the development of mature intellectual property into a marketable product. Keeping these at cutting edge are vital to the sector's growth prospects.

10.4 Government infrastructure procurement is a key source of innovation. Targeted infrastructure investments such as satellites to provide universal broadband access and satellite earth observation to support applications including carbon trading, the policing of environmental agreements and maritime security could provide major "downstream" and user benefits well beyond the classical space industry.

10.5 Current technology leadership is the fruit of a longstanding partnership between industry and Government, through joint investment in programmes such as ARTES (Advanced Research in Telecommunications Systems), ESA's space technology programme for satellite telecoms, and other smaller

<sup>13</sup> Evidence by David Williams, Chief Executive of Avanti plc, to the House of Commons Science and Technology Select Committee Inquiry on UK Space Policy, 6th December 2006, Question 27: <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmsctech/66/6120603.htm>

ESA and national programmes. Satcoms represents 70% of the turnover and employment of UK space manufacturing, and provides the critical mass for it to remain viable, sustain its technology bank, and bid for exports. ARTES is a very successful technology transfer mechanism and has generated returns of 7:1.

10.6 Similarly, the MOSAIC programme was another highly successful Government programme, which was funded through the former DTI and the BNSC between 1994 and 1999, and which helped de-risk the development of small earth observation satellites, an area of UK leadership. SSTL was able to use this initial seedcorn investment to develop and sell a constellation of small satellites owned by developed and developing countries around the world, bringing in revenues of about £75 million to the UK. As Sir Martin Sweeting, Chief Executive of SSTL, told Parliament in 2006, “Without that initial seedcorn investment in reducing the technology risk in the first UK satellite, none of these other countries would have had the confidence to join the constellation and hence bring in that business.”<sup>14</sup>

10.7 Technology demonstrators are a proven mechanism for maturing technology and derisking new technology, before it can be exploited competitively. However, the UK is at a conspicuous disadvantage through the lack of any space technology demonstrator programme, or even culture, in public space policy. Germany and France, along with other space nations, such as Belgium and Sweden, enjoy vibrant space technology demonstrator programmes.

10.8 Technology demonstrator programmes should be a critical component in a new National Space Technology Programme (NSTP). Industry has long argued for an NSTP, and indeed in the last UK Civil Space Strategy, the Government also accepted the case, but has thus far failed to fund it. An NSTP would also complement ARTES as the two necessary components of a UK space technology strategy.

10.8.1 The UK should set up a National Space Technology Programme for industry-led application oriented technology development, with a budget of at least £20 million per year, to reduce risk and drive innovation into the marketplace. This should include a space technology demonstration programme as a critical component.

10.8.2 The UK should build on the opportunity afforded through the establishment of the ESA Facility at Harwell by establishing a complementary UK space innovation centre, situated alongside it, within which the NSTP would be housed.

10.9 The UK should fund a targeted national satellite programme, to complement targeted lead investment in ESA programmes, and to safeguard national technologies against the current over-dependence on UK investment in ESA.

## 11. PROMOTING A SPACE FRIENDLY PUBLIC PROCUREMENT CULTURE

11.1 Government has a vital role to play in promoting space-based innovation, as an early adopter of potential satellite-based services and applications. Early Government uptake can stimulate wider market uptake and enable service providers to attract private investment. However, public procurement is often described as being risk averse, and too focused on short term requirements, acting as a disincentive for the promotion of innovative solutions.

11.2 Successful adoption of public space-based innovation requires a mature understanding of both innovation and risk. The Conservative’s STEM Task Force proposed the creation of an Innovative Projects Agency, to promote innovation in public procurement, and of a new Department for Innovation and Science. The 2008 DIUS White Paper, *Innovation Nation*, committed each department to publish an Innovation Procurement Plan, to help “embed innovation in its procurement practices and seek to use innovative procurement mechanisms”, including setting up flagship procurement pilots of “Forward Commitment Procurement”, as a means of promoting more long-term innovative policy solutions. Given the particular standing opportunities and challenges in promoting space-based innovation in public procurement in many parts of Whitehall, Astrium encourages a space specific innovation agency, preferably housed within a broader UK Space Agency, and to require those departments most relevant to space to include a section on space within their Innovation Procurement Plans.

11.3 Other major space nations have developed similar space specific schemes for actively promoting the take-up of national space applications in the public sector, generating some innovative approaches to problem solving in the public sector. US space policy papers abound with measures to encourage the take-up of space applications in Government. The GPS Coordination office, for instance, was set up by the Department of Commerce to ensure all US government departments were aware of the capabilities of GPS and included it where appropriate in their procurements. India is also widely regarded for its promotion of satellite-based infrastructure solutions.

11.4 France invests significantly in its Earth Observation satellite capabilities, and to promote a home market, Government departments are actively encouraged to find uses for EO imagery. For example, the French authorities have developed an integrated marine enforcement system, combining radar satellite data with the automatic identification systems on board legal vessels, to identify illegal vessels fishing off the Kerguelen Islands in the Pacific Ocean. This has been credited with helping to cut by 90% illegal fishing incursions in the million square kilometres of French waters around the French Kerguelen Islands.

<sup>14</sup> <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmsctech/66/6120603.htm>

11.5 The Technology Strategy Board is best placed for championing innovation in public procurement, although clearly a receptive attitude by the user departments is also essential. As well as the TSB's core task of managing the "challenge led" technology areas in which to focus on, the TSB has also recently reworked a previous DTI initiative, first borrowed from the US in 2001. The highly successful US SBIR scheme supports start-up companies and SMEs by offering quick access to funding for new ideas, with "little red tape, time or effort", while protecting IPR, supporting commercialisation and marketing, and offering access to US public customers.<sup>15</sup> Similarly, the TSB's Small Business Research Initiative aims to bring innovative solutions to specific public policy needs, by working with user departments to identify policy challenges, and by working with the private sector to encourage innovative solutions. Currently, the SBRI has ten open or forthcoming competitions, ranging from "energy efficient soldier" to "keeping children active".<sup>16</sup> SBRI has high potential for encouraging a more innovative public procurement culture. The creation of a space specific programme modelled on SBRI, within a National Space Technology Programme and open to space companies of all sizes, would offer a valuable policy tool for promoting innovative space-based public procurement.

11.5.1 The BNSC initiative GIFTSS should be replaced by a well-resourced Government Office for the promotion of Space-based Innovation in Public Services. This should include its own annual audit of space-based innovative procurement across Government. This should work with the TSB in framing and managing the space-based competitions to promote innovative public procurement [See below].

11.5.2 A National Space Technology Programme should include dedicated competitions for public space-based innovative procurement, modelled on and managed by the TSB's SBRI programme, to encourage innovative space-based public procurement, and to build links between the TSB, the space sector and public space policy communities.

11.6 In 2008, UKspace commissioned a study to map the potential space policy market within UK departments.<sup>17</sup> The study unearthed a plethora of potential space-based solutions of relevance to the many Departments of State. This example should be taken up and promoted, and managed regularly, with the support and ownership of the departments themselves.

11.7 Whitehall departments with a strong potential for space-based innovative procurement should be required to include a standing chapter on space-based procurement within their Innovation Procurement Plans, to include an annual audit of their adoption of innovative space-based solutions; and to appoint a dedicated point of contact for space related policy issues.

11.8 In particular, the Department for International Development and the Foreign and Commonwealth Office should include their own space innovation reviews within future reviews on promoting innovative procurement, to identify opportunities for adopting space-based solutions, and identify current procurement practices and cultures impeding innovative procurement.

11.9 Quite apart from the culture of procurement across Whitehall, there exist today some individual opportunities for promoting space-based or part-space based solutions to major policy issues. These include smart metering, broadband and building an intelligent transport infrastructure (include road charging). These cases represent individual specific opportunities for any incoming Conservative Government to make rapid efficiency gains by adopting space-based solutions that in the long term are quicker, greener and cheaper than alternative terrestrial solutions.

11.10 A review should be set up to look at opportunities for major space-based infrastructural projects, to promote more efficient public service delivery and to improve the UK's basic infrastructure, including IT, broadband and energy distribution. These should be included within the current Government's proposal for establishing flagship pilot examples of Forward Procurement Commitment.

## 12. THE ROLE OF UNIVERSITIES IN THE SPACE SECTOR

12.1 Universities and research centres play a vital role in UK space. At least twelve of the UK's leading Higher Education Institutions have recognised world leading expertise in space research. Because of the science intensity of the space sector, and its highly skilled workforce, the opportunities for science led innovation are huge.

12.2 There has been considerable effort in recent years to encourage the Research Councils to consider the wealth creation potential of the science they support. The role of the Technology Strategy Board is particularly important in this regard, by working with the Research Councils to promote synergies between the technology and the science which they respectively support. Currently, the TSB sets the broad socio-economic challenges where innovation will be encouraged through public investment. However, although there will always remain a place for the funding of pure science without market drivers, the research agendas of the Research Councils still do not sufficiently feed into this "demand led" innovation culture. Some

<sup>15</sup> [www.sbir.us](http://www.sbir.us) The future of the US SBRI is currently being debated, with the possibility of it being opened up to larger companies—see <http://www.sbir.us/sbirnews.html#open>

<sup>16</sup> [www.innovateuk.org/deliveringinnovation/smallbusinessresearchinitiative.ashx](http://www.innovateuk.org/deliveringinnovation/smallbusinessresearchinitiative.ashx)

<sup>17</sup> Government Policy Objectives and UK Space—Mapping the UK Space Policy Market, Klaus Becher, November 2006.

observers point therefore to an abiding clash of cultures between the supply led culture of the Research Councils, in promoting science excellence, and the market led culture of the TSB, in promoting market opportunities.

12.3 Breaking down cultural barriers also requires a flow of people between academia and business. As John Zarnecki, Professor of Space Science at the Open University, puts it, “we almost need a Maoist like mass movement of people, but instead of from the cities into paddy fields, from the ivory towers to the coal face, and from the coal face to the ivory towers”. A mix of initiatives is needed, such as Knowledge Transfer Networks, to stimulate the right level of people flow.

12.3.1 The UK should look at ways in which the flow of people between schools, higher education, and business, can be encouraged, as a critical component of a National Space Education and Skills Strategy.

12.4 Universities are an important generator of intellectual property, but their record at maximising their wealth creating potential is patchy. Some universities seem to have a policy of hanging onto IPR, but lack the means to exploit it, thus trapping public research investment at the academic level. Other universities, such as Sheffield, seem more keen to export IPR into industry as soon as possible. Research Councils have become more active in knowledge exchange, but the industry believes more needs to be done.

12.4.1 An annual compendium of intellectual property held by Higher Education Institutions should be compiled, with HEIs being called upon to justify the retention of all IPR, and being rewarded for demonstrating the successful migration of IPR into the commercial sector.

12.4.2 The UK should consider holding an annual auction of IPR held by HEIs, for those extreme cases where evidence exists that IPR has been stubbornly retained without plans to exploit it.

## CONCLUSION

Despite the recession, the long-term outlook for the global space sector remains positive. The UK’s bank of world-leading technologies, its commercial outlook, its skills base, its access to world-class science, to City capital and to downstream markets, all place the UK in a strong position to profit from the world’s migration towards a “space enabled” society. However, abiding imbalances in the level of UK public investment in space compared with other countries, including developing countries, pose serious challenges for the sector’s long-term competitiveness. Astrium believes that the UK’s competitiveness in this strategic, high-growth sector, requires a strong sector-specific strategy with a long-term vision, supported by a National Space Technology Programme and more space friendly public procurement culture. The Space Innovation and Growth Team will look closely at all these issues, and we would welcome the opportunity to discuss its findings as they emerge later this year.

2 September 2009

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## Memorandum submitted by EADS UK

### 1. INTRODUCTION

1.1 EADS UK welcomes this opportunity to contribute its views to the Business & Enterprise Select Committee’s inquiry into the motor sport and aerospace industries. EADS Group subsidiaries Airbus and EADS Astrium have made separate and detailed responses to this inquiry addressing the specific questions the Committee has posed. These are not repeated here. Instead, this submission provides an overview from the parent company perspective and makes four broad recommendations which we believe would have an overarching impact on the effectiveness of Government policies in supporting the aerospace industry.

### 2. ABOUT EADS

2.1 EADS NV is a global leader in aerospace, defence and related sectors. The EADS group of industries includes Airbus, the leading manufacturer of commercial aircraft, Eurocopter, the world’s largest helicopter supplier, and EADS Astrium, the European leader in space programmes from Ariane to Galileo. We are the second largest aerospace and defence company in the world (Turnover €43.3 billion) and the largest aerospace test and services company. EADS is also a major partner in many of Europe’s largest aerospace projects. We have designed and built over 45% of every Tornado and Eurofighter Typhoon manufactured and we remain a major partner in the Eurofighter consortium, and equal with BAE Systems a senior shareholder in MBDA, the world’s second-largest leading missile company. EADS also built and maintained the air traffic radars Members will see at Heathrow Airport.

### 3. EADS UK

3.1 EADS UK is a British company and committed to the UK aerospace and defence market. EADS has world-beating technology and the UK is a key part of the company's highly-skilled high-tech industrial base.

3.2 EADS UK has a long-standing and close relationship with manufacturing, academic and governmental stakeholders and plays a central role in the UK's advanced technology and aerospace sectors. We have signed a strategic framework agreement involving four government departments DBERR, DCLG, DIUS and the MOD that enables EADS to work when appropriately as a single, customer-focussed entity in the UK and formalises the process of engaging in strategic dialogue with the UK Government.

3.3 As one of the home nations of EADS, investment in the UK infrastructure forms a central part of EADS' global industrial strategy. Located at more than 18 sites throughout the UK, more than 16,500 high technology, high value-added jobs are directly supported by EADS in the UK and more than 140,000 jobs are indirectly supported throughout the UK supply chain. We are the second largest aerospace and defence employer in the UK. Aerospace design and production life cycle times tend to be very long and therefore our relationship with Government tends to be both strategic and focussed on the extended term.

3.4 The apprenticeship and graduate employment schemes run by our businesses cover all aspects of aerospace manufacture. We employ approximately 200 apprentices every year including over 30 apprentices at Astrium and 150 at Airbus. Despite the global recession, we are maintaining our commitment to the employment of high quality graduates. In 2009, we will employ approximately 100 graduates.

3.5 Our UK revenue is £2 billion and growing and the future order book in the UK is just over £3 billion. EADS companies contribute over £1 billion per annum to the UK's net trade balance and our state of the art design and manufacturing techniques help drive the UK's thought leadership in these sectors.

3.6 EADS is committed to maintaining and developing its position as a leader in innovation and aerospace technology development. Our commitment to R&D spending saw us invest almost €500 Million last year. We are particularly proud of our, Innovation Works, initiative which has invested over €8 million in R&D in the UK in 2008 alone and represents a significant portal for UK based R&D.

3.7 Innovation Works supports all EADS business units. It utilises the expertise of academic experts to facilitate the transfer of knowledge throughout EADS companies. In the UK, the programme has initially focused on three locations: Bristol (Airbus), Newport (Defence and Security) and Portsmouth (Astrium) to develop already excellent links with teaching institutions in these areas.

3.8 Through our business units, EADS is deeply enmeshed in every aspect of the British aerospace industry.

#### 3.8.1 *Airbus*

Airbus is the market leader and national prime company in the civil aerospace industry in the UK with a workforce of over 10,000 on its two sites at Filton (Bristol) and Broughton (North Wales). Airbus in the UK has a highly skilled workforce, responsible for wing design, manufacture and assembly for all Airbus aircraft, including responsibility for landing gear and fuel systems integration.

#### 3.8.2 *EADS Astrium*

With bases in Stevenage, Portsmouth, Aldershot and Guildford, EADS Astrium is the European leader in space programmes from Ariane to Galileo and a world leader in civil and military satellite systems, Earth observation, science and navigation programmes. It is a \$3 billion business, and is the No.1 space company in Britain and Europe, and No.3 worldwide, after Boeing and Lockheed-Martin.

#### 3.8.3 *Eurocopter*

Eurocopter has a strong footprint in the UK, providing essential aircraft to the British armed forces, the emergency services and the commercial sector. Oxford is its HQ with a new facility soon to be opened in Aberdeen. Eurocopter has over 70% of the UK turbine helicopter civil market and in the law-enforcement and emergency medical services fields.

#### 3.8.4 *EADS Test & Services*

EADS Test & Services (UK) a centre of excellence for Avionics Test Systems for the Aerospace & Defence sector. The UK facility based in Ferndown in Dorset houses a comprehensive Design, Development, Manufacturing and Customer Support capability, together with Marketing, Sales and Administration functions and is fully approved in accordance with the requirements of ISO 9001:2000 and the "TickIT". EADS is also the leading supplier of test systems for applications on military and commercial aircraft and helicopters.

#### 4. EFFECTIVENESS OF GOVERNMENT POLICIES IN SUPPORTING THE AEROSPACE INDUSTRY

4.1 As outlined above, the UK is a home country for EADS and EADS wishes to ensure that it continues to provide the maximum possible support to the UK Government and its agencies. EADS wishes to ensure that the breadth of its contribution to the UK, including the economy is recognised by the UK Government in the formulation of policy and accordingly we would like to make the following key points:

##### 4.1.2 *Industrial Activism and Pro-active Engagement*

EADS understands the necessity Government activism in maintaining and developing the UK's aerospace sector. Government policy working with the private sector is the best route for supporting and sustaining the industry. They should not operate in silos. Policies on education and training, for example, should seek to equip British employees to take advantage of the employment environment that the UK aerospace industry provides. Moreover government procurement rules and processes need to be supportive to this end whilst transparent and predictable to assist industry in its strategic planning. Government regulation should seek to set out a clear and stable framework within which industry can to operate.

##### 4.1.3 *Sustainable strategies and Policies for the long-term*

There must be a strategic direction for high tech industries in the UK. The modern aerospace industry makes huge financial investment in design, research and development of new materials, as well as staff training and development. It is part of a much larger network that shares capital, ideas and expertise and government policies must be designed to look long term into the future to support and sustain this long term investment. The recent announcement by Secretary of State for Business, Innovation and Skills on the repayable launch investment programme for Airbus is an illustration of the long term investment in skills and technology that the industry needs, but as ever, the UK is the last Airbus partner nation to negotiate terms and appears the most reluctant. This inevitably influences the company's decisions about future investment, workshare and development plans.

4.1.3.1 In 2007 EADS UK illustrated its commitment to a long term relationship with the UK Government with the signing of the Strategy Framework Agreement. EADS UK views the agreement as vital to ensuring the future opportunities for the company in the UK in terms of excellence in technology, business innovation and R&D. Government should look to this agreement as an example of best practice to be emulated.

##### 4.1.4 *Cross-Department Procurement*

EADS UK has extensive experience itself of large scale PFI projects through Skynet 5 and the Future Strategic Air Tanker, in fact we are the largest proponents of this mechanism in our sector. It is important that the Government takes what we would describe as a pan-governmental approach to procurement decisions. It would simplify and improve procurement processes significantly if the different government departments involved in a project had made each other aware and discussed the implications with suppliers. As technology advances a convergence is developing between MOD, Homeland Security, Home Office and DCLG applications. There is opportunity for a pan Governmental approach to capture these benefits.

##### 4.1.5 *UK Policies Designed for a Global market*

EADS UK operates in a highly competitive global aerospace market-place and with the ongoing rapid development of China and India this market place is set to expand even further despite the global recession. There are huge opportunities for the UK to play to it's strengths in the fields of, aerospace, precision engineering and high-tech manufacturing. Policies enacted in the UK must recognise that other governments are keen to make use of the UK's expertise (for example, amongst the UK's allies the highly complex and successful Skynet 5 military satellite PFI programme). The UK policy environment must seek to match or exceed the strategic initiatives being undertaken by other governments designed to support this turn-key industry.

##### 4.1.6 *Effect of the Recession*

The aerospace industry excels at making high value goods and supporting high value employment. The nature of the industry, with long lead-in times and a highly trained and skilled workforce necessarily requires large and sometimes risky capital investment. This system feeds on extensive debt-funding for both ourselves and our customers alike. The recession has impacted on the availability of debt funding. Nevertheless, debt, in all its forms, is a vital element in the support of a successful aerospace sector. EADS urges Government to continue to ensure policies that will secure the availability of debt funding to the industry.

## Memorandum submitted by Emirates

### INTRODUCTION TO EMIRATES

- Emirates Airline (Emirates) operates a total of 14 daily flights to the UK: five daily flights to London Heathrow, three daily flights to London Gatwick, two daily flights to Manchester, two daily flights to Birmingham, one daily flight to Glasgow and one daily flight to Newcastle.
- Having ordered 58, Emirates is the largest purchaser of the part UK built A380 aircraft—one of which now operates daily between Dubai and London Heathrow.
- Emirates injects over £260 million each year into UK local airport economies and has a total fleet related UK gross capital spend of £15.4 billion.
- Emirates has no expertise in motorsport and hence this submission applies only to the aerospace industry.

### *How effective has government policy been in supporting the sector*

1. UK government support for liberalised markets and open skies policies has aided the UK aviation industry. The benefits of an open, vibrant and competitive market have had a positive knock-on impact on the aerospace industry.

2. Such government policies have enabled Emirates to continue to contribute to the UK economy and invest in new aircraft. Emirates' contribution to the UK economy is large, especially in terms of spend on airframe and engine products. The total fleet related UK gross capital spend of Emirates at list prices is £15.4 billion, based on historic deliveries and future confirmed aircraft orders through to 2025. For a major British employer and technology leader like Rolls-Royce, this equates to almost a £1.6 billion spend to date on their engines and almost £3.5 billion worth of firm orders to 2025.

3. However, we have concerns that recent government policy proposals regarding Air Passenger Duty may impair the industry's future performance. Emirates agrees that the aviation industry should contribute to the cost of its environmental impact. Yet government policy from November 2009 for Air Passenger Duty fails to incentivise or reward investment in more efficient aircraft. This investment is vital both to the aerospace industry and in the reduction of carbon emissions going forward.

4. Emirates is pleased that the Government has to date decided not to pursue a per-plane tax based on maximum take-off weight. Such a tax would have disproportionately penalised medium and long-haul carriers, for which no viable travel alternatives exist, without incentivising more efficient aircraft.

5. The UK aerospace industry is important for several reasons. Firstly, it is a large contributor to UK plc providing employment to thousands and helping to promote skilled jobs. Airbus estimates that 22,000 UK high skill and value jobs, as well as over 400 British companies throughout the UK are directly linked to the Airbus A380 programme. This is part of over 45,000 people employed on Airbus UK work overall, whose activity indirectly supports a further 90,000 British jobs. In total, over £7.5 billion worth of work has already been placed in the UK on the A380 programme, with this figure set to more than double to over £15 billion over the life of the programme.

6. Secondly, the UK aerospace industry has been at the heart of the development of a new range of cleaner, more efficient aircraft. A good example is the Airbus A380. The UK content for this aircraft is extensive, which includes the design and production of the wing, fuel system and landing gear at Filton near Bristol and at Broughton in North Wales. Such investments in advanced technology, manufacturing and design processes have supported the UK as a leading world player in the aerospace industry and are key to the UK's efforts to reduce carbon emissions and meet its targets, without hampering economic growth.

7. When Emirates selects aircraft components our first priority is always to find the product which fits our specifications and that offers the best value. The fact that the UK offers a wide range of high tech workforce skills as well as a wide local supplier base, influenced our selection of the Rolls-Royce engine for our Airbus A380 fleet.

8. While we conduct all major checks on our aircraft in Dubai, our engine overhauls are conducted by GE in Nantgarw, Wales, at one of the largest aircraft engine maintenance facilities in the world with one million sq ft of servicing floor space and which employs a workforce of approximately 950 people.

### *The impact of the recession on Motor Sport and Aerospace industries*

9. While Emirates remains committed to the aircraft and engine orders it has made, the recession is clearly having an impact on the aviation industry, and as a result on the aerospace industry. However, we do not believe that it represents a significant deviation from the long term trend of strong growth in the sector.

10. Our main concern is that the impact of the recession may mean that issues connected to competition in the airline industry risk being ignored. The lower the level of competition in the industry, the less vibrant and healthy it will be. Emirates therefore urges UK Parliamentarians and regulators, such as the Competition Commission and Office of Fair Trading, to rigorously analyse the real outcomes of recent airline consolidation and the impact of alliances on the competitive environment.

11. The airline map of the UK and Europe is being remade by consolidation—often with airline alliances being the vehicle or stimulus for this change. However, it is debatable whether the consequences have been fully thought through. Barriers to entry for new airlines are now much higher, with many countries and regions facing the prospect of consolidated carriers dominating their markets and reducing consumer choice—irrespective of the so-called “remedies” agreed to as part of regulatory approvals.

12. Demand for new technology and aircraft is driven by growth in the industry and the incentives for airlines to offer new services. Without competition, there is a real risk that this demand will slacken—which will have negative consequences for the UK aerospace industry.

7 September 2009

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### Memorandum submitted by the Engineering and Physical Sciences Research Council (EPSRC)

#### AEROSPACE

##### *Current Research Portfolio*

- EPSRC is currently funding 224 projects relevant to Aerospace, with a value of over £171 million. Aerospace related research receives funding from across the breadth of EPSRC programmes, for example Physical Sciences, Mathematical Sciences, Information and Communication Technology, Materials, Mechanical and Medical Engineering and Process, Environment and Sustainability Programmes. The research covers topics such as flight physics, advanced materials for air frames and engines, engine design, sensors, noise, manufacturing technologies, systems integration and many more areas across the full spectrum of the EPSRC remit.
- 730 partners from industry, government and other organisations are collaborating on these projects, contributing £41 million in cash and £55 million in-kind.

##### *Training*

- Since 2004 EPSRC has supported 384 PhD students working in research related to the Aerospace and Defence sectors.
- In addition there are a number of specific EPSRC Centres for Doctoral Training of relevance to the sector, many of which involve significant industry participation:
  - Industrial Doctorate Centre: Systems, University of Bristol.
  - Theory and Simulation of Materials, Imperial College London.
  - Advanced Composites Centre for Innovation and Science, University of Bristol.
  - Advanced Metallic Systems—Challenges in Global Competitiveness, University of Sheffield
  - Industrial Doctorate Centre: Micro—and Nano-Materials and Technologies, University of Surrey

#### EPSRC PARTNERSHIPS

EPSRC has strategic partnerships with a number of major UK and international companies to jointly fund research and training. The major partnerships in the aerospace sector are:

- Airbus (established September 2006) are collaborating on 37 current grants, have been involved in two calls for proposals in Active Control, and in two Centres for Doctoral Training. This is now evolving into a broader partnership with EADS (agreement signed in January 2010).
- BAE Systems are collaborating on 60 current grants, and have jointly funded with EPSRC a Systems Engineering Chair, consortium and Engineering Doctorate Centre, Aeronautical Engineering consortium, Decentralised Data and Information Systems consortium, and a Support Service Solutions consortium. They have also been involved in six Centres for Doctoral Training and one Knowledge Transfer Account.
- GE Aviation (formerly Smiths Aerospace) (established December 2002) are collaborating on six current grants and have been involved in two Centres for Doctoral Training and have jointly funded with EPSRC a Power Electronics and Actuation Technology call, and a Composites call.
- Rolls Royce (established May 2009) are collaborating on 119 current grants. They have been involved in 11 Centres for Doctoral Training and two Knowledge Transfer Accounts. They have also jointly funded with EPSRC a Structural Materials research consortium and Doctoral Training Centre, Chairs in Combustion (Cambridge), Casting Technology (Birmingham), Forming and Forging (Strathclyde) and Energy (Strathclyde), and a Call for Nuclear consortia.

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## MOTORSPORT

### *Current Research Portfolio*

- It is more difficult to extract exact figures for EPSRC support for motorsport. EPSRC is currently providing over £4 million funding for five projects with motorsport-related company partners. Research areas covered include combustion, engineering dynamics and tribology, mechanical and fluid power transmission, materials characterisation and processing.
- Looking more widely, EPSRC's support for Transport (Systems & Vehicles) includes 249 projects with over £211 million funding. Transport related research receives funding from across the breadth of EPSRC programmes, for example Digital Economy, Energy, Information & Communication Technology, Materials, Mechanical and Medical Eng, Mathematical Sciences, Physical Sciences, Process Environment and Sustainability and User-Led Research. The research covers topics such as advanced materials, engine design, sensors, manufacturing technologies, control systems, systems integration, Intelligent transport systems, model shift and many more areas across the full spectrum of the EPSRC remit.
- 937 partners from industry, government and other organisations are providing £12 million cash and £62 million in-kind contributions.
- Our Aerodynamics portfolio (48 grants, £20.8 million) is also relevant to both Motorsport and Aerospace.

### *Training*

- Since 2004 EPSRC has supported 202 PhD students working in research related to the Transport sector (including motorsport).
- In addition there are a number of specific EPSRC Centres for Doctoral Training of relevance to the sector, many of which involve significant industry participation:

### Materials

- Advanced Composites Centre for Innovation and Science, University of Bristol.
- Science and Application of Plastic Electronic Materials, Imperial College London.
- Advanced Metallic Systems-Challenges in Global Competitiveness, University of Sheffield.
- Theory and Simulation of Materials, Imperial College London.
- Industrial Doctorate Centre in Micro—and Nano-Materials and Technologies.
- Bristol Centre for Functional Nanomaterials.

### Modelling

- Cambridge Centre for Analysis.
- Statistics and Operational Research, Lancaster University.
- Mathematics and Statistics Centre for Doctoral Training (MASDOC), University of Warwick.

### Systems

- Industrial Doctoral Centre in Systems, University of Bristol.
- Institute for Complex Systems Simulation, University of Southampton.

### *Partnerships*

EPSRC has strategic partnerships with a number of major UK and international companies to jointly fund research and training. The major partnership related to motorsport is with Jaguar Land Rover (established March 2008). We are currently developing initial activities through the partnership. Jaguar Land Rover are also involved in a Centre for Doctoral Training and collaborate on 20 current grants.

22 February 2010

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## Memorandum submitted by the Institution of Mechanical Engineers

### TOPICS FOR CONSIDERATION

#### *The effectiveness of government policies in supporting these sectors*

The motorsport and aerospace industries are world-class engineering intensive sectors. Further, the benefits of innovation in these sectors often offer considerable benefits elsewhere (eg ABS braking systems that were developed in F1 are now widely available in the passenger and freight fleets).

Assessing the contribution made to their success by Government policies is difficult without an agreed benchmark against which to measure. However, to the extent that the climate in which they have built their success is Government influenced, the Government must take some credit.

Examples of good practice include the TSB's Technology Programme through which Knowledge Transfer Partnerships and collaborative R&D programmes have had a positive impact. Tax breaks have been a valuable help to Motorsport in particular; for example, allowing tax credits to be set against R&D costs (these can be up to 37.5% of the R&D spend).

However, despite both industries being at the forefront of technological developments there are growing concerns that funds for innovation may not be sufficient, particularly to fully address the environmental agenda.

#### *How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business further*

Academic excellence in UK research is dependent on the number and ability of the people entering the field. The UK must ensure that sufficient UK students pursue science, technology, engineering and mathematics (STEM) qualifications at all levels to ensure we have a supply of well-qualified and motivated employees for the future. This applies equally to all engineering disciplines. The government's support for the STEM agenda, both in terms of quantity of students and quality of their education, is recognised and welcomed.

Initiatives such as the Knowledge Transfer Partnerships encourage the flow of knowledge, people and ideas between industry and the science base and should be further encouraged. The links between Motorsport and Aerospace companies and unrelated sectors can be developed through relationships with higher education departments that represent other sectors.

#### *The impact of the recession on Motorsport and Aerospace industries*

The impact of the recession has been keenly felt by Motorsport competition teams by virtue of reduced sponsorship. At the same time automotive companies, such as Honda, are reducing their investment in competition due to reduced high-street sales. In some cases, while the teams continue to compete, they have scaled down their operations (Mercedes High Performance Engines, Renault F1 and Brawn have between them have laid off about 420 people). Not surprisingly this has had an impact on the many smaller companies within the supply chain.

Despite the upward trend for air travel (241 million civil passengers in the UK in 2007 compared to 7 million in 1957) the air industry typically suffers during recessions.<sup>18</sup> Aerospace manufacturing is relatively protected by the long lead times for new aircraft (approx 7% order cancellation)—although this is expected to worsen during 2010–11. Effects were more immediately felt in areas such as the aerospace services sector. This has been exacerbated by high fuel prices and rising taxes which are forcing airlines to cut already fine margins. Problems have occurred in the technology supply chain although this has been worse in companies that service other recession affected sectors (particularly automotive).

Government financial support for the industry is available through the “Realhelp” package announced by Lord Mandelson (Working Capital Scheme, Enterprise Finance Guarantee Scheme and Capital for Enterprise Fund) as well as individual regional support from Regional Development Agencies (RDAs) and Devolved Assemblies; reports are, however, that this is patchy and inconsistent in its application.

#### *The role of SME's in the supply chain supporting these two sectors*

The Motorsport and Aerospace industries rely on the support of a large number of specialised smaller companies, often staffed by a small number of well qualified people. Most of the SME's supporting these industries are highly specialised and their demise will have severe knock-on effects.

Motorsport needs cutting edge research and design expertise with highly specialised (often low volume) manufacturing capacity. This is concentrated during the off-season and is highly localised in the so-called Motorsport Valley in southern and central England.

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<sup>18</sup> Office of National Statistics; [www.statistics.gov.uk/cci/nugget.asp?id=1104](http://www.statistics.gov.uk/cci/nugget.asp?id=1104)

Aerospace has a more steady reliance on maintenance and service providers based mainly near airports; indeed their relationship is increasingly collaborative.

Any success in maintaining these industries during difficult economic periods will have much wider benefits by helping to maintain the smaller companies that contribute to their work.

*What barriers are there to further innovation in these sectors and what can be done to overcome them?*

No comment at this time

*What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

Synergies between the two sectors are important and growing. New KTPs have been established (eg Motorsport2Aerospace) that encourage exchange between them—benefits to all. Benefits can be found in areas aside from technology itself; eg Motorsport has very short turn-round times from concept to production while the Aerospace industry's safety consciousness is a valuable export.

Government could support the transfer of knowledge and skills between these two industries and to other currently un-related industries. New applications for derived technology could benefit all concerned. Specialist advice and support could be offered to companies, particularly SME's through the Manufacturing Advisory Service (MAS).

*How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

No comment at this time

*Any other views stakeholders think the Committee should be aware of*

No comment at this time

#### RECOMMENDATIONS

- The DTI's Technology Programme should be promoted and further extended, particularly into areas linked to sustainability.
- Aerospace and Motorsport companies should be linked to unrelated sectors through higher education departments that represent other sectors.
- The government must reinforce its support for the STEM agenda by rewarding engineering graduates who enter engineering roles.
- Government should investigate ways of making more equitable the financial support for the aerospace industry available through individual Regional Development Agencies.
- (RDAs) and Devolved Assemblies (this is, however, is patchy and inconsistent) paying particular attention to the needs of SMEs within the supply chain.
- Government should, through its Manufacturing Advisory Service, introduce a scheme to assist SME's in Motorsport and Aerospace to diversify and apply their technologies to other sectors.

21 September 2009

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#### Memorandum submitted by Lola Group

The purpose of this document is to examine the points below from the perspective of an SME within the motorsport and aerospace industries.

#### WHO ARE LOLA

Lola Group is an SME based in Huntingdon. The oldest manufacturer of race cars in the UK and one of the most successful having produced winning cars from Formula one, to Indy IRL and of course the iconic Le Mans 24 hour and LMS series. 2008 saw the company's 50th anniversary and 2009 witnessed a win in the "petrol" class of Le Mans 24 hr.

Lola diversified into the defence and aerospace industry in order to survive the ups and downs of the motorsport market. Many great marques of the past have died due to not diversifying and Lola saw an opportunity to introduce its skill in composite technologies and rapid reaction "ethos" into the slower moving defence industry. This strategy has proved to be very successful especially regarding the need for UORs (Urgent Operational Requirements) as well as the ability to design, tool and produce in composite materials.

Lola is responsible for amongst other things the production of the Watchkeeper Tactical UAV aircraft, The Artisan 3D naval radar, The Talisman miniature submarine and is the composites partner of the BAE Systems Taranis and MANTIS deep and persistent UAV system. As well as these major programmes there are also vital programmes for Lockheed Martin, EADS Astrium, SSTL (space) and Qinetiq. Most of the above Lola has been involved in the design, tooling and production engineering.

POINTS FOR CONSIDERATION FOR THE COMMITTEE AS PER THE PRESS RELEASE

*The effectiveness of government policies in supporting these sectors*

*How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business still further*

*The impact of the recession on motorsport and aerospace industries*

*The role of SMEs in the supply chain supporting these two sectors*

*What barriers are there to further innovation in these sectors and what can be done to overcome them?*

*What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

*How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

*Any other views stakeholders think the Committee should be aware of*

*The effectiveness of government policies in supporting these sectors*

For Lola group no specific government policy has been of any tangible benefit. Each programme won is secured by means of selling ourselves and our capabilities to the customer. The only policy that “helps” is that there is a government requirement at the end of the chain for our military business but no policy exists that makes it advantageous for the customer to choose Lola over any other supplier both domestic or foreign, SME or otherwise.

R&D tax credits are the best initiative to maintain an active R&D programme to this sector and it is hoped that a future government will not remove these vital assistances.

*How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business still further*

From the perspective of an SME this is a difficult point. It is a hugely important issue of national importance but the accent for most SMEs is on survival or more specifically orders in and cash flow as a means to survival. This is especially true in lean times like the present and as such lofty ideals of national importance and a lead in R&D are a level too high for most SMEs to be concerned about. There has to be a concrete advantage or benefit.

Lola for instance is a tier 1 member of the AMRC. (Advanced Manufacturing Research Centre) this is an innovative arm of the University of Sheffield partnered with Boeing to advance machining, building and composite techniques in industry. It is also a means to try to secure EU funded research programmes some of which we are granted and some not. We part fund some engineering activity academically with some of this project grant funding.

There MUST be something “in it” for the SME to be involved in these strategic national objectives and if there was some kind of edict that tier 1s should use domestic SMEs when Govt contracts are let this may be a way to engage the SME and industry in the national objective. Similarly for links with academia there should be a financial incentive to engage be that in enhanced tax credits or tax allowances.

*The impact of the recession on motorsport and aerospace industries*

The recession/depression has had a huge impact on both sectors. The competition for funding between the armed services has resulted in some projects dragging their heels and moving to the right. However this has been offset slightly by the increasing number of UOR requirements and as such companies that have been able to offer rapid solutions have benefited. The motor racing originated companies in the defence sector are well placed to take advantage of UOR opportunities due to their rapid reaction ethos.

Not enough of them know how to approach this opportunity.

The Treasury's bailing out of the bank sector has left the banks correcting their balance sheets whilst putting an effective moratorium on credit. This has meant no extra facilities in tough times and a new and more aggressive attitude to asset valuation and loan to book values. There should be a govt department dealing with this (especially with the bailed out banks like RBS). This point I recently mentioned at a meeting with the Chancellor Mr Darling. It was a point that many of my colleagues from industry around the table echoed. Thankfully (if that can be said) the military scenario at present with various active theatres in the world has led to at least a steady demand for aerospace programmes in certain areas. Some of these should be brought forward to assist industry such as composite armoured vehicles and UAVs.

The recession/depression has been catastrophic in the civil aircraft sector where delays and postponements of civil aircraft orders has led to knock on effects in the industry ranging from interior seating systems (which Lola make) all the way through to aircraft wing systems and associated avionics. The slowdown in orders has hit our budget strongly and adversely and is likely to result in job losses especially on the aircraft interiors line. Our customer BE Aero in Kilkeel Northern Ireland will lose a full three assembly lines of employees due to this downturn. Each of these job losses is a catastrophe for their families and a blow to the prosperity of the local area.

For motorsport the depression has been truly catastrophic on many fronts. Lola for instance manufacture race cars for sale to clients as per any commercial product. We do not make cars under the umbrella of sponsorship. We design and make a winning car platform for what we believe the market will accept and sell it as any company would sell any commodity.

The clients are often private clients and depend on revenues either gate or sponsored or personal wealth to allow them to buy our cars. In these times on all fronts money is hard to come by for our potential clients.

The large “works” opportunities have all but dried up as it is not politically acceptable when unsold cars are being stockpiled and people are being globally laid-off in their thousands to be seen to spend millions of dollars on motor racing. We have seen that with Honda last year in F1 and there will be others follow suit. We have also seen the decline of minor formulae such as Super-league and AIGP and these also will not be the only series to fail commercially.

There will be many job losses in this industry to come, we have by no means seen the bottom yet and these skills will be hard to replace.

There is a huge advantage to our competitors from Italy and the USA and further afield who often times operate on a lower cost base due to their shall we say “interpretation” of health and safety and labour laws which make them inherently more cost competitive than a company operating in the UK.

#### *The role of SMEs in the supply chain supporting these two sectors*

The role of the SME is vital in these two industry sectors. For defence and aerospace a huge part of the ingenuity for novel concepts and specialised work is carried out by the SME supplier base.

The Tier 1s such as Thales and BAE have outsourced a great deal of their functions over the years, they have ceased apprenticeships and reduced costs preferring to cut overheads especially in specialist engineering and look to the SME sector to supply those skills. Often pitting the SMEs against each other in cut-throat competition often leading to compromise and corporate failure.

Recently the area of risk mitigation and risk in general has become a “mantra” for tier 1s like BAE and Thales. They have become utterly risk averse and this has affected their SME selection criteria to accent on financial security over innovation/this may prove to be a longer term impediment to UK PLC’s success.

The problem between SMEs and Tier 1 companies or the MoD is an issue which can be illustrated like an industrial version of Maslow’s hierarchy of needs pyramid.

The Tier 1 is focused on the top line “peak” of the triangle looking at all the higher level benefits that the SME can bring to enhance the USP of the Tier 1 such as innovation, bespoke engineering solutions, patents and ingenuity but the SME is too often focused on the bottom of the pyramid in just staying afloat and the SME’s focus is on cash and orders just to survive day to day.

This detracts heavily from the contribution that the SME can make to UK PLC and often the SME is only as good as his last quotation.

I advocate a govt driven initiative to assist the Tier 1 in the creation of a new SME-based defence contractor listing. A worthy set of approved suppliers that have proven themselves. That an SME has to work and demonstrate over many programmes to be worthy of approval and a financial incentive for the Tier 1s to choose those companies when fulfilling MoD contracts.

In terms of Motorsport the SME is absolutely vital. The industry is utterly dependant on many fragmented SMEs manufacturing everything from carbon parts to bespoke metalwork and innovative electronics and systems. The SME base to motorsport is very fragmented and quality and ingenuity levels are high. Prices are often high too as volume tends to be low. These suppliers have a duty to increase their spread of activity and many of them do just that and serve various industries such as the defence industry where similar quality approvals and procedures are often required. Many however just do not know how to get into the sector and need help to progress into it successfully.

SMEs should have a goal to move up the value chain—but they first have to survive to do this. . .

#### *What barriers are there to further innovation in these sectors and what can be done to overcome them?*

Both defence/aerospace and motorsport sectors thrive on innovation. Innovation is the key to success in both industries/for the former maximum enhanced capability in lighter weight, lower cost and greater numbers is the goal and for the latter the same applies although within the confines and interpretation of stringent rules. Again innovation and ingenuity are the keys to technical success in these fields. The UK has always demonstrated a lead in these areas and often that level of innovation comes from the SME base.

The biggest barriers one way or another are financial. Most companies be they tier 1 or SME have scaled down their R&D budgets or stopped altogether. The immediacy of survival and the need for profit on the books to satisfy shareholders has led to a very short term view prevailing and unless checked these two prime sectors where the UK still has a lead will go the way of shipbuilding, automotive industry and electronics industries. This is why it is VITAL that R&D tax credits remain as without this R&D especially in the SME sector will collapse utterly.

The link between corporate and academia is not strong enough as companies just do not have the time and cannot justify the expense of progressing research projects or funding programmes with institutions. It all goes back to survival priorities and the quest to try to maximize profit or minimize loss.

Less and less companies will take on graduates (Lola are not taking any this year) for the same reason. Costs are having to be trimmed to the bone and at times like this investment in non specific or non funded (ordered) R&D takes a back seat to things that can bring sales and profit, cash and survival.

The knock on is that engineering which is the back bone of innovation in these sectors is no longer a prized degree and is underfunded at faculty with the result that fewer people choose to study for a qualification in the engineering disciplines and the spiral of lack of potential innovation continues.

*What can be done?*

The AMRC University of Sheffield is a shining example of what can be done when industry is brought together to support academia and vice versa. Major companies are vying to join the AMRC and offer cash or their equipment and expertise to sit at their table as board members. Why ? because there is something beneficial to be had by way of:

- (a) access to a wide range of high technologies to use between the AMRC partners at their “factory of the future” facility in Sheffield; and
- (b) the combination of these high quality companies with the university institution is a good combination in competing for EU funded grant based research relevant to the parties. Prof Keith Ridgeway received an OBE for his work in setting this up and it is a formula which should be followed in each major area of the UK !!!

There should be a financial incentive from government to industry to take on graduates and apprentice development. There seems to be subsidy for education but it stops just at the point where it needs to blossom in industry.

The motorsport and to an extent the defence industry are still seen as somewhat sexy and capture the imaginations of young people. If the Government invested some money “VIA” these sectors to finance graduate programmes in local universities with the promise of outplacement work at these industries for the graduates and some subsistence grants I am certain there would be a large take-up and competition between the best and brightest to take these places/in this way we may have a chance to save engineering for the longer term.

*What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

There are many technical developments that exist in one industry that could be hugely important to another—the key is making those developments known. I myself in my past “enabled” the UK Sampson radar to function by bringing a fibre optic rotary technology from the medical field to BAE to solve what was thought to be an “impossible” task. It is now the most advanced radar system in the world. AND ITS BRITISH! (although the enabling technology is German and developed between an institute namely the University of Nuremberg and a company Schleifring Ltd) ...this however depended on the serendipity of my personal experience at the time.

It is pointless to hope for happenstance and serendipity to allow these links to happen to enable pan-industrial solutions to materialize.

There needs to be a government-based central technologies application body. An institute government-driven and open to all UK companies where senior engineers retired and otherwise are employed in actively disseminating and assisting technologies to flow on a cross industrial basis. It's a crying shame that in this country some of the best minds leave a company at 65 with so much precious information and skills only to be lost to industry forever when often they would choose to contribute.

Such a body would be where a company can go to get a steer on technical assistance to a problem which is outside their normal area of expertise. The alternative to doing this or something like it is just simply luck. That's not good enough if we want to compete with other countries like Germany who have a long tradition of institution and corporate partnership.

*How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

I have never heard of either of these two organizations in my 22 years involvement with the sector. Therefore I cannot comment on them but maybe the fact that I have not heard of them say it all.

*Any other views stakeholders think the Committee should be aware of*

Nanny state legislation such as “over the top” often ridiculous health and safety and employment laws are destroying competitiveness. I personally think that building social houses, equipping the forces especially the army and bringing forward programs like Mantis would have done more for the economy and employment than bailing out the banks. But that’s me, I’m an industrialist.

1 August 2009

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### **Memorandum submitted by Motorcycle Sport Political Strategy Group (MPS)**

#### 1. INTRODUCTION

1.1 The MPS is a collaboration between the Auto Cycle Union (ACU), the Amateur Motor Cycle Association (AMCA) and the Motor Cycle Industry Association (MCI). The three organisations have come together to address misunderstandings about motorcycle sport, highlight its value to broader society and also to tackle the sometimes justifiable concerns regarding some events and the use of venues. The MPS has the following main objectives:

1. Bring standards to motorcycle sports events through the establishment of a code of practice, for event “authorising bodies”. Such a code is aimed to improve the management of events, increase sustainability, ensure the selection of proper sites and improve relations with local stakeholders.
2. Highlight the social and economic potential of motorcycle sport with regard to young people, communities, reducing illegal riding and enabling opportunities in rural areas.

1.2 Motorcycle sport is often not fully understood. Many people see the sport as being only the top class range of UK and international track racing events. UK track racing often sets the standard, with several UK venues running major national and international series.

1.3 However, off road sport remains the area of motorcycle sport with the highest participation levels, with several disciplines which are run from a range of venues. Over the last five years, there have been on average over 4000 off road events per year, with over 55,000 riders taking part. Events range from schoolboy motocross to high profile motocross races, such as the hugely popular Weston Beach Races in Somerset.

1.4 Some events can be significant economic generators. For example, the Isle of Wight Motocross GP in 2004 attracted 30,000 spectators with an estimated local economic benefit of around £2 million. The total number of spectators for UK events is estimated at around 1.7 million per annum, who spend approximately £34 million. Overall, motorcycle sport currently represents approximately three quarter of a billion pounds to the UK economy.

1.5 Unfortunately, off road motorcycle sport is under considerable threat from the closure of venues and denial of access to facilities. Such restrictions on motorised off road sport are often motivated by concerns about the environment and excessive noise that can be generated through irresponsible or unregulated use. Sometimes badly organised events by ad hoc organisers create local problems which give the sport a bad image. Sometimes illegal riding by individuals can taint an entire community’s view about off road motorcycle sport.

1.6 The MPS aims to bring more understanding to the debate about motorcycle sport and its value to society. We also aim to promote quality standards, safety and environmental responsibility to sporting events. As part of these activities we are calling on the Government to support the MPS code of practice for motorcycle sport authorising bodies under the Road Traffic Act.

1.7 Properly organised off road motorcycle sport can be of great value to local communities and can also engage young people in safe and responsible riding, thereby helping to reduce the incidence of illegal and nuisance off road motorcycling, in itself a matter of great concern to communities and the police.

#### 2. *The importance of the sport to the industry*

2.1 Whilst motorcycle sport doesn’t have the level of manufacturing or high tech development that the UK boast in F1, there are notable exceptions:

- Triumph Motorcycles in Hinckley are now a dominant force in British and World Supersport racing.
- Norton Motorcycles have just been re-launched in a new manufacturing facility at Donington Park Leicestershire.

2.2 As in Motorsport, the strength of the UK's domestic motor sport scene has been a fundamental factor in the success and development of these industries, securing hundreds of UK jobs.

### 3. *The economic impact of the sport*

3.1 The ACU report that competition licence holders spend a total of £150 million each year on their motorcycle sport. The majority of this is put back into the UK economy either through supply/engineering companies or the associated service industries of hospitality and tourism.

3.2 A recent economic impact assessments indicated that in 2008 major motorcycle race events such as the World Superbike Championship, MotoGP, Motocross of Nations, the Motocross Grand Prix, the Weston Beach Race and the Thundersprint generated a total expenditure of £100 million within the UK.

### 4. *How effective has government policy been in supporting the sectors?*

4.1 Motorsport Development UK (MDUK) was established in 2003 by the Motorsport Competitiveness Panel of the Department of Trade and Industry (DTI) to preserve the UK's pre-eminent position in the global motorsport industry. However, it did not deliver what the sport or the industry required and in many areas sought to re-invent what was already in place, leading to duplication, inefficiency and confusion. It was hoped that the government would support and fund the infrastructure of the sport, providing much needed resources to the sector and helping to stem the exodus of volunteers that had been seen over the previous decade.

4.2 In terms of Education, the MSA has launched an Advanced Apprenticeship in Sporting Excellence in motor sport, benefitting from the government's commitment to vocational apprenticeships and sporting excellence. Working with the Learning and Skills Council (now National Apprenticeship Service) as well as the Sector Skills Council for Sport (SkillsActive), the MSA has created a complete MSA Academy structure to develop the education and training of young people in motor sport. The ACU is working with the MSA on this project with a Team UK Motocross squad enrolling 6 riders on this programme in 2009. In 2010 the ACU will also enrol a number of young riders from across all sporting disciplines.

### 5. *How could government policy better support UK motorsport?*

(a) Deregulation of motorsport over recent years has led to a surge of independent organisers, operating outside of the control or influence of the Governing Body. This has led to a gradual weakening of rules and regulations to the point where a significant percentage of off road motorcycle sport now operates without any meaningful regulation, and certainly without any environmental standards or control.

(b) As mentioned above, the MPS has recently developed a Code of Practice (CoP) for the organisational and management of motorcycle sport events. The MPS feels that the CoP should apply to all organisations listed as "awarding bodies" under the Road Traffic Act. Recent meetings with DfT Ministers has revealed a level of Government support for taking this discussion further and we look forward to the DfT's forthcoming consultation on matter related to the Road Traffic Act and motorsport awarding bodies.

(c) The UK does not permit the suspension of the Road Traffic Act without an Act of Parliament being obtained. This prevents any use of the public highway by motor sport events with the exception of the Isle of Man and Northern Ireland. This severely disadvantages the UK against other countries who can make the decision to close roads at a local level; this can also deprive local communities of the benefits associated with creating and hosting suitable events. The Thundersprint, which take place every May in Northwich Cheshire is a good example of the potential of sporting events within communities. Opened by the Mayor and run on private land, the event regularly attracts over 100,000 spectators in a single day and generates over £4 million income to the local economy.

(d) The government's charity commission makes it extremely difficult to establish a charitable Foundation, despite the aims of the Foundation being to grow the sport, provide training and education to young people in motor sport and engage with society with a responsible road safety message.

(e) It would be extremely helpful if there was a more positive reception to the way noise and planning issues are dealt with at a local level. If local government officers could have a more balanced approach and understand that off road does have social and economic benefits, not only could we arrest the decline in off road sport facilities, but may positive benefits would accrue to local communities.

### 6. *The impact of the recession on motorsport*

6.1 There has been a noticeable decline in activity in 2009. The ACU report that licence figures have seen a general decline of around 10% and there has been a similar reduction in the level of activity on events of approaching 10%.

6.2 It has been noticeable that while people have not stopped competing in motorcycle racing, there seems to have been a reduction in their budgets. Many seem to have scaled back their outlay and taken a step down in terms of competition level.

6.3 There has been a predictable collapse, however, in the corporate market both in terms of hospitality and events and this will have had a significant impact on the associated service industries. There has also been a huge impact on sponsorship revenues and activity, the full impact of which may not be felt until 2010 when the current sponsorship and corporate deals expire.

6.4 The AMCA is reporting a reduction in motocross licences issued in 2009 as a direct result of the recession. Other disciplines such as trials and classic scrambles are level or in some cases actually slightly up in terms of licence numbers. The AMCA find that many of their motocross licence holders are employed within the construction sector which has been particularly hard hit by the recession, resulting in an obvious knock on affect with rider numbers. Some clubs have struggled to make ends meet when they have ran events with lower rider numbers but the AMCA also report that they are fortunate that club officials and organisers are so committed to the sport that the AMCA will still run a similar number of events to previous years.

6.5 During the last recession of the late eighties there was a similar drop off, though in that case the numbers returned the following year straight back to the previous level. We are told on a daily basis in the media that this recession is worse than previous ones so with that in mind we are expecting a more gradual return to previous levels.

## 7. CONCLUSION

7.1 The UK motorcycle sport community brings a great deal of economic benefit to the UK economy and generates significant funding and employment in its own right.

7.2 As outlined in section 5 of this submission, there are a number of straightforward and uncontroversial actions, with limited cost implications, that the government could take to support motor sport in the UK. We hope that the Committee will clearly highlight these opportunities in its final report to Government.

7.3 The MPS do not specifically seek to give oral evidence at the Enquiry, but are of course very happy to appear before the Committee should this be desired.

## APPENDIX ONE

### KEY INDICATIVE ECONOMIC INDICATORS OF MOTORCYCLE SPORT

<i>Off Road Key Facts</i>	
Total number off off road riders	55,300
Total number of events	4,275
Average number of events per rider	28
Total of bikes sold per annum	24,591
Total number of spectators per annum	1,710,000
<b>Total economic value of off road sport</b>	<b>£356,622,317</b>
<i>Road Racing (track) Key Facts</i>	
Total number of riders	6,000
Number of riders participating per event	200
Total value of motorcycles used per annum	£21,000,000
<b>Total economic value of road racing</b>	<b>£318,040,000</b>
<b>Total Economic Value of Motorcycle Sport</b>	<b>£674,662,317</b>

Source: MPS Study, based upon 2005 figures. Employment figures not included)

## APPENDIX TWO

### CASE STUDY

When Italian rider Valentino Rossi screamed home in front of more than 70,000 bike fans to clinch this year's Cinzano British Motorcycle Grand Prix, at Donington Park, in his slipstream came £16.5 million gross expenditure and 242 jobs for the local economy.

This is just a taste of the findings presented in a new study—commissioned by East Midlands Development Agency (emda), Donington Park and event organiser Dorna Sports—into the economic impact of the 2004 British Motorcycle Grand Prix.

It was the 18th time this prestigious event had been held at Donington, yet the crowds continue to get bigger each year, with last July's Grand Prix meeting attracting a record total of nearly 130,000 spectators over four days.

The survey calculates that, once at the circuit, bike fans spent a total of almost £14.6 million within a 25 mile radius, including the cities of Derby, Leicester and Nottingham. The event was said to be the cause of a further £1.9 million expenditure across the rest of the UK.

This boiled down to £9.9 million additional, or value added, expenditure brought to the local economy by the British Motorcycle Grand Prix, once due account has been taken of the displacement of spending that would occur at some point in future.

The study shows that three quarters of UK visitors to the event came from outside the East Midlands, with 1% of all fans travelling from overseas. Just over half the spectators said they enjoyed other activities away from the event, mostly shopping and eating out. The average stay was for two days and one night.

28 September 2009

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### **Memorandum submitted by the Motor Sports Association**

#### **1. ABOUT THE MOTOR SPORTS ASSOCIATION**

The Motor Sports Association (MSA) is the motor sport governing body for the UK as appointed by the world governing body, the Fédération Internationale de l'Automobile (FIA) and is responsible for the governance and administration of all four-wheeled motor sport in the UK, including setting the technical and sporting rules across all disciplines of motor sport.

The MSA is responsible for the promotion and development of the sport from grass roots through to Elite level and has created a Whole Sport Strategy for UK motor sport that has been endorsed by DCMS, Sport England, the CCPR and many other related bodies.

The MSA membership comprises 33,000 competition licence holders (from eight years of age) and 750 motor clubs which together have a combined membership in excess of 200,000. The MSA issues permits for the organisation of 5,000 events every year and boasts a database of 15,000 registered volunteer marshals and officials.

The MSA undertakes a number of activities on behalf of HMG including Route Authorisation for all motoring events on the public highway on behalf of the Department for Transport, CRB checks for all people working with minors in motor sport, Border Agency vetting of all international arrivals looking to work/drive in UK motor sport and upholding the World Anti Doping Agency directives on drugs and doping in motor sport.

#### *2. The importance of the sport to the industry*

The strength of the UK's domestic motor sport scene is a fundamental factor in the success of the UK motor sport industry. The high-performance engineering sector grew up in the UK precisely because the majority of leading motor sport teams were based here.

Today, six of the 10 Formula 1 teams are based in the UK as well as two of the leading World Rally Championship (WRC) operations. The high regard in which our domestic scene is held is reflected in the fact that more than half of the current F1 drivers competed in the UK's junior formulae in their formative years.

As a result of the great international success enjoyed by British motor sport teams, their expertise and those of the associated companies are in huge demand around the world, creating a sizeable export market.

But it is all based on the foundations of a strong domestic motor sport scene, without which many of the high-performance companies would cease to exist or would be forced to relocate to other countries, with the inevitable knock-on effect on the related supply chain.

#### *3. The economic impact of the sport*

The MSA's competition licence holders spend a total of £240 million each year on their motor sport. The majority of this is put back into the UK economy either through engineering companies or the associated service industries of hospitality and tourism.

A recent economic impact assessment confirmed that total expenditure of £54m within the UK was directly attributable to the 2008 British Grand Prix, while Wales Rally GB, the UK's round of the World Rally Championship, brings £10 million per year into the Welsh economy.

#### *4. How effective has government policy been in supporting the sectors?*

Motorsport Development UK (MDUK) was established in 2003 by the Motorsport Competitiveness Panel of the Department of Trade and Industry (DTI) to preserve the UK's pre-eminent position in the global motorsport industry. However, it did not deliver what the sport or the industry required and in many areas sought to re-invent what was already in place, leading to duplication, inefficiency and confusion. It was hoped that the government would support and fund the infrastructure of the sport, providing much needed resources to the sector and helping to stem the exodus of volunteers that had been seen over the previous decade.

In terms of Education, the MSA has launched an Advanced Apprenticeship in Sporting Excellence in motor sport, benefitting from the government's commitment to vocational apprenticeships and sporting excellence. Working with the Learning and Skills Council (now National Apprenticeship Service) as well as the Sector Skills Council for Sport (SkillsActive), the MSA has created a complete MSA Academy structure to develop the education and training of young people in motor sport.

### 5. *How could government policy better support UK motor sport?*

- The UK does not permit the suspension of the Road Traffic Act without an Act of Parliament being obtained. This prevents any use of the public highway by motor sport events with the exception of the Isle of Man and Northern Ireland. This severely disadvantages the UK against other countries who can make the decision to close roads at a local level; this can also deprive local communities of the benefits associated with creating and hosting suitable events.
- The government's charity commission makes it extremely difficult to establish a charitable Foundation, despite the aims of the Foundation being to grow the sport, provide training and education to young people in motor sport and engage with society with a responsible road safety message.
- The Forestry Commission and Forest Enterprise enjoy monopoly status in terms of gaining access to UK forests for motor sport events. The Forestry Commission takes more than £1 million out of UK motor sport for a total of 43 stage rallies to take place on its land. While supporting entirely the common access agreement to maintain safety standards, the MSA would recommend that government allows separate negotiation on forestry charges.
- High profile international events bring great kudos to the host nation. Developing nations have recognised this and are prepared to invest at government levels to secure leading motor sport events such as Formula 1 and the World Rally Championship. The British Grand Prix is one of only two races not to enjoy financial support from central government and this continues to weaken the position of the UK (and its motor sport industry) in the face of significant and ever-increasing international competition.

### 6. *The impact of the recession on motor sport*

There has been a slight decline in activity in 2009. While licence figures have stayed largely unchanged, there has been a reduction in the level of activity on events of approaching 10%.

It has been noticeable that while people have not stopped competing in motor sport, there seems to have been a reduction in their budgets. Many seem to have scaled back their outlay and taken a step down in terms of competition level.

There has been a predictable collapse, however, in the corporate market both in terms of hospitality and events and this will have had a significant impact on the associated service industries. There has also been a huge impact on sponsorship revenues and activity, the full impact of which may not be felt until 2010 when the current sponsorship and corporate deals expire.

### 7. CONCLUSION

The UK motor sport community brings a great deal of financial benefit to UK plc. Not only does it fundamentally underpin the world-leading UK motor sport industry, but it generates significant funding in its own right.

It is tempting to consider the value of UK motor sport simply in terms of export numbers, but this risks ignoring the very market that makes the exports possible in the first place. Remove the domestic motor sport scene and there will be a significant decline in the high-performance engineering sector in the UK motor sport market.

As outlined in section 5 of this submission, there are a number of straightforward and uncontroversial actions, with limited cost implications, that the Government could take to support motor sport in the UK. We hope that the Committee will clearly highlight these opportunities in its final report to Government.

18 September 2009

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## **Memorandum submitted by the Motorsport Industry Association (MIA)**

### EXECUTIVE SUMMARY

- The global motorsport industry is predominantly based in the UK's Motorsport Valley®—a unique business cluster which, as a result of investing over 30% of turnover in research and development, is a significant source of value-added in the UK economy. The brand of "Motorsport" serves as a key motivator for encouraging individuals to pursue STEM (Science, Technology, Engineering and Mathematics) courses at school, college and University.
- Sailing, equestrianism and motorsport are rare examples of sporting disciplines which make use of a substantial supporting industry to deliver competition success. The motorsport-induced phenomena of the competitive engineer is a significant driver of manufacturing innovation—innovation which is being increasingly embraced by four separate High Performance Engineering (HPE) customer groups—Defence, Marine, Aerospace and Automotive.

- Over the past decade, successes within the industry and sport have tended to have been met with an air of complacency from HMG. To make it easier for HMG to interact with motorsport bodies, the Motorsport Alliance—comprising the Motor Sports Association (MSA), Auto-Cycle Union (ACU) and the MIA—was formed in July 2008. The Motorsport Alliance exists to help co-ordinate and develop joint motorsport links with DCMS (sport), BIS (industry) and Parliament as a whole.

#### INTRODUCTION TO THE MIA

1. The MIA was founded in 1994 by executives from the Motorsport, High Performance Engineering (HPE) and Tuning industry to promote, protect, and provide a voice for these sectors in the UK. It strives to secure long-term, repetitive and competitive business advantage for its many members, and a strong, viable future for the Industry as a whole.

2. The MIA is now the leading global trade association for these sectors, co-ordinating services from its international HQ at Stoneleigh Park, near Warwick. It serves over 360 corporate members who, as a group, annually and globally transact over £3.5 billion in Motorsport and HPE business—employing some 15–18,000 individuals.

3. The MIA is a not-for-profit private company, owned by its industry members and limited by guarantee. Its Committee and Directors are elected by its membership and supported by a full time Chief Executive and staff. Any surpluses generated are re-invested into programmes which improve the wider industry and further develop its members' businesses.

4. The MIA is recognised by UK Trade & Investment (UKTI) as the only Accredited Trade Organisation (ATO) for the Motorsport, Performance Engineering and Tuning sectors. UKTI and the MIA enjoy a healthy working relationship which sees several International Business Development Visits and Inward Missions take place each year—this support is important for British motorsport SMEs, who derive over 60% of annual turnover from international trade. The MIA has overseas offices in Detroit and Atlanta, USA.

5. The MIA acts as Joint-Secretary of the All Party Parliamentary Motor Group, alongside the SMMT and The RAC Foundation.

#### SECTION A: THE ROLE OF MOTORSPORT IN THE WIDER ECONOMY

6. Motorsport Valley<sup>®</sup>, in the UK, is a world-class engineering business cluster of innovative SMEs delivering HPE solutions to four primary customer groups—Defence, Marine, Aerospace and Automotive.

7. These customers use the “Motorsport Industry” to design, develop and manufacture world-beating innovative solutions and prototypes including chassis, materials, electronics, engines, transmissions, brakes, telemetry and suspension components. The industry relies upon the proven skills and can-do approach of British competitive engineers who, season after season, incrementally improve components to deliver identifiable advantage and ongoing success on the race track. “Competitive Engineering” is the cornerstone of these successful global small businesses. These businesses have developed a unique ability to use sporting endeavour and entertainment as a catalyst for engineering and manufacturing advances, subsequently of real value to other HPE customer groups.

8. Some 4,500 UK SMEs are involved in motorsport, HPE and supporting services, with annual sales exceeding £6 billion, of which more than £3.6 billion (60%) is exported. In the sole National Survey of this industry in 2000, these SMEs supported 38,000 full time jobs (including 25,000 engineers). Service companies—rights exploitation, IP management, race track and event management, public relations, marketing, sponsorship, finance, legal, freight, logistics, insurance etc.—account for approximately ?1.7 billion (30%) of the annual industry total.

9. Unlike the Olympics and World Football, the commercial rights for Formula One (F1), World Rally Championship (WRC) and other World Motorsport Championships/series are operated by UK companies based in London (and not Switzerland!).

10. Internationally, Motorsport Valley is recognised as a globally significant, high-tech business cluster akin to that of California's *Silicon Valley* and the *Hollywood* film industry. The Valley attracts international buyers and investors seeking competitive advantage from race-proven engineering research, development and prototyping capabilities. When advising HMG in 1998, the renowned economic development academic, Professor Michael Porter of Harvard Business School, described the UK's motorsport industry as “*the jewel in the crown of British engineering.*” Many countries envy the success of this high value-added industry cluster and have active Government programmes to try and capture a share—often initiated by investment in hosting an F1 race. Such moves represent a genuine and constant threat to the leadership position enjoyed by the UK—an economic asset which requires less complacency and better awareness and active appreciation from HMG.

11. Importantly, over 30% of sales revenues are re-invested in R&D by UK motorsport SMEs—double that of the UK's Pharmaceutical and IT sectors, and ten times that of the automotive industry.

12. Motorsport Valley is recognised as the global centre of excellence for high performance automotive engineering, and most major automotive manufacturers maintain close links: The list is endless—Mercedes, Ford, Chevrolet, Toyota, Renault, Honda, Aston Martin, Ferrari, General Motors, Seat and BMW, amongst many others. The high-profile success of F1, WRC and Sports Car racing (which enjoy vast

worldwide television audiences) sells their automotive brands using a “sporting/technology” theme. They use the UK motorsport industry’s investment in advanced technology, R&D and prototyping to aid rapid development of new road vehicles—using motorsport as their real-life test-bed and laboratory.

13. F1 is the technical (and most valuable) pinnacle of global motor racing. In 2010, at least eight teams (Brawn, Renault, McLaren Mercedes, Williams, Red Bull, Force India), plus the new teams of Manor and Lotus, will be based in the UK—attracting substantial international inward investment from sponsors and technical partners. For interest, Toyota F1 is based in Germany; Ferrari and Toro Rosso in Italy, Campos in Spain and USF1 in the USA. Mercedes and Cosworth—both based in Northampton—will supply half the engines used by the 2010 Formula One grid.

14. The much-outdated MIA *National Survey of Motorsport Engineering and Services* (2000), explained the nature and breadth of this UK industry as follows:

- The UK motorsport engineering cluster is a world-class exemplar of high technology, low volume, R&D based manufacturing.
- 75% of the industry is located within the RDA boundaries of AWM, EEDA, EMDA and SEEDA—the heartland of the Motorsport Valley cluster.
- The industry is young and independent—three-quarters of firms were established in the past twenty years and remain independently-owned.
- The industry has enjoyed major sustained growth in turnover and employment over the past decade.
- 66% of jobs are in motorsport engineering disciplines—heavily dominated by full-time male employment.

15. In education, the brand of “Motorsport” was first used in 1998 by Swansea Institute (now Swansea Metropolitan University) to attract students to its struggling automotive engineering courses—through its introduction of a BSc in Motorsport Engineering and Management. Other institutions were swift to realise the aspirational power of the brand and its attraction to undergraduate engineers. As a result, 28 Universities, some 140 Further Education colleges, and hundreds of schools, now offer “motorsport engineering” programmes in the UK.

16. Each year, “Motorsport” encourages and motivates thousands of young people to take up STEM (Science, Technology, Engineering and Mathematics) subjects at school and college. This latent power of motorsport should be more fully embraced by HMG—as an example, the USA uses NASA to similar positive effect. Unfortunately, whilst successfully helping educators enrol the numbers of students (from UK and overseas) required by current Government policies, the real quality of the motorsport educational provision is deemed by UK employers to be generally poor and not serving the industry well.

#### SECTION B: THE ROLE OF SMEs IN THE SUPPLY CHAIN SUPPORTING THE MOTORSPORT INDUSTRY

17. The industry is composed virtually entirely of SMEs—half being engaged in HPE and the others in support services—their average size being 25 employees with annual sales of under £4 million.

18. Most of these specialists secure their success by working in partnership with other complementary SMEs to meet customer demands. This has created a very close-knit and co-dependent community—where competitive innovation exists alongside close cooperation to deliver world-class solutions on time.

19. The motorsport industry is incorrectly regarded, by some, as being within the “UK Automotive Industry”—yet it is not and differs in many significant ways:

20. Most notable is the wide, flat nature of the supply-chain—with no Tier 1, 2, 3 suppliers. Motorsport suppliers are characterised by their ability to react quickly and flexibly, designing and manufacturing innovative high-tech solutions, with high value-added and extremely short production runs. As an example, a successful transmission or engine manufacturer might only produce 100–200 complete engines or gearboxes in a year.

21. This accelerated, competition-driven, problem-solving capability—where time and speed of delivery has real value—is increasingly attractive to other sectors, such as Aerospace, Defence and Marine. They seek new suppliers who can outperform their traditional supplier base and are increasingly turning to motorsport companies to meet their requirements. Unlike conventional suppliers, motorsport businesses do not merely produce/manufacture—they focus on fit-for-purpose innovation, where a component produced this week performs better than one made last week.

22. Motorsport SMEs are “born global”—instinctively and immediately embracing international trade. The USA is, by far, the largest overseas national market, with NASCAR and Indy Racing League teams being the major customers. Mainland Europe—primarily Germany, France and Italy—comprises the second largest market. Indeed, hardly any motorsport event occurs, anywhere in the world, without some connection to UK motorsport services or engineering—due, in no small part, to the help of MIA and UKTI Business Development Visits.

## SECTION C: THE IMPACT OF THE RECESSION ON THE MOTORSPORT INDUSTRY (AND ITS SMEs)

23. The industry has felt the chill wind of the economic downturn since 2008. The financial services sector had become a major source of sponsorship over recent years but its demise has meant contracts have not been renewed. Additionally, automotive manufacturers have significantly reduced their advertising and marketing spend. Interestingly, however, they have not reduced their R&D spend—which continues to support motorsport activities where “sales” are not the primary reason for motorsport involvement.

24. The Fédération de L’Automobile (FIA) has encouraged significant cost cuts in F1 and other motorsport series. This mandate from the world sporting governing body is particularly damaging to the UK, which suffers a disproportionate share of these reductions, being major F1 suppliers when compared to other European nations.

25. The FIA’s plans will significantly reduce UK employment levels—some F1 teams anticipate staff levels will be reduced by up to 50%. With a knock-on effect on suppliers, the net effect could result in over 1,000 job losses in relation to just F1 in the UK. This is particularly worrying to regional economic plans, most suppliers being in rural locations and of unusually high average annual value.

26. The release of a large number of experienced and well-qualified engineers into a jobs market already swollen by supply chain downsizing (and newly-qualified graduates from the 28 motorsport engineering Universities), has raised unemployment to unheard of levels in this normally dynamic sector.

27. The MIA recognised this threat to the UK’s Motorsport Valley global leadership and moved quickly, in the absence of any Government activity, despite requests to the now, thankfully, defunct Motorsport Development UK (MDUK). The MIA encouraged specialist Motorsport Recruitment companies to help reabsorb these skilled engineers into smaller, component-based SMEs and other HPE industries (eg Aerospace, Defence and Marine). With Government support, the MIA could co-ordinate this activity and keep these highly-skilled world-class engineers within Motorsport Valley—rather than allowing them to move overseas, where their skills are in high demand and would, over a period of time, be used to create a competitor for the UK.

28. Most UK motorsport businesses have weathered the recession well. They conventionally run very lean, hiring specialists at times of high demand. Optimism and resilience are two essentials in motorsport success—these attributes will help these businesses gain strength and grow during this period.

29. The MIA has enjoyed a notable increase in membership since the beginning of the economic downturn—many SMEs seeing attack as the best form of defence. Several factors have been notable:

- Working together as a community has bought added security to businesses—MIA business to business events enable industry insiders to meet each other face-to-face and share business opportunities and developments.
- Sterling’s weakness against other currencies has meant UK-manufactured parts are currently more competitive than usual in international markets. The MIA, with support from UKTI, leads overseas programmes to secure new business.
- The MIA has helped companies diversify—with Motorsport to Defence and Motorsport to Marine programmes delivering tangible new business.

30. The Motorsport to Defence (M2D) Initiative was launched in 2007 in response to the challenge to bring motorsport companies to the defence sector—issued by Lord Drayson (then Minister for Procurement at the Ministry of Defence) and Lord Astor of Hever, Shadow Defence Minister (Honorary President of the MIA). Fully aware of the advanced engineering skills involved in designing racing vehicles which can attain high levels of performance and reliability over variable terrain whilst enduring extremes of temperature and adverse climatic conditions, both Parliamentarians were convinced of the synergies which exist between the Motorsport and Defence industries.

31. With no Government financial support whatsoever—funding coming from industry alone—the MIA has facilitated profitable and beneficial interaction between the two industries. This has enabled the defence sector to engage new suppliers with novel solutions to vital engineering problems, and motorsport companies to enjoy less seasonally-variable revenue streams.

32. The MIA’s M2D initiative has seen motorsport-derived radiators, charge coolers, gearboxes, brakes, fuel tanks, telemetry, suspension components and seals improve defence land vehicles—to the benefit of troops in the field. Motorsport’s ability to quickly design new parts and deliver low-volume production-runs has met Urgent Operational Requirements (UORs) issued by commanders in Iraq and Afghanistan.

33. Similarly, the MIA’s Motorsport to Marine Initiative has introduced motorsport companies to the UK marine industry. These businesses are finding many synergies not just with Power Boat Racing, but also Americas’ Cup, Olympic yachting and the RNLI’s rescue boats, for example.

34. Government financial support to further grow these cross-sector initiatives would widen their impact—to the benefit of British troops in action, the UK marine sector and, most importantly, improve the employment situation in this industry to offset the cuts outlined above.

## SECTION D: INNOVATION AND THE MOTORSPORT INDUSTRY

*What barriers are there to further innovation in the Motorsport sector and what can be done to overcome them?*

35. Endless innovation is the stock-in-trade of this proven world-class and world-beating industry—without innovation there is simply no motorsport business. Competitive advantage is not gained purely by innovating, but by innovating faster, and more continuously, than a competitor.

36. As a result, the motorsport industry's use of the HMRC R&D Tax Credits scheme is vital, regular and extensive. This excellent scheme has proven, demonstrably, to help SMEs to maintain their high level of annual R&D spend (at more than 30% of sales revenue). This industry's use of R&D Tax Credits is totally in line with the scheme's original intention which encourages SMEs to invest more in innovation for competitive advantage—and it is working.

37. The Industry has heard rumours of threats to the R&D Tax Credits scheme—perhaps HMG perceives misuse/over-use of the scheme by larger companies and corporations. In many cases, the cash flow advantages of these credits have kept small businesses alive and innovating during the recession. For example, many are now actively developing low carbon technologies to transfer into the mainstream automotive sector at a later date. The MIA would not wish to see this scheme withdrawn, since it has proved to be highly successful. In fact, the MIA requests that the R&D Tax Credits Scheme be urgently improved and enhanced for SMEs—or specific grants be made more readily available as part of quantitative easing.

*What steps can be taken to encourage the application of technology development in the Motorsport Sector to create new designs, products and process in other industries?*

38. Motorsport has a massive capability—within its community of knowledge and skills—which supports its diverse, high-tech industry. There is an urgent need for cross-sector stakeholders, the Government, and wider UK industry to better understand the largely hidden and under-exploited value of this sector.

39. Motorsport companies have a problem-solving capability, working within unique time parameters, which offers a real-time laboratory in which innovative solutions will be found and developed. As previously mentioned, the industry has already helped to solve UOR problems in Defence; reduce the weight of airliners through the advanced use composite parts in Aerospace; and introduced new gearbox and jointing technologies to the Marine market.

40. Motorsport has pioneered rapid development of energy-efficient and clean-burn engines, alternative fuels and power sources. Following its publication of a *Green Agenda for Motorsport* in 2001, the MIA took the international lead by organising *Cleaner Racing Conferences* in the world's leading motorsport markets, with support from UKTI. Disappointingly, with such a high profile and internationally-recognised agenda and capability, BIS-sponsored organisations such as the Technology Strategy Board (TSB), Low Carbon initiatives and the New Automotive Innovation and Growth Team (NAIGT) have failed to adequately engage with the UK motorsport industry or its trade association.

41. For example, the recent NAIGT report identified a need for “exciting and motivational prototype demonstrators” for low carbon vehicles. UK motorsport companies are perfectly positioned to deliver these requirements—some already do—yet little or no engagement has occurred. As motorsport's rule makers lay down new “Green” legislation which rewards efficiency, so innovative solutions are being developed by motorsport engineers and tested on the race track in motorcycles and cars. Validation of Green technologies through on-track success will accelerate the technology's inclusion on road-going vehicles and—if this sector is fully embraced—provide a source of commercial competitive advantage for the wider UK automotive industry.

42. Currently, HMG provides support and financial assistance essentially through the TSB and the Small Business Research Initiative. Motorsport, by default, works within a closed, focussed and highly competitive environment—lack of engagement with this business community is a weakness. There is an urgent need to review all relevant national and regional initiatives which fall under the banner of “Innovation” (identification, encouragement, exploitation, technology transfer) so that full benefit is derived from, and by, this sector—without duplication of effort or resources.

43. The MIA is keen to encourage closer partnerships and co-ordination to use—to the fullest extent—this unique British resource and source of competitive advantage. If harnessed more enthusiastically by the wider UK automotive sector, this would deliver reductions in CO<sub>2</sub> output in a shorter timeframe than at present.

## SECTION E: THE EFFECTIVENESS OF GOVERNMENT POLICIES IN SUPPORTING THE MOTORSPORT INDUSTRY

44. The HMRC R&D Tax Credits scheme has been dealt with in the previous section. This scheme is valuable and of vital importance to the industry's future—the MIA wishes to see it improved and enhanced to benefit innovative SMEs.

*International Trade Support*

45. The support of UKTI for exporters is critical for the UK motorsport HPE industry and, in many areas, UKTI work continues to serve the sector well. The MIA is the Accredited Trade Organisation for the Motorsport, HPE and Tuning sectors, and it administers UKTI Tradeshow Access Program (TAP) applications. TAP grants provide the industry with numerous opportunities to attend overseas tradeshows and open up new markets. The already excellent working relationship between UKTI and the MIA should be developed to ensure that Motorsport Valley continues to be actively promoted and publicised for inward investment.

46. Recently, however, the steady redirection of funds into the RDAs has weakened the sector-focused approach which was so successful in the past. The UKTI funds made available through experienced and representative trade associations are constantly reducing, the result being a significantly negative effect on SMEs' trade performance in overseas markets.

47. RDAs continually compete with one another, confusing SMEs and failing to provide sector-relevant experience or advice. The result is a poor return on UKTI investment—yet the experiment continues to the detriment of UK SME international performance. These disjointed and dissipated RDA/UKTI efforts have to be addressed: The MIA regularly encounters firms being unable to take advantage of well-conceived Government schemes, simply because they are a mile or two beyond the bounds of a particular RDA.

48. Regional international business development activity within the Motorsport sector, should it remain necessary, must be co-ordinated and harnessed by a national UKTI/MIA partnership. The MIA would like to see an external review of this aspect of UKTI funding policy and strategy—comparing the RDAs' current efforts with a well-researched option provided by UKTI's existing Accredited Trade Organisations.

*“Green” Low-Carbon Technologies and Motorsport*

49. In 2000, the MIA was the initiator of the successful Energy Efficient Motor Sport (EEMS) concept. It continues to be in a unique position to deliver a strategy and co-ordinate the industry to accelerate the progress of low-carbon and CO<sub>2</sub> reduction in motorsport, to the benefit of the wider UK automotive industry.

50. There is an urgent need to bring together current low-carbon stakeholders and the motorsport industry to deliver a “joined up” strategy with Government support. These stakeholders include HMG and appropriate departments/agencies, OEMs (Original Equipment Manufacturers), motorsport governing bodies, academia and research facilities.

51. In 2002, the MIA, with the then DTI, engaged the UK motorsport industry to create a Feasibility Study—based on input from leaders in energy efficiency development in motorsport. This study explained how motorsport could embrace energy efficiency to benefit the future of the UK automotive industry. It proposed ways in which such concepts could be adopted in motorsport—to popularise low-carbon/energy efficiency and promote it to the public in an exciting manner.

52. The MIA's inaugural and successful Clean Racing Conference, was held in Birmingham in October 2003 and has become an annual fixture since then. It has also delivered this message, on behalf of UK industry, by organising other Clean Racing conferences in Sebring, Long Beach and Detroit in the USA and Seoul in South Korea—all supported by UKTI.

53. Since 2004, many motorsport projects have showcased low-carbon solutions: Bio-diesel wins at Le Mans; 100% ethanol wins the Indy 500; zero-emission TTxGP competition at the Isle of Man motorcycle race; hybrid engines in national rallies; reduced emissions in Touring Cars; and Kinetic Energy Recovery Systems (KERS) wins in F1; amongst others. These successes prove that sporting competitiveness with low-carbon credentials encourages a positive and rapid change in public perception.

54. The MDUK-led EEMS programme (2004–09) failed to benefit from extensive motorsport industry co-ordination and progress. Restricted by lack of engagement with the MIA's industry network, there remains an absence of an all-embracing energy efficient strategy for the UK motorsport industry. Now that MDUK has closed, there is a fresh opportunity for HMG to actively engage directly with the industry on this vital issue of low-carbon technologies.

*Motorsport Development UK (MDUK)*

55. Following the DTI's Motorsport Competitiveness Panel Review, it chose to set up Motorsport Development UK (MDUK) to administer funding and delivery of the Panel's recommendations.

56. Most initiatives on MDUK's agenda were originally proposed by proactive members of the MIA—who had delivered to the DTI their own *Cluster Development Strategy* in 2002. This strategy secured written commitments of over £10 million of cash and in-kind industry support, covering the following:

- Business Development:
  - Interaction and collaboration.
  - Business services.
  - Motorsport Valley promotion.
- Education and Skills Development:
  - Workforce development.
  - Educational services.
  - Human Resources services.

57. Despite its Industry Advisory Panel's insistence that any programme must be "industry-led", the DTI failed to honour this vital requirement. The consequence was an ongoing lack of vision, relevance and industry understanding of the original proposals. The rigid—and seemingly needless—insistence that all project management and delivery be contracted to a "remote-from-industry" third party, resulted in poor delivery and development of the required aims.

58. Nowhere was this failure more apparent than in the attempts to co-ordinate and improve the quality of national Motorsport Education and Skills provision: MDUK decided to deliver a "Motorsport Academy" through Carter and Carter plc, completely ignoring the value of working with the already established MIA-led Motorsport Employers Group (MEG) and Motorsport Educators Forum (MEF). Failing to engage appropriately with these powerful influencers—with a resulting lack of cohesive networks—meant that quality assurance and accreditation programmes were fragmented, and failed to win the support of stakeholders.

#### SECTION F: HOW TO MAINTAIN THE UK'S EXCELLENCE IN ACADEMIC RESEARCH IN AUTOMOTIVE ENGINEERING, AND HOW TO EXTEND RELATIONSHIPS BETWEEN UNIVERSITIES AND BUSINESS STILL FURTHER

59. The UK motorsport industry has a well-proven and deserved reputation for applying innovation in an efficient and successful commercial manner. However, motorsport SMEs are no different from many other UK SMEs in showing a historic reticence to engage with academic research to any great degree. Many "motorsport reasons" are given including: Time-constraints and speed to market; development being of more practical and immediate commercial value than research; lack of long-term engineering strategy in the sport's rules; limited personnel available to maintain ongoing links, and so on. There are few, but significant, exceptions—led by Imperial College, Cranfield, Southampton, Warwick and Cambridge Universities.

60. This industry relies mostly on major corporations/organisations and academia for the undertaking of "blue sky" research. UK F1 teams benefit from technical partnerships with huge multi-national organisations: Innovative SMEs capture these outcomes and act as rapid developers/prototypers in a process of continuous development and improvement—making the solutions fit-for-purpose within a high performance context. It would possibly be of benefit for SMEs to better engage with academic research, but it is hard for individual research institutions to overcome the understandable barriers mentioned above.

61. Connections between the industry and academia were significantly improved when the MIA helped to create the world's first degree course in Motorsport Engineering & Design in 1998, delivered by Swansea Institute (now Swansea Metropolitan University). SMEs required more relevantly-qualified graduates, and curricula has since been introduced by an increasing number of Higher Education (for Engineers) and Further Education (for Technicians) Institutions. Certainly this has helped to foster closer links between Universities and the industry, albeit mostly in the educational field—but this opens the way for research dialogue.

62. An example would be the Institute of Mechanical Engineers' (IMechE) Formula Student educational programme. Now in its 12th year, Formula Student 2009 featured entries from 38 UK Universities, most of which had developed their cars in partnership with UK-based motorsport businesses. This working relationship between University Student Teams and the industry sets a model to which other motorsport engineering education programmes must aspire.

63. The proliferation of Motorsport-based curricula proves the significant appeal and positive power which the brand "Motorsport" has to attract young people into education and training. This recent phenomena has enormous potential for the wider engineering sector in the UK—as the recruitment figures within those institutions delivering motorsport courses show: Motorsport has proven to be a very "cool" engineering subject to study. Whilst only 30–40% of students find employment in the motorsport industry, the remainder find work in other engineering sectors.

64. The failure of the MDUK Motorsport Academy to deliver the requested “Motorsport Industry Recognition of Academic Institutions” has led to further deterioration of this situation. Employers require the MIA to work with HMG to confirm which education providers are currently rated as the most “fit-for-purpose” when it comes to providing graduates with the skills required by this specialist sector. Only once this is achieved (and the credibility of, and from, both sides is accepted) will the opportunity for real engagement between University, Educator and Industry, follow.

65. Employers and Educators should work more closely to ensure relevance and quality in the Motorsport Engineering educational provision, through existing MIA-organised specialist groups: The Motorsport Employers Group (MEG) and the Motorsport Educators Forum (MEF).

66. The measurement of success must be embraced by the appropriate National Occupational Standards, and once the quality of content and measurement has been established, then the UK—as global leader in this influential sector—can market such standards globally. This will better serve a British workforce which is mobile and delivers its knowledge and skills to the international industry and sport. The original request from employers to MDUK was to introduce, for the sector, National Occupational Standards and Qualifications. This request remains unfulfilled (even after six years), making employers’ assessment of prospective employees unnecessarily difficult.

67. The MIA has asked the representative Sector Skills Council—SEMTA—(working with Automotive Skills) to address this situation with some urgency. So far, this has not yielded any response.

#### SECTION G: ANY OTHER VIEWS WHICH STAKEHOLDERS THINK THE COMMITTEE SHOULD BE AWARE OF

##### *Research Required*

68. There is an urgent need for updated national economic research into this UK industry. The last research report was delivered by the MIA (with support from UKTI, DTI, and the Regions) in 2000—some 10 years ago. Ministers and Departments regularly rely on these (significantly outdated), figures in their answers and speeches—yet they are undoubtedly increasingly inaccurate figures. The MIA has raised this in Parliament, to Departments and MDUK, regularly over the past 10 years—most recently in the two Motorsport-related debates in the House of Lords,<sup>19</sup> led by Lord Astor of Hever—specifically requiring a response from Baroness Vadera. No action or funding has been approved and all still remain in the dark. It is hard to imagine any other country so consistently ignoring such a vibrant and innovative cluster and not wishing to understand and celebrate its growing success.

69. With funding from various sources including RDAs, Governmental Departments and the industry itself, the MIA suggests that another *National Survey of Motorsport Engineering and Services* is conducted—following the same methodology as before. Such a survey and subsequent report would provide HMG, RDAs, the industry, and its trade association, with an understanding of how this high value-added industry cluster has performed over the last decade. Up-to-date figures would also help key stakeholders to identify the strengths, weaknesses, opportunities and threats associated with the UK’s motorsport industry.

##### *The Motorsport Alliance*

70. The sport and industry are truly interdependent, in that the sport relies on support from engineering businesses. Recently, the two governing bodies of UK motorsport—the MSA (Motor Sports Association—for four wheels) and ACU (Auto-Cycle Union—for two-wheels)—joined with the MIA to form the “Motorsport Alliance”. This unique approach allows all of motorsport to speak with one voice to Government, as and when appropriate or required. The Motorsport Alliance exists to help co-ordinate and develop joint motorsport links with DCMS (sport), BIS (industry) and Parliament as a whole.

25 September 2009

#### **Supplementary Memorandum from the Motorsport Industry Association (MIA)**

During the oral evidence session (HC 173-i)—at which Colin Hilton (Motor Sports Association), Andrew Manahan (Lola Group), Mike Dickison (Coventry University) and Chris Aylett (MIA) gave oral evidence—and in the dialogue which has followed, it has become apparent that an MIA report, commissioned by the Department of Trade & Industry (DTI) in 2002, is of relevance to the inquiry.

This report, the “*Motorsport Valley Cluster Development Industry Commitment Project*” is referred to in Mr Aylett’s response to Q158 from Mr Wright, and is supplied as part of the supplementary material relating to this memorandum (*not printed here*).

<sup>19</sup> 23 April 2009—Question for Short Debate tabled By Lord Astor of Hever DL: *To ask Her Majesty’s Government what assistance they will give to enable the British Formula 1 Grand Prix to continue.*  
9 July 2009—Topical Debate: *UK Manufacturing*

The “Motorsport Valley Cluster Development Industry Commitment Project” was a detailed three-year development plan for the high performance engineering and motorsport cluster in the UK.

The DTI charged the MIA with approaching companies within this cluster to seek their support for the plan and to provide in-kind and cash contributions towards its implementation.

In producing the report, the MIA secured written commitments of matching support from industry valued at over £10 million (of which over £1 million was in cash and the rest in-kind). These details were passed—in full—to the DTI and apparently never utilised or acknowledged.

It was immediately following this enormous gesture of support from Industry that Patricia Hewitt called for the creation of a Motorsport Competitiveness Panel, the recommendations of which led to the formation of the questionable delivery mechanism that was MDUK. The Industry’s commitments were never called upon to support the delivery of the Competitiveness Panel’s recommendations.

During the afore-mentioned oral evidence session (HC 173-i), a letter from Brian Wilson was also referred to by Mr Aylett in Q158, Mr Hilton in Q162, and Mr Clapham in Q166. This letter, “*Harnessing a World Class Industry Cluster to Gain Competitive Advantage for the UK: Motorsport and Performance Engineering*”, dated 22 January 2002, is supplied as part of the Supplementary Material relating to this Memorandum (*not printed here*).

The MIA submits the following supplementary material alongside this memorandum (*not printed here*):

- *Motorsport Valley Cluster Development Industry Commitment Project*—Final Report, MIA (March 2002).
- *Harnessing a World Class Industry Cluster to Gain Competitive Advantage for the UK: Motorsport and Performance Engineering*, a letter from Brian Wilson MP, Minister of State for Energy and Industry (22 January 2002).

February 2010

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#### **Memorandum submitted by Rimstock**

Rimstock Plc is the UK’s largest and most advanced manufacturer of aluminium wheels supplying numerous domestic and international market fields, Original Equipment, Aftermarket, Motorsport, Ultra High Performance (UHP), and the Defence sector. All of these markets require significant resource in developing and then manufacturing advanced products to suit each clients needs.

We have worked extensively with universities in the past, developing new products, new manufacturing techniques, and even new alloys to make them from. R&D is an integral and essential part of our business and hence the recent R&D Tax Credit system was a significant help in the current market climate.

Like any business every sector we are involved in, are and have become increasingly more price sensitive. Customers (teams, businesses & manufacturers) want cutting edge designs and technology for the sharpest prices. This is what we do and how we work to make a living. However over recent years we have found Chinese manufacturers will take our product, copy it and then sell it into the same market at under our cost totally undermining ours and any other UK or European based business. This has become an increasingly large and frustrating problem with only 4.5% duty being imposed on imported Chinese wheels and the 17% rebate Chinese wheel manufacturers receive from their government for exporting alloy wheels to the UK, means they cut our prices and company to shreds. It is a fact that must be addressed by increasing the import duty on Chinese wheels if any manufacturing capability is to remain in the UK.

In addition despite an alloy wheel being a stressed component critical to the safety of the vehicle, there is no mandatory safety standard (like German TUV) manufacturers have to prove their product passes. Therefore a Chinese manufacturer can copy a product, manufacture it using inferior raw material and manufacturing techniques, and then supply a component untested which has minimal safety margin in a stressed environment such as motorsport.

We are still the strongest of any UK wheel manufacturers, that said we had 250 employees three years ago, to survive we have had to shed 90 British jobs in that time. Currently we cannot ignore considering more mandatory redundancies, the general market has not helped but it’s the increasing habit for Chinese manufacturers to use the UK as a dumping ground for their products. We need help and action from our Government to safe guard manufacturing and the development not only of products, but individual engineering talent which we have in the UK, please this must be looked upon with the utmost urgency.

15 September 2009

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**Memorandum submitted by Rolls-Royce**

**RELEVANCE OF EXPORT CREDIT AGENCY FINANCING IN AEROSPACE**

**INTRODUCTION**

In 2009 capital expenditure for new aircraft deliveries reached c. \$68 billion, with approximately a third of this amount being supported by Export Credit Agencies (ECAs). The UK's Export Credit Guarantee Department (ECGD), along with the French and German ECAs, Coface and Euler Hermes respectively, supported 150 aircraft deliveries in 2009 with a value of c \$12 billion.<sup>20</sup> ECGD's share of the amount supported is a considerable \$3 billion. The Export Import Bank of the US (ExIm) provided support for more than \$9 billion of aircraft deliveries. The reason for such sudden increased reliance on ECA financing has been the financial crisis in the commercial markets and dramatic reduction in the availability of US dollar based, long term, structured debt with the majority of banks de-leveraging to improve capital ratios.

In 2010 capital expenditure for new aircraft deliveries is forecast to reach similar levels of more than \$60 billion, and again it is anticipated that approximately a third of all these aircraft will deliver with ECA support.

Without ECA support, many airlines would not have been able to raise finance to take delivery of new aircraft during the financial crisis thereby threatening aircraft and engine production with knock-on consequences for supply-chains, SMEs and ultimately employment.

**A LEVEL PLAYING FIELD FOR BRITISH EXPORTERS**

ECAs support exporters by providing sovereign guarantees of commercial debt for customers to purchase goods and services, and in some cases by providing a direct loan to the customer. This benefits the exporter by providing financing for sales, (1) when there is limited finance available in the market, as has been experienced during the financial crisis, (2) provides funding for customers that otherwise may struggle to find a source of affordable finance, and (3) provides confidence to customers placing long lead-time orders with exporters that there will be a source of financing available to them when they take delivery of goods and services.

It is vital that British exporters have access to an ECA that can provide the above services on the same terms as other ECAs, like ExIm, to ensure a level playing field for exporters to compete on price and quality, not be disadvantaged by the absence of financing for British made goods and services.

By providing finance for "the lead contractor", ECA support also benefits sub-contractors and suppliers, including SMEs. In 2009 Rolls-Royce spent c £4.5 billion globally with suppliers, with 40% being spent in the UK, including 13% with SMEs.

**ECGD—AEROSPACE EXPERTISE CONTRIBUTES TO THE EXCHEQUER**

The aerospace team (Business Division 1) at ECGD, lead by Gordon Welsh under Patrick Crawford, is a leader in the field of ECA aircraft finance. Our experience of working with the aircraft team has been excellent. ECGD, along with Coface and Hermes, provided critical support in 2009 with guarantees totalling \$12 billion enabling 150 aircraft deliveries despite the crisis in the financial sector.

The aircraft team proactively visits customers on marketing trips, enabling them to develop relationships with the airlines and better understand the customer's credit. The aircraft team also regularly participates at industry conferences and as a result, ECGD's cumulative knowledge and experience is able to influence OECD proceedings relating to aircraft finance, ensuring that the UK and EU's interests are preserved.

ECGD charges a risk-weighted fee for its services and products. It does not provide exporters with subsidised financing. ECGD generated net income of £299 million in 2009 and £597 million in 2008 and has actually been a contributor to the Treasury finances since 2004, over which times ECGD's Total Cash Flows were £5.8 billion.

**ABSENCE OF ECGD CAPABILITY TO MAKE DIRECT LOANS**

As the UK is a member of the OECD, ECGD is regulated by the OECD's agreements for export finance. Aircraft finance is regulated by a specific agreement, the Aircraft Sector Understanding (ASU).

ASU sets the base terms for aircraft finance including the amount of finance that can be advanced, the term and the cost of finance. These base terms can not be exceeded by Participants to the OECD, creating a level playing for manufacturers such as Boeing (USA), Airbus (Europe), Embraer (Brazil), Bombardier (Canada), General Electric (USA) and Rolls-Royce (UK) to compete purely on price and quality.

As ECA to Boeing, ExIm is ECGD's main competitor in the field of ECA aircraft finance. Whilst all operate under OECD guidelines, ExIm, BNDES and EDC have some advantage over the European agencies in that their operating statutes enable them to fund directly in situations where commercial bank funding is not available even with an agency guarantee or deemed prohibitively expensive. ExIm made several direct loans in 2009.

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<sup>20</sup> Based on an estimate of ECGD's workshare across all airframes and an exchange GBP/USD rate of 1.6.

ECGD's operating statute does not allow it to fund directly in situations where its guarantee cannot secure commercial bank funding. This was an issue during the financial crisis, not because banks were reluctant to accept the sovereign credit risk of the UK Government, but because they were shrinking their balance sheets and preserving liquidity. Although this situation was averted as banking liquidity improved it still remains a risk and one that should be addressed.

We recommend that ECGD along with its European counterparts specifically address this situation and establish a comparable mechanism to ExIm allowing for direct loans to be made in circumstances when commercial bank funding is not available.

#### ECGD—BUSINESS PRINCIPLES

The individual interpretation and application of Business Principles can also affect the level playing field between agencies.

The OECD guidelines set out a number of codes and principles for the ECAs to follow. However, in certain instances ECGD has gone beyond the requirements guided by OECD creating additional workload and frustration for export manufacturers, for example ECGD's anti-bribery and corruption policy. We are keen to see a consistency of approach in such matters to ensure that the UK is competing on a level playfield field. We sincerely hope that ECGD's public consultation to conclude on March 3rd 2010 on these issues will lead to a satisfactory outcome for all concerned.

#### CAPE TOWN CONVENTION

Finally, we would encourage ECGD to lobby for the UK's adoption of The Cape Town Convention (CTC). CTC is an international treaty on international interests in mobile equipment to standardize transactions involving movable property, particularly aircraft and aircraft engines. The treaty provides various legal remedies for default in financing agreements, including repossession and the effect of particular states' bankruptcy laws.

The CTC only becomes effective once adopted by government. To date the UK has not ratified the CTC and, to some extent, ECGD is indifferent about adopting the CTC because UK law as it stands is adequate in relation to secured asset finance and the urgency for change is not immediately evident.

However, all agree that no harm can come from adoption of the CTC and the potential benefits are twofold: increased asset security through use of the CapeTown registry in Dublin and access to increased volumes of longer term debt through access to US capital markets.

Lending in the US capital markets is provided by insurance companies, not banks, and depends legally on rather specific bankruptcy provisions, which are absent from UK law. The US capital markets do however have great depth and lend over substantially longer terms than banks. Given the amount of debt required annually to deliver new aircraft, access to this market is important for many airlines, particularly as longer dated lending reduces cash flow payments during the term. Indeed, ExIm and ECGD have both realised the potential value of this market and sought the place transactions in this market under sovereign guarantees. The point of making conformist changes to British law would be to encourage the use of US capital markets debt by airlines, without ECGD cover. Whilst this would apply to few airlines in the UK, the British example would encourage other states to the same end and ECGD cover is provided to airlines worldwide.

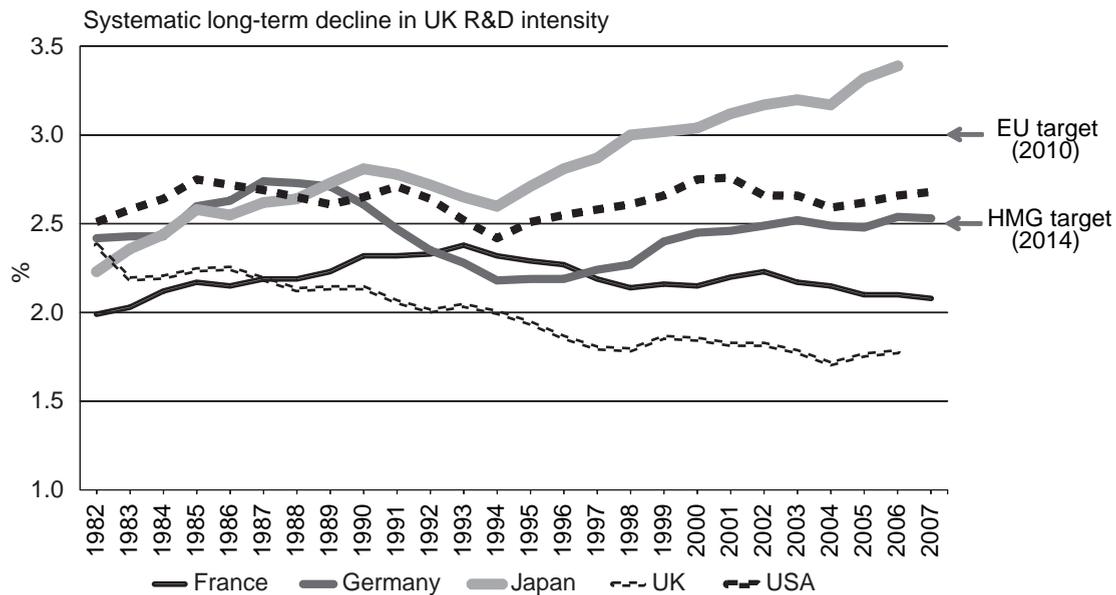
#### SUMMARY

The ECAs, in particular ECGD, are vital to aerospace manufacturers and their supply chain including SMEs as jobs through out the supply chain depend on the ability to deliver the end product. ECA support is forecast to amount c.\$45 billion between 2009–10. Given the financial crisis, commercial markets simply could not absorb the removal of this support.

Our experience of ECGD and their aircraft team has been excellent. Aviation is ECGD's largest sector and the competence of the people involved is ably demonstrated with ECGD having been a net contributor to the finances of the Exchequer since 2004.

However, manufacturers on different continents compete for business in an international market place and reliance on a level playing between the respective ECAs is therefore hugely important, lest one manufacturer be advantaged over another. In this respect, the absence of any mechanism allowing ECGD to make loans on its own behalf when required puts its users at a unique disadvantage to those of ExIm, BNDES and EDC. In addition, the temptation for demonstrations of strong but unilateral stances of Business Principles also serve to corrupt the level playing field between ECAs, potentially putting British business at a disadvantage.

Overall ECGD is an absolute necessity for aviation and undertaken properly, as it is today, a net generator of income for the Exchequer. One important funding improvement is recommended, as is resistance of unilateral stances of Business Principles.



Source: The OECD Factbook 2006, 2008; ONS Gross Domestic Expenditure on R&D 2006

## R&D TAX CREDITS

### Background

There has been a long-term, systematic decline in UK R&D (%GDP—see chart). This must be reversed and driven to internationally competitive levels if the UK is to become the vibrant, knowledge-based economy that many envisage.

Higher levels of R&D are characteristically associated with manufacturing and we believe this explains the much higher levels of business R&D in Germany and Japan compared with the UK. Manufacturing also represents a larger share of national output in these countries compared with the UK.

There is a well-known market failure—public intervention is necessary to stimulate enough R&D. Social returns to R&D can be very high especially in sectors such as Aerospace and Pharmaceuticals. In the UK and across Europe the aggregate (private + social) returns to R&D are around 65% which is very high compared with the share of return obtained by private R&D investors. So the return to public intervention that stimulates additional R&D can be very high.

### R&D Tax Credits

Tax credits are just one mechanism employed by governments to encourage higher levels of R&D. In the long term we believe it sensible to work towards a more generous R&D Tax Credit scheme along with reductions in Corporation Tax as part of making the UK more attractive internationally as an environment for business investment.

But over the next 10 years, when public funds will inevitably be constrained and there is a need to stimulate and rebalance the UK economy in a purposeful way, we believe that R&D should be stimulated more selectively and more positively than can be achieved by a generally available and limited deduction against Corporation Tax.

Tax credits cost the UK around £750 million annually compared with the £3.5 billion invested by government in supporting the science base; the Technology Strategy Board (TSB) budget, supporting technology pull-through to industry, is some £350 million. Care should be taken not to undermine the UK's science base but we do believe that resources available to stimulate R&D should be focused to a greater extent on closer-to-market activities capable of generating jobs and value for the UK in the medium-term.

Grants are a more powerful incentive for R&D, typically offering a much higher recovery of R&D costs than tax credits, and the mechanism is inherently more selective. We believe that available resources should be directed towards increasing the TSB's budget substantially and improving the speed and effectiveness of mechanisms for coordinating support for nationally significant R&D projects—for example, across TSB, Research Councils and Development Agencies.

8 February 2010

## Memorandum submitted by the Royal Aeronautical Society

### EXECUTIVE SUMMARY

- The aerospace sector is one of the most successful elements in the UK manufacturing economy. This is based on several discrete technological streams producing a comprehensive range of world-class products.
- This success is the result of a strong public-private partnership extending over many decades.
- However, there is growing concern that future funding for aerospace technology acquisition might be threatened by cuts in defence R&D and the uncertainties posed by the recent WTO ruling on repayable launch investment.
- Continuing industry concerns over the institutional basis for the delivery of aerospace technology acquisition would be substantially reduced by the creation of a UK Aerospace Research Institute linking industry and academia, supported by both public and private funding.
- The civil aerospace market has been in a deep worldwide recession, and is unlikely to recover fully until the first or second quarter of 2010. The defence and space sectors are so far holding up better. The UK is helped in this respect by its global structure giving it direct access to other markets, especially the US. But future prospects will depend on the direction and depth of cuts in public spending.
- The autosport and aerospace sectors are closely linked technologically as well as by a common chain of specialist supplier companies. The UK Government should support selective innovative technologies in aerospace and autosport because this will sustain an international position in two high value international markets, and that the technological links between the two creates sufficient synergy to increase the leverage of such investment.

### INTRODUCTION

1. The Royal Aeronautical Society (RAeS) is the Learned Society for the Aerospace and Aviation community. Based in London, it has a worldwide membership of over 19,000, with over 13,000 in the UK. Its Fellows and Members represent all levels of the aeronautical community both active and retired with around a half of these as professional engineers. In addition, the Society has over 120 organisations that are members of its Corporate Partners scheme. It has Airpower and Rotary Specialist Groups, with members drawn from industry, academia and the Armed Services.

### THE AEROSPACE SECTOR

2. The aerospace sector is one of the most successful elements in the UK manufacturing economy. It has a consistently high export record, with a sustained positive balance of trade over the last two decades. The industry is the largest exporter of defence and security equipment into the US. It comprises a wide range of technological and manufacturing streams, including aerostructures (especially wing design and manufacture), aero-engines, electronic systems and mechanical equipment. This is sustained by, and in turn sustains, general national technological competencies in material sciences, mechanical and electronic engineering, fluid dynamics, software and systems engineering. Aerospace is a key “first user” of new concepts. In particular, the UK still retains a world-class competence in systems integration in a range of civil and military products.

3. The current position is the result of a government-industry partnership stretching back over several decades. Today’s world-class technological capability is based on past investment; it follows that maintaining this position into the future will require similar commitments. Investment in technology acquisition is especially important for both civil and military applications, the latter feeding directly into the equipment used by our Armed Services. Currently, aerospace and defence generate 15% of national R&D spending. In 207, companies in the sector increased their R&D spend by 12.5%, outstripping all other major industries included in the Government’s R&D scoreboard.

#### *How effective have been government policies in supporting aerospace?*

4. The aerospace industry is unusual in the degree to which globally governments are involved in its affairs. Either directly, through support for technology acquisition and individual products, or indirectly as a customer for defence equipment and regulator (primarily by controlling defence-related trade), government intervention helps to define the industry’s commercial performance and competitiveness.

5. The UK government has performed reasonably well in this respect: Support for civil technology acquisition has improved, although this is in part due to industry bidding more effectively in an open competition for research funding; the repayable launch investment (RPI) mechanism has enabled UK firms and subsidiaries of multinational companies to remain world class centres of wing and aero-engine development and manufacturing; high defence spending (by European standards) has supported indigenous military R&D and production and has enabled the UK to retain a strong position in the various international programmes that dominate the military aerospace scene; a modest, but effective contribution

to the space sector (boosted by periodic defence procurement) has sustained a competitive position in several niche markets; and the government has sponsored several highly successful government-industry partnerships designed to improve process efficiency and effectiveness.

6. There are weaknesses: The terms for RPI tend to be more onerous than Britain's European partners and less generous generally than some of the newer entrants such as Japan and China; support for defence technology acquisition is fragile and vulnerable to budget cuts to protect established development and operationally relevant programmes; and the fact that the aerospace industry has to compete for cross sectoral technology acquisition funding, where many of its competitors have dedicated aerospace budgets, leads to fragmented non-prioritised funding of individual projects in the "National Aerospace Technology Strategy" and leaves it vulnerable to future shifts in priorities.

7. There is also uncertainty about the future of RPI in the light of the recent and pending WTO rulings. The WTO appears to have declared some aspects of the European (and by implication, the UK) approach illegal under its subsidy code. This could entail significant changes to the current system to bring it closer to a commercial loan rather than its current risk-sharing format, or to shift the nature of funding to a more indirect form. In order to maintain the level of support for UK civil manufacturers, higher levels of funding for general R&D may be required, perhaps through enhanced European-level programmes.

8. The UK system of support for civil technology acquisition is still poorly designed to sustain the higher tiers of the equipment industry who have to support their own R&D out of internal funding. Paradoxically, changes to the RPI system may improve access at this level, although UK-based aircraft and aero-engine firms may decide to invest overseas in countries not covered by the WTO ruling. In the future, the government may have to consider further investment in generic technology demonstration to support the wider aerospace technology base in a form more consistent with the WTO regime. By the same token, industry may have to invest more "upstream" to support earlier stages of technology acquisition.

*How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business still further?*

9. Since the privatisation of Qinetiq, the UK has been at a severe disadvantage compared to France and Germany (for example) which still have central Government supported Research Establishments (ONERA and DLR respectively) with access to up to 100% research funding compared with the limit of 50% for support funding for major industrial technology programmes in the UK. This is beginning to affect the placement of research work by, for example, Airbus, to the detriment of the UK. Discussions are in hand between the UK Industry and Government as to how this situation could be rebalanced by using the several UK Academic Centres of Excellence in Aeronautics to best advantage and in a more co-ordinated way.

10. One model being discussed is "OMEGA", which has completed a first phase of work in bringing together academic work at different universities on the effect of aviation on the environment. OMEGA has utilised a small core dedicated management team but basically has sponsored research projects in different universities and promoted a Knowledge Transfer Network with interested stakeholders, ranging from NGO's and Government Departments to industry and airlines and airports.

11. The current discussion led by the A&D KTN core team within the SBAC with BIS is how best to develop an "Institute" with a wider remit, to use the undoubted expertise in UK academia to best advantage. It is likely that the "Core" of the institute would need to be a more substantive body than the OMEGA example, as, for example, it may also need to provide a home for the remaining strategic research infrastructure which is still left in the UK, such as the 5-metre wind tunnel at Farnborough. One possibility would be to centre the "core" at the Aircraft Research Association at Bedford. In effect such an "Institute" would put the excellent example set by Rolls Royce with its University Technology Centres (UTCs) on a national rather than single company basis and open its remit to other stakeholders as well as industry.

12. The danger, already being felt by Airbus UK, is that if research drifts out of the UK, high technology design and development work soon follows, leaving manufacturing jobs in the UK on new products highly vulnerable. The UK role as the Airbus wing technology integrator (including aerodynamic, systems and structural expertise) is already being put at serious risk. This then exposes the Airbus UK "Wing Centre of Excellence", to an increasing risk of these responsibilities and jobs leaching out to other parts of the Airbus consortium or to other suppliers in the worldwide supply chain. This has already started to happen on the A350XWB project with neither the top nor bottom CFRP wing cover being made in the UK, although final assembly is retained at Broughton. It is an absolute imperative that more overall responsibilities for the wing for the next generation New Short Range project to replace the A320 and Boeing 737 are retained in the UK and this starts with support for the relevant technology base. A good start has been made with the TSB/ Industry funded NGCW and EFE programmes which include significant Academic involvement.

13. It is therefore considered essential that a "UK Aerospace Research Institute" is launched as soon as possible so improving the impact and effectiveness of the several excellent universities with aerospace capabilities. There will then be an equivalent requirement for adequate funding of the Academic work through the Research Councils and other funding bodies. In all cases, there should be close cooperation between industry and academia at every stage; in the past, there have been examples of academic reticence over too close engagement with industry.

*What has been the impact of the recession on MotorSport and Aerospace industries?*

14. The civil aerospace market has been in a deep worldwide recession, and is unlikely to recover fully until the first or second quarter of 2010. Airlines are cutting capacity and are beginning to cancel or defer orders. So far the record high order backlogs are sustaining production levels at the two main manufacturers—Boeing and Airbus. UK manufacturers are closely involved in both companies' programmes, which provide some degree of protection. However, the current recession is beginning to bite in that planned increases in production have been delayed and future production demands on suppliers are becoming more unpredictable. Further down the supply chain, this implies increasing difficulties in sustaining a medium term business plan and, in the light of credit related issues, growing difficulties in ensuring capital to maintain cash flow and future investment to anticipate the up turn. Given the links between the aerospace and automotive sectors down the supply chain, the situation is exacerbated by the more serious crisis in the demand for cars and the impact this is having on the automotive supply chain.

15. The defence sector is so far holding up better. The UK is helped in this respect by its global structure giving it direct access to other markets, especially the US. This is a two-edged sword in that UK based activity might be diverted overseas, and decline in the UK defence budget and support for technology will blunt Britain's attractiveness as a location for inward investment. Falling investment would also threaten the UK's ability to play important and beneficial role in future international programmes such as in advanced unmanned aerial systems.

16. For similar reasons, the UK space sector is maintaining its position, with public markets still dominating commercial performance. However, as the sector becomes more dependent on commercial, down stream markets such as satellite positioning, it is more exposed to cyclical effects.

*What is the role of SMEs in the supply chain supporting these two sectors?*

17. SMEs are a significant element in the aerospace supply chain. Moreover, as implied earlier, there are close links between the aerospace and automotive supply chain, especially the higher technology and performance demands of autosport. A healthy SME community underpins the national aerospace industry, especially in sustaining regional clusters of high value firms. Equally, some SMEs are particularly valued as sources of technology innovation—most marked in the space sector and some aspects of defence aerospace (again the emerging technologies of unmanned vehicles is a case in point).

18. However, it is important not to omit the vital role played by the “large small” and the “small big” companies that sit between the SMEs and the large systems integrators and prime contractors. These may be subsidiaries of larger firms, but are often treated as independent cost centres and have to pay their way. Independent companies in this tier are even more exposed. These companies generally sustain much of the independent R&D in the industry, and historically have given UK aerospace its range and depth in international markets. Much of the wider technological diffusion into the wider UK economy—hard to quantify but significant—also occurs through these firms.

19. But in the final analysis, the large prime contractors and systems integrators drive the process of innovation and large-scale commercialisation. They act as “routes to market”, as well as acting as a focus for research activity, often in partnership with smaller firms. SMEs do have some independent access to a global market, but without a healthy domestic core of large enterprises, the UK based supply chain would suffer.

*What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

20. Some of the diffusion of technology occurs naturally through interrelated supply chains and common interest in technological innovation in areas such as structural design and aerodynamics, composite materials, control software and light weight, high performance electronics. There has also been a conscious effort on the part of the aerospace industry to learn from automotive supply chain management, especially in the application of “lean” processes. In this respect, UK based aerospace companies have become world leaders in their sector.

21. The UK aerospace industry has been helped by a strong government-industry partnership that begun in the mid1990s—this must be sustained in the future. Equally, the government must appreciate the interrelated nature of the technology base, and that support for one arm does impact on the other, although not necessarily immediately (there is a history of technologies passing between the two sectors, returning some years later after proving and iterative development).

22. These links and the overall commercial and competitive advantages secured by past investment may be jeopardised by falling public investment in technology acquisition. This is especially marked in the defence sector, but budgetary pressures generally leave “up stream” investment vulnerable to easy cuts.

*How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology?*

23. The AIN's were not all that successful and neither were the more traditional National Advisory Committees. These have now been combined into the KTN's National Technical Committees both to advise on Technology priorities and to assist in pulling together participants for particular project proposals.

24. The ATVP's have been much more successful including the launched "Next Generation Composite Wing (NGCW)" and Environmentally Friendly Engine (EFE)" programmes. The re-organisation into the Aerospace and Defence Knowledge Transfer Network and its NTC's is too recent to comment on its success, and the major launched ATVP's have not yet reached the stage of exploitation. Progress is also being made on NATS "technology road mapping" to "provide a clear and concise means to capture strategic requirements and direction".

*Links between aerospace and motorsport*

25. One link between aerospace and motorsport is that the latter has the budget and performance demand, which stimulates access to aerospace technologies. A second and more important link is that such technologies demonstrated in aerospace and motorsport find their way into the high performance/expensive end of the automotive market and subsequently the mass market. There is tangible evidence for this: electronic braking and stability systems, head up displays, the Volvo automatic braking system and the possibility of adaptive cruise control to be introduced by Bosch on BMW and Audi models. The latter application is based on Xband radar technology using a low cost phased array derived from aerospace applications. This relationship is continuing into areas such as unmanned air vehicles (UAV), where Cosworth is developing propulsion systems for the U.S. Navy's Ultra Endurance programme. Similar linkages should be encouraged in meeting environmental challenges as both sectors seek to reduce their carbon footprint—potential areas of overlap include alternative fuels and further development of light-weight materials and structures.

FINAL COMMENTS

26. In summary, the UK Government should support selective innovative technologies in aerospace and autosport because this will sustain an international position in two high value international markets, and that the technological links between the two creates sufficient synergy to increase the leverage of such investment.

17 September 2009

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**Memorandum submitted by Skillset**

**SHORT BRIEF ON GRADUATE ENTRY IN THE CREATIVE MEDIA INDUSTRIES, THE DEMAND & SUPPLY ISSUES AND SKILLSET-INITIATED SOLUTIONS**

There are 478,250 people working in creative media industries. 73% of those are graduates. Over a quarter (30%) of them holds a postgraduate qualification.

Following employment patterns through Skillset research programme, we estimate that an average of 9,000 people enter the industry<sup>21</sup> annually.

The BFI/Skillset Media Courses Directory currently lists 8,306 courses; 1,378 of these offer undergraduate qualifications and over 700 are postgraduate. These courses attract an average of 100,000 students into Higher Education. Please note, however, that the majority of courses on offer with Media or Film as a tile/subject are not necessarily practice based and are offering a more humanities or arts based discipline base. The content of courses is not immediately obvious to the employer or the potential student.

**Issues:** Employers in the Creative Media sectors need educated, well-rounded individuals who can acquire specialised knowledge and skills and apply it in a real working environment. As it is indicated from the size of the sector and the proportion of new entrants, this is a sector whose issue is the quality rather than quantity of employable new entrants.

**Solutions:** The demand for employable graduates is high. Therefore, our industries have identified as a priority working with Further and Higher Education Institutions (FE & HEIs) to define an education offer that is relevant to the current and future needs of their business.

Assessed and guided by a panel of key industry figures, Skillset has created a Network of Skillset Academies and accredited courses in Film, TV, Interactive Media, Facilities, Animation, Screenwriting and Computer Games.

The Network builds on existing excellence of training in Further and Higher Education institutions and adds industry input; it bridges the gap between training and employment by focusing industry's provision, amongst other things, for work experience opportunities, bursaries, scholarships and internships which are

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<sup>21</sup> Excludes Publishing as this sub-sector only came to Skillset's footprint and research programme in 2008.

based on merit, talent and skill. In addition, the Network offers a perfect conduit for short courses and Continuous Professional Development (CPD) provision which is vital for the industries as well as forging Research & Development partnerships.

Currently the Network covers a total of 470<sup>22</sup> courses for an estimated 19,200 people, both new entrants and established professionals, and comprises of:

The Skillset Media Academies: 22 Academies (altogether 28 HE institutions, 19 FE Colleges and eight training providers) assessed rigorously by industry evaluators drawn from the education sector and the television, interactive media and post production industries. The final selection was made by a high level panel chaired by Greg Dyke.

The Skillset Screen Academies: six Academies and the Film Business Academy at Cass Business School (altogether a network of one FE College and 10 HEIs); they are institutions identified by the UK Film Industry as centres of excellence in film education and training.

Skillset Accredited Courses: working with industry, Skillset accredits those practice-based courses that most effectively provide students with the skills and knowledge that employers need. Currently, there are: in Animation seven under-graduate and one post-graduate; in Computer Games five under-graduate and one post-graduate; and in Screenwriting ten post-graduate.

#### NOTES:

Skillset is the Sector Skills Council (SSC) for Creative Media which comprises TV, film, radio, interactive media, animation, computer games, facilities, photo imaging and publishing. We are an independent, employer-led organisation, licensed by government across the UK to support skills and training for people and businesses in the UK creative media industries so that they remain competitive and maintain their world class position.

For more information on the work of Skillset, please visit our website: [www.skillset.org](http://www.skillset.org)

All Data supply for our sectors (unless otherwise indicated) are supplied from:

- Skillset Workforce Survey of the Creative Media 2008, covering the following sectors: Animation, Computer Games, Facilities, Film Distribution & Exhibition, Interactive Media, Pop promos, Corporate production, Commercials, Radio, Television.
- Skillset Feature Film Production Workforce Survey 2008.
- Skillset Employment Census 2009.

24 February 2010

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#### **Memorandum submitted by South West Regional Development Agency**

*When was SWRDA made aware of the competition for the Composites Centre?*

The South West RDA was first made aware of the possibility of submitting bids into the Strategic Investment Fund on 4 June 2009. This was referred to in an email sent by EMDA to Enterprise Directors. It mentioned that consideration was being given to support NINJ-related projects (which might include composites) as part of the SIF fund.

*How did you find out about the process?*

On 19 June, EMDA sent a note to other RDAs explaining that invitations were requested for NINJ-type projects. A template was attached outlining some of criteria (details are outlined below).

*How long was left until the deadline for submission?*

The deadline for submissions was two weeks later on 3 July. The South West RDA submitted two bids, for composites and biomedical technologies and was subsequently advised that approximately 80 bids had been received in total.

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<sup>22</sup> Currently 12 Skillset Media Academies are also developing over 100 short courses for Continuous Professional Development aimed at professionals.

*Who did you then notify about the competition?*

The Agency convened a multi-party telephone call to establish if there was an appetite to develop a response to this opportunity. This included AgustaWestland, Airbus, Bristol University, City of Bristol College, GE Aviation, GKN, Rolls-Royce, Vestas, West of England Aerospace Forum, and, a representative of a regional composite skills project (Aerospace Training SW). This confirmed there was an appetite and a submission was prepared by the Agency with input from partners.

*What was the initial criteria for the bid?*

The template was generic and applicable to all NINJ topics. It covered:

1. Name of proposal and brief description.
2. What is the growth opportunity? Is there potential for UK economy to benefit?
3. Why is Government intervention thought to be needed?
4. What are the intended effects of the intervention?
5. What Options have been considered?
6. Has there been a comprehensive assessment of costs and benefits to the UK economy? If not, will there be one? When?
7. Review of the intervention. Evaluation and oversight systems.

*Where any changes made to bid criteria after you were first made aware for it? What where the changes? How long before the deadline were they made?*

On 12 August 2009 the BIS manufacturing and Materials Team advised that there had been more than one application for a composites project and that these would be assessed against common criteria. They therefore requested additional information on the Composite Centre bids, specifically regarding cross-sector applications, ability to deliver by March 2011 and levels of RDA support with a deadline of 25 August.

On 2 October 2009 BIS requested a more detailed business case from each of the bidders detailing the criteria against which the proposals would be assessed:

- ability to deliver by March 2011;
- ability to develop and disseminate cost effective rapid manufacture techniques;
- technology used/to be developed/type of machinery and fit with business need;
- who the likely users will be (sectors, size location etc);
- governance arrangements;
- breakdown of funding source (BIS/RDA/other)
- breakdown of capital and operational costs you are seeking from SIF;
- additional employment opportunities (direct and indirect);
- collaboration/ways of working to ensure cross regional usage;
- fit with existing interventions, centres, networks etc to support composite development (additionality); and
- skills development/training opportunities

The original deadline for submission was 14th October but this was extended until 16 October.

On 22 October BIS raised specific questions about the bid and requested a response by 10:30 on 23 October 2009. This included information about:

- The amount of money available.
- Skills issues.
- The terms under which existing equipment would be transferred to the NCC.
- Technology

On 28 October 2009 BIS sent a list of additional queries by email. These covered:

- Details of costs/ evidence of commercial viability.
- Additional questions as to how the proposal could deliver the outputs/ outcomes with the proposed SIF funding.

A response was sent on 4 November 2009.

*How did the process compare to that run for similar projects?*

This project was challenging in that no thought had been given to such an ambitious project in June 2009, a time when the Agency had just announced to partners how it would cut over £50 million from its budget. It proved impossible to convene a meeting of the key stakeholders to discuss this opportunity—hence the multi-party phone call. Relatively short intervals between requests for additional information and deadlines meant that convening meetings with senior representatives from industry and academia continued to be a challenge.

*How do you envision the centre running now that it is established? Which organisations are you engaging with?*

The NCC project is developing rapidly led by a Steering Board made up of directors of six Tier 1 members from AgustaWestland, Airbus, GE Aviation, GKN, Rolls-Royce, Vestas, the University of Bristol, SW Regional Development Agency with participation from BIS.

The work is developing along two inter-related stands:

**Site and premises**

The process of building the NCC is developing well. A site selection process has been undertaken and a preferred site identified. A design team has been appointed who are familiar with designing bespoke R&D and manufacturing facilities. A design “charette” (workshop) has been arranged in late February with the industrial partners and university to define the building. A meeting with a developer is planned for Monday 8 February. The Agency board has approved its £4 million contribution and the first phase of the application for £9 million ERDF funding has been cleared and a full application will be submitted by end February. Six work streams are underway looking at such issues as sites and premises and equipment issues; these includes EU procurement specialists.

**Business activity**

The current NCC industrial partners (who are from companies headquartered in the Isle of Wight, East Midlands, West Midlands, South East and the South West) and the University of Bristol have worked with companies from across the UK (and from several sectors) to submit a bid under the auspices of NCC to the £6 million Composites Grand Challenge. The bid has cleared the first part of the Technology Strategy Board process.

**Links to other companies and organisations**

Phil Grainger, formerly Technical Director of GKN, has been retained to attract additional members/collaborators.

Since the UK National Composites Strategy launch (end November 09) GE Aviation and AgustaWestland have agreed to be members.

Presentations/contacts have been made with other leading companies.

A launch date for the NCC has been set for 17 March. At that time the way in which the NCC will begin to offer services to industry will be explained. This will link the facilities within the member companies, universities and research organisations across the UK. Links with AMRC in Sheffield and NW Composites Centre have been established and visits planned.

A seminar for automotive companies is being arranged for late February. The Society of Marine Industries annual conference this month will focus on marine renewable technologies and will feature a visit to the Airbus composites centre where they will be addressed by the company, Frazer Nash (part of Babcock) and the University of Bristol.

The NCC is working with UKTI to identify potential members where overseas head office support will be required.

The RDAs have collectively agreed in principal to contribute £0.5 million to networking and innovation advice and guidance to supplement the Technology Strategy Board funding of the National Composites Network. This will fund awareness raising events and specialist help for companies wishing to adopt such materials.

**Skills**

The NCC has indicated it wishes to work in collaboration with the Sector Skills Councils. The Steering Board represents companies which account for a significant percentage of the total UK composites industry and they have expressed their willingness to use their collective knowledge to support this agenda. Should a Composites Skills Academy be created, the NCC has indicated that it would make sense to co-locate this within the NCC.

4 February 2010

## Memorandum submitted by Thales UK

### INTRODUCTION

Thales is a global technology leader in aerospace, space, defence, security and transportation. In 2008, the company generated revenues of £10.2 billion and employed 68,000 employees in 50 countries. Our 25,000 engineers and researchers located around the world give the company a unique capability to develop equipment, systems and services to meet the most complex security requirements. In the UK, Thales employs 8,500 people at more than 40 locations. In 2008 Thales UK generated revenues over £1.4 billion.

In aerospace, Thales acts as a prime contractor, equipment supplier and training and service provider to the UK MOD and defence ministries of other countries and to civil aerospace, including Airbus, Boeing and civil airlines. Thales employs over 2,000 in aerospace activities and several thousand more in our global supply chain. In the UK, Thales is a shareholder of the consortium delivering the RAF's Future Strategic Tanker Aircraft, is the prime contractor delivering the Army's Watchkeeper programme (the largest unmanned aerial vehicle based intelligence, surveillance & reconnaissance system in Europe) and is the prime contractor for the Sea King Mk 7. Thales also provide a range of equipment, from avionics, mission planning, defensive aide suites, radar, satellite communications and a full range of sensors to complete in-flight entertainment systems.

Thales UK's training and simulation business is one of the two leading suppliers worldwide of full flight Simulators and other forms of synthetic training systems. We support all Boeing and Airbus aircraft types, including the latest Airbus A380 and Boeing B787. We also deliver similar simulation and training systems worldwide for military aircraft, including Tornado, F16, Typhoon, Hawk and A400M and for other defence platforms including the Lynx and NH90 helicopters, armoured vehicles and nuclear and conventional submarines. Thales also provides training services for the aircrew of many of the world's airlines. This training and simulation activity directly sustains around 900 high quality jobs in Crawley, West Sussex, and supports another 450 jobs in the local supply chain.

This submission provides responses to the Committee's questions in relation to the aerospace sector, in which we include our important simulation and training business.

#### Q1: *The effectiveness of government policies in supporting these sectors*

1. As a high skill level, high technology content, long project cycle industry, aerospace depends on government to:

- (a) Provide the foundation of education on which other skills can be developed.
- (b) Share in the funding of research and technology, which may be applicable to different sectors.
- (c) Provide a clear strategy on its priorities for the UK aerospace industry to enable industry to plan long term investment.
- (d) Represent national industry in multinational projects, such as Airbus, Eurofighter, etc.

2. Taking the education function first, the *Leitch Review of Skills, Prosperity for all in the global economy—world-class skills*, is widely recognised as the defining document regarding the UK's skills needs. The aerospace industry relies on the education system delivering a strong national competence in the STEM (science, technology, engineering and mathematics) disciplines. This provides the basic skills from which we can develop domain specialists, systems generalists, and business leaders. The main effort of government should therefore be to strengthen its delivery of STEM competence.

3. The joint Government and industry aerospace Innovation and Growth Team (IGT) was set up to determine the next steps for the sector. This has provided a clear national strategy and a compelling logic for further government investment in carefully targeted R&D that will help to drive innovation and growth in the industry. Thales is confident that this jointly developed strategy is sound, but with the rest of industry remains concerned that the strategy will be insufficiently resourced. The long term impact of failing to do the necessary research now is that UK industry may in future fall behind our international peers in this critical industry in which we currently enjoy an international competitive advantage.

4. Turning to the funding of research and technology, Thales believes that the NATS (national aerospace technology strategy) that was developed in 2004 has provided an extremely effective blueprint for success. By setting out clearly the rationale for R&T investment, the strategy has succeeded in raising the level of public research funding into the sector from £20 million per year in 2003 to around £65 million per year in 2008. This has made a huge difference to the global competitiveness of the industry, which is regularly assessed against other sectors as making one of the highest value-added contributions to the British economy per pound spent.

5. The NATS focuses on building on existing competences in civil aerospace structures, wing design and manufacture, propulsion and power generation. In the defence field, the Defence Industrial Strategy (2005) also identified Uninhabited Aerial Systems (UAS) as a sector in which the UK has an opportunity to gain an international competitive advantage. Essential to the development of this new technology has been the ASTRAEA (autonomous systems technology related airborne evaluation and assessment) programme, which is designed to facilitate the use of UAS in civil airspace, and the military UAV centre at Parc Aberporth in Wales. These assets are both vital for the general development of the UAS market (eg into

replacing expensive helicopters to provide persistent police observation) and in maturing the technology required to allow UAS to operate in the same airspace as other aviation (eg automatic sense and avoid navigation and control technology). The MoD's capability requirements for UAS are increasingly clear, but the huge potential civil applications of UAS await a national strategy. As a result, the essential ASTRAEA research programme has stalled. Thales believes that this programme should be reinstated with full funding at the earliest opportunity.

6. Thales has a strong pedigree in exporting from the UK. Government policies in support of global export opportunities are therefore also a key factor in our business success. Emerging economies are seeking to develop or revitalise their civil aerospace industries. Against this background we urge the Government, where consistent with current export control policy, to press for full, open access for UK industry to the new programmes in, for example, China, India and Russia.

7. It is also important that Government argues for a level playing field on the provision of national support for strategically important industries. By way of an example, our largest export business is the training and simulation business based in Crawley, West Sussex. Two companies—Thales UK and a Canadian competitor—dominate the global supply of full-flight simulators developed to a standard that allows pilots to use them to complete training hours, in lieu of taking to the skies. The Canadian authorities have provided substantial long-term support for their simulation business, which has included a comprehensive package of additional support over the past 12 months to help the company to survive the collapse in global demand from airlines, due to global recession. In contrast to this Canadian support, our business has been supported solely by company investment (including £100m to develop a new manufacturing site that includes facilities for our training and simulation business). In part because of the resulting competitive disadvantage, we have been forced to announce 70 redundancies from the business so far this year.

*Q2: How to maintain the UK's excellence in academic research in aeronautical and automotive engineering, and related disciplines, and how to extend relationships between universities and business still further*

8. Thales has extensive interaction with UK academia, schools, Universities and learned societies. We believe that there is a social responsibility to develop skills and opportunity, as well as the Company's need to acquire the best staff and access the most advantageous research. We sponsor a total of around 30 post graduate researchers, across over 20 Universities, are on the advisory boards of over 30 University Departments and some 15 of our scientific staff hold visiting Professorships or equivalent positions. We are currently developing a programme that will substantially increase this level of engagement. In spite of the economic downturn we continue our recruitment of and investment in graduates.

9. Thales believes that the EPSRC (engineering and physical sciences research council) provides a useful mechanism for maintaining excellence in academic research. We would highlight the EPSRC's Strategic Relationship programme as a successful model that should be extended.

10. Thales believes that there is further opportunity to ensure that academic research reflects the research needs of the industry and that it develops technology that can be exploited in the UK. In particular, we think that greater involvement of industry in the selection of the universities used to conduct the research would help to ensure greater pull through of research into tangible products and systems.

11. More generally, the incentive provided by Government research funding is vitally important in encouraging and growing matching inward private investment and therefore in maintaining the UK industrial base. In turn, this helps to fund and stimulate the university research that underpins the industry.

12. The funding rules of the Technology Strategy Board expect the University participants to be funded by some 80% from the 50% funding to industry. This has proven to be a dis-incentive to industry to include universities in such research and is a less attractive funding regime to EU programmes.

13. Thales believes that serious consideration should be given to the creation of a UK national aerospace research entity (physical, virtual or networked) which could become custodian of UK national aerospace test facilities, and would also become a focus for dispersed and duplicative regional centres for key aerospace technologies, and a magnet for European research funding.

*Q3: The impact of the recession on the Aerospace industry*

14. The main impact of the recession has been felt through the reduced demand for new civil aircraft. This has caused Boeing and Airbus to lower their production rate. The reduced demand for systems, such as those provided by Thales, has been pronounced. The drop in demand has been more acute from regional jet-makers, whose production forecasts are typically down 30% than one year ago. And the business jet markets are more challenging still, with production forecasts typically at least 40% lower than a year ago. Thales believes that the Airbus-Boeing duopoly will absorb the impact of the recession, but that restructuring and consolidation will most likely be required in the lower tier suppliers.

15. To make matters worse, reduced passenger traffic has depressed airline revenues and aircraft utilisation. As a result, airlines have postponed investment decisions (eg the upgrade of the in-flight entertainment systems) and have also been able to reduce the maintenance, repair and overhaul of the existing fleet. As a result, the supply chain has suffered a double-whammy of delays or cancellations of new

equipment acquisition contracts, whilst also suffering reduced revenues from the maintenance of existing equipment. At the same time, equipment and system manufacturers like Thales have needed to continue to invest heavily in new product development, as we are required by the aircraft manufacturers to develop the systems in advance using our own capital.

16. For Thales UK, the greatest impact has been felt in our training and simulation business, which has taken the full brunt of reduced demand from airline customers. At peak demand in 2008, total orders for the UK business reached Euros 340M of which about 43% were for civil simulators, 30% military simulators and 26% for training services. In 2009 civil export orders have collapsed and may fall by up to 80% year-on-year. As a result we expect the business to make a very substantial trading loss in 2009. 2010 looks similarly bleak, although we see some prospects of recovery in 2011. This collapse in demand has required us to announce 70 redundancies to date.

17. Somewhat unfortunately, given that military spending is mostly governed by long-term programme commitments and by operational demand, a drop off in military demand has also adversely affected Thales UK—mainly a result of delays on the A400M programme and from reductions in orders from the Middle East.

*Q4: The role of SMEs in the supply chain supporting these two sectors*

18. SMEs play a critical role within aerospace supply chains. Their ability to provide innovative and flexible solutions to Thales UK are significant factors in our ability to offer tender-winning proposals to our customers. The Future Strategic Tanker Aircraft and Watchkeeper projects are recent examples of high profile programmes that were secured in no small part due to the technical capabilities and service oriented focus of our SME supplier partners.

19. As founder signatories to the SBAC's SC21 project, Thales UK is committed to building strong, transparent, and mutually beneficial relationships with its key SMEs and, in the current financial climate, we are in constant dialogue with our suppliers to identify, and where possible assist, in any short term cash-flow difficulties that are being encountered. With Thales UK constantly searching for ways to improve the services it offers to its customers, the future role of innovative SMEs within the supply chain is assured.

*Q5: What barriers are there to further innovation in these sectors and what can be done to overcome them?*

20. Although effective, the UK's research strategy has, to date, focused on structures, wings, composites and propulsion systems. This focus risks overlooking the potential for breakthrough innovation that will deliver major opportunities. For example, the Single European Sky Air traffic management Research (SESAR) programme looks likely to develop a solution that will reduce journey times and aircraft landing queues and deliver huge financial and environmental benefits, by using new technology to improve European air traffic management. The UK could arguably play a fuller role in this programme. Other areas of potential innovation that are not currently the focus of UK research include off-board connectivity, integrated vehicle health management and Uninhabited Aerial Systems. In their own way, each of these areas demands (or would benefit from) a greater integration of strategy between the commercial and military domains.

21. In order to coordinate sector activities better and to exert greater influence on European aerospace programmes, many observers have suggested that the UK would benefit from the re-creation of a National Aerospace Research Centre—which was disbanded in the 1990s. In its absence, a number of specialist aerospace research centres have emerged in its place (eg manufacturing, composites, health management etc). Linking these centres together would offer a more coherent approach to research and would allow the UK to join EREA (Association of European Research Establishments in Aeronautics), which is the body that influences large EU aerospace programmes. Membership of this body is denied at present, because the UK has no national establishment.

*Q6: What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries?*

22. Aerospace faces two concerns at present that have universal application: the need to maximise safety and to minimise environmental impact. The technology development necessary to make autonomous systems safe in civil airspace will make all aviation safer. It may also be that the development of autonomous decision-making systems could have broader application in other industries, eg robotics. The need to design for the environment is driving design innovation; systems integration approaches and concepts of operation that should at the very least have applications across other forms of transportation. Through SESAR, the aviation industry is also facing an unparalleled systems integration task, which demands skills that will find application in, for example, integrated transport systems and the development of “smart cities”.

Q7: *How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

23. The AIN (Aerospace Innovation Networks) activities have contributed at the lower technology readiness levels, but the real traction has been in the ATPVs (Aerospace Technology Validation Programmes), which are strongly aligned to the UK's main three technical aerospace research priorities of New Single Aisle, Helicopters and UAVs.

#### OTHER COMMENTS

24. Unlike many other industrial sectors, the aerospace industry is dominated by projects that have long gestation times and which demand significant up-front investment from large global companies. The decisions of where to place that investment are heavily influenced by the R&T investment and the availability of skills within a given country. It follows that the most important step in attracting production investment is to invest in the research base. The UK has made a commendable investment in university research, but there remains much scope to attract additional industrial capability to the UK in productive areas of applied research. By way of example, the recent High Value Manufacturing call from the Technology Strategy Board (budget £21m) was 10 times oversubscribed from industry, indicating that there are many more good ideas looking for investment than available funds. Universities turn money into ideas. Industry turns ideas into money. The British economy needs both working in harmony to flourish in the future.

25. There are important differences between motor sport and aerospace that come down to differences in business domain rather than scientific discipline. Aerospace products or programmes are typically delivered to companies that demand high levels of capability and support. This means that aerospace R&T must be conducted against an expectation of rigorous safety and reliability requirements with an expectation of financial penalties if the time and capability is not achieved. Although speed is still of the essence, risk becomes much more prominent, and the R&T cycle time needs to feed a thorough industrialisation process.

30 September 2009

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### Memorandum submitted by TTXGP—the eGrandPrix

#### THE NEXT GENERATION OF MOTORSPORT; ZERO CARBON, CLEAN EMISSION

##### SUMMARY

- Engineering and manufacturing need to be recognised as major contributors to the UK's GDP.
- Motorsports is the vehicle by which the image of engineering and manufacturing can be changed to attract more young people into these areas.
- Government needs to be more “entrepreneurial” in its attitude to supporting projects which showcase entrepreneurs and innovators who are pioneering new technologies across all forms of transportation.
- Without an arena in which to perform, venture capitalism or public funding is hard to obtain. Many of our engineering innovators are struggling to find backers and, consequently, markets. Initiatives such as the TTXGP can provide this platform.
- The levels of funding allocated by the Higher Education Funding Council for England fall significantly short of the cost of teaching many engineering disciplines.
- Translate policy into practice—appoint ambassadors/mentors who can “speak the language”, ie who can relate and support. One of the greatest barriers to innovation in the UK is that people are not encouraged to “fail”.
- The Government's low carbon industrial strategy, *New Industry, New Jobs*, published in July 2009, is not focused or structured to encourage innovation at “ground” level or SMEs.
- The newly formed independent body Manufacturing Insight can provide a valuable opportunity to co-ordinate activities and position engineering and manufacturing at the right level in terms of both public perception and allocation of funding.

##### BACKGROUND TO TTXGP

- TTXGP was founded in August 2008. Less than 12 months later, in June 2009, it held the world's first zero carbon, clean emission motorcycle race on the historic Isle of Man TT mountain circuit. It has had some support from the UKTI.
- 16 teams from across the world took part in one of the two classes—pro or amateur. University entries were from Brunel, Kingston and Imperial.

- A technical advisory panel was established with the Institution of Engineering and Technology (IET) and members drawn from leading academic and commercial organisations. This panel wrote the rules and regulations working with the Auto-Cycle Union (ACU) and provided the scrutineering facilities both before and during the race.
- Members of the technical panel, in particular Professor Pat Wheeler from the School of Electrical Engineering of Nottingham University, are using TTXGP as a module for their final year students.
- Entrants to TTXGP were from a mixed background—from larger companies to one man bands. The common theme was to drive technology forward—to take motorsports to the next generation.
- TTXGP has just announced its UK series of four events at major circuits for 2010. It has also agreed, with the support of the Fédération Internationale de Motocyclisme, to run a world championships in 2010.
- Discussions are in place for an educational programme which would see students “build a bike in the classroom”. Designed to inspire the next generation of engineers, it would run as a pilot scheme in two schools with a view to introducing it into the curriculum 2010.

#### ECONOMY

1. Science and engineering contributes 21% to the UK GDP and the turnover of engineering and technology is over £800 billion.<sup>23</sup> Manufacturing contributes £150 billion towards the UK economy employing around 3 million people.<sup>24</sup>

2. The Government’s low carbon industrial strategy, *New Industry, New Jobs*<sup>25</sup> launched in July 2009, estimated that the global market for low carbon and environmental goods and services (LCEGS) was already worth £3 trillion in 2007–08.<sup>26</sup> As international action on climate change gathers momentum, this could grow to an estimated £4.3 trillion by 2015.

3. The UK low carbon environmental goods and services (LCEGS) market is worth £106 billion and employs 880,000 people directly or through the supply chain. It is estimated that over 1 million people will be employed in the LCEGS sector by the middle of the next decade. These are skilled jobs, with the average market value per employee well above the national average. The UK LCEGS sector is one of the few areas of the economy expected to maintain positive growth rates through the downturn and is expected to grow by over 4% per annum up to 2014–15.

4. The strategy states that it is not the intention “to support particular technologies or sectors on principle, but to target areas where Britain has the potential to take a leading global role, and where proportionate government intervention can unlock long-term competitive potential for British based firms”. This is not a policy which can encourage innovation amongst SMEs which form the bedrock of any economic recovery.

#### EDUCATION

5. A detailed study of the costs associated with engineering degrees was commissioned by the Engineering Technology Board (ETB) and the Engineering Professors’ Council (EPC)<sup>27</sup> which found that engineering departments were operating with shortfalls in funding of between 15% and 41%. This is an imbalance which needs to be redressed if we are to equip ourselves with the technically qualified people to meet demand.

6. Student fees for degree programmes in the UK can also discourage students from pursuing the longer programmes that lead to professional qualification. For example, Chartered Engineers need to have an accredited Masters level which entails four years of study. This is consistent with EU Directive 2005/36 which specifies a minimum time of higher education study for Level E professionals. Financial support for year four of study would make this a more attractive proposition for students.

7. Career guidance needs to be much more focused on encouraging young people to pursue careers in science, engineering and technology. At GCSE level, in 2008, 50% of 16 year olds left school with no science-based qualification. Because of the structure of the curriculum and/or facilities, many schools can only offer a “general” science course with no separate studies in physics, chemistry or biology. Engineering Diplomas are not being marketed correctly to encourage young people to take them up; they are seen as a “second best” option rather than as a real practical alternative to obtain the skills relevant to today’s job market.

<sup>23</sup> Sir Anthony Cleaver, Chairman of the Engineering and Technology Board, March 2009.

<sup>24</sup> John Hutton, Business Secretary, announcing Manufacturing Insight, a new independent body set up by industry and representative bodies in partnership with Government.

<sup>25</sup> HMG (2009) *Building Britain’s Future: New Industry, New Jobs*, [www.berr.gov.uk/files/file51023.pdf](http://www.berr.gov.uk/files/file51023.pdf)

<sup>26</sup> Innovas (2009) *Low Carbon and Environmental Goods and Services: an industry analysis* [www.berr.gov.uk/files/file50253.pdf](http://www.berr.gov.uk/files/file50253.pdf)

<sup>27</sup> “The Costs of Engineering Degrees”, ETB/EPC report [www.epc.ac.uk/uploads/presentation/EPC-ETBreportfinalversion.doc](http://www.epc.ac.uk/uploads/presentation/EPC-ETBreportfinalversion.doc)

8. Programmes such as the Learning Grid and Formula 1 are already successfully operating in schools and whilst these are to be commended they are not succeeding in influencing teenagers sufficiently when they are considering their career path.

9. Initiatives such as TTXGP “Build a bike” programme can add another dimension of excitement in the classroom which can help rekindle interest in the STEM subjects.

#### IMAGE

10. There is a fundamental and pressing need to change the image of engineering and manufacturing from the “hard hat and spanners” portrayal to that of the modern day professional.

11. A concerted campaign needs to be developed to raise the profile of the industry to challenge and change public perceptions of the sector to ensure that resources, in terms of expertise, are available to be successful in new and evolving markets.

#### EMISSION CONTROL

12. The Climate Change Committee has said (9 September 2009) that households and motorists have to reduce emissions by 90% to allow air transport to continue and achieve the required fall in emissions by 2050. Radical innovation in engine, airframe and fuel technology is required to reduce aviation emissions in the period to 2050 and a funding source for aviation R&D should be identified as part of a deal.

#### ELECTRIFICATION OF ROAD TRANSPORT

13. The King review<sup>28</sup> proposed that if substantial progress is made in solving electric vehicle technology, an almost complete decarbonisation of road transport is possible by 2050. This depends upon the provision of carbon-neutral electricity through nuclear and renewable power generation.

14. Battery technology needs to be developed further before it can be applied to the mass market. Estimates vary from 10 to 20 years as to when this technology could be ready.

15. The TTXGP technical panel estimates that because of the demands of entries into the TTXGP, battery technology has advanced significantly, by as much as 40%.

#### MARINE TRANSPORTATION

16. Emissions from marine transportation have slipped into the shadow of the automotive sector. The technology focus on marine propulsion is a fraction of that on its automotive counterpart. This is now changing as water craft are being banned for noise pollution and the regulations for carbon emissions are being looked at by the EU and beyond.

17. Pressure is mounting on the UN’s International Marine Organisation and the European Union to tighten laws governing ship emissions. The UK-based lobbying group, Campaign for Clean Air, has publicly stated that “it finds it unacceptable that shipping remains one of the most polluting industries in the world” and calls for the UK to take a lead in cleaning up emissions.

18. City Hall has said that for the 2012 Olympics it wants much of the “traffic” to be water borne. That is a major step up from the present situation and, if to be successful, needs the involvement of many key influencers from the Port of London Authority to manufacturers. It needs action and, for example, whereas London is talking about having an electric car rental fleet on the streets, Paris is already operating one . . . Much of the alternative technologies currently evolving in the automotive industry could be equally well applied to water-based vessels.

20 September 2009

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#### Supplementary evidence from TTXGP

- TTXGP was founded in 2008 by Azhar Hussain, an entrepreneur with a history in the electronics industry. It launched in 2008, announcing the World’s first zero carbon, clean emission motorcycle race on the Isle of Man TT for June 2009. The TTXGP was held on the Isle of Man TT course as part of the traditional TT race programme. 16 motorbikes from six different countries, including the USA, India, Germany, Austria, UK and the Isle of Man took part.
- This paper is an additional written submission following our original paper submitted on 21 September 2009. In our previous paper, we stated that “TTXGP has just announced its UK series of four events at major circuits for 2010. It has also agreed, with the support of the Fédération Internationale de Motocyclisme (FIM), to run a world championships in 2010”.
- The situation has changed in that the FIM has recently announced a break-away series—the E-Power Championship.

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<sup>28</sup> Julia King (208) The King Review of low-carbon cars.

- TTXGP technical panel wrote the rules and regulations for the inaugural race on the Isle of Man TT course in June 2009, pioneering many of the safety and technical standards used in electric motor sports today. It was supported in this and in providing the scrutineering facilities by the Institution of Engineering and Technology, a global professional institution with 150,000 members.
- TTXGP has been working closely with the FIM throughout 2009, openly sharing technical expertise and unique experience. TTXGP sat on the FIM zero carbon committee to help form the rules for 2010 contributing valuable information from its previous year's experience in total confidence and belief that this would genuinely lead to a world championships for 2010.
- TTXGP is disappointed that, despite its best efforts over many months to establish a truly inclusive world series, the FIM has decided to launch one independently of TTXGP. FIM's unilateral decision means that energies are divided and the force is diluted. The real victim will be the consumer and the industry which demands change to embrace a valuable opportunity.
- TTXGP's culture is to work together with those with knowledge and experience in motor sports and technology to ensure that the very best of innovation and technology drives the sport forward.
- TTXGP will continue to push boundaries in the midst of challenge and continue to successfully build the most competitive, well promoted and technically advanced zero carbon championship in the world. This is achieved by having a mutual respect for partners and sharing any success with them. TTXGP has recently announced its North America and UK Championships. It will also be holding events in France and Italy culminating in a grand final in the UK in October 2010. It has done so in the face of adversity with the FIM's recent announcement of a separate series.
- TTXGP asks the Committee to consider the question as to whether the 'established' motorsports industry can make room for the younger, more innovative drivers of technology without whom the world will stagnate. It also asks for the Committee to consider the UK's position in this in terms of positioning the UK as a world leader in green motor sports.

14 December 2009

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#### **Memorandum submitted by Unite the Union**

This response is submitted by Unite the Union. Unite is the UK's largest trade union with almost two million members across the private and public sectors. The union's members work in a range of industries including manufacturing, automotive, aerospace, financial services, print, media, construction, transport and public services.

#### **MOTORSPORT—EXECUTIVE SUMMARY**

- The UK Motor Sports industry leads the global field and has been successful in creating both employment and revenue in UK manufacturing with £3.6 billion of exports annually.
- It is an industry centred around clusters of highly specialised small and medium sizes enterprises (SMEs), predominately based in an area known as "Motor Sport Valley" (Midlands, Eastern and South-East England).
- The industry has traditionally had a heavy focus on research and development (R&D) which is essential to its long-term sustainability; it has however seen factors that restrict its capability to continue this commitment.
- These factors include both economic considerations and Motor Sport rules which are designed to increase competitiveness and safety but not necessarily increase innovation.
- In order to remain competitive globally it is important to improve the UK industry's capability to produce low-cost products and widen its export market potential.
- Recently there has been a concerted effort to improve ties between education, academia and the industry. Unite believes it is vital to continue to strengthen this collaborative working.
- The current economic recession has affected the sector, although perhaps not as drastically as in other manufacturing industries. The way the industry is structured and the UK's enviable position in the Motor sport world market have meant the sector has succeeded in remaining resilient.
- Unite believes it is vital not to be complacent about the ability of the industry to remain sustainable in the current economic climate and government needs to look at ways to support and invest in the sector and the workers in the sector.
- The supply chain is of vital importance to the motor sport sector and shares many SMEs with the Aerospace and Defence sectors. Government must ensure the supply chain remains in the UK.

- The sector has a highly skilled and flexible workforce. It is vital that education opportunities in STEM<sup>29</sup> subjects are supported by government to ensure the availability of a highly educated and highly skilled workforce.
- Government must acknowledge the importance of the Motor sport sector as an exemplar industry where research and development and innovation are easily transposed to other manufacturing sectors such as Aerospace and Defence.

## 1. INTRODUCTION

1.1 The Motor Sport industry in the UK leads the global sector in terms of research and manufacture. Indeed the UK has become the centre for this particular industry. More specifically the region encompassing the Midlands, Eastern and South-East England, known as “Motor Sports Valley”, provides a base and knowledge sharing cluster for Motor Sports manufacture and research in a similar way that Silicon Valley does for the computer industry.

1.2 The industry as a whole is a success story; it turns over £6 billion annually and employs around 40,000 (of which 25,000 are highly skilled) people within the UK. As the UK is a market leader in this industry there is large demand globally for UK products and services, indeed £3.6 billion of annual turnover is exported.<sup>30</sup> UK companies benefit from opening up new export markets particularly Japan, as well the US which is the traditional export market.

1.3 The industrial workforce includes drivers, stewards, track officials and so on but it is the manufacturing and research side of the industry which is the most significant in terms of employment and revenue created for the UK economy.

1.4 Motor Sports Valley refers to a cluster of small and medium sized enterprises (SMEs) There are said to be around 4,000 companies<sup>31</sup> (almost all SMEs) involved in the Motor Sports industry. It is these SMEs that predominately form the sector. It is companies employing less than 500, indeed often less than 100 workers, manufacturing specific components and services rather than more general manufacturers that are market leaders.

1.5 These companies have an opt-out of the European Working Time directive on the grounds that flexibility is required within the industry however, Unite would like to see this opt—out reversed and the sector work towards increasing jobs rather than making the existing workers work longer hours.

1.6 A key part of the industry is its focus on research and development. Whereas companies in other sectors on average reinvest around 2% in research and development, Motor Sports companies reinvest an average of just over 30% in R&D.<sup>32</sup> Indeed it is a sector that has been associated with innovation, with some of the technologies and techniques used and discovered within the industry gaining more general usage; for instance lightweight fishing rods and wheel chairs owe their development to technologies and materials designed by Motor Sport companies.

1.7 This heavy focus on R&D, as well as the nature of the technologies being developed has led the industry to become increasingly associated with both the Aerospace and Defence sectors. Many Motor Sport companies have manufactured and developed for these sectors. The high intensity, high performance nature of Motor Sport technologies have meant that application in these sectors has been successful; aerodynamic, lightweight materials for instance as well as less obvious examples such as the application of pit-team efficiency for engineers working on Apache helicopters.

## 2. GOVERNMENT POLICY

2.2 While the industry in the UK is thriving and leading its field this does not mean that it does not need government support or investment. Both as a result of the global economic down-turn and Motor Sports industries in other countries attempting to challenge the UK dominance of the market, there are significant threats to the sustainability and expansion of the industry and thus the livelihoods of those working within it. Unite believes it is of crucial importance therefore, that government policy is driven to retaining the prosperity of this industry and enabling further expansion and exploiting export opportunities.

2.3 At present at both a national and regional level there is surprisingly little in the way of specific policy regarding active support for the industry. While regional governments in areas where Motor Sport manufacture is concentrated (“Motor Sport Valley”) have been active in promoting initiatives encouraging greener Motor Sport and establishing greater academic resources and ties (particularly through “Motor Sport Academy”) it has not been actively involved in economically supporting the industry.

2.4 Unite believes this could be due to complacency at both national and regional level because the industry has continued to perform successfully. There are however two key areas where government policy can focus in order to maintain the prosperity of the industry; in the manufacture and provision of low-cost products and in the export market.

<sup>29</sup> Science, Technology, Engineering and Maths (STEM).

<sup>30</sup> All statistics (turnover, employment) published by The Motor Sports Industry Association.

<sup>31</sup> Improvement & Development Agency.

<sup>32</sup> The Motor Sports Industry Association.

2.5 While the UK remains the preferred choice for top of the range Motor Sport technology, in the lower cost market, which is a key source of revenue and opportunity, there is significant competition both from the US and in countries such as Germany and Italy where companies often receive state support in an effort to establish the industry in those countries. This state support needs to be explored and matched by the government in the UK to ensure the industry maintains its edge across the board.

2.6 Exports constitute over half of turnover in the UK Motor Sports industry. Traditionally the US has been the favoured export market for Motor Sports companies and there is significant value to this market, however it is extremely important that the industry realises its full global export potential.

2.7 Recently there has been a concerted move into the lucrative Japanese market. It is essential that UKTI provides full support in enabling companies to sell themselves abroad in all potential export opportunities. Though there has been some support provided in this area, there is certainly room for further encouragement as the UK has a significant advantage in being acknowledged globally for its excellence in this field.

### 3. THE ROLE OF SMEs

3.1 As has been stated Motor Sports is an industry in which SMEs are dominant. Almost every component of Motor Sports vehicles are manufactured separately with further SMEs concerned with bringing the various parts together. As such companies are highly specialised in their particular area of expertise but relatively small in size as their production demands are comparatively small. This also means there are very clear supply chains and symbiotic relationships, as many different companies are required to create a fully functioning Motor Sports team. This also means that Motor Sports valley can be said to have a “critical mass” meaning that there is always consistent demand for specific products so long as other companies within the supply chain are still functional.

### 4. UNIVERSITIES AND MOTOR SPORT

4.1 Motor Sport like many industries has been pushing for further industry focused qualifications to be offered by universities. Due to the sector being predominantly comprised of SMEs (which are traditionally reluctant to engage with academic institutions) progress has been late in coming. However more recently there has been success in involving both the industry and academic institutions. A large number of universities now offer specific Motor Sport qualifications with courses specifically driven toward working within the industry.

4.2 Initiatives such as “Formula Student”<sup>33</sup> and the government funded “Motor Sports Knowledge Exchange”<sup>34</sup> provides examples of events in which students are able to engage with people involved in the industry, showcase what they are capable of and present research. It also allows employers the opportunity to spot talented and able prospective employees. The “Motor Sport Academy”<sup>35</sup> which is supported by regional governments is one of the best examples of how the industry is utilising academia.

4.3 A greater understanding and relationship has thus been established between universities and the industry as a whole allowing both talent and research to be focused within the academic community on Motor Sport and Motor Sport related issues. Both the industry and those looking to work in it are thus benefiting greatly from an improved affiliation between academic and industry institutions.

### 5. THE RECESSION

5.1 The industry has certainly not been immune to the recession. The sector has seen sales in general fall by around 10–15% and sponsorship which is an important revenue stream for the Motor Sport teams has been less forthcoming in the financial climate. Indeed there have been several high profile teams at the top level of Motor Sport that have been forced to withdraw (Honda in F1, Suzuki and Subaru in World Rally for example) which obviously has a negative effect across the supply chain.

5.2 However, there has not been the drastic impact on grass-roots and recreational Motor Sport that had been anticipated. Indeed comparative to other sectors of the economy Motor Sport remains comparatively strong during the economic downturn. This is certainly aided by the inter-dependency of Motor Sport Valley meaning the closure of individual companies does not necessarily mean significant damage to the sector as demand remains consistent and thus new companies (and jobs) can be created in place.

### 6. RESTRICTIONS ON INNOVATION

6.1 As has been mentioned previously, innovation, research and development are key aspects of the industry and it has a proud record of promoting and sustaining this kind of activity. However, there are certain factors, both traditional and more recent, that can limit the capability of many companies to retain a commitment to innovation. There has always been the fear at the very highest level that attempting radical innovation would lead to significant damage both financially and to prestige if it were to fail. There is also

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<sup>33</sup> <http://www.formulastudent.com/>

<sup>34</sup> <http://www.mediatodayonline.co.uk/pdf/supplements/LAT%20CV%20SHOW/P6LAT.PDF>

<sup>35</sup> <http://www.pera.com/default.asp?id=774>

a more general fear for intellectual property that can lead to more conservative philosophies. Added to this many companies have bemoaned the lack of dedicated resources that are required for future development and innovation.

6.2 Motor Sport as a sport is of course subject to regulation and in Formula One, the pinnacle of the sport, the Fédération Internationale de l'Automobile (FIA) imposes regulations designed to increase competitiveness and safety and to restrict spending that limits the scope for innovation. Indeed the most recent budget caps the FIA has imposed have been seen by many as significantly restricting the capability of teams to innovate and have also threatened jobs.

6.3 Restrictions show a financial climate in which big spending is no longer unquestioned and indeed many companies have threatened to cut back on reinvestment in R&D as a response to the recession, this of course is only a short term solution as innovation is such a key part of giving Motor Sport companies their competitive edge in the market.

This submission should be read in conjunction with the Unite submission for the Aerospace sector.

#### UNITE RECOMMENDATIONS

- Unite believes the UK Motor Sport sector presents an ideal business case for government support through policy driven initiatives.
- The sector is thriving but Unite would like to see strategic regional and national government policy to enable the sector to achieve further export contracts which will secure current jobs and create future jobs for the workers in the sector.
- Unite feels it is imperative that government acknowledges the crucial role SMEs play in the supply chain for this sector. Government must ensure that the supply chain remains in the UK.
- Unite believes it is vital that the sector is given support to explore and innovate further for the establishment of products in the lower cost market. This will enable the sector to diversify and increase exports further.
- The UK is acknowledged as a world leader in the Motor Sport industry and UK Trade and Investment (UKTI) needs to provide full support to the industry to enable SMEs the opportunity to compete effectively in a global market and achieve their full export potential.
- Government needs to work with the sector and other interested agencies to ensure the resources and the economic environment are created to enable companies to innovate successfully.
- Government must acknowledge the sector has been very successful in creating highly skilled jobs and export revenue for the UK economy and do all they can to ensure these highly skilled jobs remain in the UK.

#### AEROSPACE—EXECUTIVE SUMMARY

- The UK Aerospace sector is one of the few manufacturing industries that are managing to sustain itself in the face of a global economic recession.
- Manufacturing is of vital importance to the UK economy, it creates a fifth of our national output, employs over four million people and produces over half of all exports.
- Unite believes it is vital that research funding and collaborative working between industry and research institutions is encouraged, supported and invested in by government.
- Unite believes that for the UK economy to rise out of the current economic downturn and be in a position to take advantage of the global economic recovery, it is imperative that world class industries like Aerospace are given substantial consideration when government is formulating manufacturing policy.
- Unite has very serious concerns regarding current education policy. There have been a number of significant policy changes over the past decade and, although there has been sustained financial investment by government some of the decisions made around education policy have been at the least flawed and at worst disastrous.
- Unite would like to see government formulate education, skills and training policy that prioritises key areas and addresses major substantive issues.
- Unite agrees that the UK based Aerospace companies have benefited extensively from a positive and pro-active approach to manufacturing policy and financial investment. However, there are areas that need further consideration from government and this includes workforce training, R&D investment, promoting innovation and facilitating exports.
- Government policy must consider the supply chain in any decision making process. The small and medium sized enterprises (SMEs) in the supply chain are crucial to the Aerospace sector.

- Although the sector is weathering the current economic storm there have been problems in the sector, especially around export orders for engines, the slowing down of available credit, the fallout from the collapse of the banking sector and job losses and closures associated with the stigma that has been attached to items of ostentation such as business jets.

## 1. INTRODUCTION

1.1 The UK has the world's largest Aerospace industry outside of the USA. Turnover for the industry in 2008 reached more than £20 billion with a potential for exports of over £35 billion.<sup>36</sup> The sector employs a highly skilled workforce of over 160,000 with a further 200,000 workers reliant on the success of the sector.<sup>37</sup> The sector is also renowned for its commitment and success in recruiting and training apprentices—the highly skilled engineers and technicians of the future.

1.2 The UK Aerospace sector is one of few manufacturing industries that are managing to weather the storm of a global recession; a recession that has impacted severely in the USA and the UK alike and where some sectors such as Banking have had to be supported financially by the government and more crucially the UK tax payer.

1.3 Unite believes that the financial support given to other sectors of the UK economy have raised serious concerns in the Aerospace industry about the prospect of future investment funds from government being diverted away from Aerospace. There are also concerns about government cuts in public sector spending and whether this too will have an impact on investment in the Aerospace sector.

1.4 It is vital that research funding and collaborative working between research institutions and industry are encouraged and supported by government. Unite believes that for the UK to come out of the current economic downturn and be in a position to take advantage of the global economic recovery it is vital that world class industries like Aerospace are given continued government support.

1.5 Unite has serious concerns regarding current government education policy. The latest debacle over the reduction in university places for UK students has created a zenith in the educational ambition of many young people in the UK. Unite believes there is a clear economic case to be made for extensive investment in the education of young people and the training and up-skilling of workers.

1.6 The importance of these tenets for manufacturing industry in the UK cannot be underestimated. In its manufacturing strategy government identified having a highly skilled workforce as one of the key dynamics that is instrumental in reshaping global manufacturing. A globally competitive and technologically advanced UK based manufacturing sector is entirely predicated on manufacturing companies having access to a highly skilled workforce.

## 2. GOVERNMENT POLICY

2.1 It is clear that the Aerospace industry is coming to the end of a much needed and successful defence industrial strategy. Unite believes the strategy proved to be an exemplar of what can be done when everyone; companies, workers, trade unions and government departments work together for a common goal. However, with the UK armed forces involved in two serious conflicts the defence of the country and the quality and supply of defence equipment and defence spending has never been more important.

2.2 Unite therefore welcomes government's strategic plan for manufacturing in the UK. Manufacturing is of vital importance to the UK. It creates a fifth of our national output, employs four million people and produces over half of our exports.<sup>38</sup> The continued success of manufacturing in the UK is therefore crucial to our country's prosperity, now and in the future, added to this the UK is part of the world's largest single market.

2.3 The Aerospace sector in particular has welcomed the advanced manufacturing support package presented by Lord Mandelson. The package will see over £200 million being made available to assist businesses in the UK to innovate and expand, creating jobs and wealth, facilitating a shift out of the economic downturn towards a new sustained and invigorating period of financial investment, job security and economic prosperity.

2.4 Government policy has also meant that the Aerospace industry will benefit from £24 million worth of government investment into a variety of projects; including a study into the development of innovative new wing technology. Unite believes government must be aware of the importance of ensuring that the UK is seen as a centre of excellence for Power and Lift. It is crucial that Aerospace research and development, innovation, intellectual property and ultimately workers jobs remain in the UK.

2.5 Unite is acutely aware that government policy in relation to manufacturing is providing for a significant level of investment in the UK Aerospace sector, however there are a couple of areas of concern which Unite would like to see addressed. The most important of these is the issue of education, training and skills in relation to manufacturing. The second being improvements that are needed to ensure a cohesive and effective supply chain for the Defence and Civil Aerospace supply chain.

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<sup>36</sup> Society of British Aerospace Companies Ltd (SBAC) UK Aerospace survey 2009, page 2.

<sup>37</sup> *ibid.*

<sup>38</sup> UK Trade & Investment (UKTI) UK Aerospace Spanning the Globe, page 2.

### 3. EDUCATION, TRAINING AND SKILLS

3.1 It is clear that the Aerospace sector is one where the employees are highly qualified and highly skilled. However, a number of key reports have indicated that a shortage of skilled employees may be hampering growth in manufacturing industry as well as limiting the potential for any changes in highly technical operational processes. Unite believes that procurement decisions by the MoD and ultimately government must take into account training, skills and ensuring the key skills in the sector are retained. Long gaps in the awarding of contracts can generate serious problems with skills retention and skills shortages.

3.2 Unite is keen to see that companies within the sector do not become complacent about training their existing workforce. It is vital for workers to continue their training and development while in work and it is the employer's responsibility to ensure that the workforce has this opportunity. Unite believes that if employers are not prepared to train their workers then there should be a statutory training levy implemented. Skills gaps can become a serious issue within manufacturing companies and as such could seriously affect productivity.

3.3 The present government has made it clear that they want to see a highly educated and highly skilled workforce for the future growth and prosperity of the UK economy. There are two key factors driving demand for skills within this sector.

- Replacement demand—where job opportunities are created by retirement, occupational mobility and where there are skills shortages within the sector.
- Structural change driven by international competition—the important role of skills in improving productivity relative to international competitors cannot be underestimated. Structural change within the sector, such as the huge changes in technology and the products required by the armed forces, are broadening the types of skills required within the sector.

3.4 Unite believes that ensuring strong workforce skills is a matter of shared responsibility between government, employers, unions and individuals. It is clearly documented that trade unions have played a pivotal role in encouraging workers and employers to participate fully in the learning agenda, this role can now be extended to include on the job training and skills development for all workers.

3.5 Unite has also expressed serious concern with current education policy in the UK. There have been a number of policy changes in education over the past five years that have had a serious detrimental impact on the production of science, technology and engineering apprentices and graduates. There must be an acknowledgement by government that the building blocks of an education system are the key to a thriving, innovative and technologically advanced manufacturing sector.

3.6 An example of this is Singapore, in the last Trends in International Mathematics and Science Study (TIMSS) survey of maths and science standards in 49 countries, Singapore came first for science and second for maths.<sup>39</sup> Since the scheme known as Singapore Maths was introduced in the 1990's, the nation has not only moved to the top of the survey but no longer has a bottom stream of low achievers.

3.7 Although the UK has improved its standing from 25th place in 1995 to seventh place in 2008,<sup>40</sup> there are still more than one-fifth of children who fail to pass the National Curriculum maths test. In 2008 only 78% of 11 year olds and 77% of 14 year olds reached the standard expected for their age.<sup>41</sup> Unite believes there must also be a strategic focus on the 835,000<sup>42</sup> 18–24 year olds who are not in education, employment or training. These young people are being left behind and so far none of the current government education or training policies has achieved a reduction in this total.

3.8 It is clear from these figures that, although the UK has a respectable position in the international TIMSS chart, it is the countries that are our direct manufacturing competitors who are creating educational policy that will ensure the educational opportunities are available to produce the highest number of highly skilled mathematicians, technicians and scientists.

3.9 Government must take evidence such as this seriously and implement education policy that recognises that industry in the UK is not only about the service and finance sectors. It is crucial that research and development, innovation and intellectual property remain in the UK. This will only happen if there is enough home grown talent to fill the ever growing skills shortages in manufacturing and that workers will be sufficiently educated to address the onward march of technological change.

3.10 Unite would like to see government formulate education, skills and training policy that prioritises certain areas and addresses major current issues. These include; improving basic standards of literacy and numeracy across all age groups in society. Increase the number of young people studying STEM subjects and achieving apprentice places in manufacturing and technology industries. Build stronger links between employers and educational establishments; schools, universities and further education colleges. Invest in improving vocational education and legitimise qualifications. Have a root and branch review of the current qualifications system. If qualifications have no value for the student or the employer what use are as a signifier of a highly educated and highly skilled workforce?

<sup>39</sup> TIMSS 2007 Distribution of Mathematics Achievement, page 34.

<sup>40</sup> Ibid, page 35.

<sup>41</sup> Department for Business, Innovation & Skills (BIS)—DCSF: National Curriculum Assessments statistics at [www.desf.gov.uk](http://www.desf.gov.uk)

<sup>42</sup> Institute of Directors—Policy Voice Research Survey.

#### 4. RESEARCH AND DEVELOPMENT

4.1 One of the key areas for consideration in the sector is the importance of research and development. With government's commitment to a "green" agenda and demand for more efficient and quieter aircraft there needs to be a step change in research and development investment to ensure the UK sustains its position in leading the world in Aerospace R&D. However, current evidence shows there has been a decline in R&D investment in the UK, this has fallen by around 24% from £2.4 billion in 2007, to £1.8 billion in 2009.<sup>43</sup>

4.2 Unite believes that investment in research and development helps to sustain high-value jobs and increases the competitiveness of UK companies. However, manufacturing companies that find more beneficial environments overseas are more likely to move their R&D to other countries, with the consequent jobs being created outside of the UK and the almost certain loss of intellectual property means those jobs will never come back to the UK.

4.3 Unite believes it is vital that government recognises that investment in R&D ensures that the future of the Aerospace sector will be in the UK. Unite believes that government should work with unions, workers and companies to provide a real opportunity to create a coherent and holistic policy that supports a through life regime for all the elements that create a truly great UK based industrial sector.

#### 5. IMPACT OF RECESSION ON AEROSPACE

5.1 Although the aerospace sector has enjoyed significant investment and support from the UK government it has not been immune from the impact of the global recession, and this global perspective has been the key feature. The aerospace companies based in the UK are predominantly global companies and as such the onset of such a severe global economic downturn has created problems for companies in the UK. For example Rolls Royce is an exemplar UK based company yet some export orders for engines from overseas buyers have been cancelled or suspended.

5.2 There has been a significant slow down of available credit to buy aeroplanes on lease. The fall of the banking sector has had a significant effect on the civil aerospace sector and there are concerns about the impact on the production of the single aisle aeroplanes and the orders for the A380.

5.3 One example of where the sector has been significantly affected is business jets. Since the banking crisis there has been a stigma created across the world in the use of business jets, as it is seen as ostentatious in the present economic crisis. As a consequence the market in business jets has collapsed with the loss of 20,000 jobs.

5.4 In the UK Bombardier also became a victim of the downturn with the loss of 1300 jobs. As such, Unite would expect to see government financially supporting any need for short-term working contingency plans. This is vital in ensuring that those workers with the skills needed for manufacturing and in particular the Aerospace sector will still be in the workplace once the economic recovery happens.

5.5 Although the short-term outlook is for a decline in output, the long term outlook for the sector remains positive, with industry forecasts predicting a requirement for 30,000 new fixed wing aircraft worth \$2.6 trillion up to 2026 and 30,000 rotorcraft worth around \$300 billion up to 2027.<sup>44</sup>

This submission should be read in conjunction with the Unite submission for the Motor Sport sector.

#### UNITE RECOMMENDATIONS

- Unite believes the time is ripe for Government to lay out its long term view of the sector, similar to that of the previous defence industrial strategy, this is to ensure that the UK remains a market where investors want to invest, exports will continue to rise and jobs will be created.
- Government must acknowledge that a UK based Aerospace and defence sector is vital in prioritising the needs of the UK armed forces and to avoid any supplier country from acting against the UK by withholding equipment.
- Any further reductions in defence spending as part of a strategic review could undermine UK security, have an adverse impact on the UK economy and create significant problems with the retention of skills in the sector.
- Unite believes that government should increase investment in the Aerospace sector by around £2 billion per year; this would go some way to reducing the current disparity between the UK's military commitments and government expenditure.
- Government must acknowledge that at a time of real economic challenge, the Aerospace sector makes a significant economic contribution to the UK economy and remains one of the key capabilities for UK manufacturing.
- Unite believes that education policy in the UK needs to be reviewed and there must be a clear commitment from government to raise and invest in opportunities for all people in education or training in the UK.

<sup>43</sup> Society for British Aerospace Companies (SBAC) UK Aerospace Company Survey 2009, page 6.

<sup>44</sup> Society for British Aerospace Companies (SBAC) UK Aerospace Survey 2009, page 2.

- The UK has the worst record for R&D investment in Europe, government must ensure that investment in R&D increases and provide mechanisms which assist UK based companies to increase their investment in R&D and innovation.
- Government must recognise that although the sector is dynamic and vital there is still room for improvement. Further reform of the procurement process would assist with greater efficiency and reduce costs.
- There needs to be an acceptance and a commitment by government that through life capability for the whole life of equipment provides better value for money than conventional equipment procurement.
- Unite believes there needs to be a greater acknowledgement of the role that SMEs play within the sector especially in relation to the lack of government investment in entrepreneurial research and development in the sector.

8 September 2009

### Memorandum submitted by VTOL Technologies Ltd

#### INTRODUCTION

VTOL Technologies Ltd has been researching and developing VTOL UAV (Vertical Take-Off and Landing—Unmanned Aerial Vehicle) technologies and systems for the past eight years, for one of the fastest growing and largest global aerospace market sectors. Within this high-growth market sector, there is overwhelming evidence that in time; small, low-altitude VTOL UAV platforms are likely to take the lions share (80%+) of the number of units purchased across the board and deployed for urban, mountainous and maritime environments by military, first-responder and commercial market customers. However, technology credibility will be led through initial investments being made via military end-customers such as the MoD. Hence, for a high-technology start-up business, it is imperative that technology funding support and investment is secured through such channels.

The committee should also be aware that 80% of the IED's targeted/identified in Afghanistan today,<sup>45</sup> are being detected through the use of UAVs, many of them small devices used at platoon level. However, the MoD technology in use today is not only being imported from the USA, but has significant operational limitations, all of which can be addressed with technology under development by VTOL Technologies Ltd here in the UK.

The technology that VTOL Technologies has been developing is equivalent to motor sport Formula 1 technology for the air, in other words, advanced and expert technology that has taken a huge investment in research, analysis, intelligence and design validation to create. The company started early in research into this domain, was and still is ahead of the field, but is losing out because government decision makers are unable to understand the importance of the technology, unwilling to support SME businesses in the aerospace sector and will only invest in fully proven solutions acquired from overseas companies. If UK government procurement continues to take this approach, then our future high-technology product-development and manufacturing capabilities from our SME base will completely disappear overseas.

#### *The effectiveness of government policies in supporting these sectors*

From an SME perspective, there has been minimal credible government support within the aerospace and automotive sectors and current government policies actively discourage SME engagement, particularly in the Research & Development fields. For the most part SME's have been sidelined, except in a supporting "supplier role" either directly or via consortia proposals led by the major players, who use their lobbying powers to great effect. Why is this allowed to happen? Well, the primary reason would appear to be a lack of understanding by our civil servants with the direct responsibility for these sectors, (who for the most part only engage with corporate industry) and are under the impression that only corporates have the capabilities to play a leading role within these industries. The general view is that these sectors require such large investments that only financial support directly to corporates is viable. This is a false conclusion.

Emerging technologies start off small (often being developed by dedicated individuals or very small teams), before they can grow and need to be nurtured, prior to engagement with established industry is even considered. Take for example many of the world's largest high-technology corporations today such as Hewlett-Packard or Microsoft. Bill Hewlett and Dave Packard started off in a garage in Silicon Valley with

<sup>45</sup> Note:

IEDs have been increasingly used by the Taliban since 2006 and are now being produced on an "industrial scale", according to the MoD. ISAF deaths in Afghanistan attributed to IEDs, per year:

2006	2007	2008	2009
41	78	152	259

funding and SBRI contract support from the US Government. Bill Gates took a technology discarded by IBM to develop MS DOS and hence MS Windows into the most successful global IT business the world has seen.

It is a false premise to assume in aerospace and automotive, that our current corporate businesses are going to deliver the next generation of technologies that will lead the industry in years to come. Has anyone worked out the cost of supporting high-technology start-up businesses and then working with them to secure major contracts and production agreements through larger corporations, ensuring that high-technology manufacturing jobs stay in the UK? I think such a study/evaluation would throw up some quite surprising results.

Ref: Ashley Bryant Unpublished Ingenia Article 06-12-09

*How to maintain the UK's excellence in academic research in aeronautical and automotive engineering and related disciplines and how to extend relationships between universities and business still further*

One of the biggest misnomers in government thinking and policy today, particularly in the field of engineering, is that excellence in research can and is only carried out by academic institutions and therefore funding support and technology spin-out assistance needs to be focused entirely through academic channels. Furthermore, academics rarely have the experience of commercialising innovation, often hoarding IP and re-circulating it within the University infrastructure, rather than doing anything constructive with it in conjunction with the commercial sector.

What is consistently being missed by civil servants/administrators of these programmes and funds, is that there is some real quality research and business concepts (something that is for the most part not delivered through our Universities), that are being created through specialist SME businesses that deserve support. Unfortunately, the civil service view is that SME's are not considered an important part of our institutionalised framework and where neither appropriate civil service experience nor expertise exists to identify and support concepts with global potential.

We need to be thinking outside of the box and turning these challenges in-side-out. For example, one significant opportunity that is being missed is SME project development support (or technology spin-in support) via Universities. The experience that graduates of engineering and other disciplines can obtain through this route would be just as valuable, if not more so, than the provision of engineering training or job opportunities through our large corporations. The problem is that civil servants are so risk averse, not technically or commercially trained and so concerned with the possibility of failure that they do not want to back anything they don't understand and that potentially poses risks that through their lack of experience, they are unable to quantify. The net result being that many SMEs miss out on support programmes that are often vital to their business operations.

University administrators prefer to work with the larger companies/corporations and neither understand nor are able to cope with the perceived risks of working with high-technology start-up businesses. The current Full Economic Cost policy today excludes SME's engaging with Universities at any level, unless it is on a KTP scheme, controlled by both the RDA's and Universities. A single University graduate engaged through a university outside of a KTP will cost between £120K to £140K per annum. This is an impossible investment for an SME business. Enlightened business people would hire three to four graduates directly, rather than engage one graduate through a university research programme.

Ref: STFC group of documents.

*The impact of the recession on motor sport and aerospace industries*

The impact of the recession on VTOL Technologies has been catastrophic. The MoD was genuinely interested in funding VTOL Technologies in the building of a Technology Demonstrator through their Centre for Defence Enterprise. (Ref: MoD Documents: 1. MoD Interest in TD Funding 24-11-08). Yet, when the budgets were cut, funding was terminated in preference for a corporate concept/design.

Although one could point the finger at the MoD, taking an overall perspective, the reaction was initiated by government funding cuts and with the constant pressures on MoD and the desire to show something innovative in this domain, CDE took the easier route, one that would not be so difficult to justify and set up a Defence Prime competition, satisfying the demands of the Defence Primes. The unfortunate result of such decisions has been that VTOL Technologies has had to be mothballed; I have been out of work for 12 months whilst the resultant BAeSystems concept/design has the potential I believe, to become a white elephant.

Ref: MoD and BAeSystems group of documents.

*The role of SME's in the supply chain supporting these sectors*

Why are SME's seen purely in a support role, why not a leading role in certain cases in these sectors with specific technologies? There have been so many examples of SME's engaging with corporates too early and being "thrown to the lions". Even VTOL Technologies has had such experiences, but due to contractual requirements, these must remain confidential.

The UK has a history of giving away world leading technologies for overseas companies to build global businesses and create tax revenues for their governments. Frank Whittle with the jet engine is a case in point. There is an alternative to such practise, but it will require a complete rethink by government in the way that it invests and supports businesses that have next-generation technology concepts, but require support to bring these concepts to fruition, creating design, manufacturing and support jobs within the UK. Chris Coles has spent many years researching this challenge and has recently published a new approach to job creation titled: *The Road Ahead from a Grass Roots Perspective* which sets out a new way of funding new business start ups through what he describes as a Capital Spillway Trust.

From my perspective, the government could play a leadership role, by investing at the early stages in high-technology concepts (funding the development of Technology Demonstrators via truly viable SBRI programmes) and following successful demonstration, work with both SME's and UK based corporate industry (according to fair guidelines) to negotiate manufacturing, marketing and sales agreements. In this way, the best of both worlds could be achieved; support for new high-technology concepts through SME's whilst providing continued success and wider exploitation of technology for the benefit of UK plc through later engagement with corporate industry, once the technology has been proven and the exploitation routes are clear.

Ref: Business Case group of documents.

*What barriers are there to further innovation in these sectors and what can be done to overcome them*

The barriers to further innovation in the aerospace & automotive sectors are:

- Civil Service institutionalism and focus on corporate industry.
- Inappropriate funding support and in particular Technology Demonstrator funding support programmes for SME businesses.
- A lack of co-ordination on high technology procurement programmes between government departments that would enable effective SBRI programmes to be assembled.
- Corporates rarely truly innovate; they often acquire immature, but promising technologies from small companies through acquisition.
- New designs, products and processes do exist, but they are not perceived by government as being developed through the right channels, (from their viewpoint, not from ours), and are therefore being ignored.

What can be done to overcome them?

- There needs to be government technology facilitators, who can operate at the highest levels of government and pull funds/resources from multiple departments to solve particular technology issues/challenges.
- Engage with the City and our Engineering Institutions to develop engineering based Technology Demonstrator funding programmes, providing inspiration and visibility that engineering has a viable future in this country.
- Study, review and if appropriate support the principles of the Capital Spillway Trust as a means of providing funding for high-technology businesses.

Ref: Chris Coles and the Capital Spillway Trust

*What steps can be taken to encourage the application of technology development in both sectors to create new designs, products and process in other industries*

The critical issue is funding and in particular Technology Demonstrator funding. Open engineering based Technology Demonstrator competitions, that are neither time nor subject-matter bounded, need to be run that will provide the Technology Demonstrator funding imperative to pull through these exciting concepts.

Government departments need to start talking with one another and develop new ways of combined funding. It is very rare to see innovation or business creativity from Government departments, because their skills lie in administration and politics, not in the development of new designs, products and processes to meet the needs of our rapidly changing world. It would often appear that civil servants have a greater focus on being seen to be doing the right thing, rather than doing the right thing.

There also needs to be far greater participation from our engineering institutions, engaging more effectively with government and a renewed effort to secure engineering investment through such sources as the City of London. Is it not better to fund 20 Technology Demonstrator programmes, rather than fund £20 million of bonuses for one City banker? Which of the two is more likely to develop the long-term economic base for the UK?

Ref: Chris Coles & the Capital Spillway Trust

*How successful existing initiatives such as the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have been in transforming new concepts into marketable technology*

From an SME perspective, I would suggest that the Aerospace Innovation Networks and Aerospace Technology Validation Programmes have delivered nothing as far as high-technology SME's are concerned. There has been neither any guidance of substance nor support from the Technology Strategy Board, nor from SEEDA (our particular RDA). I have also contacted the Department for Business Innovation and Skills, but even here there has only been a blank response.

Ref: TSB and SEEDA groups of documents.

*Any other views stakeholders think the Committee should be aware of*

Engineering of any discipline, demands investment support to enable "proof of concept" of innovative, new products through Technology Demonstrators, prior to global commercialisation. Chris Coles has been developing a new economic model for the 21st Century that would provide such investment funding. The model is called the Capital Spillway Trust and is a new approach to create a free enterprise based, free market in capital. It is a modern, highly effective means of raising the finance required for creation of high-technology jobs within the local community. Chris's ideas can be accessed via his website at <http://www.chriscoles.com/page3.html>.

Polling of the professional UK engineering workforce. If these highly-skilled engineers were polled individually, I believe that the committee would be shocked by the results and the level of feeling that engineering is neither valued nor appropriately supported in the UK as well as providing some new, innovative and valuable input as to how to put engineering in the UK back on track, by those on the front line.

Ref: Chris Coles & the Capital Spillway Trust.

21 December 2009

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### Supplementary evidence from Rolls-Royce

#### REGIONAL DEVELOPMENT AGENCIES

We are conscious of the debate and differing policy views that exist on the future of the RDAs and felt that the Company could offer some perspectives as an organisation engaged with the UK Development Agencies and with some of their international counterparts.

Rolls-Royce has active connections with most of the RDAs and Devolved Administrations in the UK. These arise because of the location of existing factories and engineering facilities and as a result of RDA support for R&D projects and new capital investments of various kinds. Over the last three years, the Company has also led the creation of a network of manufacturing research centres in the UK—a strategy that has been strongly supported by and involved extensive engagement with East Midlands Development Agency, AWM, Yorkshire Forward, SWRDA and Scottish Enterprise. The Development Agencies are also closely involved in the Rolls-Royce University Technology Centres of which 18 exist in the UK, distributed across eight of the nine English regions, Wales and Scotland.

The Company has experience of working with development agencies on major projects in USA, Canada, Singapore and Germany and can draw parallels and comparisons with the UK that may be helpful.

#### TODAY

The English RDAs have evolved substantially since they were established in 1999, in some cases most notably for their increasingly confident business oriented approach. Their remit has also expanded, for example with responsibilities migrating from central government and regional government offices.

The RDAs have come increasingly to recognise the need for cross-regional coordination on issues of national strategy; the limitations of a regional benefits case in justifying support for major investments with national implications have been more widely understood and there are growing examples of coordinated responses to major economic development opportunities involving two or more RDAs both spontaneously and with central government direction. This is happening in support of national technology programmes led by the Technology Strategy Board (TSB) but drawing support from the Regions and Research Councils, it is a feature of the manufacturing research centre network and has enabled multiple location factory development projects to be assisted that would otherwise have migrated overseas.

Relationships at senior levels with the RDAs—Chairman, CEO and Executive Director—are characteristically direct and purposeful in a way that is unusual with central government. Many of the people now in these roles have considerable commercial and industrial experience and behaviours are less governed by the principle of "safety first" than in some other public organisations.

However, the RDAs are constrained by central government procedures and oversight requirements, by European regulations and, in some cases, by the complexities of the UK's approach to national projects—such as large-scale, multi-regional, collaborative technology programmes with several industrial and academic partners and funding from TSB, Research Councils, RDAs and industry. This can slow the progress of even strongly supported projects to a massive degree, making the UK uncompetitive and materially reducing the eventual economic benefits of projects that do proceed. UK policies also generally constrain the level of support offered to below EU limits further reducing the UK's competitiveness for internationally mobile projects.

The Company's experience in Singapore, USA, Canada and Germany is very different. Support for major projects is usually negotiated and contracted far more quickly than in the UK. Development agencies are generally less constrained by national rules or detailed oversight from central governments and the nature and scale of incentives are dictated by the economic merits and needs of the project. The UK's weaknesses are lack of pace and limited scale and flexibility of incentives.

Some recent experience in the UK has been more encouraging:

- Under the broad heading of “industrial activism” agreement was reached with BIS and a group of RDAs in mid 2009 to support a number of modern factory developments. The Company also led discussions on the launch of a further advanced manufacturing centre to support the civil nuclear manufacturing sector. These projects offered some 800 high value manufacturing jobs based on new and advanced manufacturing processes and the Nuclear Advanced Manufacturing Research Centre will provide a means of accelerating the regeneration of capability in the nuclear supply chain.
- The UK's response to these opportunities was negotiated in only a few months with intense engagement on both sides and demonstrated that the UK is capable of evaluating and responding to such opportunities with a much more pace than is characteristic. This approach must become an established pattern of economic development in future.

#### THE FUTURE

We believe that there is a continuing role for RDAs in the future but a number of headline issues need to be addressed in order to make them more fully effective. Removing the RDAs could we believe risk creating a vacuum at a time when more than ever the country requires a purposeful approach to economic development.

As comparatively large economic areas, the RDAs are able to attract senior teams of a calibre capable of engaging and maintaining relationships with the large companies that provide many routes to market for the rest of the UK supply chain. The regions are also of a scale that justifies the resources necessary to appraise the viability and economics of larger development proposals. We do not believe that these characteristics could be preserved if the role of the RDAs were to be devolved to more locally.

In a world of tight money we believe that selectivity in the economic development structure is probably important. If the UK is to maximize the return on the inevitably limited funds available for public intervention, money should be actively targeted regionally, sectorally, at companies with market access and track record and at key technologies, in sufficient quantity to make an impact. The greater focus and drive that is possible at regional level (supported by strategic perspectives from central government) is important but more must be done to increase the natural pace of decision processes and this probably involves removing some of the multi-layered controls and balances that operate today—whilst reinforcing local accountability.

A largely centralised approach that removed the English RDAs would, we believe, be overwhelmed by the volume of development projects and with the Scottish and Welsh development agencies remaining in place could have the unintended but perhaps inevitable consequence of creating an un-level playing-field, skewing new developments away from England.

Finally, we believe that there is a need to further encourage coordination across the RDAs—sharing specialised resources, jointly funding major projects, adopting consistent practices—and with other public bodies such as the Technology Strategy Board and the Research Councils. In addition to strategic benefits, this would increase effectiveness and efficiency and might sensibly be accompanied by a trimming of RDA accountabilities to remove the scope creep that has occurred and refocussing activities on the core economic development role. Selectively combining some of the regions could also be considered, within existing boundaries.

**Correspondence from Rolls-Royce to the Chair of the Business, Innovation and Skills Committee**

During the course of discussions in Derby, the company made a number of observations on the progress made and key areas for further improvement in the UK support mechanism for research and technology.

- (a) The Technology Strategy Board is viewed as a purposeful and level-headed organisation that has made significant progress in supporting large scale research and demonstration programmes.
- (b) But, there is a need to increase the TSB's budget substantially (multiples) in order to provide the necessary stimulus to move the level of UK R&D (as % GDP) towards a competitive level.
- (c) The requirement for collaboration and the need to attract other funding sources (such as RDAs and Research Councils) for large programmes inevitably forces a high level of contractual complexity and this can make the process of commitment too long and wholly uncompetitive with equivalent processes, for example in the USA.

Overall, the company believes that there is a clear need to expand the available funding and raise the pace with which the UK handles technology opportunities especially in context of stimulating the economy in the current downturn. Where possible, concentrating more of the UK's R&D funding in one place like the TSB could bring useful simplification and would also ease the process of prioritisation that is inevitably required in a world of tight money.

*8 March 2010*

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