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Defence Committee

Delivering Front Line Capability to the RAF

Third Report of Session 2005–06

Report, together with formal minutes, oral and written evidence

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Summary

The Ministry of Defence (MoD) is making significant changes to its provision of logistics support for front line aircraft. Under the new arrangements, these maintenance lines will be reduced to two: "forward" and "depth".

It is only four years since the Defence Aviation Repair Agency (DARA) was established to provide MoD with a competitive alternative to private industry. During that time, DARA has, by common consent, provided a good service to the RAF and has consistently returned a profit. The Committee's view is that the MoD has contributed to a period of unnecessary turbulence and uncertainty in aviation logistics provision.

For fast jet aircraft (Harrier GR9 and Tornado GR4), depth support will transfer from DARA St Athan, South Wales, where it is carried out largely by civilian tradesmen, to RAF Main Operating Bases where it will be carried out by RAF tradesmen supplemented by tradesmen from the aircraft manufacturer. For rotary wing aircraft (helicopters), depth support will, by contrast, be provided at DARA Fleetlands, Hampshire, by RAF tradesmen and DARA civilian tradesmen. We are concerned that these inconsistent arrangements will not be sustainable over the long term. MoD's rationale for these changes is based on ensuring that RAF manpower is available for crises. It aims to cut costs by removing unnecessary and wasteful duplications of support, and employing modern manufacturing techniques. The new arrangements for support carry risks: the long term sustainability of efficiency programmes; potential over-dependency on industry, and the capability of the RAF's new support processes to meet surge demands.

The DARA Trades Unions assert that there are serious problems with the new arrangements at RAF Marham and RAF Cottesmore including damage to aircraft and inability of the new arrangements to meet surges in demand. MoD denies these claims, and maintains that Harrier GR9 and Tornado GR4 support is being provided in a more efficient and cost effective manner than before. The Committee recommends an independent audit of the Harrier programme and if necessary a delay to the Tornado changes to allow the lessons to be taken into account.

The future of DARA is uncertain: some of its businesses are to be closed down; others are to be market tested. The prospects for the DARA St Athan site, including its recently completed Superhangar facility costing over £100m, are in particular doubt. Seen with the benefit of hindsight, MoD's decision to go ahead with building the Superhangar at DARA St Athan at a time when it was reviewing its logistic support provision was incomprehensible and we recommend an investigation by the National Audit Office and the Wales Audit Office. It was also a clear example of a lack of joined-up Government. But now that the Superhangar with its impressive state-of-the-art facilities has been built, it is vital that MoD works with other government bodies to attract commercial investment there.

1 Introduction

Background

1. In an increasingly volatile world, it is vital that the UK's Armed Forces are properly configured, equipped and supported. The 2003 Defence White Paper, *Delivering Security in a Changing World*,[1] set out the case for flexible Armed Forces to meet the threats of the post-Cold War world. In 2003, the Ministry of Defence (MoD) commissioned a review of its logistics provision for air and land forces on the premise that the Armed Forces supply chain should reflect this flexibility. The report, *Streamlining End to End Air and Land Logistics*[2] (subsequently referred to as the *End to End Review*) was described by MoD as "a comprehensive review of logistics process, from the front line to industry".[3]

2. The *End to End Review* identified potential opportunities for increased flexibility and efficiency savings in the logistics support chain. The key points were announced on 16 September 2004:[4]

- The four lines of aircraft maintenance would be reduced to two: "forward" and "depth";
- the Harrier Joint Upgrade Maintenance Programme (JUMP) would be concentrated "forward" at RAF Cottesmore;[5]
- Depth support for the Tornado GR4 aircraft would be concentrated "forward" at RAF Marham;
- By contrast, support for rotary wing aircraft would be concentrated "back" to DARA Fleetlands;
- The MoD would explore, with the Welsh Development Agency and other Government Departments, alternative options for DARA St Athan, previously the hub of Harrier and Tornado GR4 deep maintenance.

3. This announcement was noted by our predecessors on the Defence Committee who expressed concern that "the new arrangements at RAF Marham will need to match, if not exceed, the high standards set by the skilled workers at DARA St Athan".[6]

Our inquiry

4. On 21 July 2005, this Committee announced that it would be inquiring into:

> the delivery of frontline capability to the RAF. This will include the examination of the progress being made in implementing MoD's decisions regarding the future

1 Cm 6041

2 Streamlining End to End Air and Land Logistics, 1 July 2003, JJ Dowdy McKinsey & Co.

3 Ev 49

4 HC Deb, 16 September 2004, c 164–165

5 The JUMP is a programme which will upgrade all Harrier GR7 aircraft to GR9.

6 Future Capabilities, 17 March 2005, HC 45-1

support of military aircraft, such as the decision to concentrate on-aircraft support of the Tornado GR4 'forward' at RAF Marham. The Committee will be particularly interested in the implications of these decisions for the Defence Aviation and Repair Agency (DARA).[7]

As part of our inquiry, we visited RAF Marham on 16 November 2005 and DARA St Athan on 21 November 2005.

5. In undertaking our inquiry, we took oral evidence at the Civic Centre, Barry, Vale of Glamorgan, on 21 November 2005 from representatives of the main Trades Unions at DARA St Athan (Amicus, Prospect and PCS Union) and Mr Archie Hughes, Chief Executive of DARA. We also took oral evidence at Westminster on 29 November 2005 from Mr Stephen Hill, former Chief Executive of DARA, and from Rt Hon Adam Ingram MP, Minister for the Armed Forces, Air Vice Marshal Barry Thornton, Director General, Logistics (Strike), and Mr Nicholas Evans, Director General, Management and Organisation, MoD.

6. We are grateful to all those who provided oral and written evidence to our inquiry and assisted with our visits. We are also grateful to the specialist advisers who assisted us: Mr Paul Beaver, Professor David Kirkpatrick and Air Vice Marshal Professor Tony Mason.

7 www.parliament.uk/parliamentary_committees/defence_committee/def050721___no__02.cfm

2 Changes to aircraft support

RAF aircraft support arrangements

7. Until the Minister's announcement of 16 September 2004, aircraft maintenance was carried out at four types of location: squadron (known as first Level), station (second level), major repair facility (the Defence Aviation Repair Agency) (third level) and manufacturer (fourth level). Minor maintenance, incorporating the first and second levels and ranging from minor repairs and minor regular servicing, was carried out at the RAF station. Depth support, known as the third level, and incorporating more significant damage repair and scheduled major servicing of aircraft, was carried out within the Defence Aviation Repair Agency (DARA). Support requiring aircraft design authority knowledge, and involving the complete overhaul and modification of aircraft, known as the fourth level, was undertaken by the aircraft manufacturer.

8. The changes to the provision of aircraft support, announced by the Minister on 16 September 2004, had particular impact on DARA, the provider of third level depth support, which was to lose its status as the provider of depth support for Tornado GR4 fast jets. DARA had, until March 2004, also been responsible for providing depth support for Harrier fast jets, but lost the contract for future support to RAF Cottesmore.

The Defence Aviation Repair Agency

9. DARA was formed in 1999 following a recommendation in 1998 in *The Strategic Defence Review* (SDR)[8] that the Naval Aircraft Repair Organisation (NARO) and the RAF Maintenance Group Defence Agency (MGDA) should be amalgamated to form a single Agency. The SDR stated that the new Agency would become a Trading Fund "as soon as practical".[9] DARA became a trading fund, with MoD as the shareholder, on 1 April 2001.

10. An important role of the DARA trading fund was, according to its first Chief Executive, Mr Stephen Hill, to provide MoD with an "industry benchmark" to compare cost and quality of services.[10] In January 2001, our predecessors on the Defence Committee held an inquiry into the decision to make DARA a trading fund. The Committee's report welcomed DARA's change of status but also noted that:

> If DARA cannot deliver reduced prices and better performance, the MoD might be increasingly driven to place more of its repair work directly with industry, which would effectively leave DARA to wither on the vine.[11]

11. DARA currently comprises five businesses spread over four sites: the fixed wing depth support business at St Athan, Vale of Glamorgan; rotary wing support and the engine maintenance business at Fleetlands, Hampshire; the electronics business at Sealand, Flintshire; and the components business at Almondbank, Perthshire.

8 Strategic Defence Review, Cm 3999

9 *Ibid*

10 Ev 44

11 The Draft Defence Aviation Repair Agency Trading Fund Order 2001, Fourth Report of Session 2000–01, HC 261

Changing strategic context

12. DARA was established during a time of changing assumptions about the role of the UK's Armed Forces. MoD, in common with other NATO countries, was still adapting to the end of Cold War certainties where Western Armed Forces were configured and equipped to meet large scale conventional and nuclear threats from the Warsaw Pact. By the end of the Cold War in the mid-1990s, there was an acceptance that UK Armed Forces would need to adapt to meet new threats such as asymmetric warfare and world terrorism, within budgetary constraints and domestic calls for a realisation of a post Cold-War peace dividend.

13. A key assumption of the 2003 Defence White Paper, *Delivering Security in a Changing World: Future Capabilities*, was that the Armed Forces should be capable of deploying forces to multiple, concurrent, small to medium-scale operations over a wide geographical area.[12] For the RAF, this has resulted in a switch of emphasis from operating from fixed main bases to a focus on enabling the swift deployment of aircraft as part of an expeditionary task force.

14. Within this changed strategic context the RAF is being asked to do more with fewer people: the number of RAF personnel is being reduced from 48,000 to 41,500 by 2008 and the number of RAF fast jet aircrews will be reduced from 210 to 170. It is assumed that future war fighting will be conducted by mobile expeditionary forces using high tech equipment. The RAF personnel we met at RAF Marham told us that this required enhanced flexibility and agility throughout its supply chain.

End to End Review

15. In 2003, MoD commissioned the management consultancy McKinsey and Company to conduct a review of its RAF logistics provision. MoD commissioned the *End to End Review* because it had reached the judgment that:

> Operational experience—not just from Operation Telic[13] but from multiple operations—indicates that there is scope to improve logistic support to the front line. Furthermore, Defence faces extraordinary resource pressures.[14]

The Defence Logistics Transformation Programme (DLTP), led by the Chief of Defence Logistics, was the programme responsible for implementing improvements to logistic support identified in the Review.

16. The *End to End Review,* which had been presented to MoD in July 2003, identified three broad options for future support of RAF aircraft. To concentrate "forward" certain aircraft platforms to RAF Main Operating Bases (MOBs); to concentrate "backwards" the same platforms to the Defence Aviation Repair Agency (DARA) sites; or a hybrid solution with some platforms concentrated forward and others concentrated backwards.

12 Cm 6041

13 Operation Telic refers to the deployment, war fighting and initial transition to peace phases of United Kingdom operations in Iraq in 2003.

14 Streamlining End to End Air and Land Logistics, 1 July 2003, J J Dowdy McKinsey & Co.

17. On 24 March 2004, the Ministry of Defence announced that the Harrier Joint Upgrade Maintenance Programme (JUMP) would be located at RAF Cottesmore, Lincolnshire, an RAF MOB, rather than at DARA St Athan, which had been responsible for Harrier maintenance. The Minister of State for the Armed Forces told the House the following day that "This decision has been taken at this point, because of the need to protect the critical operation in-service date for the Harrier GR9".[15]

18. Further key points relating to air logistics resulting from the DLTP were announced by the Minister on 16 September 2004.[16] These were:

- The existing four lines of aircraft maintenance (described in paragraph 7) would in future become two: "forward" and "depth". Forward support would be carried out by RAF tradesmen employed on operational squadrons; and depth support, comprising what used to be called 2nd to 4th line support, would be carried out by RAF tradesmen at RAF MOBs, supplemented by civilian contractors from the aircraft design authority;
- Reaffirmation of the March 2004 announcement that the Harrier JUMP programme would be concentrated at RAF Cottesmore;[17]
- Depth support for the Tornado GR4 aircraft would be concentrated "forward" at RAF Marham, Norfolk;
- In contrast, support for rotary wing aircraft (Lynx, Chinook and Sea King helicopters) would be concentrated "back" to DARA Fleetlands, Hampshire;
- The MoD would explore with the Welsh Development Agency and other Government Departments alternative options for DARA St Athan, South Wales, previously the hub of Harrier and Tornado GR4 depth maintenance.

19. On 8 November 2005, the Minister announced that all fast jet support would be relocated to RAF MOBs in April 2007, a year sooner than previously announced.[18] The Minister also announced significant changes to the configuration of DARA:

- Confirmation of the end of fast-jet support at St Athan in April 2007 (resulting in 500 job losses);
- support for the VC10 would remain at St Athan but opened up for market testing;
- the closure, by April 2007, of the engine maintenance business at Fleetlands (resulting in 225 job losses);
- rotary-wing support would be concentrated at Fleetlands and opened up for market testing;

15 HC Deb, 25 March 2004, c 1144

16 HC Deb, 16 September 2004, c 164–165

17 The JUMP programme will upgrade all Harrier GR7 to GR9 aircraft.

18 HC Deb, 8 November 2005, c 161

- the rotary wing component business at Almondbank, Perthshire, would be opened up for market testing;
- the retention under MoD ownership of DARA's electronics business in Sealand, North Wales, employing 600 people.[19]

20. MoD told us that it expected these changes to result in the reduction of 1,500 RAF posts and 700 jobs at DARA.[20] The Minister told the House that "Consolidating support for fast jets and helicopters will deliver net savings of some £70m over the next four years, with recurring annual savings of £40m thereafter."[21]

Principles behind the new arrangements

21. MoD has based its decision on the future arrangements for depth support for RAF aircraft on two major considerations: Crisis Manpower Requirement (CMR) and cost effectiveness.

Crisis Manpower Requirement

22. MoD defines CMR in the following terms:

> RAF aircraft support policy is underpinned by a requirement for the RAF to have a sufficient number of tradesmen, capable of deploying to operational theatres to support aircraft—the total is referred to as the RAF Crisis Manpower Requirement.[22]

23. CMR levels have changed significantly over recent years in line with the RAF's changing role from operating from fixed bases to one capable of deploying as an expeditionary force. MoD told us that the operational environment now demanded that all deployed tradesmen be adequately trained in military skills to defend themselves and their working environment.

24. The need for the RAF to augment the front line in times of crisis and conflict is clear. MoD judges that keeping its CMR on the front line in peacetime would be a wasteful use of resources, and that therefore CMR must be deployed from the depth support environment.

25. We asked MoD to provide a generic model of how CMR is calculated and received a detailed memorandum explaining how CMR is calculated for deployments of varying duration.[23] MoD told us that factors taken into account included the likely degree of support available from other sources at the deployment base and the number of aircraft deployed. MoD also told us that there was a residual manpower requirement to satisfy training, other operations and continued maintenance at the main operating and other

19 HC Deb, 8 November 2005, c 161

20 Ev 49

21 HC Deb, 8 November 2005, c 161

22 Ev 49

23 Ev 62

bases.[24] We found MoD's arguments based on CMR unconvincing in some respects. This is discussed further in paragraphs 75–79.

26. The RAF also explained during our visit to RAF Marham that its tradesmen would gain vital experience and skill enhancement by rotating between the depth and forward environments and that by locating both forward and depth tradesmen at the same location, family disturbance on rotation would be considerably reduced.

The pulse line

27. RAF MOBs are to operate a system of maintenance known as the "pulse line". According to MoD:

> Pulse applies the methods of production to the delivery of depth maintenance. The work environment is configured in phases and the aircraft moves from phase to phase (pulse) at defined intervals, ensuring each phase is conducted to a set schedule of work.[25]

This contrasts with the traditional maintenance method, used at DARA St Athan, whereby the aircraft remains stationary throughout its maintenance and components and personnel move to the aircraft.

28. During our visit to RAF Marham, we saw a Tornado GR4 pulse line in the early stages of development. We were told that the timely availability of spare parts was critical to the success of pulse line. This would be achieved by the prime contractors being given incentives to take responsibility for the control of the supply chain and ensuring that component parts were available. The benefits of pulse line working were described by Air Vice Marshal Thornton:

> you have a predictability over the spares arising. An aircraft moves down the line: for the Harrier it is every 16 days. You know you are going to need component X every 16 days. You can work with your supply base and give them a predictability of spares arising that you cannot when you have got lots of aircraft all coming, not in a planned progression to the same point, it is more of an ad hoc basis—so there is a lull for quite some time and then there is a crisis of demand—and so there is far more predictability with the pulse line.[26]

29. During our inquiry we encountered strong support for the principles behind pulse line maintenance from personnel at RAF Marham and from both the former and current Chief Executives of DARA.[27] MoD suggests that the main advantage of the pulse line over the traditional on-aircraft repair carried out at DARA St Athan is that in the pulse line work can be pre-programmed more easily and the need for parts predicted with more confidence.

24 Ev 62

25 Ev 52

26 Q 151

27 Q 50, Q 84

30. On the other hand, the trades unions told us that pulse line had significant risks because it involved the movement of aircraft through the pulse rather than personnel moving to aircraft. Catherine Speight, Amicus Regional Secretary, told us:

> We know from the investigations and evidence we have from the RAF system that one aircraft has been structurally damaged because it was moved on a jig when it should not have been. That is the difficulty when you build things on a pulse line. Mistakes like that can happen, whereas at St Athan the aircraft is stationary the whole time it is being worked on, and the manpower moves around it.[28]

31. Although there are clearly inherent risks associated with moving highly sophisticated and expensive aircraft through a maintenance pulse line, if the risks are managed properly the benefits of quicker maintenance turnaround times and reduced costs may outweigh the risks. In any event, pulse lines could have been introduced at DARA St Athan (as they have been at DARA Fleetlands) and pulse line maintenance in itself is not a convincing reason for the decision to concentrate support at RAF Marham.

32. **We welcome MoD's decision to embrace modern production techniques that are designed to achieve savings and efficiencies. The performance of the pulse line system can only be judged over time. The success of the pulse line will be dependent on industry's ability to ensure aircraft components are readily available. Any delay in the availability of components would severely undermine the effectiveness of the pulse line. The RAF will have to ensure this risk is managed robustly.**

33. **Given that MoD believes the pulse line will deliver significant improvements to the provision of support to RAF aircraft, it is surprising that it was not introduced sooner at St Athan. We recommend that MoD carefully monitor and evaluate its pulse lines supporting aircraft, giving particular attention to ensuring that supplies of components and technical support are provided in a timely fashion.**

Leaning

34. During our visit to RAF Marham much emphasis was laid on the fact that they had introduced "leaning"—the reduction of waste by eliminating redundant practices in the support process. We were told that these "redundant practices" had been identified by RAF workforce and BAE Systems personnel, who had also designed their work systems and processes. We were told that this "bottom-up" approach had encouraged the workforce to take ownership of the new work systems.

35. We were impressed by the evident commitment to leaning shown by the RAF and industry personnel we met at RAF Marham. Leaning, like pulse line, is not new and industry has many examples of 'rationalisations' to particular work processes and systems. Equally common are examples of such leaning programmes, despite the best of intentions, losing focus over the medium term with inefficiencies and waste creeping back in. **We note the apparent success of the leaning programme at RAF Marham. We also note that this is still at its early stages and that the full transfer of Tornado support has yet to take place. We are concerned about the sustainability of leaning once it has done so. We are**

28 Q 9

concerned that leaning programmes either have a tendency to lose impetus with inefficiencies re-entering the system or prove counter-productive in leaning out vital processes.

36. **We recommend that MoD continue to seek out and eliminate inefficiencies in all its aircraft support processes but that it ensure that leaning does not go so far that the quality of maintenance is undermined by efforts to meet efficiency targets.**

Relationship with industry

37. During our visit to RAF Marham we were struck by how closely RAF tradesmen worked with tradesmen from the two prime contractors, BAE Systems and Rolls Royce. We saw a mixture of Service and industry personnel working side by side servicing a Tornado GR4 and also working in a Pylon Bay. It was made clear to us that the RAF was embarking on a much closer relationship with industry than had previously been the case. Features of this closer working were described to us as facilitating knowledge transfer and "Gain-share" agreements whereby the RAF and industry shared both benefits and risks associated with aircraft support. Air Vice Marshal Thornton explained the advantages of "Gain-share" in the following terms:

> The previous way of delivering our support business would be that we would integrate all the outputs from the various support base, we would bear the risk, we would effectively incentivise industry such that the more unreliable a piece of equipment was the more they benefited from that. Moving to an output based contract where industry, the design authority, has the responsibility for delivering available and capable platforms to the front-line and is incentivised to do so through improving their profit against reduced costs whilst meeting the performance targets, that is the gain share mechanism, and they have better ability to use their design authority knowledge to improve the performance of the aircraft and reliability of the aircraft through life. They also have a better leverage over the supply chain.[29]

38. The potential benefits for the RAF of closer working with industry are clear, in particular the reduction of the perverse incentive that the more unreliable a piece of equipment was, the more industry benefited, as described by Air Vice Marshal Thornton. But so are the risks. These risks include a potential conflict of interests over the medium term between the RAF, which is seeking quality support at minimal cost, and its commercial supplier seeking to satisfy its shareholders by maximising profit. Whist these aims are not necessarily mutually exclusive, and may be compatible because it is in the interests of both the RAF and industry to have a long term partnership, there is a risk that "Gain-share" will quickly result in tensions. The potential for tension was acknowledged by Air Vice Marshal Thornton who told us "I would expect over time that it becomes more difficult to get to gain-share. I do not think, by any stretch of the imagination, we are in the most effective position yet."[30]

He also said that:

29 Q 163

30 Q 165

> What this does is give industry a long-term business portfolio. It gives them long-term survival ability, which is vital to me in terms of supporting today's aircraft through to their out of service dates.[31]

39. **We recognise that close partnerships with industry in the provision of aircraft support through "gain-share" agreements may result in real benefits for the RAF and value for money for the taxpayer not least by reducing perverse incentives for industry. We note Air Vice Marshal Thornton's concerns about the difficulties of sustaining gain-share over the long term and we expect MoD to monitor and evaluate these agreements very carefully. Beginning in January 2006, we intend to consider the wider issue of MoD's partnerships with industry in our inquiry into MoD's Defence Industrial Strategy.**

31 Q 165

3 The new arrangements in practice

Fast jets: Harrier GR9 support

40. The Harrier GR9 is the RAF's primary close support aircraft and is an avionics and weapons upgrade of the Harrier GR7 which was first deployed on operations in 1980. Its out of service date is expected to be "in the late 2010s".[32]

41. On 25 March 2004, MoD announced that the Harrier Joint Upgrade and Maintenance Programme (JUMP) would be located at RAF Cottesmore in partnership with BAE Systems, instead of at DARA St Athan which had previously been responsible for Harrier support.[33] The Minister explained the decision to concentrate JUMP at RAF Cottesmore:

> because of the need to protect the critical operation in-service date for the Harrier GR9. The solution at RAF Cottesmore offered the best value for money for defence, providing savings of more than £30 million through the life of the programme. Any delay in the decision would also have cost £800,000 a month.[34]

42. The JUMP upgrade allows the carriage of the latest smart weapons and navigation and global positioning systems. The new weapons being integrated are the *Storm Shadow*, *Brimstone* and *Maverick* missile systems. The first Harrier GR7 aircraft to begin its upgrade entered the pulse line at RAF Cottesmore on 18 November 2004. The work on upgrading the 60 Harrier GR7 aircraft will be complete by April 2007, and maintenance work, in partnership with BAE Systems, will then continue at RAF Cottesmore. The change has resulted in the loss of 350 jobs at DARA St Athan.[35]

43. The DARA trades unions claim that the Harrier JUMP at RAF Cottesmore has experienced significant problems. According to Amicus:

> civilian agency staff have been used to overcome the skills deficit at RAF Cottesmore, and now substantially outnumber service personnel...JUMP at RAF Cottesmore is experiencing significant problems including damage to aircraft as a result of poor maintenance and leading to aircraft being sent to BAE Systems, Lancashire, for major repair, increasing servicing times.[36]

44. Amicus also told us:

> We believe that that is as a direct result of the level of expertise at Cottesmore, and that is not in any way to be critical of service expertise; but the expertise that is required on deep servicing is significantly different than for that which would be expected at first and second line.[37]

32 Defence industrial Strategy, 15 December 2005, Cm 6697

33 HC Deb, 25 March 2004, c 1144

34 *Ibid*

35 http://newsvote.bbc.co.uk/mpapps/pagetools/print/news.bbc.co.uk/1/hi/wales/3563189.stm

36 Ev 41

37 Q 1

45. The Unions claim that MoD is able to present its maintenance turn-around times more favourably because it has extended times between major and minor services. Amicus claimed in its submission to us that extending flying times "will put crews and aircraft, worth millions of pounds, at catastrophic risk and may interfere with front line operations".[38]

46. MoD maintains that the Harrier JUMP is meeting its performance and savings targets. MoD told us that JUMP:

> is delivering significant savings over the next four years. It has improved maintenance turn-round-times by 14 per cent, and reduced man-hours for the first 10 aircraft in the programme by 13 per cent, with the total number of aircraft undergoing maintenance and/or upgrade programmes at any one time reducing from 24 to 13. This will enable more aircraft to be made available to front-line commands.[39]

47. MoD refutes the Union claims of damage to Harriers in the pulse line. MoD told us that "No Harrier aircraft have been sent to BAE Systems Warton for major repair since the commencement of the Harrier Pulse Line".[40]

48. We pressed MoD particularly strongly on the question of the risks associated with extending flying times. MoD told us that:

> The flying time interval for the maintenance cycle of Harrier GR7/GR9 aircraft has recently been extended by 44 per cent from 500 to 720 flying hours for minor maintenance and from 2000 to 2880 flying hours for Major maintenance. The extension was approved in July 2005 following a two year study and in-depth analysis carried out in consultation with the aircraft, engine and equipment design authorities; there is no increase in engineering or operational risk.[41]

During our visit to RAF Marham we were also told that RAF pilots would not contemplate flying aircraft if they felt that their safety had been compromised as a result of an extension in flying hours between servicing.

49. When we asked MoD whether the move to RAF Cottesmore had resulted in genuine cost savings, Vice Air Marshal Thornton responded:

> by moving to a single joint upgrade and maintenance line at Cottesmore, we have taken 11 less aircraft from the front-line and we have reduced the cost by over 28 per cent against what were fixed price quotations for the old way of doing business. So, no, I do not accept that it is anything other than efficient and effective use of our resources.[42]

38 Ev 43

39 Ev 50

40 Ev 56

41 *Ibid*

42 Q 127

50. **We note both the Unions' claims of problems with the Harrier JUMP at RAF Cottesmore and MoD's clear refutation of these claims. We pressed MoD particularly strongly on the impact of Harrier flying times and were assured that the decision to extend them was taken only after a long consultation with the Harrier design authority and that there was no increased risk to Harrier pilot safety.**

51. **We recommend that MoD commission an independent audit of the Joint Upgrade Maintenance Programme at RAF Cottesmore to identify any issues and learn lessons which may impact on the programme to concentrate support of Tornado GR4 at RAF Marham. We further recommend that MoD adopt a more flexible timetable for rolling forward the Tornado GR4 to ensure sufficient time to upgrade the deep repair facilities at RAF Marham and to take advantage of any recommendations or information that may arise from the audit of the Harrier JUMP programme at RAF Cottesmore.**

Fast jets: Tornado GR4 support

Background

52. The Tornado GR4, the RAF's primary ground attack aircraft, first entered service as the Tornado GR1 in 1979. Between 1996 and 2003, BAE Systems was responsible for the upgrade of the Tornado GR1 fleet to the GR4 version in time for the GR4 to be deployed to Iraq as part of Operation Telic. There are currently 140 Tornado GR4s in service and its out of service date is currently expected to be 2025. The 110 Tornado F3 (the air defence variant) is currently expected to be out of service by 2009.

53. Tornado operating bases will be reduced from five (RAF Lossiemouth, RAF Leuchars, RAF Leeming, RAF Coningsby and RAF Marham) to two (RAF Lossiemouth and RAF Marham).

54. The Minister announced on 16 September 2004 that for the Tornado, instead of support being spread over four locations—BAE Systems Warton (capability upgrades), DARA St Athan (major repair), and RAF Marham (minor repair) and RAF Lossiemouth (minor repair)—from 2007, all levels of support would be done only at the new depth hub, RAF Marham.[43]

55. The RAF Marham Tornado Integrated Project Team, comprising RAF personnel and staff employed by the two prime contractors, BAE Systems and Rolls Royce, is responsible for ensuring the smooth transfer of work from DARA St Athan and for designing the work processes and systems to support work on the Tornado GR4.

56. MoD expects these changes to result in:

- the reduction in the number of personnel employed on Tornado maintenance from 2.6 to 0.7 per aircraft, and

43 HC Deb, 16 September 2004, c 164–165

- the reduction in the number of aircraft undergoing depth maintenance from 22 to 16 at any one time.[44]

57. Against the projected cost savings, MoD has recognised that RAF Marham will need significant investment to upgrade its infrastructure to an acceptable level. MoD told us that "Latest estimates indicate the need to spend £5.9m on Depth Support facilities such as hangar floor resurfacing, gantry cranes and upgrading electrical power supplies."[45]

RAF Marham

58. We visited RAF Marham on 16 November 2005 to see how the new support arrangements for Tornado aircraft were working in practice. MoD told us that "Based on current plans, all [Tornado] work will have transferred to RAF Marham by 2007".[46] Work on transferring Tornado aircraft from DARA St Athan to RAF Marham had already begun and during our visit we saw the eight maintenance pulse lines in their early stages of development and examples of leaning of work processes.

Facilities

59. MoD has told us that the new arrangements at RAF Marham will maintain the standard of work at DARA St Athan, as well as delivering both increased efficiency and cost savings. However DARA trades unions have identified some areas of concern, set out below, regarding the Tornado project at RAF Marham.

60. The first concern was that "RAF Marham does not have sufficient in depth maintenance facilities to support the Tornado GR4 aircraft fleet and certainly nothing that compares with DARA St Athan".[47] During our visit to RAF Marham, it was acknowledged that its hangar facilities, built in the 1940s, were in need of investment. On the day of our visit the heating system was not functioning and tradesmen were working in very cold conditions. The contrast with the facilities at DARA St Athan was shown in stark relief when, the following week, we visited the new Superhangar there.

61. MoD has acknowledged that it will need to spend an estimated £5.9m on updating the facilities at RAF Marham. While there is not expected to be a large increase in personnel at RAF Marham, there may also need to be further investment in housing and other facilities. We noted, for example, the lack of leisure facilities at RAF Marham.

62. **It seems perverse and wasteful for MoD to invest large amounts of public money to renovate the facilities at RAF Marham when it has at its disposal a state-of-the-art facility at St Athan. It is doubtful that the facilities at RAF Marham will ever match those at DARA St Athan, but given the decision to base Tornado GR4 support at RAF Marham, it is essential that MoD ensure that those who work there have the facilities they need.**

44 Ev 50

45 Ev 56

46 Ev 52

47 Ev 40

Skills

63. Amicus claims that:

> RAF personnel are not as well suited to the work of servicing, modifying and repairing military aircraft as the civilian workforce at DARA St Athan. Most RAF service personnel did not join the service to work in civilian type factory conditions and they have not had the same rigorous apprenticeship and specialist training.[48]

MoD rejects these claims and points out that RAF personnel have always been involved in depth support and that RAF tradesmen undergo a long period of apprentice training. MoD also maintains that the close working partnership with BAE Systems and Rolls Royce personnel will facilitate knowledge transfer and that the regular rotation between the depth and front line environments will enhance tradesmen's skills. **We reiterate the concerns of our predecessors, that Tornado support at RAF Marham should match that provided at DARA St Athan. For this to be so, the RAF must ensure that its tradesmen are trained to the highest standard and that all tradesmen are given the opportunity to develop their skills through regular rotation between the forward and depth environments.**

Surge capacity

64. The Unions claim that the pulse line at RAF Marham is undergoing considerable pressure due to "supervisory overstretch" meaning that there were too few supervisors managing tradesmen. We found no evidence of overstretch to the pulse line at RAF Marham but, as it is in its early stages of development, this is not surprising. Supervisory skills will continue to be of the utmost importance.

65. **The retention by the RAF of sufficient numbers of Senior NCOs will be fundamental to the long term success of this process.**

66. We are concerned that a "leaned" pulse line could potentially be overloaded at times of surge, such as during operations. If personnel and processes are reduced to such an extent that there is no capacity to meet surge, then front line capability will inevitably suffer when it most matters. The capability of meeting demand surges is an area where DARA St Athan, with its larger workforce and range of aircraft to support, has an advantage over the pulse line at RAF Marham. As Stephen Hill told us:

> [at DARA St Athan] we had the flexibility of a large workforce and being able to concentrate them where the customer has its greatest operational needs. So the example that I gave was Kosovo where we went on to 24-hour day, 7-day week working and generated Tornados and VC10s that went straight into the front line. In order to be able to do that we had the flexibility of moving people from a much wider base than a single operating base would have at the front line.[49]

48 Ev 40

49 Q 83

67. In its response to the Defence Committee's Future Capabilities report of March 2005, the Government maintained that surge workloads would be managed in a number of ways including:

> in the short term, increasing RAF labour productivity through reprioritisation of tasks, reduction of leave or training or an increase in working hours. For sustained periods of surge, we will continue to be able to use the existing arrangements that allow the use of approved aircraft maintenance organisations.[50]

68. **We are concerned about potential difficulties that over-leaning of processes at RAF Marham may bring. We expect MoD to monitor the pulse line, particularly during surges of demand, and to make credible contingencies in case of overload. We do not consider the reduction of leave entitlement or training to meet surge demand to be credible contingencies for meeting demand surges. We regret the loss of the flexibility to meet demand surges which the support arrangements at DARA St Athan currently provide.**

Plans for other fixed wing aircraft support

69. Depth support for the Jaguar attack aircraft will be provided at DARA St Athan until its out of service date is reached in 2007.

70. Depth support for the Tornado F3 will also be provided at DARA St Athan until April 2007 and thereafter at RAF Marham until the Typhoon In Service Date of 2009.

71. The Typhoon, is a multi-role combat fighter that that will replace Jaguar and the Tornado F3 in their air defence and strike roles.[51] The Typhoon's depth support hub was being established at RAF Coningsby from July 2005.[52]

72. For the Joint Strike Fighter, which has an In Service Date (ISD) of the mid 2010s, MoD told us that :

> It is likely that a depth maintenance facility, at a Main Operating Base in the UK, will be feasible. It will be operated through a partnership between the MoD and Team Lockheed (Lockheed Martin, BAE Systems and Northrop Grumman).[53]

Rotary wing support

73. In contrast to the planned support arrangements for fast jets, MoD's announcement of 16 September 2004 stated that rotary wing depth support (that is depth support for the Chinook, Lynx and Sea King helicopters) would be concentrated back to DARA Fleetlands, Hampshire, by March 2007. The Minister told the House on 16 September 2004 that "Concentrating support for rotary aircraft at DARA Fleetlands offers the opportunity to

50 The Government's Response to the House of Commons Defence Committee's Fourth Report of Session 2004-05 on Future Capabilities, Cm 6616, p 17.

51 Defence Industrial Strategy, 15 December 2005, Cm 6697

52 Ev 53

53 *Ibid*

exploit fully the economies of scale that may be achieved by collocating these platforms at a single centre".[54]

74. As with the arrangements for Harrier and Tornado support at RAF MOBs, MoD expects the support arrangements at DARA Fleetlands to deliver cost savings through the employment of pulse lines and "leaning" of processes and personnel. Through a partnered support with Westland and Boeing, "DARA has been able to set some challenging efficiency targets to ensure that unnecessary costs and activities are driven out of the business".[55]

75. At first sight, MoD's decision to concentrate depth support "back" to DARA Fleetlands instead of "forward" to an RAF MOB appears inconsistent with its decision to concentrate depth support for fixed wing aircraft forward to RAF MOBs. This led us to question whether MoD used a different calculation for Crisis Manpower Requirement for rotary wing aircraft compared to fixed wing aircraft.

76. MoD told us:

> There is no difference in the way in which CMR is calculated between Fixed Wing and Rotary Wing forces. However, in the case of the RAF rotary wing aircraft rolled back to Fleetlands, there is no requirement for CMR for the RAF Sea King because it has no deployment role; for the RAF Chinook there are sufficient numbers employed forward on the Station to meet the full CMR. This is not the case for the RAF Fast Jet Force.[56]

During our evidence session, Air Vice Marshal Thornton added:

> The search and rescue helicopters do not deploy, there is no CMR requirement and, indeed, we are contractorising the first-line support of those aircraft. For the Pumas, the decision was to collapse the maintenance forward to the main operating base and CMR people are employed in that depth organisation on the main operating base. For Merlin Mk3, the decision was to collapse the whole of the Merlin fleet forward to Culdrose to get the efficiency of operating a single fleet at Culdrose. There are significant numbers of both Royal Navy and Royal Air Force CMR people in the depth organisation at Culdrose. [For]Chinook we had started down a route in terms of a partnered support solution between Boeing and DARA to deliver the depth support.[57]

77. However Mr Hill told us:

> I cannot see the logic of rolling back into Fleetlands Chinook and rolling forward Harrier and Tornado on to main operating bases, but I guess the RAF may well come back to that later, and you will see a roll forward in due course.[58]

54 HC Deb, 16 September 2004, c 165

55 Ev 52

56 Ev 61

57 Q122

58 Q 82

78. **While the RAF's Crisis Manpower Requirement was the major factor in the decision to shift responsibility for depth support from civilian to RAF tradesmen, the decision of where to base depth support was taken largely on cost grounds. In the case of fast jets, it was considered cost-effective to move depth support to RAF MOBs: for rotary wing support, it was not.**

79. The sustainability of MoD's proposed arrangements for rotary wing support at DARA Fleetlands is discussed in paragraph 92.

Coherence of the proposals

80. **We are concerned that MoD's decision about its aircraft support provision was not founded on consistent principles. MoD's emphasis on CMR as the driver for rationalising its support arrangements is undermined by its later acknowledgement that the decision was taken on cost grounds. This leads us to conclude that the new arrangements will not stand the test of time.**

4 DARA

DARA's performance

81. Mr Stephen Hill, the first Chief Executive of DARA, told us that MoD's rationale for turning MoD into a trading fund in 2001was very clear:

- To provide a benchmark and competitive alternative to industry;
- To deliver a more competitive service and better value for money support to the Front Line. Concentration of all deep maintenance into centralised facilities was considered the best vehicle for achieving economies of scale;
- To expand into wider markets, and, by increasing overall volume of business, reduce prices to the MoD.[59]

82. Mr Hill told us that the first year or so of DARA's existance was spent in preparing DARA for its changed status to a trading fund, the end state of which was only reached after many hard decisions and a great deal of upheaval:

> we significantly reshaped the business. We inherited very large estates which were under-utilised, had too many buildings and many of the buildings were in a very poor condition. So we set about forming what we termed centres of excellence: we had two major engine facilities which we rationalised into one at Fleetlands; we had three avionics centres which we rationalised into one at Sealand, and we had five machine workshops which we rationalised into two—one at St Athan and one at Almondbank.[60]

83. DARA has certainly operated in a challenging environment. These challenges include: exacting demands from MoD; the need to make decisions affecting the livelihoods of people and the mixed responses among employees and other stakeholders that change programmes can bring and, from 2003, MoD's *End to End Review* of logistics.

84. Despite these challenges, DARA's performance as a trading fund has been impressive. In 2004–05, DARA's turnover was £171m (£189m in 2003–04) and profit in 2004–05 was £6.5m (£6m in 2003–04).[61] In 2004 DARA met all four key performance targets for quality, business performance and efficiency, business sustainability and efficiency. Air Vice Marshal Thornton told us that, "DARA has provided support in the past exceptionally well".[62]

85. **During the course of our inquiry, neither the performance of DARA as a trading fund nor the quality of its workforce and support for RAF aircraft has ever been brought into question.**

59 Ev 44

60 Q 69

61 DARA Annual Report and Accounts 2004–05, HC 304

62 Q 126

86. Despite the clear potential impact of the *End to End Review* of logistic provision on DARA as the key provider of depth support for RAF aircraft, Mr Hill suggested that DARA management was not included in any discussions, despite many protests, concerning DARA's future until after the key decisions had already been taken. He told us "As far as the rolling forward of Tornado and Harrier, and elements like that, that was given to us as a fait accompli, effectively".[63] **Despite its protests, DARA management was not fully included from the outset in the *End to End Review* process. That was wrong.**

DARA's future

87. The Minister's announcement of 8 November 2005 effectively means the end of the DARA trading fund as it was envisaged in 2001.[64] After only four years of trading, DARA's role of providing MoD with 'a benchmark and competitive alternative to industry' has ended. The impact of this decision, which places the RAF at the risk of complete reliance on a monopoly supplier, can only be judged over the longer term.

88. The Minister emphasised that the changes to aviation support should be seen in a wider context of changes to support in all three Services. The Minister also emphasised the importance of seeking continuous improvement:

> The concept that because you have done something—you have made a change—that should be the end of change, when you know that you are having to drive out significant costs from your overheads and your support in terms of defence logistics, I do not think would be the right approach for me to adopt or for the department to adopt.[65]

89. It is unquestionably important that the RAF learns lessons from operations and seeks continuous improvement in all its processes. It is also important that newly established public agencies, like DARA, are given time to prove their worth and are not undermined before their performance can be properly assessed.

90. **It is striking that MoD has reconfigured its air logistic provision only four years after a similarly significant reconfiguration had been completed. This suggests that either the original decision to establish DARA was unsound or the recent decisions affecting its future are misjudged. Either way, it is hard to escape the conclusion that MoD has in recent years contributed to a period of unnecessary turbulence and uncertainty in aviation logistics provision.**

91. **We recommend that MoD provide more detail of what the 'market testing' of DARA Fleetlands and DARA Almondbank will entail. The longer the period of market testing, the more uncertainty there will be for DARA management and employees. This will inevitably impact on DARA's business planning and ability to attract commercial work. It is vital that the future arrangements for RAF aircraft are of the highest possible standard and, at the very least, match the service provided by the current arrangements.**

63 Q 74

64 HC Deb, 8 November 2005, c 161

65 Q 114

92. MoD recognises that the decision to concentrate rotary wing depth maintenance at DARA Fleetlands "is not without risk".[66] MoD identifies these risks as:

- Ensuring the timely provision of spare parts;
- Ensuring the leaning of work practices;
- Ensuring sufficient volume of work (MoD describes the commitment to provide DARA with 700,000 hours in 2005/06, 850,000 hours in 2006/07 and 1 million hours of work in 2007/08 as 'challenging').[67]

The first two risks apply equally to depth support undertaken at RAF MOBs. The third risk: ensuring sufficient volume of work seems dependent on continuing of operations in Afghanistan, Bosnia and Iraq at current levels. This assumption cannot be made with any certainty and in any case is clearly outside DARA's sphere of influence. **We are concerned about the sustainability of MoD's commitment to concentrating rotary wing support at DARA Fleetlands. It is crucial that MoD give DARA Fleetlands the necessary time, resources, and backing it requires to establish itself as a first class provider of rotary wing depth support.**

DARA St Athan

93. In 2003, at the same time that MoD was conducting a fundamental review of the structure of its Armed Forces and before the conclusion of the *End to End Review* of its air logistics, MoD decided "to consolidate the work at DARA St Athan into a single purpose-built building, replacing a series of badly maintained World War Two facilities".[68] The work on creating a "Superhangar", able to accommodate up to 48 fast jets, was funded through a joint project between MoD and the Welsh Development Agency (WDA) (a sponsored body of the Welsh Assembly Government) known as the *Red Dragon Project*. MoD told us that its expenditure to date on the *Red Dragon Project* amounts to £43.9m and that the WDA has to date spent £16m. Total cost on the completed project is estimated to be £90m–£104m.[69]

94. During our visit to St Athan, we visited the 65,000 sq.metre "Superhangar" (opened in February 2005) and were impressed by its facilities. The advantages of housing the aircraft under one roof were made clear and overall, the facilities including the maintenance bays, work areas and heating systems were vastly superior to those we saw at RAF Marham. The workforce we met at St Athan were understandably concerned for their futures following the announcement to move fast jet support work to RAF Marham, but they were also angry that the Superhangar facility, built to house fast jets, faced such an uncertain future. All those management and staff we met at St Athan displayed pride in the achievements of DARA but also a considerable sense of disquiet at the way they felt they had been treated by MoD.

66 Ev 52

67 Ev 57

68 Ev 51

69 Ev 61

95. MoD's decision to concentrate both Harrier and Tornado support away from DARA St Athan has led some commentators to describe the Superhangar as a White Elephant.[70] Indeed it is currently unclear what work, apart from maintenance of VC10 tankers (which have an Out of Service Date of 2011), will be done in the Superhangar after the last Tornado GR4 has left St Athan in early 2007.

96. We note that by concentrating support for the VC10 at St Athan, some existing jobs will be safeguarded until the VC10 OSD of 2011. We welcome the decision by the aerospace company ATC Lasham, announced on 19 October 2005, to locate its Boeing 737 and 767 aircraft maintenance business at St Athan (creating 300 jobs over the next 18 months). Nevertheless the long term future of DARA St Athan is uncertain.

97. **We remain concerned about the long term viability of the St Athan site. In light of the end of the fast jet business and the VC10 having an Out of Service Date of 2011, Government departments must work with the National Assembly for Wales and its agencies in encouraging alternative commercial investment to guarantee the long term viability of St Athan as a matter of urgency.**

98. MoD told us that its decision to commit £104m of public money to building an aircraft hangar at DARA St Athan as part of the *Red Dragon Project* was taken at a time when the assumptions on which its aircraft logistic provision was based were about to be reviewed through the *End to End Review*. MoD also told us that, "DARA's viability as a Trading Fund was an issue before the decisions on Red Dragon and the future depth support of the RAF's fast jets were taken".[71]

99. MoD defended its decision to initiate the *Red Dragon* Project on the grounds that it had resulted in efficiency savings which would soon meet the cost so far outlaid. The Minister told us:

> On the best information it was a correct decision. Do I think it was the best decision now? The answer is yes, because it will still get the pay back required from it. I have always asked myself the question: Did I do right? Yes, I did. Subsequently, have I done right? Yes, I have.[72]

100. **We consider that the decision to go ahead with the funding for the Red Dragon project in 2003 was incomprehensible given the uncertainty surrounding air logistic provision at the time. MoD admits that the viability of DARA was an issue even before the decision to commit £104m of public money to Red Dragon and the decision on support for fast jets were taken. With the future so uncertain it was extraordinary to go ahead with Red Dragon in the knowledge that the provision for future support was under review. The decision is a clear example of a lack of joined-up government within Whitehall and between MoD and the National Assembly for Wales and its agencies. As things currently stand, the Superhangar is a valuable facility with no clear future. We recommend that the National Audit Office and the Wales Audit Office examine whether public money was properly spent on the Superhangar.**

70 http://news.bbc.co.uk/1/hi/wales/4261654.stm

71 Ev 50

72 Q 190

101. **Nevertheless we believe that the combination of state-of-the-art facilities and an enthusiastic and skilled workforce at St Athan provide a tremendously attractive opportunity for commercial investment. We expect government departments to work energetically to attract commercial investment to the St Athan site.**

5 Conclusion

102. Logistic support provision for RAF aircraft has undergone successive changes since the establishment of DARA in 1999 with each reconfiguration of support closely followed by the next one. These changes have been painful for the DARA workforce and have resulted in a loss of skills and wasted resources in St Athan. The DARA trading fund has produced consistently sound financial and performance results since 2001, but has now lost its prime role of providing depth support for fast jets.

103. It is not possible at this stage to make a final judgment about the long term effectiveness of the new arrangements for RAF aircraft support or their impact on the RAF's front line capability. What is essential is that MoD monitors the new arrangements closely and gives them the time needed to succeed. We also intend to monitor developments closely and return to these issues at a future date.

Conclusions and recommendations

1. We welcome MoD's decision to embrace modern production techniques that are designed to achieve savings and efficiencies. The performance of the pulse line system can only be judged over time. The success of the pulse line will be dependent on industry's ability to ensure aircraft components are readily available. Any delay in the availability of components would severely undermine the effectiveness of the pulse line. The RAF will have to ensure this risk is managed robustly. (Paragraph 32)

2. Given that MoD believes the pulse line will deliver significant improvements to the provision of support to RAF aircraft, it is surprising that it was not introduced sooner at St Athan. We recommend that MoD carefully monitor and evaluate its pulse lines supporting aircraft, giving particular attention to ensuring that supplies of components and technical support are provided in a timely fashion. (Paragraph 33)

3. We note the apparent success of the leaning programme at RAF Marham. We also note that this is still at its early stages and that the full transfer of Tornado support has yet to take place. We are concerned about the sustainability of leaning once it has done so. We are concerned that leaning programmes either have a tendency to lose impetus with inefficiencies re-entering the system or prove counter-productive in leaning out vital processes. (Paragraph 35)

4. We recommend that MoD continue to seek out and eliminate inefficiencies in all its aircraft support processes but that it ensure that leaning does not go so far that the quality of maintenance is undermined by efforts to meet efficiency targets. (Paragraph 36)

5. We recognise that close partnerships with industry in the provision of aircraft support through "gain-share" agreements may result in real benefits for the RAF and value for money for the taxpayer not least by reducing perverse incentives for industry. We note Air Vice Marshal Thornton's concerns about the difficulties of sustaining gain-share over the long term and we expect MoD to monitor and evaluate these agreements very carefully. Beginning in January 2006, we intend to consider the wider issue of MoD's partnerships with industry in our inquiry into MoD's Defence Industrial Strategy. (Paragraph 39)

6. We note both the Unions' claims of problems with the Harrier JUMP at RAF Cottesmore and MoD's clear refutation of these claims. We pressed MoD particularly strongly on the impact of Harrier flying times and were assured that the decision to extend them was taken only after a long consultation with the Harrier design authority and that there was no increased risk to Harrier pilot safety. (Paragraph 50)

7. We recommend that MoD commission an independent audit of the Joint Upgrade Maintenance Programme at RAF Cottesmore to identify any issues and learn lessons which may impact on the programme to concentrate support of Tornado GR4 at RAF Marham. We further recommend that MoD adopt a more flexible timetable for rolling forward the Tornado GR4 to ensure sufficient time to upgrade the deep repair

facilities at RAF Marham and to take advantage of any recommendations or information that may arise from the audit of the Harrier JUMP programme at RAF Cottesmore. (Paragraph 51)

8. It seems perverse and wasteful for MoD to invest large amounts of public money to renovate the facilities at RAF Marham when it has at its disposal a state-of-the-art facility at St Athan. It is doubtful that the facilities at RAF Marham will ever match those at DARA St Athan, but given the decision to base Tornado GR4 support at RAF Marham, it is essential that MoD ensure that those who work there have the facilities they need. (Paragraph 62)

9. We reiterate the concerns of our predecessors, that Tornado support at RAF Marham should match that provided at DARA St Athan. For this to be so, the RAF must ensure that its tradesmen are trained to the highest standard and that all tradesmen are given the opportunity to develop their skills through regular rotation between the forward and depth environments. (Paragraph 63)

10. The retention by the RAF of sufficient numbers of Senior NCOs will be fundamental to the long term success of this process. (Paragraph 65)

11. We are concerned about potential difficulties that over-leaning of processes at RAF Marham may bring. We expect MoD to monitor the pulse line, particularly during surges of demand, and to make credible contingencies in case of overload. We do not consider the reduction of leave entitlement or training to meet surge demand to be credible contingencies for meeting demand surges. We regret the loss of the flexibility to meet demand surges which the support arrangements at DARA St Athan currently provide. (Paragraph 68)

12. While the RAF's Crisis Manpower Requirement was the major factor in the decision to shift responsibility for depth support from civilian to RAF tradesmen, the decision of where to base depth support was taken largely on cost grounds. In the case of fast jets, it was considered cost-effective to move depth support to RAF MOBs: for rotary wing support, it was not. (Paragraph 78)

13. We are concerned that MoD's decision about its aircraft support provision was not founded on consistent principles. MoD's emphasis on CMR as the driver for rationalising its support arrangements is undermined by its later acknowledgement that the decision was taken on cost grounds. This leads us to conclude that the new arrangements will not stand the test of time. (Paragraph 80)

14. During the course of our inquiry, neither the performance of DARA as a trading fund nor the quality of its workforce and support for RAF aircraft has ever been brought into question. (Paragraph 85)

15. Despite its protests, DARA management was not fully included from the outset in the End to End Review process. That was wrong. (Paragraph 86)

16. It is striking that MoD has reconfigured its air logistic provision only four years after a similarly significant reconfiguration had been completed. This suggests that either the original decision to establish DARA was unsound or the recent decisions

affecting its future are misjudged. Either way, it is hard to escape the conclusion that MoD has in recent years contributed to a period of unnecessary turbulence and uncertainty in aviation logistics provision. (Paragraph 90)

17. We recommend that MoD provide more detail of what the 'market testing' of DARA Fleetlands and DARA Almondbank will entail. The longer the period of market testing, the more uncertainty there will be for DARA management and employees. This will inevitably impact on DARA's business planning and ability to attract commercial work. It is vital that the future arrangements for RAF aircraft are of the highest possible standard and, at the very least, match the service provided by the current arrangements. (Paragraph 91)

18. We are concerned about the sustainability of MoD's commitment to concentrating rotary wing support at DARA Fleetlands. It is crucial that MoD give DARA Fleetlands the necessary time, resources, and backing it requires to establish itself as a first class provider of rotary wing depth support. (Paragraph 92)

19. We remain concerned about the long term viability of the St Athan site. In light of the end of the fast jet business and the VC10 having an Out of Service Date of 2011, Government departments must work with the National Assembly for Wales and its agencies in encouraging alternative commercial investment to guarantee the long term viability of St Athan as a matter of urgency. (Paragraph 97)

20. We consider that the decision to go ahead with the funding for the Red Dragon project in 2003 was incomprehensible given the uncertainty surrounding air logistic provision at the time. MoD admits that the viability of DARA was an issue even before the decision to commit £104m of public money to Red Dragon and the decision on support for fast jets were taken. With the future so uncertain it was extraordinary to go ahead with Red Dragon in the knowledge that the provision for future support was under review. The decision is a clear example of a lack of joined-up government within Whitehall and between MoD and the National Assembly for Wales and its agencies. As things currently stand, the Superhangar is a valuable facility with no clear future. We recommend that the National Audit Office and the Wales Audit Office examine whether public money was properly spent on the Superhangar. (Paragraph 100)

21. Nevertheless we believe that the combination of state-of-the-art facilities and an enthusiastic and skilled workforce at St Athan provide a tremendously attractive opportunity for commercial investment. We expect government departments to work energetically to attract commercial investment to the St Athan site. (Paragraph 101)

Annex: List of abbreviations

CMR	Crisis Manpower Requirement
DARA	Defence Aviation Repair Agency
DLTP	Defence Logistics Transformation Programme
ISD	In Service Date
JUMP	Joint Upgrade Maintenance Programme
MGDA	Maintenance Group Defence Agency
MOB	Main Operating Base
MoD	Ministry of Defence
NARO	Naval Aircraft Repair Organisation
OSD	Out of Service Date
RAF	Royal Air Force
SDR	Strategic Defence Review

Formal Minutes

The following Declarations of Interest were made at the Committee's meeting on Wednesday 20 July 2005:

Mr David Crausby, Chairman of the Amicus Trade Union Parliamentary Group and financial assistance to his constituency party from Amicus.

Mr Dai Havard and Mr John Smith, financial assistance to their constituency party from Amicus.

Tuesday 10 January 2006

Members present:
Mr James Arbuthnot, in the Chair

Mr David Borrow	Mr Dai Havard
Derek Conway	Mr Kevan Jones
Mr David Crausby	Robert Key
Linda Gilroy	John Smith
Mr Mike Hancock	Mr Desmond Swayne

Delivering Front Line Capability to the RAF: consideration of Chairman's draft Report

The Committee considered this matter.

Draft Report (Delivering Front Line Capability to the RAF), proposed by the Chairman, brought up and read.

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

Paragraphs 1 to 103 read and agreed to.

Annexes [Summary and List of Abbreviations] agreed to.

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

Several papers were ordered to be appended to the Minutes of Evidence.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

A memorandum was ordered to be reported to the House.

Ordered, That the provisions of Standing Order No. 134 (select committee (reports)) be applied to the Report.

Ordered, That the Chairman do make the report to the House.

[Adjourned till Tuesday 17 January at Ten o'clock.

List of witnesses

Monday 21 November 2005

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Mr Bryan Godsell, Regional Officer for Wales, **Ms Catherine Speight**, Regional Secretary for Wales, **Mr Gavin Toker**, St Athan Convenor, Amicus, **Mr Jim Cooper,** Negotiating Officer, and **Ms Helen Taylor**, Chairperson for PCS National Branch, Prospect Ev 1

Mr Archie Hughes, Chief Executive, DARA Ev 8

Tuesday 29 November 2005

Mr Stephen Hill, DARA Chief Executive (1999–2003) Ev 16

Rt Hon Adam Ingram, a Member of the House, Minister of State for the Armed Forces, **Air Vice Marshal Barry Thornton CB**, Director General, Logistics (Strike) and **Mr Nick Evans**, Director General, Management and Organisation, Ministry of Defence Ev 22

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Reports from the Defence Committee

Session 2005–06

First Report	Armed Forces Bill	HC 747
Second Report	Future Carrier and Joint Combat Aircraft Programmes	HC 554

Oral evidence

Taken before the Defence Committee at the Vale of Glamorgan Civic Centre, Barry

on Monday 21 November 2005

Members present:

Mr James Arbuthnot, in the Chair

Mr David Crausby
Linda Gilroy
Mr Dai Havard
Mr Brian Jenkins
Mr Kevan Jones
Robert Key
John Smith

Witnesses: **Mr Bryan Godsell,** Regional Officer for Wales and **Ms Catherine Speight,** Regional Secretary for Wales, **Mr Gavin Toker,** St Athan Convenor, Amicus, **Mr Jim Cooper,** Negotiating Officer, and **Ms Helen Taylor,** Chairperson for PCS National Branch, Prospect, examined.

Chairman: I begin by welcoming our witnesses to this session. Thank you for providing us, Amicus and Prospect, for the evidence in advance. I should like to begin with questions about Harriers and call upon Kevan Jones to ask questions on that.
Mr Jones: In the submissions of Amicus and Prospect in relation to Harriers you state that there are problems with doing this work at RAF Cottesmore. Can you expand on those problems?

Q1 Chairman: When you speak, please would you introduce yourselves and tell us where you are from and the role in which you are here?
Mr Godsell: I am Bryan Godsell, Regional Officer from Amicus, with responsibilities for DARA St Athan in regard to this matter. I would just like to qualify that. Whilst the evidence has been submitted by Amicus and Prospect, it has been submitted on behalf of the four trade unions, which involves the Transport and General Workers' Union and PCS as well. They are represented, and the evidence that has been submitted is supported and drawn by our members and their expertise and understanding of the experiences that we believe exist at Cottesmore. With respect to the transfers of Harrier services to Cottesmore, you will be aware that that work was previously undertaken at DARA St Athan and was transferred as a result of a previous governmental decision. We believe that the Harrier programme is suffering significant problems in that the turn-around time between servicing intervals has extended. The turn-around time being recorded at Cottesmore is in excess of the turn-around times that were achieved at DARA St Athan, and prior to the transfer of that work it was expected the turn-around times between servicing intervals would be reduced at DARA St Athan. We believe that that is as a direct result of the level of expertise at Cottesmore, and that is not in any way to be critical of service expertise; but the expertise that is required on deep servicing is significantly different than for that which would be expected at first and second line. The RAF has decided to extend the servicing interval between turn-around times. We believe that that hides the fact that they are experiencing difficulties. The RAF and the Ministry of Defence would argue that those changes have taken place as a result of an assessment of servicing requirement; but we do not believe that is the case. The MoD has claimed that they have increased efficiency and reduced turn-around time, but we do not believe that is the case. Indeed, we believe that the claim that there are now less aircraft in servicing at this point of time, is a direct result of extending of the programme and not due to any increase in efficiency. We are aware—and going from the Chairman's guidance regarding classified information—that there are a significant number of the Harrier fleet now at a point, in terms of flying hours, that go beyond the servicing interval times that would have been expected—even as a result of the 44% increase in the servicing interval between services. We also know that whilst it was the intention of the MoD for that work to be undertaken by service personnel, that is largely not the case.

Q2 Mr Jones: The last point, about work not being done by service personnel—one point made during our visit this morning was that BAE Systems staff were actually doing that. Did that ever occur at St Athan, when you had problems, or did you ever bring in staff? The other thing is the comparison between the two. What leads you to believe that the information being given by the MoD is incorrect in terms of comparing times at DARA and times at Cottesmore?
Mr Godsell: With respect to the use of BAE Systems personnel or any other personnel at DARA St Athan, they have certainly not to my knowledge been brought in because of problems. BAE Systems personnel have been employed on certain programmes where that particular work has been contracted to alternative employers, but not with a view to alleviate any problems that exist at St Athan. In terms of the reliance on BAE Systems, we have been astonished at the level—how they have been involved in the work at Cottesmore, and that has been quite graphically demonstrated as a result of a

TV programme recently where most of the people on the aircraft servicing at Cottesmore were BAE Systems personnel.

Q3 Mr Jones: What do you regard as the true comparison between servicing times and maintenance times at the two sites, at St Athan and at Cottesmore? Have you any actual figures to compare the two?
Mr Godsell: Again, we need to be cautious about classified information. We did present written evidence to the Defence Committee[1] and we asked you to refer to that in terms of graphical information, where turn-around times at DARA St Athan were in the region of a 100-day turn-around time; but in most examples that had been exceeded right throughout the programme at Cottesmore by whichever measure is used in terms of the common measures that are used in measuring turn-around time.

Q4 John Smith: In the answer to your first question, you referred to Harrier jets running out of flying time—you have reason to believe that. What evidence do you base that assertion on? Do you believe that this is actually compromising pilot safety on Harrier jets?
Mr Godsell: The evidence we base that on, we would submit in writing I guess to the Committee following the hearing—but it is based upon information that has been accessed by our specialist at DARA St Athan understanding their ability to analyse the statistics that are currently available on the RAF's information systems that we can identify by aircraft number, where the flying time is now exceeding the servicing interval. We seriously believe that that is putting pilots and indeed the public at risk. There must be an increase in risk to the integrity of the aircraft if flying times are exceeding the planned servicing schedule.

Q5 Chairman: Are you saying, Mr Godsell, that the extended servicing schedules are themselves unsafe?
Mr Godsell: The servicing schedules for Harrier aircraft have been extended twice, to our knowledge. From the original planned maintenance schedule they are now 18% beyond the original plan. It is obviously for the design authorities to decide whether or not those extensions are safe, and we would not believe that any authority would put aircraft integrity at risk. It is a serious concern that at the same time that these programmes are being transferred away from the very experienced workforce, and as aircraft are getting older and there is a greater reliance on the quality of servicing that they require, the servicing schedules are being increased and those schedules are being exceeded in terms of flying hours. That has to be a very serious concern. I think there is a lack of understanding as to how greater care is required in terms of aircraft servicing as those aircraft programmes extend.

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Q6 John Smith: I want to probe the first answers a little further. Reference was made to the relative skills deficiencies within RAF personnel undertaking this sort of depth support. What evidence do you have for that assertion?
Mr Godsell: The relevance of the alleged deficiency that we allude to is simply that major servicing of Harrier and Tornado aircraft has been undertaken at St Athan for extended periods of time. The Tornado programme itself has been at St Athan close on thirty years. There has been a depth of knowledge developed over that period of time that is sustained by a continuity within the workforce. Many of the employees at DARA St Athan have either come through the apprentice training school or through other sectors of the industry, or have been servicemen themselves but involved in deep maintenance at St Athan, who have left the services and stayed at what was our MDRS St Athan and now DARA St Athan. There is a corporate knowledge in terms of the programmes of major servicing and modification programmes that have been undertaken over a period of time at DARA St Athan. That workforce, it has a significant advantage over any other workforce, and that is now complemented by facilities that now exist at DARA St Athan. The service expertise on major in-depth servicing effectively developed only through St Athan. Servicemen on many aircraft movements came through for a two-year tour, or Tornado was extended to a four-year tour; and really, that is the only experience the servicemen have had on major servicing of the aircraft in question. That cannot simply be switched off and then switched on at another location, with the hope that those skills are going to be comparative. There is no hope at all in that respect. The apprentice training school at St Athan has existed for 36 years, and close on a thousand apprentices have gone through that training school and have supported the aerospace sector within South Wales and the south-west, and indeed world-wide, but then people come back to St Athan. The value of that should not be underestimated. The apprentice training system has developed beyond youth training to include in recent years adult skilled apprentice training, complemented by conversion training of tradesmen with allied skills. That is a depth of knowledge and expertise that does not exist anywhere else in the world.
Ms Speight: Can I add a little to that? I am Catherine Speight, Regional Secretary for Amicus in Wales. When the decision to take the Harrier work was made, we stood on the sidelines, making noises about service personnel not having the depth of skill that was down at St Athan, but at the time we did not have any proof because it was the first time that that sort of work had been taken onto a main operating base. What has happened over the last 12 months is that as the problems at Cottesmore have been coming to light and we have gained that information from the systems, which is in the evidence we have put before you. We are convinced that the level of skill in the services is not comparable to the level of

skill of our members at St Athan. One of the things that we have been asking in our campaign is that before the work is rolled forward to Marham, that an independent investigation or inquiry is carried out into exactly what is happening at Cottesmore. The evidence we give you comes from the RAF's own systems and yet the MoD and RAF say that is not true. How are we going to get at the truth? I think that really needs to happen before any more work is rolled out of the facility, because once that work has gone and those skills have gone, we will never ever get them back. The fact was that DARA was set up to market test what was happening in the industry, to make sure that the MoD was getting value for money and that work was being done efficiently and effectively. We have presented evidence to you that says that that work is not now being done efficiently or effectively, whether by service personnel or BAE Systems.

Mr Cooper: I am Jim Cooper, full-time official for Prospect, with, amongst other things, responsibility for members in DARA. One indication of the work not being able to be done as well as we might wish at the RAF station is the fact that throughout the past 18 months or so, following the decision to run down and redundancies having been announced at St Athan, is that the management at St Athan and ourselves were in enormous difficulty because the RAF have continually had to send the work back to St Athan to carry on to keep the aeroplanes airborne. That is something you might wish to ask the Chief Executive later on. Rather than going through the systems that we have access to from other members, that is something that is clear and in the public domain already.

Chairman: We have a lot of questions to ask, I am afraid. We will move on to the GR4 Tornados.

Q7 Mr Crausby: I would like to ask some questions in particular about the MoD's claims for more efficient practices at Marham. For example, they claim that it will prove more efficient and effective than traditional methods. What do you consider to be the advantages of the traditional methods that are used at DARA in comparison to those proposed at Marham?

Mr Godsell: I am not sure that at St Athan we have ever suggested that we prefer to adopt more traditional methods. In fact at DARA St Athan we have been in a programme of continuous improvement for 20 or 30 years. The terminology that is readily referred to within the reports that have been given by MoD and RAF are in some ways quite amazing, because they talk about lean manufacturing techniques and compressing the servicing schedules from a four-line system to a two-line system. I have to say that a lot of that is then misleading when we look at the processes that they are adopting in terms of manufacturing—and our background is in manufacturing—they are not necessarily suitable to aircraft major servicing and modification programmes. The type of work they have developed in those programmes have been developed over a long period of time. Therefore, the efficiencies that are found are found from the corporate knowledge and understanding of how these programmes developed, rather than simply fine-tuning how an aircraft can go through, and making this facility. Their points are questionable in the way that they address those. In terms of the compression of four-line servicing into two-line servicing, all that work will still have to be carried out. What was traditionally known as first line and second line will be undertaken on an operating basis; the third line, deep servicing, major servicing and modification, was undertaken at St Athan and other similar establishments. Fourth line component re-servicing could also be undertaken. That work will still be carried out, but it will be carried out under compression in principle only rather than in practice. That work has to be done by the RAF, DARA St Athan, or the private sector. The question we have to ask is: in terms of the efficiency of the establishment, is it more efficient to put all of your major servicing under one facility, as has been the case for so long, because then you have the flexibility to move the workforce between programmes as and when the programmes cycle through. That is where you maintain your expertise, by maintaining a training system and maintaining continuity of employment over twenty or thirty years. In terms of economy of scale it is questionable to say we put Tornados in one facility and Harriers in another facility and other aircraft in other facilities; and then expect the demands that are placed upon major servicing and modification programmes not to be compromised by servicing requiring more and more flying time from those aircraft that are available in the main operating base. It makes good sense, and the economy of scale is best placed with all the major servicing and modification programmes in one facility, particularly if that facility is a brand new £80 million, state-of-the-art facility that does not exist anywhere else in Europe.

Q8 Mr Crausby: The MoD have made a great deal about pulse line maintenance. Do you accept that, regardless of where the facilities are, pulse line maintenance is more efficient than the present systems that St Athan, I accept, has been forced to use?

Mr Godsell: I am not in a position to accept or contest that. The point that Cath made about an independent scrutiny of the proposals and the systems we use is important. At St Athan you have a facility that does not require pulse line maintenance. Indeed, in terms of moving an aircraft at any time during major servicing programmes, that is in itself questionable. We have the facility to avoid all of that. We have the facility and we have management and working practices to deliver whatever efficiencies are required, dependent upon the programme that his defined to the agency or to the establishment.

Q9 Mr Crausby: What opportunities have the trade unions had to contribute to leaner practices? To what extent did they involve you in proposals before they made a decision?

Mr Godsell: We have had very little involvement in the proposals that have resulted in the transfer of work in relation to Harrier and Tornado, but if you look at the track record of St Athan right throughout its history and particularly since the introduction of DARA—if you look at how the whole of the organisation was run and what cuts have been made in terms of real efficiencies, real cost-savings, real reductions in manpower, real changes in working practices, on the categorical assurance that that would guarantee long-term employment, that is the litmus test that should be re-tested and re-investigated. When all those changes been accepted and introduced, and all those cost-efficiency measures have been met and all the financial targets and output targets been met, how then can you make a strategic decision such as this?

Mr Cooper: To add to what Bryan has said, the DARA St Athan workforce has moved mountains in terms of increasing efficiency and effectiveness. We did it in the belief that the Government and the MoD, having looked at an investment appraisal to put in £80 million—we might argue about the scale of the investment on Red Dragon—but there was, sure as hell, a message being given that a capital investment as well as an investment in people changes, was going on at the same time. What our members find it incredibly difficult to understand is that if the new ways of working end to end that have come up were so compelling, why was that not so compelling before the investment and them making changes, the government making an investment with the help of the WDA to build Red Dragon, a facility that would allow whichever type of maintenance that was being seen as the most appropriate with a workforce that was adaptable and willing to learn new skills and new practices?

Ms Speight: The difference is that in pulse line you move the aircraft. At DARA St Athan we move the manpower. We know from the investigations and evidence we have from the RAF system that one aircraft has been structurally damaged because it was moved on a jig when it should not have been. That is the difficulty when you build things on a pulse line. Mistakes like that can happen, whereas at St Athan the aircraft is stationary the whole time it is being worked on, and the manpower moves around it. Just picking up on Jim's point of view, it was February 2003 when Adam Ingram said what stability we were now going to get for the workforce there. In November 2004 he announced a decision that effectively closed DARA St Athan before it was ever really opened. That is what we cannot understand, how in 18 months we have a turn-around from, "this is the best way to do it", to "that is not the best way, now this is the best way". We cannot understand how they can reach that sort of decision in such a short timescale. As we keep saying, we are presented with evidence now that the Harrier work that was taken away is not being done as well as it was at DARA.

Chairman: We will move to rotary wing support.

Q10 John Smith: Why do you think it is that the Government has decided to move rotary wing depth support back to Fleetlands when it decided to move Fastjet forward to the military operational bases? What do you think the arguments are for this?

Mr Godsell: I think Mr Smith addresses one of the real conundrums in this proposal. This seems to be a real contradiction in terms of why rotary work should have been back to Fleetlands, and Fastjet work rolled forward. It is difficult for us to comment on that other than that we believe that the government, MoD, are finding the path of least resistance towards privatising the work that is currently undertaken under the agency. That work undertaken at Fleetlands and Almondbank is now at risk of market testing. Part of the work undertaken at DARA St Athan will be at risk of market testing. It appears to be the Government strategy to transfer almost anything that moves out of the public sector into the private sector, avoiding the path of resistance. It is interesting to note that many of the programmes that were previously undertaken at St Athan, for instance engine work and component work, have been transferred into the other establishments, and now have been lost to the private sector under contracts that favour the private sector in many respects. There is a real contradiction there, is there not, in those decisions, because if there was a model that should fit, then surely it would be consistent that you roll everything back to the centres of excellence that you have set up?

Q11 John Smith: One of the arguments that the Government has put forward is the crisis manning requirements for Fastjets and Harriers. Are you aware of any difference in the crisis manning requirement for either, and, if so, what?

Mr Godsell: We are aware of difference in crisis manning requirements between programmes. There are very often differences—and apologies for drawing a comparison with fixed wing, but between Tornado and others, not being given any formula that seems to dictate the crisis manning requirements. Previously at St Athan, prior to DARA, there was a situation where we had an integrated workforce which gave the ability for the services to achieve their experience levels on in-depth work, and provided the protection over what was the crisis management figure at that point in time; but it is difficult for any of us to understand what that figure is at any point in time.

Mr Cooper: The way in which DARA has to go about getting its business—it does not have the same freedoms that a private sector firm may be able to use in terms of bidding for lost leading work and using cross-subsidy, one line to another, which is something that has always put DARA and other agencies of its type at risk in terms of getting new business in. We also ask the question about why the

Government is going along this route. It is indicated and prayed in aid often, in response to these questions, that it is in line with its defence industrial strategy, a strategy that has as yet not been published and been opened to scrutiny by the House or by the trade unions, and yet it is being prayed in aid as a reason for some of the decision-making. What is happening to aircraft is that it seems to be following the route of what happened to ships 10 or 20 years ago, where the Government released the risk to the private sector to manage the run-down perhaps of the dockyards—and that may be the answer to why the Government is doing it; it is transferring the risk from the public to the private sector. But for a public sector organisation like DARA that has made all the efficiency savings and put the investment in, it is not able to work in the same way as the private sector. DARA has had its hands tied behind its back whilst trying to make its way forward.

John Smith: In the reply a reference was made to the witnesses not being aware of any formula for CMR for different platforms. I am not sure the Committee is aware of any formula.

Chairman: We can get into that.[2]

Q12 John Smith: On the issue of pulse line, my understanding is that there is a sort of pulse line at Fleetlands. Is that because the aircraft are different? How do you explain it?

Mr Godsell: I do not think we are in a position to answer that specific question. We would be happy to respond to that and maybe get some guidance notes. The advice is that in general terms helicopter structures are far more structurally efficient than Fastjets, so it is easier to move them in that respect. We will get a more detailed answer back to you on that issue. On the crisis manpower requirement argument, that was put forward as a key issue in terms of the transfer of Harrier or Tornado work. That argument has been seriously compromised, has it not, if you then transfer that work to the private sector support, as has been the case on Harrier, and we know is likely to be the case on Tornado? We really struggle with the idea that this issue is so critical. But if it were critical, then we believe that the obvious alternative would be to transfer service manpower back into Fleetlands and St Athan. That is where they would be best placed to gain experience and maintain the protection of RAF members. We believe that that was considered in the proposals, and that makes best use of the facilities we have.

Q13 Chairman: We asked the Ministry of Defence this question, and they said: "There is no difference between RAF support policy for fixed and rotary wing aircraft. Each is based on the concept of 'forward' and 'depth' support for each platform, with depth support being concentrated at the most cost-effective location." Then they went into issues including the crisis manpower requirement and harmony guidelines. Do you have any particular comment on the reply by them? You may or may not have seen this document. It was question 8 of a document that was answered recently.

Mr Godsell: We have made the point that the costing mechanisms adopted by the MoD have been very general. I am not aware of the questions and answers that have been given previously, but I would need to analyse that and respond in detail. We have not seen this document at all. Would it be best if we took this away and provided responses?

Chairman: It would be very helpful if you would, please. We are going to move on to training and skills.

Q14 Linda Gilroy: Some of these questions were already covered in part in your response to earlier questions, so forgive me if they sound repetitive, but it gives a further opportunity to draw out some of the information. I would like first to get on the record what training a skilled DARA technician typically undergoes before working on military aircraft. What proportion of DARA workers are ex-RAF personnel?

Mr Godsell: The training is quite varied. If we address the three principal areas, in terms of apprentice training, whether that be youth or adult training, the apprentice training structure is normally a three and a half to four-year standards-based training system with qualification levels of NVQ3, City & Guilds and BTEC and higher where it is dependent on the abilities of the individual in terms of apprentice training. The input through service training would be additional development through training of SAC through to junior tech and so on. That is not as focused as the civilian training and is much broader, depending upon experience on aircraft type and development in the various servicing phases within aircraft. It is not tailored to the in-depth servicing and modification that is undertaken by DARA currently. We do draw on the industrial sector as a whole, and we tend to bring in what we would traditionally identify as time-served technicians, craftsmen, into the sector from other areas. The geographical area is an industrial sector hotspot, is it not—South Wales and the south-west of England and indeed up into North Wales, with the influence of Airbus—and it has had a significant concentration of structures experience, systems experience, engines experience; and we draw upon that industrial sector expertise. The importance of all that is the continuity that we addressed earlier. In terms of apprentice training and the ability to train on site, then we have facilities that are second to none. They have existed for 36 years and have brought through over 1,000 apprentices, many of whom are still at the facility at St Athan. Fleetlands had a similar expertise, and that will not be replicated anywhere else, to our knowledge. There is nothing in the proposals to suggest that the programmes will be supported by apprentice training in a progressive format at either Cottesmore or Marham, so it does beg the question as to where you sustain those skills going forward. The training is progressively developed in terms of the

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programmes that impact upon the establishments, whether specialised training by aircraft type or by the trade requirement as well, alongside that, which is quite substantial. We would have to respond separately on the question of proportion of ex-servicemen because it is a very difficult figure to calculate. We will try to respond on that.

Q15 Chairman: Although that was quite a long answer, I know there is a gentleman behind you who may have something to add. Please feel free, but would you introduce yourself and press the relevant buttons!
Mr Toker: I am Gavin Toker, the Amicus Convenor for St Athan. The big thing about the apprentice school we have had at St Athan for all this time is that from day one the apprentices are indoctrinated into deep maintenance. There is a lot of difference between first line and second line and then down to what we do. It is extremely important that the apprentices get that doctrine from day one.
Ms Taylor: I am Helen Taylor, PCS chair at St Athan. From the training point of view, when the apprentices are trained, they are not just trained on part of the aircraft, but they are trained on the whole of the aircraft. It is in-depth. Obviously, when they finish their apprenticeship they go into different areas, but they are trained on all areas. I believe that this skill will be lost for ever. I represent the trainers at St Athan, and we have seen a decline in the trainers and therefore the quantity of trainers will affect the future number of highly skilled apprentices going out into the aircraft industry.

Q16 Linda Gilroy: You have just outlined to us the impact which you feel that the training that goes on at DARA St Athan has on the ability of personnel to do the work, but in your submission you say that the RAF service personnel cannot work at the same pace or skill level as DARA workers. Are there any additional factors than the training or what we have already discussed that you would attribute that to; or do you think it is primarily associated with that whole package that you have described?
Mr Godsell: It is very much a cultural difference. The workforce within DARA is expected to perform under its contractual hours and perform efficiently. The culture within the service is very different to that; it is a more responsive culture, but it has built in a difference of approach towards this type of work. You could almost say that the work of DARA and at DARA St Athan and the facilities are almost factory-based. Servicemen, by inclination, do not join the services to work in a factory-based environment; if they did, they would have worked in industrial sectors in the private sector; they join to see the world, I suppose, to that extent, but they do not expect to come to work in a factory environment. Our experience in working alongside servicemen previously—many of our colleagues and employees at DARA are ex-servicemen. The point we made is not critical of service expertise but the point is that it is a different level of expertise. It is tuned to what was the first and second-line servicing and maintaining serviceability of aircraft at the front line. That is a very, very different level of expertise that Gavin has just mentioned in terms of what is required on the in-depth major servicing and development of modification programmes. These programmes are not given in a finished format; they are developed at facilities that the servicemen are involved in.

Q17 Mr Jenkins: I have a nagging thought in my head, and I wanted to clarify it. We have seen the best facilities for servicing aircraft. You tell me that you have the best-trained staff, and I believe you. You tell me that you have the best quality of staff, and I believe you. Can you see the question? What is going wrong? I still have to pin down the fact that if you tell me something is going wrong—and I do not want anything with regard to the servicing intervals—everything you come up with is a very reasonable answer, so why have we allowed the scarce resources—and the RAF and MoD have no money to waste—why are you not presenting the best value-for-money case, as I believe you can? What do you think is missing and why do you not think you have convinced the MoD to keep the facilities here?
Mr Godsell: We do not believe, as trade unions, that this is about efficiency and economy; this is a political decision to move the work away. If the strategic defence review that was used as the basis to put the work where it is and improve the facilities at the time that it did was sound then, then it is as sound now. There is a major change in position. It is not about cost-effectiveness. You cannot have those facilities and the economies of scale it delivers and then overnight find a more cost-effective way to undertake that work. You would need to question the Chief Executive and others as to why that position has changed dramatically in a two-year term. We have not stood still; we are not saying, "let us adopt traditional methods; this is the most progressive workforce in the UK, and the rewards are there to demonstrate that. With all the changes that have taken place and the drive towards cost-effectiveness, why are we faced with these challenges? The cost-effectiveness of the industry has been undermined by stripping the work out, based upon an argument that it is more cost-effective; but it cannot be in the longer term. You cannot throw away that investment.

Q18 Linda Gilroy: To go back to RAF Cottesmore and the evidence that agency staff are being hired there, bluntly, what is wrong with using agency staff? What are the problems associated with it?
Mr Godsell: Nothing, in a controlled environment. You are not creating a controlled environment. We have used the agency staff within DARA St Athan and we have had the most tragic circumstances in the use of agency staff: not too long ago the agency staff were used because they were seen to be the most cost-effective solution to a modification programme, and

the agency wrecked 14 aircraft. Now they have to be used as supplementary staff. They will not have the continuity of employment because the agency staff will inevitably go where the terms are most attractive. You will not maintain the workforce on an agency basis in the way that you can maintain a workforce in St Athan. That is absolutely critical that you maintain continuity on skill levels.
Mr Cooper: We are not arguing against agency staff to cover unprojected peaks in demand. Even throughout the redundancy process going on at St Athan, we have been mindful to make sure that the workstreams continue; so we are not anti-agency workers for the sake of it. A controlled environment is required.
Ms Speight: We do know that BAE Systems is working at RAF Cottesmore, and the same level of support will be required at Marham. I know some of you visited RAF Marham last week. One of the things about that base is that it is in the middle of nowhere in Norfolk, and if you are going to have a transient workforce and agency and contract personnel, they have to be able to stay near the work. They will not want to stay 12 miles away. We feel that the level of support that service personnel would need at Marham will not be delivered because of its isolated position.
Chairman: Can we move on to the future of DARA.

Q19 Mr Havard: The focus of our inquiry is obviously about RAF frontline capability, but nevertheless it obviously operates in a context. We have had a decision made recently, which is a mixture of commercial decisions, operation capability, and also I believe political decisions as well, about where DARA is, and what its role is. We earlier mentioned industrial strategy, which is part of the defence industrial policy. Where do you see the consequence for DARA of this decision?
Mr Godsell: We think the future of DARA is very clear; as an agency it is dead in the water, as it were. That does not mean to say that the facilities that exist within DARA cannot be utilised in a different way under different responsibilities. We have suggested many options to the Ministry of Defence, that if the agency is no longer viable—and it appears that it will be broken up in 2007—then the facilities cannot be used. We have said in terms of DARA St Athan that if it means that we need to, we can integrate with the RAF. If it means using the expertise and having a closer relationship with BAE Systems, then integrate with BAE Systems; but the principal point we intend to make is, whatever the outcome, the work should remain where it is.

Q20 Mr Havard: We have a recent decision now where ATC Lasham will come and do what they are doing on site, and that is obviously very welcome. Do you see that as in some way assisting you and your members now with the transfer of jobs in any particular way?
Mr Godsell: It was always the strategy that companies like ATC Lasham be brought to the aerospace business park, but that was meant to be additional rather than instead of. That should still be the aim. DARA St Athan, or whatever the facility might be in the future, should be the cornerstone which sustains the business—

Q21 Mr Havard: Do you see the Red Dragon upgrade of the facilities helping you to get more and more of this commercial work? Is that helpful?
Ms Speight: Not without DARA. DARA was going to be the hook on which to fetch commercial business to the Red Dragon project. It was a hook because the skills were there; because the apprentice training school was there. We were turning out higher skilled aircraft technicians, which, when we had a surplus of them, any commercial business could have come to the Red Dragon project, set up business and had a ready-made workforce. It was one of the reasons that British Airways set up the maintenance facility at Cardiff Airport; because they knew RAF St Athan was turning out highly-skilled aircraft technicians. That was why the decision was made to move to British Airways. That has always been the hook to fetch commercial business to Red Dragon.

Q22 Mr Havard: The last question is about DARA Fleetlands and also Almondbank. You made reference to them earlier on, Bryan. What should the MoD be doing now to help ensure their viability?
Mr Godsell: The MoD should be retaining the work and allowing DARA to be viable under the principles that it was set up under. That appears now not to be the case. The concerns I have are that this is the thin edge of the wedge, or some strategy to transfer work into the private sector. We do not have any fear of working in the private sector, but in terms of the questions that you have asked previously, if that is cost-effective is it more or less likely to be cost-effective in a monopoly situation? Is there going to be more or less risk if you are extending service intervals? Where are we going and what is the direction on MoD defence policy?

Q23 Robert Key: Is Airbus at Toulouse actively recruiting at DARA St Athan now?
Mr Godsell: Airbus Toulouse? Airbus, as an entity, is recruiting aggressively. Toulouse is quite an attractive option to our members—but they are recruiting, we understand, aggressively.

Q24 Robert Key: Are there any other companies that are recruiting from anywhere else in the world, knowing what is happening at St Athan?
Mr Cooper: I do not think we are aware of any, but we can let the Committee know in writing of predators circling the facilities!
Mr Godsell: Engineering-based companies in the sector, in the transport sector, are operating performance skills that are not heard of today. I make the point that once those skills are lost, you cannot rebuild them.

Q25 Robert Key: Those are the very fortunate ones. What about those who are not directly being recruited, for whatever reason—age or whatever? What help is being given by the Ministry of Defence or by Government agencies to find alternative employment?

Mr Godsell: There is significant support in terms of assistance from the MoD and the Welsh Assembly and other organisations, but there is no guarantee of alternative employment. We must be mindful that we are in a geographical area that has seen significant job losses in the last six months. Even though the skills might be transferable, the opportunities do not exist for alternative employment in the area. That is a very key point that we would like to impress upon the Government. While many of the job losses in the area are outside their control perhaps, the job losses at St Athan—and it is not just 500, it has been 1,550 over two years—need to be addressed. They can change the position, and hopefully you can influence their decision.

Q26 Robert Key: Have any websites been set up specifically to cope with the problem of St Athan? Are there any websites you would like to point me in the direction of to go and educate myself? Are there any blogging sites that have been established, and could you give me their addresses?

Mr Godsell: I am not in a position to say today, but I am sure that if our members have, we can provide them in due course.

Chairman: That is the end of this session with you. I would like to thank you and everybody who has been helping you so effectively for this evidence session. I have found it extremely helpful and very lucid, and we are most grateful.

Witness: **Mr Archie Hughes,** Chief Executive, DARA, examined.

Q27 Chairman: Thank you very much, Mr Hughes, for showing us round DARA earlier today. We found it impressive and helpful. In your statement in June you said: "At the end of the last financial year we received the disappointing news that the Armed Forces Minister agreed to the immediate transfer of work on the Harrier fleet. For St Athan, the news could not have been more devastating." You have come into an organisation, of which the future looks uncertain. Do you accept, as the Ministry of Defence suggests, that the RAF Main Operating Bases are more efficient and more cost-effective than DARA at supporting fixed wing aircraft? That is an easy question to start with!

Mr Hughes: Thank you very much for that. I cannot comment about the efficiency as such for the Main Operating Bases because I do not run and operate then them and I do not know what their efficiencies are. What I do know is that DARA as an organisation is as efficient as any other in doing deep maintenance repair and overhaul in terms of the physicality of doing the work. Whether the overall costs of doing the work at DARA are the same is mainly what the investment appraisal process looked into. I am pretty sure that the workforce at DARA are very efficient and very competitive in doing that particular maintenance work.

Q28 Mr Jones: The Chairman used the word "impressive"; and I have to say that, walking round there this morning, nobody could be other than impressed with it. However, I still cannot get my head around the fact that £100 million has been spent on a brand new facility, which is now going to be wasted and mothballed. Who was talking to whom? Was there a contact in the Welsh Assembly, the MoD and Whitehall when decisions were taken for spending that amount of money as a long-term solution to a problem? How did it unravel so quickly?

Mr Hughes: If we go back in time to when the Red Dragon project was first thought of and then worked through, I think you will find that the WDA, DARA and central MoD worked very closely together in working out the best solution for St Athan. When looking at St Athan and DARA as it was back in 2000/2001, DARA was spread across a wide range of facilities on the St Athan side. There were thirty main hangars and lots of different buildings. In relation to the future of DARA at St Athan at that time it was felt that to improve the competitiveness of the business you needed to eradicate a lot of the waste that was there. That was the gestation of what turned out to be the new Red Dragon facility. The Welsh Development Agency, DARA and the MoD worked very closely to put together the business case for the new hangar and for the site as a whole. In actual fact, from the MoD there were broader benefits than just DARA; there were benefits for the PTC as well as benefits to the Welsh in general in the aerospace park. Throughout the whole process, all three elements worked quite closely together. In terms of unravelling it, the decision was taken to go ahead and build the facility, and subsequently the decision to build the facility at the MoD. The Defence Logistics Organisation looked at the whole logistics chain to make it more efficient, and out of that came the end-to-end study; and out of the end-to-end study came recommendations as to where the work should then go.[3]

Q29 Mr Jones: With great respect, we know all that, but whether you like it or not this is £100 million, whether of MoD's money or Welsh Development Agency money or what, of public money. As a representative of the north-east of England, if I had an organisation that had just spent £100 million of

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public money to then sit possibly idle, there would be a hell of a lot of questions asked. When did the MoD jump ship?
Mr Hughes: I think you will find that as part of the end-to-end process the decision to build the Red Dragon facility was revisited to see whether or not it was still a viable option—

Q30 Mr Jones: Yes, but do you not think it is absolutely bonkers to commit £100 million of public money, and then less than half-way through the process one of the partners suddenly pulls out? That is just inefficient, bad use of public money, surely?
Mr Hughes: At the time the business case was made to build the Red Dragon facility, there was no intention of that being the case, but in terms of building the facility, from the point in time of deciding to build it—

Q31 Mr Jones: But when—
Mr Hughes: If you would let me finish, I will give you the answer in terms of the points you have mentioned. I think you will find that the MoD investment in the Red Dragon facility will pay back by the time the facility closes.

Q32 Mr Jones: That is not the point. It is public money, and if I was in the Welsh Development Agency or the Welsh Assembly—God forbid!—I would be very annoyed if I had gone into a negotiation and committed huge sums of public money, to know that even before that project was finished a key partner, the MoD would pull out. When did they actually pull out, because surely committing that amount of public money to a project of this size, knowing that one of the partners was going to pull out, both the Welsh Assembly and the WDA, even with their track record, would have not committed to this if they knew that even before it was finished it was going to become a bit of a white elephant.
Mr Hughes: I am sure you will take evidence from the Welsh Government, which will give you their point of view on that. The MoD—in terms of when they "pulled out", to use your phrase—only with the full evolution of the end-to-end recommendations did it become clear that the work was going. So only after the decision was taken for the work to transfer from St Athan to Marham, for example, and Cottesmore in the case of the Harrier, was it clear that the Red Dragon facility would not be full and occupied in the fullness of time. It was not a decision taken earlier than that; but only came out of the end-to-end process.
Chairman: We are going to be able to take evidence from the Minister next week and we will pursue those questions then.

Q33 John Smith: To clarify this argument, Mr Chairman, it is the case that the business case for constructing the new £100 million hangar was based on the Fastjet work staying at St Athan. My second point, which is a very important one, is that the cost of that hangar may be recovered over a very short period of time, but is that not precisely because the workforce at St Athan have been so efficient? They have been achieving something like £26 million a year efficiency savings.
Mr Hughes: If I can answer both of those points—yes, it was predicated on there being the Fastjet business, and, yes, the DARA workforce have delivered significant savings in a short period of time.

Q34 Robert Key: Mr Hughes, under your management DARA has consistently delivered sound financial results, and met all its performance objectives. Do you think the MoD has made the right decision to break up DARA?
Mr Hughes: What you say is quite correct. DARA from its inception, all the way through, has met key targets and performance indicators. The decision of the MoD has been taken in a much wider context than just DARA. It is not obviously a decision which we at DARA would endorse from our DARA point of view; we have done everything that has been asked of us. It is for the MoD to answer whether or not it is the right answer in the round.

Q35 Mr Havard: Can I go back to the business of what opportunities you had to make the arguments about keeping fixed wing facilities. We had the original business case in the M20 review and we have had the investment appraisal; then the business about partnering came along somewhere. What we saw in Marham was a quite clear relationship between the two prime contractors and the RAF. What opportunities at these various stages did you have, and the workforce, to make an input to keep this? What I am really after is this: what was your understanding at any given time as to what you needed to do in order to win that argument?
Mr Hughes: In relation to the argument to keep the business at St Athan, DARA had been involved in the end-to-end process throughout, from the issue of the McKinsey report in 2003. Recommendation no. 40 was to do an investment appraisal process as to the benefits and merits of doing the work either at Marham or DARA. DARA were intimately involved in all of that process with MoD in both putting forward a strong case for keeping the work at DARA, and indicating the strengths of DARA as a competitive and efficient organisation, as well as putting forward other options to make the best utilisation of the DARA staff and facilities. Throughout the end-to-end process, DARA was involved in provisional of information to the investment appraisal. There were many, many meetings from the point of view of a large number of DARA staff. We were involved in putting the case for DARA. The case that got put forward, however, into the investment appraisal process, which took into account a wide range of MoD criteria which DARA do not control—

Q36 Mr Havard: Did you understand them? Did you have clarity on them, because I never got it.
Mr Hughes: I think we had as much clarity as was available in relation to the wider aspects. The judgments were not for DARA to make but for

others to make. We put forward very strong cases about the professionalism, effectiveness and efficiency of the workforce in DARA. However, what was being considered was something wider than just the costs of doing work at DARA; it was looking at best value for defence in the round. Again, I think the MoD—the people who were running the investment appraisal process—took the DARA input. It resulted in many, many, many revisions and extra work back and forth before the eventual conclusion was reached. We did put forward strong cases, but, obviously, it was not strong enough for the work to be retained at DARA, but when it came to the decision for the Fastjet business rolling forward to Marham the incremental costs associated with rolling forward versus rolling back was such that there was a decision to roll forward. That is something that we could not put up any counter arguments to.

Q37 Chairman: Mr Hughes, you may not have seen Steve Hill's evidence to us, but you have just said that DARA was engaged in the end-to-end review from the beginning. What Steve Hill says is this: "In 2002 the DMO initiated the end-to-end review, which aimed at looking at all maintenance support in the RAF and Army. Regrettably, DARA was not engaged in this study until, after many protests, it became involved in 2003, by which time many key decisions had been taken that directly affected its future." Is that wrong?
Mr Hughes: Obviously, I have not seen the submission. I believe that is probably correct, going back to 2002, that when the first DLO-wide McKinsey report was instituted, looking at the DLO as a whole, DARA probably were not intimately involved at that stage. By the time the end-to-end review took place—by that time DARA was intimately involved. Whether or not decisions had already been taken and the dye was cast by then, I could not comment. What I do know is that Steve Hill personally was instrumental in getting the investment appraisal process done so that the recommendation to roll forward to Marham was not just taken as a recommendation and there was further, very much more detailed work, done. He was also instrumental in an awful lot of the detailed work from our perspective that went into the investment appraisal. What happened back in 2002—Steve says he was not intimately involved at that stage, and I have no reason to doubt him.

Q38 Mr Havard: Were you in a discussion you could ever win? You were not in control of certain factors it seems to me, like the crisis manning review and so on. The question I really want to ask is the $64,000 question in a sense: Given this has now happened and it has been rolled forward to an operating basis, then it may well help with crisis manning requirements but is it actually going to achieve, or what effects will it have is a better question to you, a local question, on the operational capability of the RAF—because that is the guts of our inquiry?
Mr Hughes: I am not qualified to talk about operational capability in terms of how the RAF and military operate their jets. I can certainly talk about the maintenance. There are obviously different risk factors at play when the work that is done at DARA moves to another operating base and risk judgments are made in the process of deciding whether the work is done. There is no programme where there is no risk. There is obviously a degree of risk in taking work away from an organisation and workforce that has proved its capability to do it, and move that work to somebody else. That happens a lot in business. In this case, the operational capability is something that you might ask the Minister next week.

Q39 Chairman: From your point of view, do you think that risk is worth running?
Mr Hughes: I do not think I can answer that question.

Q40 John Smith: On clarification, as regards the recommendations of the investment appraisal, crisis manning requirement played a key role; there is no doubt about that. Presumably, the investment appraisal was based on certain numbers of both military personnel and civilian personnel working on the military operational bases. Consequently, would you agree with me that if those numbers changed, then that would affect the validity of the investment appraisal?
Mr Hughes: The single most important driver of the decision "forward versus backwards" crisis manning requirement, which—we could not go for a counter argument because if you require the people occupied in the RAF to do the work, then that is obviously a military priority so to do. The numbers of CMR and in the investment appraisal affect the incremental costs one way or another. From recollection of the investment appraisal, the CMR numbers would have to be 50% less for the decision to be reversed; and there were a number of civilians built into the investment appraisal from the off in terms of how many should be employed on the forward operating base. I can get that for you. One thing that is sometimes lost—and is related to something Dai said earlier—is that if a decision had been taken to roll back Tornado GR4, the crisis manning requirement would have rolled back with it and would have displaced almost as many civilian jobs that we have got at DARA at this point in time in any case, because there would not be enough work to sustain CMR and the civilian workforce at DARA anyway. The costs associated with rolling back that CMR was a large part of the decision to go forward because you never had that cost in the roll-forward scenario. DARA as we know it today, even in a roll-back scenario, would have been significantly different, primarily due to that CMR.

Q41 John Smith: An important element of CMR quite clearly is surge capacity. I think that you are not able to comment on the surge capability of the RAF, and you are probably not aware that the frontline squadrons are being stripped of technicians

to support depth—to back up the Harrier at Cottesmore; but how does DARA cope with surge? How has it done that historically?
Mr Hughes: There are a number of ways of coping with surge. We do not operate a 24-hour a day, 7-day a week facility, although we have a facility that can operate 7 days a week for 24 hours, so you can surge on the basis of increased hours. Some of that you get through your existing staff by working longer and harder than even they do today. Some of it you get by utilising agency and contract labour to manage your peaks and troughs of surge. Within DARA historically, given those two mechanisms and other measures of efficiency improvement and so on, we have been able to deal with it when surge has come our way.

Q42 Mr Crausby: Is DARA St Athan still involved in repairing Harriers that personnel at RAF Cottesmore have proved unable to repair?
Mr Hughes: DARA do not do any Harrier aircraft, and have not done since January this year.

Q43 Mr Crausby: There are some problems that have been experienced, have there not, at RAF Cottesmore from the point of view of the repair of aircraft?
Mr Hughes: We have no direct knowledge from a management point of view of how Cottesmore do their maintenance. I have read similar reports that you may be referring to but personally I have no idea how well Cottesmore are doing them.

Q44 Mr Crausby: So you are not picking up any of that at all from the point of view of DARA St Athan?
Mr Hughes: I pick up the same information that you do. Our workforce believes that the work at Cottesmore is not being done in accordance with the plans and whatever. Personally, I am not involved in management of the maintenance of the work at Cottesmore. I pick up and hear from the same sources. I have no means personally of verifying one way or another as to the accuracy of that statement, which I am sure you may question others on.

Q45 Mr Crausby: How do you think the skills of RAF personnel compare effectively with the skills or your personnel at DARA St Athan?
Mr Hughes: Approximately half of the people at DARA are ex-RAF staff, and therefore I believe that RAF staff have the inherent skills in terms of aircraft fitting technicians, whatever the work may be. They may not have the same experience that DARA staff have got because we are doing on Tornado the level of depth maintenance that has not hitherto been done at the forward operating base. An RAF technician, who has had an RAF apprenticeship and training—we have large numbers of those in DARA. Obviously they have been through a different culture change and improvement change processes that perhaps others have not, but the inherent skills must be similar.

Q46 Mr Crausby: The Ministry of Defence paints a picture of RAF Cottesmore: they claim that they are delivering both time and cost savings in providing support for Harriers, but the trade unions argue that the figures used for comparison are not like for like. What do you think?
Mr Hughes: The trade unions are quite correct. The work that is currently being done at RAF Cottesmore is not like for like with the work that was previously done at DARA. The programme that is carried out at Cottesmore is known as a joint operating upgrade and maintenance programme, which is different to the work that we have done historically at DARA in terms of doing minor maintenance of Harriers. It is impossible to draw a direct comparison between the work that is done at Cottesmore and the work previously done at DARA.

Q47 Mr Crausby: Do you accept that the experience of RAF Cottesmore provides a sound basis for justifying the MoD's assertion that RAF Marham will provide a better and more efficient support for Tornados than DARA St Athan?
Mr Hughes: I cannot either accept or reject the Cottesmore experience in relation to what is going to happen at Marham. As I said, I do not have any direct knowledge of the Cottesmore experience. At Cottesmore they are doing several things similar to what DARA is now doing at Fleetlands in terms of the organisation. How effective they are, I rely on the similar sources to the unions and DARA workforce, who tell us that they are effective and efficient.

Q48 John Smith: Relating to this, Chairman, I appreciate that the Chief Executive is not aware of what is happening at Cottesmore and that that is not his responsibility, but part of this Committee's role is to find out what is happening at Cottesmore. However, is he surprised that six or possibly seven Harriers are now actually at BAE Warton as part of the joint upgrade and maintenance programme being upgraded to GR9, when depth support was supposed to be provided at Cottesmore? This will be a personal view, obviously, not as the Chief Executive.
Mr Hughes: The programme always envisaged that those aircraft would be done at Warton. I joined the agency in January 2004. At that time the original proposal—the numbers would be up to eleven, the first tranche of GR9 upgrades were going to happen at Warton. There was a lot of debate at the time about that. If you remember back then the Harrier decision to roll forward was taken earlier than the full roll-forward decisions in relation to other aircraft, and the decision was taken on the basis of an operational imperative as well as investment appraisal. I believe that at that time it was always envisaged that the first series of aircraft would be upgraded, and I believe they are almost finished, but I couldn't give you the detail on that.

Q49 Chairman: The question of whether upgrade and maintenance should be combined into a single activity may well be a source of many of the savings

that the Ministry of Defence claim. Were you given any opportunity at DARA St Athan to combine the two programmes so that you were able to do upgrade and maintenance at the same time?
Mr Hughes: Both on Harrier and Tornado we put forward proposals for upgrade and maintenance together. The JUMP proposal on Harrier, which had been put in before the end-to-end process had been finalised and involved—DARA did put in a proposal for JUMP Harrier. At the time of the End to End decision rolling Harrier forward from an investment appraisal, it is more costly to do at DARA than at Cottesmore, from an incremental cost point of view, and from an affordability point of view, taking into account DARA's proposal for JUMP jump, we were also more expensive. In relation to Tornado, we have been involved in the CMU programme, combined maintenance and upgrade, and we did work on two aircraft at St Athan in terms of CMU, in parallel to them being done elsewhere. We have absolutely no doubt, in terms of effectiveness and competitiveness and efficiency, and quality and performance in doing the work, that we would do it every bit, if not more effectively, than other places. Again, there were wider considerations than the ability of DARA to do the work.

Q50 Mr Crausby: RAF Marham have made much of pulse line maintenance. For the record, can you describe in lay terms what that is. Do you consider it to be, as practised at RAF Marham, to be more efficient than the traditional system that you use at DARA St Athan?
Mr Hughes: Pulse line is basically a re-ordering of the maintenance activity into standardised pieces of work in terms of time. You break it down into a number of pulses, which add up to a full turn-around time. In each pulse you will have a standard level of work; you will have some work that emerges, and in that timescale you do the work and you move on to the next, and it flows all the way through. In the process you can eliminate, provided you set the support structure accordingly, a lot of waste and you can do things in less miles hours and less time from the turn-around time point of view. I do not know much about Marham, but I do know that we have instituted pulse lines at our rotary business down in Fleetlands and we believe that by doing that we will have improved turn-around times for Lynx, Sea King and Chinook. In addition to having improved turn-around times we will do it in physically less hours. The consequence of that is that it will be significantly cheaper. In relation to the St Athan versus Marham versus Cottesmore, there is nothing that I see that would have stopped us doing a similar thing at St Athan, were we given the opportunity.

Q51 Mr Crausby: We have discussed this to some extent on the site visit this morning, but for the record can you tell us why you have not been given the opportunity to introduce this at St Athan?
Mr Hughes: That is one of the easier ones! The decision had been taken to roll the work forward to Marham.

Q52 Chairman: Do you think it is inherently risky to move an aircraft that is in a state of disrepair?
Mr Hughes: It is risky to move aircraft part way through a maintenance of that particular aircraft, because when you move it half-way through the process you run the risks associated with that. Provided you manage the process with sufficient foresight, then you can minimise the risk as you can with everything else. If you are talking about moving a whole programme of work from one site to another, again there are risks, but properly managed that can happen effectively. If you look at the history of DARA, as a trading fund for example, we created the engine business at Fleetlands by moving work from one site to another, and similarly for the components business for example.

Q53 John Smith: We asked this question of the trade unions. What reasons do you think the MoD gave for not considering crisis manning requirement in the same way for rotary wings as they did for fixed wings?
Mr Hughes: There were a number of key differences between the rotary CMR and the fixed wing CMR. First, the numbers were, by order of magnitude, less. There was much, much less CMR associated with the rotary platforms than there were with the fixed wing platforms, which was due to their complexity, and according to military doctrine required more CMR. So having less CMR in the first place was one major difference. The second difference in CMR for rotary was that the DARA rotary business is at Fleetlands, which is in a location that is not too geographically disparate for the number of locations where the RAF were operating helicopters from, and therefore the incremental costs associated with throwing rolling the work back even with the CMR—you did not need to create the type of military infrastructure in terms of service accommodation and so on for the rotary CMR that you had for the fixed wing CMR.

Q54 John Smith: In your experience, do you think that the depth support skills are vital and essential military skills for deployment to the front line?
Mr Hughes: Again, I think that is a question for military people. Having never been deployed to the front line, it is difficult for me to answer. There are obviously different skills in the depth regimes, but the military relevance of that would be for someone else to answer.

Q55 John Smith: What future do you think there is for DARA Fleetlands or Fleetlands in terms of rotary depth support after 2008?
Mr Hughes: I believe rotary support at DARA Fleetlands has the opportunity to have a good future beyond 2008. A bit of work has to happen between now and then. As you know, the Minister announced that he would be looking to take the rotary business to market to see whether or not that offered best value for defence as well as maintaining capability, as well as giving longevity to employees

there. Given that the Sea King, the Chinook and the Lynx aircraft have rolled back and Fleetlands is then the depth hub for those aircraft, then that business, providing it continues along the lines of the rest of DARA, and they deliver the improvements in efficiency, effectiveness and are competitive, should be in a position to survive and do well. Nothing is guaranteed, as I said before.

Q56 Mr Jenkins: We visited the marvellous facility this morning. You have a highly trained workforce and a very co-operative workforce, so what is going wrong; why are you losing out?
Mr Hughes: Nothing is going wrong in the sense of the people who work for DARA. I have said a number of times that they have done everything asked of them from the competitiveness point of view. In relation to the outcome of the End to End and the announcements that had to be made, from a DARA perspective we have lost out at St Athan. That is at the expense of value-for-money for defence in a much broader context than DARA. We obviously look at it parochially from a DARA point of view and see if we can do that work and do it effectively and efficiently. We cannot control the whole environment. In terms of what has gone wrong, from the DARA viewpoint the question is a lot broader than DARA in terms of what is the best value for defence.

Q57 Mr Jenkins: On best value, on a number of occasions you have cited that you have lost out due to the cost effectiveness—you could not be cost-effective. What is the main stumbling block to your lack of cost-effectiveness?
Mr Hughes: I do not think I said that DARA is not cost-effective. I said that in an incremental cost investment appraisal it was more cost-effective for defence to go forward than back, which is a measure not of DARA in isolation but DARA as part of a whole. For example, we cannot control the cost of rolling back CMR personnel to St Athan. That is not in any way a reflection of the performance and effectiveness of DARA; it is the whole environment which was reviewed as part of End to End.

Q58 Mr Jenkins: If you ignore the crisis manning requirement, the MoD say they will save money by putting this work with the RAF. Why? You have RAF personnel come to you. You say there is a cultural difference. Does that mean you have to slow them down or speed them up, or do they work at the same pace?
Mr Hughes: In terms of why the MoD will save money through this, it is clear to everybody involved that there is over-capacity in the marketplace of military Fastjet maintenance and repair. Historically, DARA have done it and industry has done it. To a greater or lesser extent the RAF has done it. The net result of this is that the only place this will be done will be at RAF Marham. DARA will not be doing it and therefore we unfortunately are the capacity that is being eliminated. Once the work is rolled forward to RAF Marham, industry will not be doing it either. There will be a single location for it. When that was put into the investment appraisal and the affordability studies, the MoD concluded that it would save quite a lot of money.

Q59 Chairman: Are you satisfied, Mr Hughes, with the accuracy and sufficiency of the investment appraisal?
Mr Hughes: DARA contributed a lot of information through the investment appraisal, which took into account a wide range of different criteria, both from a military effectiveness point of view and from the cost point of view. In terms of accuracy, the appraisal was done, I am sure very fairly, by the Military Accounts Services (Army), the MASA team, who were independently tasked with so doing. It was overseen by a senior economic adviser on behalf of the MoD and was run through a central department. Therefore, given that we contributed what we did, and what we said was taken into account, we did not always prevail in terms of our point of view, and neither did everybody else prevail in terms of their point of view. Therefore, at the end analysis we contributed, and the report concluded what it concluded.

Q60 Mr Havard: You made a statement which I found very interesting, that essentially there was over-capacity; a shake-up has gone on; DARA is the one that drops out; so in the future there will only be the RAF—but it is not only the RAF that will be doing it, is it? What we saw at Marham is a very different and new relationship between the two primes and the RAF; and effectively the efficiency gains that are coming, from what I can see, in terms of planning the operation at that location, were coming from the two primary contractors who were showing the RAF how to do it. The RAF may claim that they were not, but that is essentially what was going on. So there is a very different relationship that has been established; and it is not a case of it just being the RAF that are going to do it; it is the two primes in concert with the RAF, which is a very different model.
Mr Hughes: I did not mean to infer that it was just the RAF that was doing it; I meant that it would all be done in the one location, which happens to be Marham, as opposed to all the different locations in which it was done previously. You are right that the operation of Marham and the way in which it is going to be carried out is done through a partner arrangement between the RAF, BAE Systems and Rolls Royce as the main prime contractors; and through that they will be able to do it more efficiently and save a lot of money. We would have preferred that it be done at DARA, but that was a decision for others.

Q61 John Smith: Would you share my surprise in the statement by the Minister for the Armed Forces last week when he could not say how depth support for the new generation of aircraft, joint combat aircraft

and joint strike fighter or where it would it would be provided? Indeed he said it might be on military operational bases rolled back centrally or would remain in industry.

Mr Hughes: In relation to the new aircraft coming through, each of them has its own individual support arrangements. It does not really surprise me that that is the status today, because there were also some contractual negotiations going on between various parties as to what the final solution would be. What I can say that is as part of the end-to-end review, Typhoon and Joint Strike Fighter, DARA would obviously have liked to do those platforms as well as Tornados and Harriers; but they were reviewed as part of the end-to-end review and it was clear that they would not be coming back to DARA. I believe that the locations for Typhoon was part of the end-to-end, and—JSF was in, but I thought Typhoon had been decided, but I have been corrected. We will give you a note on that. However, part of it is contractual, so I am not surprised because there are all kinds of contractual negotiations that go on for that activity.

John Smith: I meant Typhoon.

Q62 Robert Key: Is there enough maintenance work with the VC 10s for St Athan to remain viable?

Mr Hughes: DARA St Athan in its current state is not viable just with VC 10. We are obviously closing the Fastjet at DARA, which has implications for the Red Dragon facility. That is not to say that the VC 10 on its own, in a different construct, could not be viable in the future. I believe VC 10 as a contract is a viable contract moving forward. That is why the Minister announced last week that he would look to see whether or not there was sufficient market interest to purchase and/or run that contract on behalf of the MoD. It is certainly not enough in its own right to maintain St Athan.

Q63 Robert Key: DARA's annual report said that Morgan Stanley were going to determine market interest. Can you tell us what progress has been made in market testing the DARA business?

Mr Hughes: The Morgan Stanley work has been completed in terms of determining market interest. It was done on behalf of the MoD, not on behalf of DARA, but basically they concluded that there was interest. There were a number of players out there interested in different parts of DARA to a different extent. That formed part of the advice to the Minister who was able to say, "now I know there is some interest I will take it to market. He has not said he is going to sell it because you have to test that market interest and find out what value can be obtained by taking it to market and then taking in the round the value for defence, together with maintaining of capability, together with looking to get a long-term future for different bits of the business and making a decision whether to sell it or not.

Q64 Linda Gilroy: The recent decision by ATC Lasham and TES Aviation Group to move to St Athan is clearly a positive development. Are you in negotiation with any other aerospace companies about locating in St Athan?

Mr Hughes: Particularly ATC Lasham we were very, very involved in. As you know, we moved some of our platforms from one hangar to another to enable them to come in. DARA, together with the MoD, are involved very closely with the WDA and the Welsh Assembly Government, and have set up a team looking at a whole range of different options. There are no discussions going on at this point in time that are of sufficient maturity that you would say they are ready to bring in ATC Lasham, which is not to say they were not talking to a whole range of people, trying to encourage them to move to St Athan.

Q65 Linda Gilroy: How much DARA money was put into the Red Dragon project?

Mr Hughes: I believe something of the order of 20 million of DARA money put into the overall Red Dragon project. That was primarily related to project costs in running the project together with the post final commissioning of the building, putting in equipment and various other facilities that went with the new hangars. In terms of overall DARA money, it was of the order of 20 million.

Q66 Linda Gilroy: We heard earlier that it would recover its costs over the period that it is open, but do you also consider that the project, with its upgraded facilities, will enhance St Athan's ability to attract commercial and civil work in the future?

Mr Hughes: Yes, I agree with both of those statements. Because of the positive improvements we mentioned earlier, it will recover its costs. Given that we have a modern, state-of-the-art facility at St Athan, it is an asset that could be used to sell the site and attract people in for the future. If it had not been built, then we would not have had an asset to attract people; we would only have had the facilities that we had, which I do not think were as an attractive proposition as having this new facility that we have got.

Q67 Linda Gilroy: We saw this morning the paint shop and the workshop that makes one-off pieces. It is a bit difficult to see how that can be replicated elsewhere. Do you envisage that that can be done somewhere other than St Athan for the deep maintenance of the Tornado?

Mr Hughes: Both the one-off manufacture and small batch sizes can obviously be done somewhere else. We have become particularly adept at dealing with that type of work. Particularly when you maintain aircraft, you find things wrong that you never suspected, and we have the ability to recover them. I am sure there are other mechanisms by which that service could be provided. Similarly, we have the most up-to-date modern facilities for Fastjet painting anywhere in the country. It will be done elsewhere, but it will not be done in the same fashion.

Q68 Linda Gilroy: In your judgment what should MoD do to ensure that DARA Fleetlands and Almondbank have viable futures?

Mr Hughes: I think it should follow the strategy I have outlined and see whether or not taking the business to the market offers the best solution.

Chairman: Mr Hughes, thank you very much indeed for coming to give evidence to us. It has been very helpful. I would particularly like to thank everybody who has respected the need to keep quiet at a time that is extremely difficult for many of you—I do recognise that. We would like to thank you all very much indeed for the evidence you have given and for helping us today.

Tuesday 29 November 2005

Members present:

Mr James Arbuthnot, in the Chair

Mr David S Borrow
Derek Conway
Mr David Crausby
Linda Gilroy
Mr Dai Havard
Mr Kevan Jones
Robert Key
John Smith
Mr Desmond Swayne

Witness: **Mr Stephen Hill,** DARA Chief Executive (1999–2003), examined.

Chairman: Good morning, Mr Hill.
Mr Hill: Good morning.

Q69 Chairman: Thank you very much for coming to give evidence on the inquiry that the Defence Committee is doing into delivering front line capability to the RAF. You have kindly provided us with written evidence[4] and we would like to ask you some questions about that and about other things. One of the things, which is in paragraph 3 of your evidence, was that the rationale for forming DARA as a Trading Fund was to do three things: provide a benchmark and competitive alternative to industry; deliver a more competitive service and better value-for-money support to the front line, and concentration of all deep maintenance, and expand into wider markets, increasing overall volume of business and reduce prices to the MoD. As a person closely involved with DARA, can you tell us how you believe DARA fulfilled those original intentions?
Mr Hill: Yes, I can. Back in 1998 there were two separate agencies, the Royal Air Force's Maintenance Group Defence Agency and the Naval Aircraft Repair Organisation, which I had been heading up as Chief Executive for a period of two years. The two agencies had developed separately and independently, one under the auspices of the Navy, one under the Royal Air Force, and there was huge duplication within both, and the aim of bringing them together was to shake them down and rationalise them into a single facility, and then, with the cutting edge of moving to Trading Fund, where we would have to survive by the services that we sold, change the processes into real commercial processes that would help us to get into, ultimately, wider markets. As part of the rationalisation, we significantly reshaped the business. We inherited very large estates which were under-utilised, had too many buildings and many of the buildings were in a very poor condition. So we set about forming what we termed centres of excellence: we had two major engine facilities which we rationalised into one at Fleetlands; we had three avionics centres which we rationalised into one at Sealand, and we had five machine workshops which we rationalised into two—one at St Athan and one at Almondbank. Those are examples of the significant rationalisations that we went through. The early years of the agency, as we were running up to Trading Fund and the first year of Trading Fund, were very much focused on getting the business shaped right. So all the energy of the board and of the senior people was in shaping it up for the future. We did not only concentrate on the production side, we also concentrated in the support areas, and we established an HR support centre on one site instead of having four separate entities around the country. We formed a finance shared service centre for all transaction processing down at Fleetlands. Just to give you an example of the impact on the business, we had 168 finance people when we formed and we went down to 58 ultimately after we shaped it down into one single centre. Those are the examples. They are all about rationalising, taking cost out, re-engineering processes, utilising a smaller number of buildings and getting better value for money out of the assets that we had.

Q70 Chairman: So you did all these things. How do you think your primary customer, the RAF, reacted to that? Do you think they were satisfied with the changes that you made?
Mr Hill: There was always a tension at the interface with the Royal Air Force—less so with the Army and the Navy. They were our major customer. We worked very hard to establish a good customer/supplier relationship. We put, for instance, a sales team in both the major sites involved in running the business at Wyton and down in Yeovilton, but we had to change the business processes in what was formerly a government organisation purely operating on the vote where everything was "free" to the customer, we had to put in hard-nosed business processes, and part of the process of driving that through generated quite a bit of difficulty because people said: "We did not have to do this before and now it is more work for us in the IPTs in order to deliver the business." There were also tensions because of a lack of understanding on the true costs of the business. Nobody, prior to moving to Trading Fund, knew the true cost of deep maintenance in the military arena. It is only by moving to Trading Fund and going to a full-cost basis, communicating and hard charging, effectively, all the costs between customer and supplier that you really get to the point where you understand what the prices really are—what the real cost is. Many customers baulked at the seeming increase in prices but, in fact, they were seeing the real prices for the first time. By paying for

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services that we bought from the customer base as well as them buying from us, you end up with a true cost; the true cost of facilities, the true cost of delivering services and all the overheads associated with running a business.

Q71 Chairman: Do you think you delivered a more competitive service?
Mr Hill: Absolutely unquestionably. We went through massive rationalisation and change, and with quite similar volumes we halved our operating costs in three years. We also halved the workforce and that was the pain that they had to take. Part of that cut down was reducing the level of Service personnel in the agency for particular reasons, which I am very happy to explain. However, we significantly drove down cost, and the rationalisations that we achieved also took masses amounts of inventory out. By streamlining and speeding up processes on one site alone we took nearly £1 billion of inventory and that enabled us to take that out of the system and to close the warehouse facilities. So, if you take Sealand as an example, 338 acres when we took it over, we drove it down to 40 acres; from 70 buildings to 20 buildings, and by making the savings, part of the savings were reinvested in the business to give us more modern facilities. So if you go to Sealand today you will see very excellent, open-plan offices that were fed from the savings we generated from changing the business.
Chairman: Then came the End to End Review.

Q72 Mr Swayne: Did the End to End Review destroy confidence in DARA?
Mr Hill: Absolutely unquestionably. We were partnering with industry on a wide front and more and more our whole focus was on survival; so my personal time, my board's time and that of many of my senior managers, was all focused on trying to save the business rather than capturing new business. I cannot remember the number of times that I cancelled meetings that were arranged to try to get business internationally because I was concentrating on fire-brigading back home in the agency. So more and more, as we tried to work up relationships with industrial partners (let me tell you, we pioneered partnering with industry in NARO and carried that into the DARA; we had 25 international partnering arrangements in place, so we put a huge commitment to partnering with industry) those partners lost interest in us—and understandably so; they could see that the agency was under threat. Why would they want to go into long-term partnerships with us while they saw no future for the agency? Unquestionably, End to End had a hugely damaging impact on the business.

Q73 Mr Swayne: You say DARA was not involved in the study until after many protests.
Mr Hill: It was not.

Q74 Mr Swayne: By which time key decisions had been made. What role did you have in the End to End Review?
Mr Hill: As far as the rolling forward of Tornado and Harrier, and elements like that, that was given to us as a *fait accompli*, effectively. We had all sorts of inklings, even a year before End to End; we had all the rumours coming out through the system that this was going to happen. Indeed, I was approached a number of times and asked would we be prepared to do more work on Front Line Bases? As an agency we were delighted to do work on Front Line Bases with civilian working parties and that was part of our holistic service, but obviously you cannot have centralised facilities and then disperse all your people all around the country—it does not make any sense at all. DARA was formed as a centralised facility to deliver cost-effective support to the front line, and by bringing it all together there were huge economies of scale.

Q75 Mr Swayne: What factors, do you think, lay behind this decision to reconsider the whole logistics principle?
Mr Hill: We understood that the whole thing was driven by CMR (Crisis Manning Reinforcement). If you go back to when the agency was formed we had something like 1,800 Service personnel in the agency. However, the cost of Service personnel is greater than their civilian counterparts, for all sorts of good reasons; Service personnel have to do additional things that civilians do not. The structure in the Services is very different from a civilian structure, so there are added costs. What we tried to do when we formed the agency was to resolve this by trying to get agreement to the premium for holding Service personnel in the agency being paid as a separate bill by the customer. This was not agreed. So progressively then, in order to be competitive, we had to take the numbers down. So that the 1,800 actually was very helpful in some ways in that we did not have to make civilians redundant because the Service personnel had a job to go back to in their parent Service. So progressively we ran down and we managed that between Strike Command, Air Secretary and myself in the agency. The numbers required for CMR was always in contention. In 1999 we talked about CMR2000 giving us an absolutely definitive picture on the numbers that had to be held, and we were very happy to hold whatever that number ended up being—whether it was 200 or whether it was 1,000. However, that rolled on to 2001 and then 2002 and then it just got lost in the mists of time, as far as DARA was concerned. The rationale for End to End, as far as we interpreted and was briefed to us, was that by holding that CMR element on the main operating bases you could get greater utilisation out of those personnel. There is an argument for that. There is, however, a counter-argument that says when you start splitting up a centralised service and you split it and replicate it on a number of bases then your costs are likely to go up. Now the RAF has very laudably, as we did in the agency, re-engineered their processes themselves and they are continuing to do that, as I am sure DARA is since I left. The CMR issue has always been a contentious area, as far as I am concerned.

Chairman: We will come back to CMR in just a few seconds.

Q76 Mr Swayne: Has the effect of End of End been to undermine RAF capability?
Mr Hill: To undermine RAF capability? No, I do not think so. No. I cannot see any way it would undermine RAF capability.

Q77 Mr Havard: The End to End review was about the whole of logistics activity, it was not just St Athan it was fast jets—
Mr Hill: That is right; it was Army and Air Force.

Q78 Mr Havard: What I have been concerned about is understanding exactly what its driver was, in a sense. It seems to me that what you are saying to me is that certain decisions had been made and then the End to End review was done in order to show something—presumably to show the efficiency of that decision or show how that decision could be made efficient, rather than it being a real examination of what you call true costs?
Mr Hill: That is right. I absolutely agree with that. I believe the decision was taken to move forward to main operating bases prior to the End to End review being carried out, and consultants will always give you what you pay them for. You tell them the answer and they will make sure that you get to that answer as part of their processes.

Q79 Mr Havard: No surprise in that. Effectively, what I get a feel for is that no matter what you did in terms of showing efficiencies at DARA, you could never, as it were "win" in this argument.
Mr Hill: No.

Q80 Mr Havard: You made various other suggestions of how you might "win" in the argument but none of them were taken up. Is that right?
Mr Hill: That is absolutely right. We were perfectly prepared to hold Service personnel within the agency if that is what the customer wanted, as long as they were prepared to pay the premium for that.

Q81 John Smith: Are we to take it from the reply that you have given already that you are not persuaded by the Ministry of Defence argument that CMR necessitates rolling forward to depth support for the front line?
Mr Hill: No, I do not agree it is necessary at all. The RAF itself held CMR at St Athan for many, many years. There is absolutely no problem; you are giving the guys the skills, they have got more opportunity to capture those skills if they are working on the kind of depth that DARA offered across a number of airframe types and processes. So, no, I do not think that is necessarily the case.

Q82 John Smith: On this question of airframe types, given your experience in both rotary and fixed wing, do you agree with the MoD's analysis that the Crisis Manning Requirement is much different for fixed wing than it is for rotary wing aircraft? Could you take us through that from your evidence?
Mr Hill: As far as the rotary side of the business is concerned, you have got different scenarios between the three Services. The RAF has always needed additional people in times of tension and war whereas the Navy goes to sea with a full complement—it cannot go with a ship half full. So the ship-to-shore ratio is managed by the Navy very effectively. As far as the helicopters are concerned, having served on helicopters myself and been involved in many international detachments with them, it is very demanding and the rationale for rolling forward on Chinook, I believe, is exactly the same as on Tornado—if there is a rationale. So I cannot see the logic of rolling back into Fleetlands Chinook and rolling forward Harrier and Tornado on to main operating bases, but I guess the RAF may well come back to that later, and you will see a roll forward in due course. That is my guess.

Q83 John Smith: That is very interesting. In your written submission you suggested that front line operational bases are less capable of meeting surge in aircraft than DARA used to be. Why do you say that?
Mr Hill: From one perspective only, Mr Smith, and that is that we have the flexibility of a much larger workforce to be able to draw on and, generally, if you have a priority operationally for Tornados it does not coincide with priorities on Hawk Aircraft or VC10 or on Jaguar, or whatever. So we had the flexibility of a large workforce and being able to concentrate them where the customer has its greatest operational needs. So the example that I gave was Kosovo where we went on to 24-hour day, 7-day week working and generated Tornados and VC10s that went straight into the front line. In order to be able to do that we had the flexibility of moving people from a much wider base than a single operating base would have, at the front line.
John Smith: I think that has covered my last question, which was going to be on Kosovo.
Chairman: Now we get on to pulse line maintenance and leaning, which we have heard a lot about over the weeks.

Q84 Linda Gilroy: The MoD places a lot of faith in its expectation that lean principles and pulse line maintenance will deliver cost and efficiency savings over a sustained period without compromising safety. Do you share that faith in pulse line maintenance?
Mr Hill: I share it in parts. What you are doing with a pulse line is you are trying to get what the Germans call "takt", you are trying to get movement into maintenance. Pulse line is critically dependent on the timely provision of spares and technical support, because once it starts to pause and stop then inefficiencies build in, and that is one of the biggest problems in military maintenance—getting timely delivery of spares and timely technical support from industry. So I do believe that the RAF has done a huge amount in bringing together industry with the front line Service personnel to improve performance. However, you can run a pulse line anywhere, and we re-engineered significantly our

processes in DARA. I can give you many examples of the improvements that we made through that process and pulse is one way—it is not the only way—of making things get turned out faster and more efficiently.

Q85 Linda Gilroy: Are you saying that you did use that at DARA?
Mr Hill: We used re-engineering of processes, and the pulse line demanded re-engineering of processes. There are differences in that the maintenance is done on a flow line principle rather than in stalls, as we had done, and there are pros and cons of both, which we have not got time to go into today. There are advantages and disadvantages to both elements. So, yes, I absolutely support pulse. We actually got in touch with the company Simpler and brought them in to help us go to pulse on VC10. So no problem at all with the concepts, and, as long as it is properly supported, it will work well.

Q86 Linda Gilroy: That seems to be what the MoD and the RAF are relying on to bring in the big savings, however. Can you just tell us one or two reasons why you did not go further with that? You have mentioned you did it with the VC10. Why did you not introduce it as far as the other—
Mr Hill: The main reason for us was that, in terms of priority, understandably, the front line always gets top priority for provision of spares and technical support. We could not go to pulse line on Harrier or on Tornado because we simply could not get the spares to keep things rolling. So we ended up with a stop/start scenario, and working the stall system—that is the aircraft in the stall and it sits and waits until it gets it spares or technical support—is fine. One of the huge frustrations for us in the time just before I left was while Cottesmore's pulse line was being established all the priority in terms of technical support from BAe Systems was going to Cottesmore and we were not getting a fair share of that to be able to deliver aircraft ourselves. So we were disadvantaged by the process. Also, in terms of delivery of the crucial spares that we required, understandably, I would always endorse that the front line has to come first, but, ultimately, if you want to get your jets out of deep maintenance you are going to have to deliver the spares and the technical support. We were always a second-class citizen as far as that was concerned, and that prevented us going to pulse line.

Q87 Linda Gilroy: Do you think you would have done that in the course of time?
Mr Hill: Only with the right kind of relationship. If BAE Systems had been in real partnership with us to help deliver that kind of service to us I think we could have speeded up and improved even further than we had done. However, the frustration factor, particularly on Harrier, was always spares. It was one of the most difficult aircraft to support in that context.

Q88 John Smith: Just coming in on that question, Mr Chairman, how important do you think the physical environment is for the success of a pulse line? The Defence Committee visited RAF Marham about a fortnight or three weeks ago and my understanding is that the pulse line will be spread across four military hangars. I understand the jets will be moved from one hangar to another, although I think the fourth one has yet to be refurbished. You mentioned in your earlier evidence that the physical environment was a factor in rationalising DARA. Do you think it is a factor in the successful operation of a pulse line?
Mr Hill: I think spreading a pulse line across four hangars is an inefficiency in itself. Our aim always was to try to get all the maintenance on a particular aircraft type into one work centre. We rationalised Harrier by improving turn-round times into one single hangar from three separate hangars. That gave significant efficiencies. While you are transporting between hangars you are wasting time. Certainly the Red Dragon facility at St Athan offers huge opportunity to be able to run a pulse line on aircraft types where there is not any need to move them other than in that immediate environment. I am not familiar, however, Mr Smith, with Marham. I have visited it a number of times in the past but I am not up to speed with what is going on at Marham. That is better handled by others than me.

Q89 Linda Gilroy: On the Harrier, do you consider there are any risks associated with the extension of the Harrier flying hours between servicing? Can you tell the Committee who is responsible for making that sort of decision?
Mr Hill: I think that is very much for the engineering authority to give you an answer on that, because that very much is their decision. Our job was to take aircraft to the schedule that was spelt out by the customer and deliver against that schedule, not to dictate what that schedule was in the first place. So I have to defer on that one.

Q90 Linda Gilroy: Are you prepared to comment on whether you think there are any risks involved in the extension?
Mr Hill: There are always risks involved in extending but the more analysis that is done before you make a decision to extend the more you mitigate those risks. So it depends upon arising rates, it depends on faults, and the customer—and certainly not DARA—has access to all that kind of data to be able to make a decision. So you have various processes that are applied, some of them used in the airlines, like MSG, where you look at the arising rates of problems and you tailor your servicing periods to that. It also depends what comes out of the results of inspecting aircraft. There is no point in over-servicing aircraft, that is for sure.

Q91 Mr Borrow: There are a couple of questions I have got which I think you have touched on but I would like a bit more expansion. The first one was: you mentioned in your written statement that "there is a very compelling reason to take aircraft away

from the front line pressures to a separate site for upgrade and deep maintenance". Would you like to elaborate on the reasons for that statement?
Mr Hill: Having served on a number of Main Operating Bases on helicopters and on fast jets there is always a huge pressure on the ground crew to deliver aircraft to the flight line—always. That is absolutely understandable. However, if you start putting pressures on those people, if there are shortages or lots of detachments—as frequently can come up, they frequently come together rather than singly—so you have got multi-demands placed on people, if you are trying to do deep maintenance which needs a lot of skills, a lot of time and a lot of care. Then, I firmly believe that putting it into the centralised facility out of the pressures of front line operations is a good thing to do. You have people who build up their skills and experience over the years; they are not subject to the same levels of turnover that they are on Main Operating Bases and, therefore, you can generally apply a deeper skill base to deep maintenance in a centralised facility such as the DARA.

Q92 Mr Borrow: If I can just make sure in my own mind I have got it right, you mentioned earlier that in your opinion bringing everything together had cost benefits.
Mr Hill: Yes.

Q93 Mr Borrow: However, what you are saying now is that in addition to any cost benefits there are also benefits in terms of the quality of the maintenance itself and, therefore, the reliability of the aircraft when they go back into service. Am I reading that right?
Mr Hill: That is absolutely right. Also, you can justify, with a facility like the DARA, investing in a single set of absolute leading-edge equipment—autoclaves for GRP, paint facilities, all the machine shops, all the structures bays—where you can invest in one-off machines that are hugely expensive. Replicating those and the skills that are needed to operate them across a number of main operating bases is, I believe, much more expensive.

Q94 Mr Borrow: You have mentioned the difficulties in terms of getting supplies and specialist support from industry. I wanted you to say a little bit about what you see are any dangers in relying on industry for fall-back support in aircraft maintenance.
Mr Hill: Having worked in industry myself, with BAe Systems, during a time when there was conflict, BAE Systems responded extremely well. The problem that you have got in taking away the independence of the DARA is you have no longer got a benchmark to see whether you are getting good value for money for that service. Industry will always do the work for you, but at what price? If there is no competition, as there will not be now, as far as Tornado and Harrier are concerned, you have no longer any benchmark to be able to measure performance.
Chairman: Now, getting on to the Red Dragon project, Mr Key.

Q95 Robert Key: Mr Hill, last week we went and saw the £100 million worth of super hangar and I was surprised by this statement from the Ministry of Defence. They said: "DARA's viability as a Trading Fund was an issue before the decisions on Red Dragon and the future depth support of the RAF's fast jets was taken." So they went ahead and spent about £77 million on Red Dragon. Do you accept that DARA's viability was an issue before those decisions were taken?
Mr Hill: Yes, I do. The reason for that is that there was no in-depth support for making it a success as a Trading Fund. The Ministerial Advisory Board failed to support the Trading Fund that it had created. It was no secret that the Chief of Defence Logistics, at the time, opposed not only Trading Funds but agencies. So he was supposed to be my "Fraser" figure, as it is termed in the framework document; I never had one single meeting with him that was helpful towards the agency. In fact, quite the opposite. So if you are going to form a Trading Fund in government you have got to support it. What you need is a volume of business that enables it to kick start, get going and then, on the back of that, move into wider markets. That was the whole premise of forming the agency in the first place.

Q96 Robert Key: You said you did not have a single meeting that was helpful. Did you have meetings that were unhelpful?
Mr Hill: Yes, indeed, a number of times.

Q97 Robert Key: Please can you tell us about them?
Mr Hill: Meetings that were unhelpful in terms of challenging our position. It was always felt that our position was very much as a bit player, as a sub-contractor to industry, and that disadvantaged us. If we had been given the right level of support we could have partnered in much stronger terms with industry. It is very interesting, in that context, that overseas and international organisations like Boeing and Honeywell, that had no vested interest in on-shore facilities in the UK, or even in Europe, we had enormously helpful relationships with them and we had the opportunities of getting into wider markets.

Q98 Robert Key: In what way were those relationships helpful—with Boeing, for example?
Mr Hill: Boeing, for instance, when there was a crisis in Holland and the Chinook fleet was grounded they fired gear boxes into the agency and we turned them round extremely fast and got the Dutch helicopters flying. We got Spanish gearboxes as well. We were working with them on partnership for work in Europe with the US Army in Europe. You cannot do that without the support of the design authority because they hold the intellectual property. So it was really helpful working with those people internationally; it was much more difficult working in the UK with the original equipment manufacturers.

Q99 Robert Key: Can I turn, for a moment, to the super hangar at St Athan? Is it always going to be a white elephant? We were told last week that it would

help attract commercial investment—the implication being therefore that something different has happened, and it is all for the best in the end. Do you think that is true? Will it? Can it ever be anything other than a white elephant?
Mr Hill: I certainly do not think that that was the intention in the first place. Our aim was to have a core of work and certainly in the business case that we put forward to the Minister we had Tornado work going until the end of its life. That was hugely helpful in terms of having the volumes to be able to launch further. Where the Military could have helped us, and we made pleas to them to do this, was to put large aircraft in; the VC10 is there but it has got a limited life, but Hercules, for instance, or C17—aircraft like that. The facility can accommodate those kind of aircraft and there is a natural relationship between that type of aircraft and commercial aircraft. We were also, at one stage, working with a potential commercial player who was interested in bringing their business into St Athan. That was torpedoed by the End to End study. That would have been hugely successful. So at no time need it have been a white elephant. It may be considered a white elephant now but I believe that with the will it could be turned into a highly successful facility, and if they wanted it to.

Q100 Robert Key: Was the company that was sniffing around British Airways, who subsequently built that enormous hangar just down the road?
Mr Hill: No, no, the hangar at Rhoose Airport, the British Airways Maintenance Centre, predates Red Dragon.

Q101 Robert Key: Who was it then?
Mr Hill: I cannot say. I signed a confidentiality agreement and I really cannot say that in open forum.

Q102 Chairman: Mr Hill, you are telling us most peculiar tale. You have told us about an End to End Review that you believe was pre-judged before it even began. Do you have any evidence for that?
Mr Hill: No, I do not. Other than there was lots of word-of-mouth evidence that was given. There were actually quite a number of people in the integrated project teams who were very supportive of the agency. They were the people who gave us the warnings. We also got a number of warnings from industry. We were getting messages from industry that the direction was going towards them partnering with the customer and that, ultimately, we were going to be withering on the vine. I was so concerned about this that I had meetings with my Minister on this to express my concerns. That predated the End to End Review.

Q103 Chairman: In the meetings with your Minister, did you bring out the problem that you felt you had with the Chief of Defence Logistics?
Mr Hill: Oh yes, oh yes.

Q104 Chairman: Did you have any confidence in the investment appraisal?
Mr Hill: In the investment appraisal for Red Dragon?

Q105 Chairman: Yes.
Mr Hill: Absolutely. Based on the volumes of work that were going through and on the work we were doing with various potential partners, yes, I think the investment appraisal was quite sound, based upon the information that we had at that time.

Q106 Mr Havard: You make a reference to lessons to be learnt for future agencies and funds from your experience. Could you say something more about that?
Mr Hill: I think if you end up in a Trading Fund scenario where the supplier, in this case DARA, is in competition with its customer then you are bound to fail. It can only generate conflict. You have got to have a purity between decider and provider. The problem is that—

Q107 Mr Havard: Is that the thing that changed in the End to End Review?
Mr Hill: Absolutely it did, yes.
John Smith: Just a point of clarification, to put on the record, Mr Chairman, your question referred to the investment appraisal for the Red Dragon project, not the investment appraisal for the End to End Review.
Chairman: Would you like to pursue that?

Q108 John Smith: I am not sure whether Mr Hill would be in a position to respond to that because I am not sure of the timings involved. Were you aware of the investment appraisal for the End to End Review which, of course, was also used for making a decision as to whether aircraft would roll forward or roll back?
Mr Hill: I was not a party to that investment appraisal at all. I was a party to the investment appraisal on the business case for Red Dragon as a project. That was pushed through the Ministerial Advisory Board, as far as I recall, in January 2003. The business case stood up to scrutiny at that time and was endorsed by everybody on the Ministerial Advisory Board at that time, including the Royal Air Force.
John Smith: I just want to clarify the difference. I did not want the Members of the Committee thinking it was the investment appraisal of the review.

Q109 Chairman: Perfectly fair point. Mr Hill, thank you very much indeed for that evidence and thank you for writing to us beforehand as well.
Mr Hill: Thank you very much.

Witnesses: **Rt Hon Adam Ingram,** a Member of the House, Minister of State for the Armed Forces, **Air Vice Marshal Barry Thornton CB,** Director General, Logistics (Strike) and **Mr Nick Evans,** Director General, Management and Organisation.

Q110 Chairman: Minister, welcome to the Committee. This is the first time you have been in front of this Committee in its new incarnation. I would be most grateful if you could introduce your team, whom we have met before but, nevertheless, for the record.
Mr Ingram: Thank you for the invitation to attend this session, and I look forward to attending future sessions if it falls to me to be engaged in your future inquiries. On my left is Air Vice Marshal Barry Thornton, otherwise known as DG Log/Strike—but we will decide on the best way to name him through the session. On my right is Nick Evans, who is the Director General Management and Organisation—DGMO, as he is known affectionately in the MoD. Those are the two subject experts; the senior level, an officer, and an official who have been dealing with this and know the process intimately.

Q111 Chairman: As you know, we are doing a inquiry into delivering front line capability to the RAF. I wonder if you could begin by telling us the rationale for the Ministry of Defence's End to End Review? What prompted it and how did it begin, please?
Mr Ingram: In a sense it goes back earlier than that. I came into post in 2001 and inherited the newly formed Trading Fund of DARA and, of course, ABRO in terms of line systems. The early processes were about getting the structures right, the way forward, for DARA overall in terms of support. At a point in 2002 we then started examining the question of the new structure that could take place at St Athan that then became known as the Red Dragon project. What happened with that was that there was a lot of debate: was this a terrible project? Was it something that was desirable? Would it deliver the results? Within the department we chewed over this argument, we took best advice from every senior player—was this something that should or should not happen?

Q112 Chairman: Did that discussion include the Chief Executive of DARA?
Mr Ingram: In terms of Red Dragon? Very much so. He was lobbying extremely hard for it, understandably, and not just him; the Welsh Development Agency, the Welsh Assembly as well were very keen on the project overall. So, again, all the main players were engaged in that process. That was stimulated, given what we had, the old and inefficient facilities by their very nature I was advised, and therefore a new approach consolidating activity into one major facility was the best way forward in this. As ever (and, again, I know the Committee will appreciate this) a series of business cases then had to be built in order to justify it; it was not a case of someone saying: "This looks good; we want this off Santa; let's get it off the Christmas tree"; this had to be justified in a hard-nosed business case assessment. That is exactly what happened. We came to the point where that was reaching a point of maturity and we had then commissioned McKinsey to look at the whole question of end-to-end logistics. That was stimulated as a better way of doing the support in this case to the RAF and it was all part of the DLO transformation programme. We were beginning to look at how best we delivered DLO support overall. So this was part of a wider package. It may be something you want to look at in the future, as to what stimulated us to go down that road in terms of the support, because we had initially kicked off with a warship support modernisation initiative where fleet had decided over-capacity in terms of support of the fleet. Was there a better way of delivering that? Was it better done in a different way and a different structure? The conclusion to that was yes. We took on some difficult decisions, remembering within the dockyard support facilities there was over-capacity which had not been addressed and we are now beginning to address it. That then set a standard for the other two Services, the RAF and the Army, and the RAF took that lesson on very clearly, and I must say they are now pushing the boundaries even further forward and are now beginning to look at similar types of solutions. So what I am saying is this was not just motivated by one Service and one Service solution; it is part of a wider strategy and a wider drive to deliver logistic support to the front line across the three Services.

Q113 Chairman: You have talked about inherent inefficiencies that you were advised about and other Services taking decisions, which implies that you had already decided that the RAF support structure was wrong because of those inherent inefficiencies.
Mr Ingram: No, I had not, because it had not been proved. What had happened was that it had been proved in terms of warship support, and similar ingredients were there: over-capacity and the structure between Service and industry personnel and MoD direct support personnel. That had already got under way and had been difficult; there had been a lot of resistance to it, but as that developed within a very short period of time the message coming back was this was the right decision. So that, in my mind, would have given me the concept that there must be a better way of doing things. That, I think, is the right approach: at all times we have got to examine the way in which this has been delivered. However, of course, within, in this case, the RAF there was the same thinking taking place: can we do this in a different way, remembering what we had were four levels of maintenance support? So the question to be answered is: is there a more rational way to do this? Is there a better way to do this?

Q114 Chairman: You were already doing it in a different way because DARA had only just been set up.
Mr Ingram: That does not mean you do not have continuous improvement. The concept that because you have done something—you have made a change—that should be the end of change, when you

know that you are having to drive out significant costs from your overheads and your support in terms of defence logistics, I do not think would be the right approach for me to adopt or for the department to adopt. If we had adopted that—"All the change is finished; we are not examining anything any more"—we would have rightly been criticised: "Why are you not examining better means of delivery?"

Q115 Chairman: So here you are; you set up a Trading Fund. Do you not think there is something to be said for giving it a period of stability in which it can establish whether it can trade profitably?
Mr Ingram: Yes and no to that question. Yes, if you have the time to allow it to mature; no, if you find better ways of doing things. That was the dilemma which we were faced with. What came out of the End to End study was the examination of how better to restructure and reorganise with the same outputs at better value for money. Again, you are faced with a dilemma, both in terms of all the Service Chiefs and within the DLO organisation. We now know this, in terms of possible solutions. Do we put this to the test? Do we examine it, or do we not? Do we let things stand still? Meanwhile, we are having to then take a major cost penalty because of allowing what we put in place to have time to mature so you can see the benefits which could possibly accrue and, therefore, we then had to take that on board as a process of analysis. That is why we then undertook, as I say, a hard-nosed business case assessment. We did the investment appraisal in all of this, and it has been through all the examination. That investment appraisal was given to the trade unions at senior level; we exchanged considerable correspondence with them on that because, rightly so, they tried to examine us and raise a number of detailed and comprehensive questions—all of which were answered—and that investment appraisal, the logic of it (if that is the right description) has never been broken in terms of where the benefit then flowed. So I have a Trading Fund (and we had more than one Trading Fund that had been established), we find a better and more rational way of delivering that support, and it then goes under an assessment analysis to see if it does stack up—what are the implications?—because there are a significant number of decisions in the MoD at the present time we do not proceed with because the up-front investment is too heavy to bear. So you say that that, therefore, is not the best solution because we cannot afford it. I can give, as an example of that, the support to the MRA4 at Kinloss. The best solution for support of all of that aircraft type was to go to Waddington. When we examined it we then decided that to put the up-front investment cost in there just made it prohibitive. So the solution then is Waddington retains the surveillance aircraft that they have and Kinloss has a long-term commitment for the MRA4. So in one sense there was a better solution, but you cannot afford it, but if there is a better solution which you can afford, and you then get measurable payback, the hard logic is that we have to do it. If we had not done it you would have criticised us.
Chairman: Almost certainly. Let us now go into whether you are looking at a better solution. You have mentioned the investment appraisal. One of the central issues in the investment appraisal was the Crisis Manpower Requirement.

Q116 John Smith: Could I ask Air Vice Marshal Barry Thornton why it is that RAF technicians engaged in depth support need to be deployed to operational front lines? What is the military case for depth support skills on the front line?
Air Vice Marshal Thornton: Let me explain, first of all, the four traditional levels of aircraft maintenance: three of those were depth and the other was the first line, forward support; the front line squadrons of the Royal Air Force. They are not service stations; they are not where we just refuel aircraft and send them into the air to carry out a mission. A significant amount of rectification is carried out on a front line squadron. We tend to take the rectification work away from a front line squadron when it is too much for them to cope with—the volume is too much—and it is detracting the from the generation of other aircraft. So rectification skills are required for the front line; rectification skills are particularly required when you are on deployed operations when you do not have, immediately to hand, the sort of support that we might have back in the UK. So we require all of our technicians and mechanics to be trained to a high level. By employment in depth they gain more experience in deeper rectification tasks/maintenance tasks but they are all trained to the basic level.

Q117 John Smith: So, in your opinion, rectification skills, as you describe them, are the same kind of skills that are needed for depth support. Do you make any distinction at all between front line support skills and depth support skills? In the evidence that we have taken on recent occasions the case has been put forward that there are distinct differences.
Air Vice Marshal Thornton: We are able to enhance the skills of the technicians and mechanics by exposing them to the depth environment. They get more experience on a day-to-day basis of dismantling an aircraft, rebuilding an aircraft, component replacement, whereas at the front line it tends to be more unplug a particular avionics unit and put a serviceable one in. When you are on a deployed operation you may need to do structural repair, you may need to do wiring changes. Those sorts of instances happen all the time. Sadly, combat aircraft tend to return from any mission with a series of faults that need to be rectified before they can embark upon the next mission. All our tradesmen receive the same training: the basic training and the follow-on training; they are the RAF apprenticeships, they receive the same, it is just the further development of those skills which is why we believe it is beneficial to move people between the forward and the depth organisation—it enhances

skills. Also, we believe it is important because it gives people a respite from that operational tempo that you find on the front line squadrons. We have what we call Harmony Rules that direct how much time any of our individuals should spend away from home in a given period. That, and the logistics footprint that we need to send out to support our aircraft, determines the Crisis Manpower Requirement.

Q118 John Smith: Just to confirm that the front line serving technicians need major depth experience—major servicing not just minor servicing.
Air Vice Marshal Thornton: I think it might be useful if I help the Committee, who probably are not experienced with the way that we service aircraft. I have looked back to try and understand when it was that we labelled servicing as minor and major, and I am sure that leaves you with the impression that what we do in a minor is actually quite superficial aircraft maintenance and what we do in a major is deep. That is not the case. If I look at the instance of the Harrier, the difference between what we call "minor star" servicing (and the servicing cycle goes: minor, minor star, minor, major, and that is the way servicings are conducted throughout an aircraft's life) and a major is 8%—it is 500 hours. So we are using the skills today that would be used on a major. The only real difference between a major and a minor or a minor star is more components are taken off the aircraft and perhaps more structural examination, but in the main it is taking it back down to bare metal and repainting it. That happens on a major. There is not a significant difference in terms of the skills employed between the various levels of the depth organisation.

Q119 Mr Jones: I am very interested in what you say and I do not dispute what you have said in any way, shape or form, but when was this discovered, in terms of when you needed this? DARA was set up three years earlier and, surely, if it is a case now was it a case then?
Air Vice Marshal Thornton: Let us start with the history of DARA. DARA St Athan, for instance, has been a maintenance unit for 30-odd years. Most of that period it has been manned by a significant number of RAF people; the majority, in the early days. As the previous Chief Executive said, when he took over there were some 1,800 Servicemen in DARA. So we have always employed Servicemen in DARA. The reason we were able to take Servicemen out of DARA and only employ them in the depth organisations the hangars and servicing bays on all of our stations, was that our Crisis Manpower Requirement had come down. The size of the Air Force has come down; it is a different posture; we are an expeditionary Air Force now, we are not a Cold War Air Force. In the Cold War we needed lots of people throughout the whole of the organisation to supplement—

Q120 Mr Jones: I accept all that but you are not talking about the Cold War, you are talking about three years ago. What has changed? If it is the case now why was it not the case three years ago when DARA was set up?
Air Vice Marshal Thornton: I am sorry, maybe I am not explaining it correctly. When DARA was set up there was sufficient volume of work for DARA to do the majors and for the RAF to do the minors and the minor stars in all the hangars, all the bays on all the RAF stations. There was a volume of work then. Now we do not have that same volume of work, for several reasons. Partly, we have made all of our maintenance processes more efficient through leaning, we have adopted pulse line techniques which remove waste, we have reviewed our maintenance policy, which we do on regular occasions, and that has reduced the frequency of servicings, and we have got fewer aircraft in service.
Chairman: I want to take us back to Crisis Manpower Requirement, but I think we are going to come back to the issue Kevan Jones has raised.

Q121 John Smith: CMR is figuring as an important concept for this Committee because it was clearly an important factor when making these decisions. The CMR has changed with the changing threat scenario, from a Cold War scenario to an expedition. So I think we all accept the principle there. What we are not quite sure about is exactly how CMR is calculated and why, for example, does there seem to be a different calculation for rotary wing aircraft, as there is for fixed wing. I wonder if you could explain to us, both militarily why the requirement is different and technically why the requirement is different.
Air Vice Marshal Thornton: Certainly within the Air Force there is no difference between the way we calculate the crisis manpower requirement for rotary wing or for fixed wing. It is the same procedure that is adopted. What we do is we look at what the Defence Planning Assumptions require us to deploy in terms of the number of aircraft.For particular scenarios, we work out what that means in the number of support people that need to deploy and when you have calculated your logistics footprint in terms of manpower, then, based on the no more than four months away out of 20, that determines the number of people we need in uniform, and that is the crisis manpower requirement. When you have got that crisis manpower requirement, you say, "Where can we employ them?" We employ the bulk of them in the front-line squadrons, but we cannot just pad out the front-line squadrons with people if there is no work to do—you would not wish us to do that—so those that are the residue are employed in the depth organisation. It has benefits—i.e. the skills transfer that we talked about—but they have to be employed, so we employ them in the depth organisation. When there was a large volume of work it was sufficient just to employ the CMR in our second-line hangars and bays, but now that we have amalgamated lines of maintenance together they still need to be employed in that depth organisation, and it does not matter whether they are employed back

at DARA St Athan or whether they are employed on the main operating base; it was the financial assessment appraisal that determined the decision. I know that Recommendation 40 said that we should deploy to the main operating bases—that should be where our single depth location is—but we did not accept that. The Minister directed an investment appraisal that looked at each one of those aircraft (and you have seen Recommendation 40), and so the decisions were made on best value for money for the tax-payer.

Mr Ingram: I was just going to supplement. I think John Smith is right, the CMR was crucial and was vital to a lot of the reasoning and logic within the present appraisal. I just did not roll-over and say, "Well, I accept that is what it says." This was put under test, and the RAF was put under test. I had to be satisfied that what was being argued there actually stacked up. So, whether it is a case of getting the investment appraisal implemented, we crawled over this, we analysed it and everyone put forward arguments to conclude on what became known as Recommendation 40 and it then had to be fully examined. The CMR, I went through all of this as to what it was, why it was vital, why it was necessary and why that solution which was then being concluded was the only way forward; otherwise we would have had a significant number of RAF personnel not doing anything, and that would have been untenable, unacceptable and, I think, probably putting things into an unsafe environment as well. If you have got people are who are not working, their skill fades very dramatically. As has been said, the decision to transfer the work, whether it was onto an inaugurating base or on to St Athan, that quantum of RAF personnel were required. I go back to one of my earlier answers. If this had been something that could have been financially afforded—the road back to St Athan—then the 1,100 or so RAF personnel would have gone on to the base and the civilian numbers would have gone out, because we needed to retain that capability. It did not matter where it was, the civilian numbers were going to be replaced and the skill level and the outputs were going to be improved, and that is a conclusion of Recommendation 40: hard logic. I say that, an exaggeration of this, and the unions hopefully crawled over it with a fine tooth comb, certainly the correspondence I got involved in at the time showed that they did, but they could not break that logic.

Q122 John Smith: An observation, Chairman, and then a further question. I think the Committee accepts the Minister's argument. The Committee is looking at front-line capability. If there is an argument for this level of CMR, then I think it is recognised that this may well have had to roll back to St Athan. What we are looking at is front-line capability, not civilian jobs at St Athan, it is whether that calculation is a correct one, and I am not sure in the Air Vice Marshal's reply that we did get a clear distinction between militarily the CMR requirement for fast jets.

Air Vice Marshal Thornton: I am sorry; there was one area that I did not properly answer for you. If I look at the rotary wing fleets of the Royal Air Force, we have Merlins Mk3, we have Chinooks, we have Pumas and we have Sea King search and rescue helicopters. The search and rescue helicopters do not deploy, there is no CMR requirement and, indeed, we are contractorising the first-line support of those aircraft. For the Pumas, the decision was to collapse the maintenance forward to the main operating base and CMR people are employed in that depth organisation on the main operating base. For Merlin Mk3, the decision was to collapse the whole of the Merlin fleet forward to Culdrose to get the efficiency of operating a single fleet at Culdrose. There are significant numbers of both Royal Navy and Royal Air Force CMR people in the depth organisation at Culdrose. Chinook was actually never part of Recommendation 40, because we had started down a route in terms of a partnered support solution between Boeing and DARA to deliver the depth support. At that time, when we started down that route, it did not include the second-line maintenance, but at the moment there are 57 people working in the depth organisation of Chinook at DARA Fleetlands. The CMR requirement for Chinook is 531. We believe we can drive that down through leaning out the deployed footprint to around 400, and they can all be accommodated in the forward environment because Chinook operates with three squadrons. It is not a very large deployed fleet—it is an aircraft that is used a lot, but does not have a large deployment fleet. So there is a consistent approach between what we do on the fast jets and the heavy jets within the Royal Air Force and rotary wing.

Q123 John Smith: I wonder if it would be helpful, Chairman, if the Committee could actually obtain the formula on which the calculation is based for the CMR for the different types of platforms? I think that might help us to get to the bottom of the CMR requirement. I think it would be very useful.

Air Vice Marshal Thornton: My only concern—and it is based on the size of the deployed footprint—is the classification of that information. If we were to give you the number of aircraft we deploy and to how many locations simultaneously together with the number of people we might deploy, I am not sure what classification that information would be. I think we would need to look at that, but the principle is open and clear and we are not trying to hide anything in that principle.

Mr Ingram: May I add, if there is a reason for not doing it and it is because it falls into a classification category that we thought inadvisable, then we will explain that as well.[5]

Q124 Chairman: Thank you very much, but it may be possible, as Dai Havard has just suggested, to do it by way of example, because you have said that the

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calculation is done in exactly the same way on the different platforms so if you could do it by way of an example in an area that is perhaps less sensitive.
Air Vice Marshal Thornton: I am sure we can provide a generic model for you to follow and understand.

Q125 John Smith: A final quick question, Chairman on the CMR. Are there any examples of front-line capability being undermined in operations, say, in Iraq or, more recently, in Afghanistan as a result of civilian technicians undertaking depth support as they have been doing up until recently, and in some cases they are still doing it? Are there any examples?
Air Vice Marshal Thornton: We have maintained our crisis manpower requirement. We have not fallen below that crisis manpower requirement, so we do not have a dependency in terms of going to war on the civilian technicians that you are talking about.

Q126 John Smith: I am not making myself clear. The provision of this depth support from DARA, as it has been carried out recently for the fast jets, bears no examples of that having undermined front-line capability?
Air Vice Marshal Thornton: No, and DARA has provided support in the past exceptionally well.
John Smith: I am sorry; I am trying to be too clever.
Chairman: Let us move on to the Harriers which have now moved to Cottesmore. David Crausby.

Q127 Mr Crausby: The MoD claims that RAF Cottesmore is more effective, more efficient, when compared to DARA, yet the trade unions claim that since the new arrangement for maintaining Harriers at RAF Cottesmore, RAF Cottesmore has experienced significant problems. Is that the case?
Air Vice Marshal Thornton: No, it is not the case. One of the allegations from the unions is, unfortunately, not trying to compare apples with apples, particularly in terms of what we are doing at the moment with the Harrier JUMP line (the joint upgrade and maintenance programme) where we are combining scheduled maintenance, be it either a minor, minor star or a major, at the same time as upgrading those aircraft from GR7 standard to GR9 standard. We started that programme about a year ago. The first two aircraft have rolled off the pulse-line, and that is the mechanism by which we will meet the GR9 in service date in September of next year. Before that we were operating, just in terms of minor and minor star maintenance, a pulse line for two years, and that reduced the turn-round time from what was, if I believe correctly, about 140 days down to an average of 86 against a target of 80. Therefore, that has significantly reduced the number of aircraft in maintenance at any one time down from 21 to 14 for that particular part of the programme, but for the JUMP programme we had clear plans as to how we were going to do it conventionally, using both industry and DARA and continuing to do minor and minor star maintenance at Cottesmore, and, by moving to a single joint upgrade and maintenance line at Cottesmore, we have taken 11 less aircraft from the front-line and we have reduced the cost by over 28% against what were fixed price quotations for the old way of doing business. So, no, I do not accept that it is anything other than efficient and effective use of our resources.

Q128 Mr Crausby: Has any kind of report been undertaken into the new arrangements at RAF that could be made available to us?
Air Vice Marshal Thornton: We have just undertaken what we call a stock-take of the JUMP line a year downstream and before we go to the next phase of the contract, to let the contract for the remaining aircraft to be modified from GR7 to GR9, and also to take the lessons from that into the Tornado combined maintenance and upgrade programme. I can share with you the main finding of the executive summary of that report which came out with three simple bullets that the GR7 to GR9 programme was on track to meet its ISD, that the aircraft would be maintained in an air-worthy and a safe condition; and that engineering standards were being maintained. There are lessons that we need to take forward into the future and into the Tornado, as you would expect, but those were the three highlights; headline bullets. So, I have conducted an audit, but at a senior level with the operational commander, and I am comfortable that it is working.
Mr Ingram: Can I give assurances here that these are the types of questions that the DGMO and other parts of the organisation were asking, which I was asking as the Minister: "Is this working? Is it proving as effective as predicted? If there are shortfalls, what are they, how are they managed and what are the implications of all of this?", and the stock-take we can make available to you, but I think it is important that the message is out there that this a process of constant examination and probably also a process of constant improvement, and that, to go back again to my first answer, you see the need for change, you identify what that change is: "Is it going to deliver on all the criteria that you are seeking to deliver on?" If the answer to that is, "Yes", then you move forward. Then you constantly examine to see if there an even better way of doing this, creating better efficiencies, taking out cost overheads accordingly. That is the way this process will happen, and what we have probably designed for the Tornado process will change as we reach the point of maturity in 2008, because what is happening in the Harrier processes will identify even better ways of doing this, and that is happening in industry. If industry is not doing this in terms of producing goods for sale, the price goes up and they do not continue in business. It certainly happened in the aerospace sector, and they are having to look at all times at new and better ways of delivering because of competition and over capacity, and if we did not apply those principles, we would be failing the tax-payer in best delivery or value for money criteria.

Q129 Chairman: I think what the trade unions argue is that could they have been able to deliver those efficiencies? For example, they claim that RAF

Cottesmore has been so effective because they are using double-shift working. Do your figures—140 days to 86 days—take into account that you have input more people and more shifts?

Air Vice Marshal Thornton: No, it does not include double-shift working. Let me assure you that, even though a serviceman is available for duty seven days a week, we do not tend to work them seven days a week, 24 hours a day for very long. That is not the way we do it. Servicemen and civilians are working the same sorts of hours, as you would have expected. Let me get this straight.

Q130 Chairman: But is it two shifts as opposed to one shift?

Air Vice Marshal Thornton: That is not the way that we have made the improvements. We have always worked in most depth organisations some form of a night-shift to carry certain work through, but certainly not equalised shifts in that respect, and I have no doubt that DARA could have done the same work. The pulse line technology has now been introduced in the rotary wing world at Fleetlands. I have no doubt that DARA could have adopted it and could have made the same efficiencies, but we would still have had to employ servicemen back at DARA St Athan. What that would have meant is that it would have been more difficult for us to create the war fighter out of that serviceman, because what we want is a war fighter first, a specialist second, somebody that can go on expeditionary operations. No matter where a serviceman is employed, he needs to maintain and develop his military skills. It is easier to do that on a main operating base where he is surrounded by the front-line squadrons and the military ethos, than it would have been at DARA St Athan, but if that had been the investment appraisal's conclusion, then we would have put in place the mechanism to give them that expeditionary training.

Mr Ingram: Let me just confirm that. Make no mistake, if Recommendation 40 had concluded that that was the best solution that is what would have been applied. It so happened that it came to a different conclusion and, therefore, what we now have is what has been applied. We cannot—and hopefully the Committee appreciate this—ignore the CMR part of this equation and the way in which we collapse four means of doing maintenance support into two. This was a new way of doing things and therefore it had implications, not just in civilian terms but also in RAF terms. Over 2,000 RAF posts have gone out of the process as well, 2,240, and so this is a significant change in the way in which we are delivering front-line support.

Q131 Mr Jones: I do not disagree with what the Vice-Marshal is saying, but if that is the case now why was that not the case when the decision was taken to originally to step DARA up?

Air Vice Marshal Thornton: Would you explain that?

Q132 Mr Jones: You are making the point, which I am not disputing, that you need these people. You are saying that they are fighting soldiers or personnel first and technicians second. If that is the case now, which I do not dispute, what has changed since DARA was set up? Has the role of these people been suddenly focused on—

Air Vice Marshal Thornton: No, I am sorry, DARA was set up as a trading fund, and, as you heard from the previous Chief Executive, he removed the military from that organisation. We no longer needed military in that organisation because our crisis manpower requirement did not drive us down that route. There was a sufficient volume of work to have a civilian workforce in DARA and a military workforce doing the second-line maintenance, because what we were doing was inefficient. We created an extra volume of work because of the inefficiencies. Equally, there has been a renewed emphasis, or a heightened emphasis on the expeditionary operation since the Strategic Defence Review which has changed the focus of the nature of warfare today. We do not fight from a main operating base any more.

Q133 Mr Jones: If you have been so efficient, we are going to need you in other parts of government, I think. Could we have actual figures of what has actually happened in terms of personnel, because I find it difficult to understand—if what you are saying is you not disagree with it—or that the recent decision in terms of DARA was clearly wrong?

Mr Evans: I am sorry to interrupt, Chairman. I ought to explain, I have been involved with DARA not just in my current job but in my previous job where, very much with Steve Hill, I was supporting part of the process, including the Ministerial Advisory Board to which Steve referred. When we set DARA up as a trading fund it was very much, as Steve said, to deliver continuous improvement and efficiency, to make DARA competitive, yes, and to open it up to commercial business, but that was in 1999. He took you back to the process where we had two agencies before hand, NARO and the maintenance group. They were brought together in 1999 and then they were formed into the trading fund in 2001. Then the processes going towards the Red Dragon decision were in process, as we have heard. The idea of Red Dragon came forward in 2001 and the case for it was processed throughout 2002. During 2002 the work that we have referred to, the initial McKinsey work on DLO, was first of all mooted and then started to happen, and so the discussions of the Ministerial Advisory Board on Red Dragon were very much focused on what the future workload for the facility would be, and I was advising from the DLO perspective on that and we had to express quite considerable caution at the time that some of the workload projections looking further out from five years onwards were speculative, and those workload assumptions were crawled over very carefully. The key point is that right throughout 2002 we did not have any product from the end to end process, because that effectively started only in early 2003.

Q134 Mr Jones: So the decision to take forward the Red Dragon project was done on speculative figures?
Mr Evans: No, it was not. It was done on a very good business case. What I said was that the speculation was about the future work load and, in particular, the commercial part of the workload going forward. We were concerned very much with the in-house MoD work load, in particular the Tornado, and we made very clear when we put the Red Dragon case to the Minister that we could give him assurances on the pay-back period for Red Dragon, which, as Steve said, was a very good pay-back period—we were then assessing it at a three-year pay-back: that building would deliver its costs savings and do what it should do within three years—and we negotiated a break clause from the Red Dragon building at a five-year point to accommodate the fact that there were those uncertainties. We hoped not to exercise that break clause, but that break clause is part of the agreement. The End to End was commissioned only in early 2003 and reported in July 2003, and then after July we then went through the very rigorous process of investment appraisal, which also included, as the first phase of it, looking at the viability of Red Dragon in the light of end to end.
Chairman: We will come back to the Red Dragon later at the end of this session, but we have a lot of questions to ask first.
John Smith: I am a bit concerned, Chairman. There was a long explanation given there, and again I am worried about the Committee confusing it. Let us be clear, that both Chief Executives have given evidence to this is Committee and have made it absolutely clear that the business case for the construction of Red Dragon was predicated on the retention of the fast jet work. I do not want that to slip under the net. Secondly, the ability to repay in three years the cost of building Red Dragon was based on the fact that the efficiency savings by DARA were so great. The profit rate in 2003–04 was 38 million and the profit rate in 2004–05 was nearly 30 million?

Q135 Chairman: We run the risk of getting into a problem.
Mr Ingram: That is a statement, not a question.
John Smith: There is a statement there.
Chairman: You will have the opportunity of answering the points that John Smith has made in his statement, which was a statement and not a question.
John Smith: I apologise.

Q136 Chairman: Air Vice Marshal, you said just now something which actually worried me, which was that you need to have a war fighter first and a technician second. If I were flying an aeroplane I would have a quite strong view that I would prefer your priorities to be the other way round.
Air Vice Marshal Thornton: Those are the Chief of the Air Staff's and the Commander in Chief Strike Command's priorities. What it really means is that you cannot put somebody into an operational theatre who is not able to look after themselves. It is no good sending a technician to Iraq who then needs people to protect him or who cannot look after himself if there is a chemical attack or something like that. That is what we mean by war fighter first, specialist second, so do not go away thinking that the technical skills are something that are just an aside. The mantra is people wear uniform because they are in the military. They are in the military because we are involved in operations and operations bring with them a certain level of danger and we want people to be able to cope in the most arduous of operational circumstances. That is what we mean by war fighter first, specialist second. It does not mean that we would compromise their technical skills, whatever branch they are in, at all.

Q137 Chairman: That question is the entire subject of this inquiry, as to whether that compromise is taking place.
Air Vice Marshal Thornton: We need people in uniform to go and look after aircraft on operations. That is the whole reason why we have aircraft technicians and mechanics in the Air Force; that is why there is a CMR requirement, so that these people can go off on operations and conduct their tasks in a safe and efficient manner but in an operational environment.

Q138 Chairman: We will come back to David Crausby. You may not be aware of this, but we are still on the Harriers!
Mr Ingram: Chairman, I am just concerned that with that conclusion perhaps your comment was that somehow there had been a dilution of capacity in the front-line to maintain the aircraft because they are also asked to look after themselves. I think what the Air Vice Marshal is saying is that is not the case, that that capacity has to be there. There is no point putting a war fighter who cannot then maintain an aircraft "to go" from war fight, but they have to able to look after themselves in those very hazardous and dangerous environments in which we are placing them. Not to do so, not to have that capacity to have the war fighter mentality and skills, would put our people at risk, and we cannot do that given the new nature of expeditionary operations.

Q139 Mr Crausby: I made the mistake of agreeing to let Kevan Jones in, which took us somewhere else entirely. We were talking about efficiencies, and one of the big issues from the point of view of the efficiencies is the extension of flying time between maintenance, and that is obvious. Our concern as a Committee is how is it possible to extend flying time between maintenance so dramatically without compromising pilot safety?
Air Vice Marshal Thornton: We have a process of maintenance policy reviews which we conduct on a periodic basis. In simple terms, when a new aircraft enters service we tend to have quite a short period between the maintenance cycles because we do not have enough experience on that aircraft to make decisions. The more experience that we have the more hours that have been consumed on the aircraft, then we can take a judgment on what the right

maintenance policy should be. For the maintenance policy that you are talking about on Harrier, the extension, there was a two-year piece of work with the Aircraft Design Authority, with all the original equipment, manufacturers, using reliability centered maintenance, reviewing all the evidence from previous maintenance arisings. We then looked at what is the right periodicity, and the conclusion of that study was a 44% extension of the maintenance periodicity. Let me give you, I hope, an assurance. I am the senior engineering officer in the Air Force. I think I am probably the senior aero-systems engineer in the Ministry of Defence. I have delegated responsibility from the Secretary of State through the Three Service Chiefs and through the Chief of Defence Logistics for the maintenance of our in-service aircraft. I am a professional engineer, I have been in the service for 30 years, and I would do nothing that compromises the safety or air-worthiness of our aircraft. People that work for me are equally qualified. They have delegations passed down to them. It is not something that we have done just to save money.

Q140 Mr Crausby: We would not expect anything else, but a 44% reduction is quite dramatic. Is it normal, in these circumstances, to move by that much so quickly and suddenly?
Air Vice Marshal Thornton: I do not know in the previous review what the movement was. What I can say is it is evidence-based and it is underwritten by the design authority, the Aircraft Design Authority.

Q141 Mr Crausby: Is it because it was previously wrong or because it was artificially low?
Air Vice Marshal Thornton: No, it is because as you get more experience, you realise or evidence comes to the fore that says this is not failing. We have taken this component off at this particular point or we have done this inspection and no problems have been found, and you look at it again in the next cycle and still nothing has been found. It is experience from many, many hours of flying an aircraft. On Tornado we must have a million hours at least of flying experience across the three partner nations now.

Q142 Chairman: On Harrier? How old are the Harriers?
Air Vice Marshal Thornton: They came in during the seventies; so it depends what sort of mark it is. The Harriers are with us until 2018, 2019, Tornado is with is until 2020, 2025, so there is a lot of life left. If anybody understands this, we are at the bottom of the bath tub curve in terms of experience and are now benefiting from that experience from the evidence that is there about the maintainability and reliability of these aircraft. We base our decisions on evidence and with the full support of the design authority. My role is to deliver safe and airworthy aircraft to the front-line. I will not compromise that.

Q143 John Smith: I certainly accept that assurance from the Air Vice Marshal, but just to point out that when we are comparing the relative efficiency and costs savings of DARA providing the work, as it did do, and Cottesmore, clearly reductions in the maintenance cycles are a crucial consideration?
Air Vice Marshal Thornton: As I said before, I have no doubt in my mind that the excellent workers at DARA St Athan could have implemented a lot of what we have done at Cottesmore bringing in the same sorts of efficiencies, but we would still have needed to employ servicemen to do the work.

Q144 Mr Crausby: Can I ask a practical question on Cottesmore. First of all, you just claimed that RAF Cottesmore is now employing more civilians than RAF personnel. One of the real gripes in all of this is that it is quite wrong to shift it from one group of civilian employees to another group of civilian employees. We might be able to accept some of the strategic arguments that you have made, but not to just completely make efficiencies in one place to provide further jobs in others. Is that true and how many agency staff are being employed at RAF Cottesmore and how much does that cost?
Air Vice Marshal Thornton: Again, we have got to set this in the context of what we are doing at Cottesmore, which is carrying out the GR7 to GR9 upgrades which would traditionally have been carried out by BAE Systems Warton, in fact the 11 aircraft that are being modified there, employ a workforce of between 150 and 200 people. That work is now carried out on the Joint Upgrade Maintenance Programme with a workforce that is combined of servicemen—I think it is 111 servicemen, but I will perhaps need to check the figures—people from BAE Systems who are design authority staff that were previously in employment perhaps at the BAE System sites of Chadderton or Salmsbury but who have moved forward to the front-line; the Design Authority Service that we have always relied upon both now and in the future, and, if my memory serves me correctly, I think there are 65 agency staff at Cottesmore on the Harrier JUMP programme. We have brought some more agency staff in, together with servicemen, to undertake the stand-alone minors, the surging of the line that we are doing at the moment, to prepare aircraft to go out on Op Herrick to Afghanistan.

Q145 Chairman: On one final question on cost, because nothing comes free in these investment things. How much has RAF Cottesmore cost from the point of view of investment and is that the end of it? Will it require further investment?
Air Vice Marshal Thornton: I do not have to hand the figures. I have got them somewhere, but I do not have the Cottesmore investment figures. We can give you them.
Mr Ingram: The investment figures had to be met, because all of that, again, was wrapped up in the investment appraisal. These were things that were put on one side of the balance sheet, so to speak. Again, it goes back to this point, if the upfront investment costs had been whatever they were, heavy, at Cottesmore, then they may have switched the benefit elsewhere to St Athan, let us say, but to

repeat the point, the service personnel at Sealand would have had to have followed that work no matter where.

Q146 Chairman: Air Vice Marshal, do you have anything that you want to add to that?
Air Vice Marshal Thornton: No, I cannot give you the precise figures for the infrastructure.

Q147 Mr Crausby: I think the important part of my question is: is that the end of the investment in RAF Cottesmore?
Air Vice Marshal Thornton: We are not fully through the investment at Cottesmore. The hangar has been refurbished, and anybody who has seen the pictures showing the difference between the old hangar and the way it now looks, will notice the difference with some simple investment. The final phase is the building of a paint facility for the Harriers at Cottesmore.
Mr Ingram: Can I assist you, because if the implication (and I understand the reasoning behind the question) is that there is some hidden cost that has not surfaced yet—I am not necessarily saying that you are saying that, but that could well be a conclusion that was reached—and then all of a sudden, later on in the process, there is a large tranche of money that has to be found. There is nothing of that under the table, and I will tell you, if there was, who suffers? It is the front-line command, because if they have got to find the money from within the budget something else has to go.
Mr Crausby: I am not making that comment, I just think that needs to be cleared up and you need to give me the assurances that that is not the case.

Q148 Robert Key: Could I ask Air Vice Marshal to clarify something that is troubling me here? We have not heard any mention of turbulence in the Royal Air Force. It is not the case that you are talking like for like when you are talking civilian craftsmen and front-line RAF craftsmen, because if you have a nice stable family life at St Athan that is one thing, but if you are in the RAF and you are facing turbulence with your family being moved every two to three years, that is one reason why there is such a problem of retention in the RAF. Is that not part of the equation you are considering?
Air Vice Marshal Thornton: It is part of the equation, and I think what we are doing in terms of collapsing the depth organisations to the main operating bases eases that turbulence. Had we collapsed it back to DARA St Athan, people would perhaps do a two-year tour of St Athan and then have to move to the front-line, to a front-line squadron, because our policy is to move people between depth and the forward environment. So they would have had to disrupt their family and do that family move. What you can do now is to go from the depth at Cottesmore to the front-line squadrons at Cottesmore and back again, so you have reduced that turbulence, and so I think there are positive benefits to the individuals in the terms of being able to get experience across the broad front of the Air Force environment without necessarily moving the family.
Mr Ingram: I just want to give a supplement to that. It is one of the drivers we are all reviewing. What is the impact upon our service personnel? Does it stop at harmony? No. Or does it improve it? What we seek to do all the time is to improve it by giving stability. It is what we are doing here with the Defence Airfield Review so that people will know what their long-term basing will be. It is what we are doing with in the future Army structure and the future infantry structure in terms of ending the Army support. All of that is about trying to create a stable environment round which the families can cluster and settle. There is a period of change in the interim which you have to go through, but I think in the short-term, medium term, and I question the long-term, we will get to that point.

Q149 Mr Borrow: Picking up the point that we have been discussing about Harriers, I assume what you are saying in terms of the benefits of moving the depth maintenance to the front-line RAF bases (RAF Marham). It is not just a cost thing, it is also a practical efficiency in terms of the efficiency of men and women at the front-line by having them based at RAF Marham and at St Athan?
Air Vice Marshal Thornton: That is true. It is far easier for me to demonstrate a military ethos and spirit within the depth organisation having them working at RAF Marham than it would be having them working remote from the front-line, and so there is efficiency there clearly.

Q150 Mr Borrow: On the "pulse line maintenance" are there any lessons that have been learned at RAF Marham from the experience at RAF Cottesmore?
Air Vice Marshal Thornton: We are constantly comparing notes, for want of a better description, between Marham and Cottesmore. The depth support managers that I have in each location are in dialogue at least weekly, and there is no doubt (and the Minister did say this) that we have a continuous improvement culture. We will take the best practice from Cottesmore and we will implement it at Marham. There will probably be reverse best practice going from Marham back into Cottesmore. We are in a cycle of constantly trying to improve. We did not get it 100% right first time—you never do—there are things that you can fine-tune. The basic principles hold fast on both of them.
Mr Ingram: More than that, it also helps us in an understanding of Typhoon support and JCA support when that comes in as well. This principle we have laid down will help us to get the best solution for future support for future aircraft.

Q151 Mr Borrow: I would like some comments in term of how the "pulse line maintenance" will deal with the surge of work which I know you have got at the moment, but I would also like some comments on a statement that Mr Hill made earlier this morning when he said that the spares and the back-up is always available at the front-line but not at

DARA—he was always waiting for his spares—and doing the "pulse line maintenance" is great, but it only works if the spares and everything else are there at the time, and it causes more problems if that is not the case and a different method will be needed?
Air Vice Marshal Thornton: I am sorry; I smiled there. I will deal with the second part of the question first. What we believe has happened in the past is that we have had to prioritise. Certainly the front-line squadrons will always get the number one priority: the operational side of the Air Force will always get the priority. What has happened in the past is we have prioritised spares going into DARA over the second-line depth organisation, and we have done that for a very just reason, and that is that there is a waiting charge for an aircraft that is sat in DARA—so there were financial penalties if we did not make spares available—so where there was a spare available it was prioritised towards DARA rather than the second-line, the minors and the minor stars. Where the pulse line gives you tremendous advantages—and there are two advantages—working very closely with industry in our partnering arrangements, they have responsibility for managing the supply chain. We have a far more joined up supply chain—it is only trying to support one location as opposed to disparate locations—because, if you can imagine, in the past on Tornado we were trying to provide spares to depth organisations at BAE Systems, depth organisations at DARA St Athan, depth organisations at four different Tornado bases, whereas now that is concentrated into one location. The other benefit of a pulse line is that you have a predictability over the spares arising. An aircraft moves down the line: for the Harrier it is every 16 days. You know you are going to need component X every 16 days. You can work with your supply base and give them a predictability of spares arising that you cannot when you have got lots of aircraft all coming, not in a planned progression to the same point, it is more of an *ad hoc* basis—so is there is a lull for quite some time and then there is a crisis of demand—and so there is far more predictability with the pulse line, so I think there are significant advantages in that respect. I am sorry, I have forgotten the first part of your question.

Q152 Mr Borrow: The lessons to be learned from Cottesmore.
Air Vice Marshal Thornton: We have done that one. In fact, I am just reminded, one of the things we did, we took the depth support manager from Cottesmore and we moved him into Marham to establish the process at Marham.

Q153 Chairman: Air Vice Marshal, in view of what you have just said, the aircraft moving down the line every 16 days, does the organisation of the availability of spares depend on the physical location of where the aircraft is, because surely that is simply a matter of getting that organisation right?
Air Vice Marshal Thornton: No, what I am saying is that if you can imagine, say, the final assembly point of that pulse line. One aircraft gets into final assembly every 16 days, so the supply organisation out there that is trying to understand is the spares demand knows that I need one of these components every 16 days to meet the output of that line. The way we used to do it, to be quite honest, was far more of a crisis management. We would not order anything for six months and then we would order 100 and expect them to be delivered the next day, type of approach. That is an exaggeration and do not quote me on that, please, but it was more of an *ad hoc* relationship with the supply chain.

Q154 Chairman: The fact that it was done in that rather peculiar way before is not of itself an argument for "pulse line maintenance"?
Air Vice Marshal Thornton: No, the argument for "pulse line maintenance" is that it is more efficient.

Q155 Chairman: More efficient than that, yes?
Air Vice Marshal Thornton: Let me put it this way, and this perhaps is a continuous improvement, we have not found yet a more efficient way of delivering aircraft maintenance other than the pulse line. The pulse line approach is employed throughout the world in various environments and it has worked, and we proved that it works on the Harrier line at Cottesmore with the number of aircraft floor-loaded being significantly reduced and turn-round time being significantly reduced and the cost, equally, being reduced.

Q156 Mr Borrow: How do you ensure that the lean maintenance that has now been put in place, which begs the question why has it taken so long to look at the maintenance, but, having introduced it, how do you maintain it and ensure that it keeps delivering?
Air Vice Marshal Thornton: That is the continuous improvement culture. One of the lessons we learned very quickly in terms of adopting lean was not to take a top-down approach, rather to let the people on the shop floor develop and design the processes—they are the ones that own them at the end of the day—and what we have created is a mindset amongst our people that they are constantly looking for ways of doing the job better; that is a tremendous step forward.

Q157 Mr Borrow: Could I touch again on the question in terms of personnel? Is there a risk that as the RAF goes on in the future you will have to struggle to maintain sufficient trained RAF personnel to maintain this function?
Air Vice Marshal Thornton: Which function, the maintenance of aircraft?

Q158 Mr Borrow: Yes.
Mr Ingram: You have got to be able to recruit to meet the requirement, yes.
Air Vice Marshal Thornton: In fact, our recruiting targets have been depressed this year and for the next couple of years whilst we go through a redundancy programme, as you would expect, because that

minimises the number of people that you need to make redundant. I do not think there is any evidence at the moment that says we will not meet our recruitment targets. We are fishing in a pool with many other organisations and recruiting is a challenge to everybody, but I do not think there is evidence that we will not meet the targets.

Q159 Mr Borrow: To what extent have you got flexibility by using a mixture of RAF and civilian engineers should you run into difficulties?
Air Vice Marshal Thornton: Clearly there are agency staff whom we can employ should we run into difficulties. There is good employment for ex-servicemen, and, indeed, DARA St Athan has a significant number of ex-servicemen employed in the depth organisation. I believe the depth organisations, on the Main Operating bases, will be an attractive place of work for people as they retire from the service.

Q160 Linda Gilroy: I want to ask a question about the relationship with the contractor in a minute, but just to follow through on the questions that David has been asking on leaning and pulse line management, can you clarify for me whether the investment appraisal of Marham versus St Athan took into account the possibility of that leaning and pulse line management taking place there? Also, when we visited we saw what appeared to be a state of the art paint shop and also machine shop that delivered parts made to order. Is that also included in the investment appraisal of Marham versus St Athan?
Mr Evans: In terms of the investment appraisal (and it does come down to the CMR again), it is not so much a function of, if you like, how the logistic business is done—the basis on which the IA was conducted was to look at the differential costs between the rolling forward and the rolling back options and what we called the hybrid option, which was one which seemed one of the most likely outcomes that we can come to, and the key drivers for the investment appraisal and the reason why it ended up the way it did was that essentially housing the CMR at St Athan, doing the infrastructure there, including the married quarters and all the other investments that would be necessary, was significantly more than it was for concentrating forward at main operating bases, in the case of the Tornado aircraft in particular. So that was the driver. The key number, in other words, is the CMR number. The leaning number is something that is a factor that will go into that, but it is this CMR number that is the critical bit.

Q161 Linda Gilroy: I understand that, but in working that out were the costs of the potential for leaning and pulsing and paint shop and the machine shop weighed in with that?
Air Vice Marshal Thornton: We assumed that either location could deliver the output in the same way and make the same efficiencies—so that was not a discriminator—and the investment appraisal did take into account infrastructure costs, including a paint bay.

Q162 Linda Gilroy: So the answer is "Yes" basically.
Air Vice Marshal Thornton: Yes.

Q163 Linda Gilroy: You have described how continuous improvement and working with partner support solutions with the prime contractor can, in your view, deliver lean principles and pulse line maintenance over time and the costs and efficiency savings that go with it, but can you perhaps explain to the Committee how that works through in the arrangement with the contractor and the contractor relationship? I understand that there is a gain sharing arrangement. Could you explain to the Committee what that involves?
Air Vice Marshal Thornton: Certainly. The previous way of delivering our support business would be that we would integrate all the outputs from the various support base, we would bear the risk, we would effectively incentivise industry such that the more unreliable a piece of equipment was the more they benefited from that. Moving to an output based contract where industry, the design authority, has the responsibility for delivering available and capable platforms to the front-line and is incentivised to do so through improving their profit against reduced costs whilst meeting the performance targets; that is the gain share mechanism. They have better ability to use their design authority knowledge to improve the performance of the aircraft and reliability of the aircraft through life. They also have a better leverage over the supply chain.

Q164 Linda Gilroy: Can I ask you how frequently the partnered solution contracts with BAE Systems and Rolls Royce will be opened up and looked at again?
Air Vice Marshal Thornton: Yes, we would probably start from a five-year fixed period, but the intent is to move on to what we call a "rolling contractual basis". Providing industry performs in year one, you add another year to the contractual period. That gives industry the long-term business that they seek; it allows us not to approach the cliff edge in terms of the next block of pricing negotiations and so there are considerable benefits in that rolling contractual approach.

Q165 Linda Gilroy: I think I understand that, but can you explain to me how over time is there a danger that things could become so lean and so efficient that BAE Systems, Rolls Royce and their shareholders might lose interest because what is left for them to take a gain share, in the way you have described, is so lean?
Air Vice Marshal Thornton: I would expect over time that it becomes more difficult to get to gain share. I do not think, by any stretch of the imagination, we are in the most effective position yet, as you would not be surprised to hear me say. What this does is give to industry a long-term business portfolio. It

gives them long-term survivability, which is vital to me in terms of supporting today's aircraft through to their out of service dates.

Mr Ingram: The last bit of the question has a general application across what we are seeking to do with the new defence industrial strategy, which has not yet been launched; but this new arrangement with industry, the way in which I am advised it used to operate tended to be a bit adversarial—two sides trying to knock the stuffing out of each other—which was not effective and certainty in terms of planning and planning for the long-term was not there. That is not good for industry. It is not good for us, because again the implication, some would say, is that we are walking away from this. What the defence industrial strategy would seek to do is put that type of philosophy in place, where it is more open, but more transparency, more honesty between the partners so we have a better understanding of each other. They know how much we have got to spend but not as much as we want. Probably not about every penny, because there are still negotiations that have to take place on all of that, but trying to give them best predictability of what our demand is going to be will then assist industry to meet that. If they say, "We are not interested", then we will have to look at another solution, but that always has to be the case in terms of however it is being approached with industry. Industry manufacture these platforms—they create them in the first place—and, therefore, it must be of interest to them to be part of the partner solution in the long-term maintenance of it. It is finding the balance to be struck to our benefit in terms of the MoD, to everyone's benefit as tax-payers and also to the benefit of industry and the shareholders. It is a very complex equation and there will not be a perfect answer to it. There never has been. We are trying our best to get the best approximation to that, and that is what we are trying to deliver in terms of defence in this whole strategy.

Q166 Linda Gilroy: I certainly understand the description of the benefits. I think this inquiry is concerned with front-line capability and front-line capability on a sustained basis. I think we were very impressed with the enthusiasm that we saw at RAF Marham for implementing lean management and how fast you were able to take the proceeds of that. I think the concern I am expressing is: do you have a plan B? If you reach the end of being able to so lean and make that process efficient, that the profit that is in it for the prime contractors, the partners, become such lean pickings that their shareholders look at other opportunities that are available and say, "We are going to go elsewhere", perhaps rather sooner down the line that you might otherwise expect?

Mr Ingram: We do not plan for failure.

Q167 Linda Gilroy: I am sure you do not.

Mr Ingram: But what you have to do is to define with industry. This is where the transparency and the open book approach comes. If they are hitting that crisis point, they should tell us well in advance, because it is in their interests so to do, to make us aware of those dilemmas they may be facing. We then have to test that: is this an attempt to squeeze more out of us? That is part of the process. The plan A to Z is to ensure that we continue to get the support which we require and to deliver that output which is necessary in delivering front-line capability.

Q168 Linda Gilroy: Can I follow that point through with a last question. I think that is exactly the point that I was driving at, that you then get into the hands of what is effectively a monopoly supplier who can put to you that they can only do it at a greater cost than you have been taking from the leaning process. If I can finally say, it might be worth looking at the experience that there is in utility regulation as to setting the sort of partnership approach, the gain sharing approach you have described, what happens over time with that in terms of prices for consumers, you being the consumers?

Mr Ingram: I do not know if your recommendations are going to conclude there should be a review of whatever it is, an "Of" or something like that. I hope not.

Q169 Linda Gilroy: Ofmod!

Mr Ingram: I do not think that would be the best way forward. If I was to tell you that in terms of over land systems BAE Systems have 95% of volume, that is as near in reality the support that you can get. What we are having to do is work on new relationships with them in terms of the restructuring that is going on with the sister organisation, ABRO, and I made an arrangement that rationalised all of that to get the best structure, best conditions to work in partnership with new industry needs so we can get the long-term support mechanisms in place on that principle. I do not think the monopolistic equation is critical where you have the best partnering and open group and transparent relationship, remembering that there are people employed in all parts of the country by those companies as well, and so it is in our interest as a government not to put crisis into the system but to put stability into the system, and that is really what we are seeking to do in all of this. The monopolistic approach is already there. Are we now going to be asked to break up the support to the supply chain in other areas?

Q170 Mr Havard: I have been interested in what you say, Minister, about how some of this will feed back into the defence industrial strategy which is going to have to deploy our policy, which seems like a good idea. Can I come back to the question about how all this is being done. I visited Marham the other day. It seems to me the trade unionists are saying that at DARA, for example, people were going to pace, you know, and at a skill level that they question whether or not the RAF personnel could do. If they cannot do that, then at certain levels you have to introduce contractors, agency staff, and so on. What level of contracting and agency staff is actually being employed or planned to be employed in all these locations?

Air Vice Marshal Thornton: If I may, at Marham the plan is, in addition to the military people that we have got there, to move about 60 full-time BAE Systems staff over. As,these are people that we have employed in the past, they will move to where the actual work is being undertaken as BAE Systems undergoes its own rationalisation process, in addition there will be a maximum of about 45 agency staff.

Q171 Mr Havard: When I visited there I got the impression that this was going to fluctuate. There is this question that Linda was exploring about sustainability and there would be a sustained number of contract personnel doing it, because a number of the rationale explanations we have had is that you have to have RAF personnel doing this. RAF personnel are not going to be doing all of it all the time. There is a component of contractors who are doing it all the time?
Air Vice Marshal Thornton: Yes, and for the maintenance programme 45 agency staff is the figure that we are working to. It is slightly below that at the moment. It may have to peak for surges, but that is the way that DARA have traditionally peaked and that is the way we will do it in the future. If there is a capability insertion programme, we may need to bring in more agency staff to do that, but in terms of maintaining the GR4 at today's standard, it is a mixture of some 243 servicemen and 45 agency staff actually working on that hangar floor.
Mr Ingram: I think there may be a misunderstanding here, that somehow or other we designed a solution and then we have modified it to bring in agency,—and in this case BAE Systems—direct personnel. That was never the case.

Q172 Mr Havard: You planned them in, did you?
Mr Ingram: No, if you hear the answer, it was designed on a partnering approach with the design authority. There would always be non-uniform personnel, and the figures were given in the investment appraisal, and, indeed, were the agency staff figures. I think, indeed, Marham was 48, and you have heard the figure that we are now working to. It may be below that. Agency staff of all sorts are probably currently engaged at DARA St Athan, and so that has been part of the process anyway. It is a balance between the CMR, the requirement to have those skilled war fighters who can go off on expeditionary roads, and we need that number and that is the number which are then the defined requirement for RAF, and, no matter where the work was to be done, that would have to be the case, and that is why we set up the investment appraisal. I must say that I was a bit concerned that people were not hearing the message that we were coming to, that 1,150 was the total number of personnel across the two platform types and that if they went to DARA St Athan that would be the displacement number of civilian personnel. Really what we are doing is taking a big tranche of people out of the system, both RAF personnel and civilian personnel, and delivering the same outputs at a significantly reduced cost to the MoD overall and to the RAF as a front-line service no less. To do otherwise would have been failing.

Q173 Mr Havard: That is part of the point. The argument seemed to be that this work needed to be done by RAF personnel, but it is not all being done by RAF personnel?
Air Vice Marshal Thornton: It was never the intention that it could all be done by RAF personnel, and that was in all the investment appraisals, and the Recommendation 40 investment appraisal that you have got recognises the figure of 48 civilians to work on the Tornado GR4 maintenance; we are in line with that figure.
Mr Evans: We did a lot of sensitivity analysis in the investment appraisal if those assumptions had not been fulfilled, as it looks as though they are being, which still showed that there was a considerable advantage in favour of rolling forward.
Mr Havard: Essentially what you have done is you have introduced, I do not know how much, but a simpler cost to contractors who advised you on introducing the Toyota processes, because when I went into Marham I said to them, "This looks familiar to me. This looks like Toyota to me", and as an old trade union official, I have seen it before, I have seen the Canban systems and all of that sort of stuff, so the continuous improvement thing is not new in that sense. It is now being employed in a different way and in a different place—I understand that—but there are also dislocation costs; there are also questions about now you maintain skill levels within that. You talk about the need to be war fighters—which I do not accept, by the way. They could not be war fighters in Wales. Most war fighters have to come to Wales to be war fighters, but that is a different subject.
Chairman: Can we make that into a question please?

Q174 Mr Havard: The question is: from what I saw the RAF personnel were going to be working at certain times for very short periods on all of the parts of the pulse, but the major part of their activity was at the front end and the back end, which is stripping it down and putting it back together again. They are not factory workers. As you said, they are war fighters. They do not join to be factory workers. Where does this leave you in terms of retention, recruitment, and are we going to see holes appear and they will have to be filled by extra contractors?
Air Vice Marshal Thornton: I think, as we have said, servicemen have always been employed in depth organisations throughout the history of the Armed Forces. This is not new. Today we have over two and a half thousand servicemen employed in depth organisations in the second-line hangars and bays round the Air Force, so there is no new argument here. What we have to do is to make sure that when we operate the pulse line that we do move people around the pulse line, we do develop their skills appropriately; and that is a management task for those operating maintenance facilities on the stations. I do not think there is anything new. Some people prefer the cut and thrust of a front-line

squadron, some people prefer the greater stability you get from a depth organisation. We want people to be able to work in both, and we are developing a personnel policy that determines how long people should spend in each organisation. It will be dependant upon the particular aircraft type and the demand, to be quite honest.

Q175 Mr Havard: Could I ask one last question. On the question of sustainability, which is what I am really driving at, you have got a plan. What is the sustainability of it? Also what is the transition here? There are predicted efficiencies coming, is what is said to us by the MoD. You have a plan to make all these changes in a particular period of time. There is a risk in that. There has to be some assessment of the risk. What reassessment, reappraisal, of that risk is happening on a continuous improvement basis that might examine whether or not pace of the change that you have already predicted will prove to be true or not true?
Air Vice Marshal Thornton: As I mentioned before, we have just done an audit of the Harrier.

Q176 Mr Havard: You did it?
Air Vice Marshal Thornton: An independent person from my organisation together with . . . .

Q177 Mr Havard: An independent person from your organisation did it, who was under your control?
Mr Ingram: Was the implication that the people who carry out this work in the RAF, because they are in uniform, do not use objectivity in their analysis? Is that the accusation?

Q178 Mr Havard: It is not an accusation, it is a question.
Mr Ingram: That was the implication, and I think it is wrong to say that. It is wrong to imply that.

Q179 Mr Havard: Who did it?
Air Vice Marshal Thornton: It was led by two RAF group captains, one who works in my organisation but not part of any of the project teams that manage the aircraft.

Q180 Mr Havard: So there is a Chinese wall between him and the organisation, is there?
Air Vice Marshal Thornton: Yes, indeed, and another operational RAF group captain representing the operational commander, the AOC No 1 Group.

Q181 Mr Havard: They have no confidence in it. Well, you do?
Air Vice Marshal Thornton: I do, yes.

Q182 Chairman: Can we get back to the sustainability issue.
Mr Ingram: This gets to some of the criticisms that are pushed around as if somewhere or other this has been driven by an RAF—only agenda. The implication is that I should not take advice from the RAF in coming to my conclusions, and that would be wholly wrong. These are the experts, these are the people who have to put the machinery in place to fly the machines, they have to be satisfied, and, as I have said elsewhere, the ultimate arbiter of this is a pilot. If the pilot considers that those aircraft have not been properly maintained, are unsafe to fly, he has a view in this as well. Everyone within that virtuous circle has to be sure that the quality of the people is of the highest ranking, and when we put someone in to do an audit we put quality people in, we do not put them in to say, "Give us the conclusion we want." Give us the facts as you find them. If those facts had turned over stones that were problematic, we then have to find solutions, and that applies wherever and however we are structured, and that could have applied within the DARA structure as well. At all times we have to examine those aspects. Has it been done properly? Has it been done well? A very onerous responsibility rests on the Air Vice Marshal and others to ensure that the quality that we are seeking is constantly being maintained. Any implication that they are applying a different set of performance indicators in this and that they are doing it just because they want to see people in uniform is absolute nonsense. We would not have the high quality RAF today that we have got without the people who are delivering both at a management senior level and on the support angle as well.

Q183 Chairman: I heard no such implication made, but the question was asked about sustainability, and then we will come to John Smith. Is this new system sustainable?
Air Vice Marshal Thornton: Yes, the new system is sustainable. We will always require a certain number of RAF people to be employed in it. We have taken work from three locations from industry, and if you look at the Tornado GR1 to GR4 upgrade programme, that employed on the hangar floor 257 BAE Systems employees when that programme went through. We have taken work from DARA St Athan that was a civilian employee regime, and we have co-located it in one location. There was always going to be a mix. This is not about the RAF will do all the work. The RAF will use the minimum number of people that it needs to meet its crisis manpower requirement and no more, because we are more expensive and we should not employ any more than we need to do.

Q184 John Smith: Staying with sustainability, Chairman, and coming back to my colleague's point, I am still concerned as to how you do incentivise a monopoly supplier over a long period of time. The thinking behind the creation of DARA only four years ago, one of the key functions of DARA was indeed, to provide a competitive alternative to industry to prevent us getting into this position where in five years time the RAF front-line may be dependent on a sole supplier for supporting depth support and providing components. How has government policy changed so dramatically in such a short period of time from wishing to have a competitive alternative in industry to being confident that you can maintain an efficient

contractual relationship, not with a partner, which I accept is a way forward, but a partner who is a monopoly supplier?
Mr Ingram: Because the facts changed, and that was what came out of the End to End study, another way of doing this, all of that approach, and I lived through all that. Is there going to be a roll forward, a roll back? Is there going to be a hybrid? Is there going to be a hybrid minus? What was the best mix? Yes, there was pressure to say everything should go onto main operating bases, but not if the bricks were stacked up differently. That is why we have Fleetlands in operation now that we have part of the uniformed personnel, saying, "This is going to be a problem for us because we are now going to have to move onto a civilian base." Well, so be it, because the logic worked the other way in terms of fixed-wing support, but what do you think the solution we have come to with Sealand is about? We have concentrated on fixed-wing only. DARA has a number of business units within there, and Sealand is being maintained, 600 personnel, as we define a support approach because we need that type of mechanism: high quality, high grade, highly effective, and it is going to be as good as you would get. That is being maintained. This is not about DARA being completely transferred over to uniformed personnel. That is not what is happening. Fleetlands, Almondbank and Sealand are in the main civilian bases. Where they end up is another matter—whether they end up as part of an MoD structure or in some other construct—and then we will have to decide, as we test the market in that. What is best for the taxpayer is one consideration, but the prime issue is can we maintain the same level of support to meet the operational needs? That will be the overriding consideration in all of this; but the facts did change and the end to end study showed the way in which we were doing it before was not as efficient and effective as we could do it, and look at the figures we have taken out of the system and not even getting the same amount but getting an improved output. This has to be evidence-based and the evidence stacks up in favour of what we have done. At all times we have to examine, and it will not rest on me because, as you have heard, the Tornados are going to be there until 2025. I do not know how many ministers are going to be in place by that time I just hope the same rigour will be then applied to ensure that everything that has been done is still meeting the requirement. If we are not doing that then we are failing somewhere, and that is exactly what has been explained as we entered this process from the early days. We have gone into a stock-take approach and the Air Vice Marshal and I have had constant discussions about this. "Prove this? Convince me?" That is a check and balance that has to take place and that is going on, and if we do not have that rigorous approach (that question has been asked anyway within the RAF), there then has to be challenge at all times, and that is how we move forward with certainty in this. If there were big risks and big uncertainties, then a different set of facts would have been in play and a different solution would have been applied, but it may have been the existing one. There may be a status quo.

Chairman: We are now going to move on to the final group of questions on the Red Dragon project and the future of DARA.

Q185 Robert Key: Can I ask some easy questions about what happens next. Am I right that the Red Dragon project was funded by a commercial operating lease payable by DARA annually from December 2004 to the Welsh Development Agency?
Mr Evans: It is actually payable to the banks who funded the facility, is the strict answer to your question.

Q186 Robert Key: So will DARA continue to be responsible for the rent?
Mr Evans: There is an agreement between DARA and the banks that provide us with the finance for that construction. Clearly DARA is part of the Ministry of Defence. That is a Ministry of Defence obligation, as the Ministry of Defence has accepted other obligations to do with the restructuring of DARA, including the redundancy funding. If you are saying, "Are those bills going to be paid?", the answer is definitely, "Yes", and the MoD will be ultimately the payer.

Q187 Robert Key: Will the cost continue to be the same for 125 years whatever happens to the super hangar and site?
Mr Evans: No, the super hangar is effectively for 15 years. We have a payment mechanism stretching over that 15-year period, assuming that continues in that mode, and at that point the building is paid for. It is essentially a PFI arrangement that we have entered into. It is essentially DARA fronting it up, but it comes back. If DARA did not exist any longer, which, as the Minister has said, is not the position at the moment, it would revert back to the MoD to meet that obligation.

Q188 Robert Key: So effectively the Ministry of Defence has a relationship with the banks?
Mr Evans: Yes, through DARA.

Q189 Robert Key: Why then did the Welsh Development Agency get involved at all?
Mr Evans: As the Minister has said, and the Minister will probably want to come in on this, the Welsh Development Agency, as people round this room know very well, was and remains extremely interested in developing the St Athan site, but I think what we have to bear in mind here is that the land deal that goes with Red Dragon is not just about the super hangar, it is about how the Ministry of Defence as a whole can make the best use of what you already know is a huge piece of real estate with lots of very old buildings on it. What we saw in the Red Dragon deal was a great opportunity to rationalise that to bring in Land Command units, which is also part of the package, to take costs down, to rationalise and, as it happens, to build this facility which at the core of the business case was about the DARA use of that facility, but the Welsh Development Agency could see considerable attractions in using that facility to build on their

aspirations for an aerospace park. That was the core of why we set this process in motion, and, as I have said in my earlier contribution to this, at all stages of this leading up to the approval of the business case, we were looking at all the factors surrounding those issues, not least, and quite importantly, the future workload that DARA assessed that they were going to get which we were then trying to compare—going back to what Mr Hill was talking about. Then the customer/supplier relationship between DARA and the Ministry of Defence, how all that played in, such that we could advise the Minister on what was the most sensible decision to take.

Q190 Robert Key: Minister, I bet you could have spent that £100 million better on different priorities rather than propping up a Regional Agency, could you not?
Mr Ingram: That is not what happened. The way in which this was approached was: can we make this succeed on the best information available at that point in time? The answer to that was, "Yes", and we were doing it in partnership, of course, with the Welsh Development Agency and the Welsh Agency. The colour of the debate, the discussion that was going on at the time, was that if we made this a central hub, a centre of excellence for the MoD, there would be people queuing up to come on to that location. There is any amount of interest that has been shown from other players, but that has not quite happened. I must say, my experience in terms of other roles I have played tells me that people can talk big but very rarely deliver in terms of relocation on new locational effort by companies that are looking to invest in development terms, so I was very cynical about all of that. My view was, at the time, should I proceed or not proceed with Red Dragon, did it stack up financially and what is the benefit to the MoD out of all of this? My conclusion was even though there were now beginning to emerge some concerns about future workloads, about some of part of the viability, and we then went into tough negotiations with Welsh Development Agency on the break clauses in terms of that project, if I had made a decision not to proceed with Red Dragon, then I have got to say that that location would have been in a very parlous state now. What we now have is a world-class facility which is marketable, which we will do everything we possibly can and which we have already done, in terms of helping to attract ATC Lasham to the location. If people want the facility, it will be there. It is a very worthwhile facility for people who are looking at location or relocation, so it is a great asset which can then be used in that way; but I would not have done it simply as a sop; I would not have done it on the basis of simply throwing money away. That is not the way in which I approach it or my officials approach it. Did we get a pay back from an investment? Yes, we have. We have driven out the cost as a consequence of that, and the previous Chief Executive was a very strong advocate and proponent of it, and all the other advice I received said that was also beneficial and desirable. What happened, of course, was that the volumes they were considering changed because of other decisions we took subsequently, and, of course, also we have heard about the fast jet maintenance site before the Harrier, and so these were not in the reckoning at that point in time. On the best information it was a correct decision. Do I think it was the best decision now? The answer is yes, because it will still get the pay back required from it. I have always asked myself the question: Did I do right? Yes, I did. Subsequently, have I done right? Yes, I have, because now we can give, hopefully, a future in that location, and that becomes the regional agency's responsibility to seek to attract more on to that location, and they have a hugely marketable facility to do so.

Q191 Robert Key: Minister, I do not doubt that the Treasury would not have let you do it if they thought that this was not a good financial deal for the Government. What you are saying is that this is a very good example of joined up government with the Ministry of Defence bailing out the Welsh Development Agency, to the enormous advantage of the people of Wales, at the price of a financial burden which will be round the necks of the Ministry of Defence for a very long time?
Mr Ingram: I am not saying that at all. Mr Key, you are a very experienced person, and you know that any such approach has to go through the Chief Secretary, and all of that case was set out with all of the possible witnesses, if that is the right description, but some of those details that we were looking at in terms of volume and changes, the Treasury did accept it because it did stack up as an appropriate deal. It was not seen as a subsidy. If the implication is we were doing something for some political purpose, then the solution would have been, "Do not change anything; just keep all the jobs at DARA St Athan." I remind you of the history of this as well. Just before the election, not that that should matter, I announced a thousand RAF personnel coming out of the support system for the fast jets from Scotland, a thousand posts, in April, just before the election, because not to have done so would have meant the MoD was carrying costs it should not have been carrying, and so it was about best spending and not frittering and throwing money away.
Chairman: On that, Minister, I think we had better finish. Thank you very much indeed to you and your team and to everybody who has given evidence to us on this inquiry, and also to everyone who has come to watch, many of them with a deep interest in this matter. We are most grateful.

Written evidence

Memorandum from Prospect

I am writing on behalf of the trade unions with members in the Ministry of Defence in connection with the above inquiry.

The subject of future support of military aircraft and, in particular, the future of the Defence Aviation Repair Agency (DARA), is in a considerable state of flux at the moment, with a decision on the future of the DARA Trading Fund expected in the near future. Accordingly, although we would like to submit a comprehensive written submission to your inquiry, we would rather do this nearer the time of any oral evidence. One of our number, Amicus, has submitted to you separately a comprehensive account of the background and the current position.

The unions' concerns about the position at DARA centre on the following headline issues.

"Roll-forward" of Fast Jet Deep Repair

We are aware of problems being experienced with the "roll-forward" of deep maintenance of Harrier to RAF main operating bases. We believe this has been costly (ie more costly than doing this work at DARA) and has led to programme delays and quality issues. We also believe that much of the rationale for this change (to utilise uniformed staff) has not materialised, with large numbers of contractors being used. This amounts to privatisation of the work. We believe that the planned roll forward of Tornado should be halted and the work retained at DARA.

Red Dragon

The Red Dragon super-hangar facility at DARA ST Athan has involved initial capital expenditure of around £80 million. If the MoD/DARA has to leave the site, further costs of up to £60 million will be incurred. These costs were not taken into account when assessing the sense of the "roll forward" policy. If Tornado work follows Harrier, Red Dragon will be as good as empty. What is alleged to be cheaper for the RAF could end up being very expensive for the taxpayer. The Welsh Development Agency has poured money into Red Dragon and the surrounding area in anticipation of it forming the hub of an aerospace technology park. If DARA closes, this will prove to have been a wasted investment.

The Loss of Skills and Jobs

The job losses at DARA are costing large sums of money—in terms of redundancy payments as well as the social costs that follow. We are also concerned about the loss of high quality jobs and a highly skilled workforce in what is a high technology industry.

Consequences of Privatisation

As DARA (and other parts of MoD) move inexorably towards privatisation under the government's "End to End" policy for defence equipment, the MoD will be faced with monopoly supply, repair and maintenance of its key platforms. The taxpayer will be over a barrel. Without in-house support, the MoD will not be able to benchmark providers' prices. And the loss of in-house expertise will mean the MoD cannot act as an "intelligent customer".

National Security

The risk to MoD and the country of this privatisation is huge: it is impossible to genuinely and fully transfer risk in defence. If the private sector fails to deliver, it will be our Armed Forces and the public under threat.

The MoD trade unions welcome the Committee's inquiry and we are keen to be invited to give oral evidence. Prior to that, we will provide a more complete, up-to-date account of our position.

October 2005

Memorandum from AMICUS

INTRODUCTION

1. Amicus welcomes the opportunity to respond to this consultation on *"Delivering Frontline Capability to the RAF"*.

1.1 Amicus is the UK's largest manufacturing, technical and skilled persons' union. We have over 1.2 million members in the private and public sectors. We have members who work in the Ministry of Defence (MoD) and Government Departments and over 1,000 members who work at Defence Aviation Repair Agency (DARA) St Athan.

1.2 The best option for securing prompt and effective delivery of frontline capability to the Royal Air Force (RAF) would be to overturn the decision to roll forward Tornado GR4 maintenance and upgrade support to RAF Marham and, ultimately, BAE Systems.

1.3 The decision to roll the work forward to RAF Marham, originally made in September 2004 by the MoD, does not make any operational or financial sense. Moreover, the investment appraisal which informed this decision is too flawed to represent a robust case.

1.4 The decision will ensure the closure of DARA St Athan with the loss of 1,400 jobs and £80 million worth of taxpayers' money which was spent on constructing the state of the art aircraft hangar at the site.

1.5 The Welsh Assembly's Red Dragon project to promote the region as a centre of aerospace excellence is also now in jeopardy.

Facilities at Dara St Athan

2. On 1 April 1999, the Defence Aviation Repair Agency (DARA) was created through the merger of the Royal Air Force (RAF) Maintenance Group Defence Agency (MGDA) and the Naval Aircraft Repair Organisation (NARO). Although still part of the MoD, DARA was established as a trading fund exactly two years later. DARA offers a variety of aircraft modification and maintenance services including stripping, paint shop, replacing, repairing and rebuilding whole aircraft for military and commercial organisations.

2.1 DARA Head Office and Fixed Wing Operations are based at St Athan in the Vale of Glamorgan in Wales. DARA also has three other sites around the UK in Hampshire (DARA Fleetlands), Flintshire (DARA Electronics) and Tayside (DARA Components). In April 2005 a new £80 million aircraft hangar, paid for with tax payers' money, was opened at St Athan by Welsh First Minister Rhodri Morgan.

2.2 The new hangar has 45,000 square metres of hangar accommodation, 20,000 square metres of support workshops and office space and a roof span of 66 metres. It was designed to accommodate up to 48 fast jet aircraft and includes state of the art facilities which are the most advanced in Europe. The facility also plays a key role in the Welsh Development Agency's Red Dragon project which seeks to establish a world class aviation centre in the area.

2.3 DARA has now completed three years of trading and has consistently made a profit. In 2001–02 profits stood at £9 million, 2002–03 £6 million and 2003–04 £6.5 million.[1] Last year DARA met all its Key Targets for the third successive year and customer concerns fell, overheads were reduced, real term price reductions were made and an order intake target of £160 million was achieved. DARA has also proved that it can provide a competitive alternative to private sector industry by winning the deep level repair and maintenance contract for the RAF's Hawk Training fleet.

2.4 Despite the fantastic facilities at DARA St Athan, its 1,400 highly skilled and dedicated workers face an uncertain future as a result of a bizarre and dangerous decision by the MoD to award contracts for servicing and repairing Harrier and Tornado fighter jets to the RAF.

2.5 The Government has appointed an American investment bank, Morgan Stanley, to advise on the future possible sale of DARA as a whole and a possible sale of DARA St Athan. We believe that the outcome of this advice will result in a proposal of site closure for DARA St Athan by April 2007 in contradiction to earlier predictions of a future to 2009.

End to End (E2E) Recommendation 40 Follow on Work

3. On 2 April 2004, the MoD disclosed the End to End (E2E) Logistics Review study to trade unions. Management Accountancy Services (Army) produced the study, entitled "End to End Study Recommendation 40 Follow on Work," on behalf of the MoD. The study contains details of the investment appraisal on which the MoD based their decision to roll forward work to RAF Marham.

[1] DARA Annual Report and Accounts 2003–04.

3.1 The incremental cost methodology used to justify the E2E was fundamentally flawed. Indeed, the authors of the study conceded that the data had been collected and analysed "within very short timeframes".[2] It further admitted that the majority of data including that from Defence Estates was collected on a "'Rough Order of Magnitude' (ROM) basis".[3] This simply does not provide a sufficiently robust methodology on which to base a decision that could ultimately threaten UK frontline capability.

3.2 The study further conceded that assumptions had been made about RAF Crisis Manpower Requirement (CMR) which took "no account of any possible future changes".[4] The study stated that factors such as different service culture, the future of the Red Dragon project, the future of DARA St Athan and operational considerations should be represented separately from the financial implications. Yet these factors all represent further financial risks and costs intimately linked with decisions regarding future depth support. Furthermore, even where certain costs have been included they have been grossly underestimated. For example, the study estimates that any decision to close the Fixed Wing Operating Unit (FOU) will result in "up to 800 redundancies",[5] but we now know that 1,400 jobs will be lost with the closure of DARA St Athan.

3.3 The study further admits that it had "been difficult to establish some costs, particularly infrastructure costs and task hours".[6] The premium of 24%[7] which the study has applied to all new infrastructure requirements is unlikely to be sufficient to bring infrastructure provisions at RAF Marham up to the standards required to properly service and support Tornado GR4 or Harrier.

3.4 In conclusion the study claimed that the "Roll Forward and Hybrid options are extremely close in value for money terms, Roll Forward offers better value for money by just £0.561 million or less than 1% of incremental cost. The Roll Back option is over £20 million more expensive than any other option".[8] However the study is so inaccurate, including incomplete data and flawed methodology, that these figures might as well have been plucked from the air. Moreover assumptions were made that the productivity and skill levels of RAF personnel would at least match those available at DARA St Athan. Yet no evidence, such as a skills audit, was put forward to back up this claim and the financial risks of getting this wrong were not considered. The costs of rolling forward work to RAF Marham are spiralling precisely because RAF service personnel cannot work at the same pace or to the same skill level as workers at DARA St Athan. The financial costs of getting this wrong also include damage to multi million pound aircraft.

Facilities at RAF Marham

4. RAF Marham does not have sufficient in depth maintenance facilities to support the Tornado GR4 aircraft fleet and certainly nothing that compares with DARA St Athan. For example, RAF Marham does not have a paint shop with plastic media strip facility. Given the local environmental conditions of the site and proximity to productive agricultural land, it is highly unlikely that planning permission would have been granted to build a new one. Instead we understand that the MoD are looking to move an old and obsolete plastic strip facility from DARA St Athan to RAF Marham.

4.1 RAF personnel are not as well suited to the work of servicing, modifying and repairing military aircraft as the civilian workforce at DARA St Athan. Most RAF service personnel did not join the service to work in civilian type factory conditions and they have not had the same rigorous apprenticeship and specialist training. As a result these service personnel cannot provide the required level of expertise necessary to deep service repair aircraft as technologically sophisticated as the Harrier and Tornado GR4. Prior to the establishment of DARA St Athan, service personnel were posted, to what was then MoD RAF St Athan, for two to four years to gain some experience of deep servicing on various aircraft type. If DARA St Athan is closed, the opportunity to benefit from this type of training will also be lost.

4.2 The much exalted Pulse Line Management introduced at RAF Marham is already under considerable pressure through supervisory overstretch and the posting in of inexperienced personnel, and likely to fail soon without additional service personnel or civilian workers.

4.3 RAF Marham is experiencing recruitment difficulties which are not just skills related. The site is comparatively isolated and the nearest rail station is 12 miles away in Kings Lynn. Accommodation facilities are also reported to be poor.

4.4 The decision to relocate support of Tornado GR4 aircraft from DARA to RAF Marham did not take account of the time and costs of retraining service personnel, properly refurbishing the hangars at RAF Marham, providing a paint shop with complete facilities, or paying agency workers should the service

[2] "End to End Study Recommendation 40 Follow on Work" prepared by Management Accountancy Services (Army) (2 April 2004) paragraph 12.
[3] *Ibid* paragraph 13.
[4] *Ibid* paragraph 14.
[5] *Ibid* paragraph 32.
[6] *Ibid* paragraph 27.
[7] *Ibid* paragraph 28.
[8] *Ibid* paragraph 44.

personnel be recalled to the frontline. Neither did it take account of the importance of the support workshop facilities at DARA St Athan which provide an immediate response to demands for the manufacture and modification of components.

4.5 The Government's response to the House of Commons Defence Committee's Fourth Report of Session 2004–05 on Future Capabilities, claims that the case for transferring Tornado GR4 support to RAF Marham was based on a "comprehensive analysis of the most cost-effective solution for maintaining the aircraft including a full comparison of investment options for both Defence Aviation Repair Agency (DARA) St Athan and RAF Marham".[9] Skills and facilities at RAF Marham clearly do not match those at DARA St Athan or the MoD would not now need to be seeking partnered support solutions to "provide a further layer of Quality scrutiny of RAF technicians".[10]

4.6 The recent consultation by the Defence Logistics Organisation (DLO) on Tornado Future Support Combined Maintenance and Up-Grade showed a significant increased in forecast man hours for Tornado GR4 maintenance and upgrade. For the financial years 2005–06 and 2006–07 predicted man hours have been increased from the current 400 million to 550–600 million. We believe that this rise is being used to hide deficiencies in capability following the transfer of work from DARA St Athan to RAF Marham.

RAF Cottesmore and the Harrier Contract

5. Before announcing the decision regarding the servicing of the Tornado GR4 fleet, the MoD transferred the contract to service Harrier aircraft to RAF Cottesmore. This resulted in the loss of 550 jobs at DARA St Athan and possibly a further 350 in the future. Despite claims by the MoD to the contrary, the RAF are already failing to carry out the Harrier work. True comparisons of percentage delay times for RAF Cottesmore and DARA St Athan reveal that in 2002 RAF Cottesmore incurred nearly 50% more delays than DARA St Athan.

5.1 It is our understanding that civilian agency staff have been used to overcome the skills deficit at RAF Cottesmore, and now substantially outnumber service personnel, and a number of aircraft have been sent to BAE Systems at Warton and back to DARA St Athan. The Harrier jets are running out of flying hours and the first aircraft will reach its limit in December of this year. Unless the Harriers can be properly serviced and more quickly, the fleet will be grounded. This may prove to be a pre-run of the fate of the Tornado GR4 fleet.

5.2 So far at least one Harrier aircraft has been seriously damaged during modification at RAF Cottesmore and has not been flown since December 2002. We now believe that this aircraft has been scrapped. The damage apparently occurred when the main stress beam longeron was removed as part of the modification which then requires the aircraft to be jigged and immobile. Unfortunately, the aircraft was subsequently moved causing significant damage. A further seven Harrier aircraft have also been sent to BAE Systems at Warton for major repair after having been damaged.

5.3 Meanwhile the Minister of State, Ministry of Defence (Mr Adam Ingram MP) claimed in a letter dated 7 June 2005 to the General Secretary of Amicus, Derek Simpson, that the new way of working at RAF Cottesmore had cut the number of days a Harrier spends in maintenance by 45 days. However, turn-around times at DARA St Athan were around 100 days with measures in place to decrease this to between 60 and 80 days. This was undertaken largely with a team of six craftsperson's working single shifts on a 37 hour week. The true turnaround time at RAF Cottesmore was actually in the region of 200 days but this has been recently reduced by around 45 days with aircraft teams of a similar size working two shifts throughout the week.

5.4 It could therefore be argued that servicing time has actually increased, not decreased, to around 155 days. It would appear that the RAF are not recording expanded man-hours accurately within this programme. In addition, the cost of servicing the Harrier fleet at RAF Cottesmore has increased to £17 million whilst the cost for DARA for the same work was £0.5 million. Not exactly good value for the taxpayer.

Outsourcing to BAE Systems

6. Despite basing the case for the roll forward of Tornado GR4 to RAF Marham on a requirement to protect RAF Core Manpower Requirement (CMR) it is clear to us, given the inadequacies of the poor facilities and lack of skilled workers available at RAF Marham, that the majority of the work was always intended to be contracted out to BAE Systems. We know that BAE Systems have been contacting technical experts at DARA St Athan for advice on maintaining and servicing the Tornado GR4. Furthermore BAE Systems have been involved in a pilot project working on the Tornado GR4 at RAF Marham and are intending to submit a bid later this year to service the entire fleet.[11]

[9] "Future Capabilities: Government Response to The House of Commons Defence Committee's fourth Report of Session 2004–05" Crown Copyright (July 2005) page 16 Government response to Recommendation 36.

[10] *Ibid* page 17 Government response to Recommendation 37.

[11] "RAF Contract Stripped from DARA to go 'In-House' Attracts BAE Bid" Kirsty Buchanan, Western Mail (29 June 2005).

6.1 Adam Ingram's written ministerial statement to the House of Commons on 25 May 2005 outlined plans for Tornado Future Support (TFS) including GR4 Combined Maintenance and Upgrade (CMU) which the Defence Logistics Organisation (DLO) are now consulting on.[12] The Minister made it clear that the MoD is seeking a partnered solution in the private sector and that contracts for TFS would be awarded to BAE Systems and Rolls-Royce Defence Aerospace.[13]

6.2 The Government decision to seek a private sector solution could potentially lead to an operational disaster. The House of Commons Defence Committee has previously commentated on the strategic importance of safeguarding the valuable work that DARA carries out, and has already identified the potential consequences of a private sector failure. In 2005 it stated: *"We find it of real concern that if problems are experienced at RAF Marham, MoD may be dependent upon the original manufacturer of the aircraft to undertake repairs. One of the reasons why DARA was created in the first place was to provide 'assured access to repair capabilities and a capacity for surge workloads in time of crisis'.*[14] It is not apparent how the proposed arrangements at RAF Marham will meet this requirement."[15]

6.3 Rolling forward the work to the RAF effectively enables the MoD and the private sector to avoid their obligations to workers at DARA St Athan under TUPE legislation.

Operational Risks

7. A large part of DARA's success story can be attributed to its highly skilled workforce. Many have been trained through in-house apprenticeship schemes at the onsite training facility, which has been operating over a period of 36 years, or served an initial apprenticeship in the RAF and undergone years of further specialist training. DARA continues to build on these skills with corporate wide programmes and improvement initiatives. If DARA St Athan is closed the apprenticeship training facility will also close with a loss of between 20 and 40 youth or adult trainees per year. The skills base will be eroded quickly, not least because skilled aviation experts, representing thousands of pounds of investment training, are much sought after throughout the avionics industry in Europe.

7.1 Many of DARA's ex-workers have already been snapped up by the aerospace industry based around Toulouse in the South of France. Should the Government find itself in the desperate situation of having to reopen DARA to cope with failure in the private sector, the skilled workforce will have long since departed and it will take years of investment and training to rebuild a new workforce to the same level.

7.2 During the last Gulf War conflict, DARA St Athan was able to meet additional frontline operational requirements at short notice by prioritising the Tornado GR4 fleet. The workforce demonstrated a massive show of effort and commitment which saw DARA St Athan working 24 hours a day, seven days a week. It is highly unlikely that a private sector company would be prepared or able to rise to such a challenge—and certainly not without a huge financial premium.

7.3 The continuing turmoil in international affairs during the last 15 years has seen the UK involved in military action in the Gulf, Afghanistan, the Balkans and peace keeping initiatives in Africa. Any significant delays or problems with maintenance turn arounds involving the Tornado GR4 fleet could potentially have a devastating impact on frontline capability.

7.4 Many private sector contracts have resulted in dramatic headline grabbing equipment failures, delays and cost over-runs. Ultimately, private sector companies are intent on making money for their shareholders and operational considerations will never be their top priority.

7.5 It would be a great tragedy, and a huge embarrassment to the Government, if any military aircraft, worth millions of pounds, were lost because of substandard work. Furthermore the political consequences of a failure of frontline operations because either RAF Marham, or the private sector, failed to properly and timely service the Tornado GR4 fleet is incalculable.

Financial Costs and Risks Associated with the Private Sector

8. DARA has successfully met its objective of providing an in house competitive alternative to the private sector industry. As a result, when tendering contracts for servicing, modifying and repairing military aircraft, the Government can use DARA as a benchmark against which to compare private sector bids. If DARA St Athan is forced to close, private sector firms will be able to charge whatever they like and the Government will be forced to pay. Whilst DARA has been established as a trading fund, it is still part of the MoD and UK taxpayers are the shareholders. Moreover, risk can never be fully transferred to the private sector because the cost of failure is so great.

[12] "Tornado Joint Integrated Project Team Tornado Future Support Trades Union Continued Involvement Plan Version 2 Amended 23 August 2005" Defence Logistics Organisation (DLO), Annex B dated 1 September 2005.

[13] "Tornado Future Support Strategy" The Minister of State, Ministry of Defence (Mr Adam Ingram), *Hansard*, House of Commons Debates, Written Ministerial Statements, Session 2005–06, 25 May 2005.

[14] Fifth Special Report, Session 2000–01, HC 514, paras 4, 12, 14.

[15] House of Commons Defence Committee Future Capabilities Fourth Report Volume 1 p181. (March 2005).

8.1 The MoD's original investment appraisal used to justify the decision to roll forward the Tornado work to RAF Marham, based on a cost comparator of RAF Marham and DARA St Athan, did not take into consideration the cost of the £80 million loss to the taxpayer of closing a state of the art aircraft hangar, the training investment of the current workers at DARA St Athan, the full cost of the redundancy package for those workers, the economic and social impact to the local ex-mining community or the costs associated with seeking a private sector partner to carry out the work.

8.2 Whilst BAE Systems are keen to take over the work for servicing and maintaining the Tornado GR4 they do not have the comparable skills or facilities available at DARA St Athan. If the private sector fails to sufficiently maintain the Tornado GR4 fleet, the RAF will be forced to extend flying times for aircraft. Harrier flying time between servicing intervals has been already extended by 44%, and 37.5% on Tornado GR4. This will put crews and aircraft, worth millions of pounds, at catastrophic risk and may interfere with frontline operations.

8.3 There is already a history of private sector failures involved in servicing military aircraft. In 1994 one third of Hercules transport aircraft were grounded after 11 were damaged during modification. The work, which involved installing infrared missile defence systems, was being carried out by AirWorks, a private sector company. Damage to the aircraft included cutting away load-bearing stringers, omitting fasteners, deviating from drawings and drilling holes in the air frames in the wrong places. The company had been awarded the contract despite reportedly causing £100 million worth of damage to 18 Tornado aircraft during routine servicing just one year earlier.

8.4 Private sector contractors, and BAE Systems in particular, have already been involved in costs over runs and delays with other key defence contracts. Two years ago the National Audit Office (NAO) produced the Ministry of Defence Major Projects Report 2003 which identified a £3.1 billion overspend over the previous year. A significant proportion of the cost over-runs and delays, 144 months in total, were the result of BAE Systems contracts, despite the introduction of the MoD's Smart Acquisition initiative.[16] In 2004 the overspend was £1.7 billion and delays were 62 months.[17] A former BAE Chief Executive, Sir Raymond Lygo also reportedly revealed to the BBC that BAE System routinely underestimated project costs in order to win contracts from the MoD only to escalate the costs at a later stage, knowing that it would cost the MoD too much to cancel.[18]

Conclusion

9. We would like to see the decision to roll forward the work for servicing and maintaining the Tornado GR4 fleet to RAF Marham and/or private sector contractors reversed. Without this work, and the loss of other work including Harrier, DARA St Athan now faces closure which is bad news for its professional and highly skilled workforce and the Welsh Assembly's Red Dragon project. This is despite the fact that DARA has more than proved itself as a successful trading fund capable of servicing and maintaining the most sophisticated military aircraft to an excellent standard. Contracting this work to the private sector represents further costs, not savings, and presents a significant financial risk. Moreover, whilst DARA St Athan has a proven track record of delivering frontline support at critical times the capability of private sector companies to rise to the same challenge is unproven. **This presents an unacceptable risk to the RAF's frontline military operations.**

Derek Simpson
General Secretary

October 2005

Memorandum from Steve Hill

Background

1. My name is Steve Hill, and I am an aerospace engineer by profession with experience in both the public and private sectors. I served for 23 years in the RAF leaving in the rank of Air Commodore. During my time in the RAF, I served at home and overseas in a wide variety of appointments including as an engineer on Front Line squadrons, Chief Engineer on a fast jet base, and in staff positions covering policy, R&D, and Fleet Management. After my career in the RAF, I joined BAE Systems Military Aircraft Division in 1990 to work on International projects for a period of five years, before joining Serco to lead the team on the establishment of the Defence Helicopter Flying School. In 1996, I became the Chief Executive of the

[16] "Ministry of Defence Major Projects Report 2003" National Audit Office (NAO) Report by the Comptroller and Auditor General HC 195 Session 2003–2004: 23 January 2004.

[17] "Ministry of Defence Major Projects Report 2004" National Audit Office (NAO) Report by the Comptroller and Auditor General HC 1159–1 Session 2003–2004: 10 November 2004.

[18] "MoD Overspend: Who's to Blame?" BBC News 23 January 2004 http://news.bbc.co.uk/2/hi/business/3422239.stm

Naval Aircraft Repair Organisation (NARO), an Executive Agency responsible for the deep maintenance of military helicopters and their supporting equipments. This work was carried out on two bases—Fleetlands in Gosport and Almondbank in Perth.

2. In 1998, I was asked to take on the additional responsibility of leading the Defence Aviation Repair Agency (DARA) Implementation team, and then won the competition to become Chief Executive of the DARA. DARA merged the RAF's Maintenance Group Defence Agency with the NARO to bring all deep maintenance into a single organization across 4 sites at St Athan, Sealand, Fleetlands, and Almondbank. I left the DARA in December 2003 at the end of my extended fixed term appointment.

Formation of the DARA

3. In 1998, there was considerable debate over whether or not to form the DARA, with, at that time, the RAF being the greatest protagonists for its creation, and the RN having reservations that it was the right way forward. After circulation of papers recommending the formation of the DARA, the, then, Minister (Armed Forces), the Right Honorable Dr John Reid held a meeting that was attended by the three Service Chiefs, the PUS, other senior MoD officials, and myself. This meeting agreed unanimously to the formation of the DARA and charged me, the CEO, with merging the RAF MGDA and the NARO into a single organization on 1 April 1999, and then leading it to become a Trading Fund by April 2001. The rationale for forming as a Trading Fund was to:

(a) Provide a benchmark and competitive alternative to industry.

(b) Deliver a more competitive service and better value for money support to the Front Line. Concentration of all deep maintenance into centralized facilities was considered the best vehicle for achieving economies of scale.

(c) Expand into wider markets, and, by increasing overall volume of business, reduce prices to the MoD.

Preparation for Trading Fund

4. After vesting as an Executive Agency, the top priority was to rationalize the business and eliminate the considerable duplication by creating single centres of excellence for each production workstream. At the same time, an Activity Based Management programme was introduced to help identify all non value-added activity and to re-engineer business processes. Inevitably, there was a legacy of enormous duplication stemming from the two separate Agencies, and, to shake out cost, we rationalized, for example, from three avionic centres to one, from two engine facilities to one, three plating facilities to one, and three mechanical workshops to one. Additionally, the four site-based finance centres were re-brigaded into a single shared service centre at Fleetlands, and four human resource centres into one at Sealand. On formation, the Agency inherited 52 separate IT systems that were completely unconnected, and the team embarked on the introduction of an Enterprise Resource Planning system that would embrace all business functions and link with external customers in a co-ordinated way. All this was aimed at driving costs out of the business to enable a better value for money service to be delivered to the military front line, and to prepare the Trading Fund as a competitive service provider to both the military and wider markets.

Impact on Employee

5. The change programme placed great demands on the workforce, and enormous effort was expended to communicate the vision, achieve buy-in, and train people in new skills and ways of working—especially in commercial practices. Initially, the stresses of the radical change programme led to conflict between management and trade unions, and we therefore entered into a partnership agreement that broke new ground in Public Sector Industrial Relations. This was characterized by TU representation on the Executive Board, and TU involvement in all change projects. This was a significant commitment by our TU representatives, and, without it, we could never have delivered the change programme successfully in the challenging timescales we faced. In 2002, the DARA won the AnuMan award for the best partnership between Management and TUs in the UK. To get to a competitive position, the DARA shed nearly 4,000 posts in the first three years of Trading Fund, of which over 1,500 were military personnel who the RAF no longer required in deep maintenance, and the balance were civil servants who were shed by natural wastage or though voluntary redundancy. This was borne by the workforce stoically because we promised those that remained long term job security through making the business competitive as a Trading Fund.

Site Rationalisation

6. DARA inherited four sites from the RN and RAF, and took three of them, Sealand, Almondbank, and Fleetlands onto the balance sheet. The St Athan site, however, had 1,000 acres, and 1,000 buildings (including married quarters) most of which were 1938 vintage and in a very poor state of repair and its condition represented a major risk to DARAs competitiveness. The DARA therefore leased the facilities whilst it developed a long term strategy for the site, since the overhead associated with the infrastructure

was unsustainable in a competitive Trading Fund. In particular, the aircraft hangars were in very poor condition, with leaking roofs, structural problems with the doors, and most piped in services broken. During vesting as an Executive Agency, and whilst on the vote, the DARA negotiated £17 million for hangar refurbishment from the RAF, and £5 million for runway repairs.

7. On formation of the DLO, the £17 million was stripped from the budget as a saving measure, and the £5 million for runway repairs was also lost as a saving to RAF Personnel and Training Command. Faced with a major threat to the largest slice of its business on Fixed Wing aircraft, the Agency embarked on the Red Dragon project which aimed to provide a new super-hangar at St Athan that would accommodate all fast jet work in a single facility. At the same time, in conjunction with the MoD Centre, we negotiated the sale of the site to the Welsh Development Agency (WDA), and planned to lease back only 10% of the real estate for the fixed wing business. Since no money was available for the project from the MoD, we arranged a PFI type programme, and the Red Dragon facility was completed, on time, in 2004. It is the best military aircraft Repair and Overhaul facility in Europe, and embraces state of the art facilities in every respect. Moreover, it took in excess of £20 million out of the annual overhead for the site, and delivered charging rates that were significantly more competitive. The Business Case for the facility was based on agreed projections of future volumes of work from the RAF and was fully endorsed by the Ministerial Advisory Board. It was hoped that the DARA would build on the core RAF business by jointly marketing the site with the WDA to capture commercial aircraft work.

Delivering Results

8. Within three years of becoming a Trading Fund, the DARA had halved operating costs, halved the workforce, significantly improved quality and timeliness, and increased productivity. In the first serious competition, the DARA won the Hawk aircraft major servicing programme against stiff international competition based on the new Red Dragon overhead. In 2002, the Agency won the CIPD prize that year for being the best company in the UK for people and change management. In the same year, it won the Best Business award in Wales, and was the first public sector organization to do so.

Partnership with Industry

9. The NARO pioneered a number of partnering agreements with industry, and, when the DLO was formed, this strategy was actively supported and encouraged by the Chief of Defence Logistics (CDL). The DARA achieved considerable success in this respect by brokering long term agreements with organizations such as BAE SYSTEMS, Boeing, Agusta Westland, Rolls Royce, Honeywell, and Northrop Grumman. A very significant partnership was being explored with another company that works in the military and civil sector that could have brought more work to the Agency, and especially at St Athan, but the End to End Review destroyed confidence in the DARA in Industry generally, and many opportunities evaporated as a result. Moreover, the wider markets strategy was totally undermined by progressively increasing challenges and numerous studies into the Agency's future, which constantly haemorrhaged top level resource and time on simply trying to protect the Trading Fund's position. In addition, DARA was increasingly engaged in competing for its business both against industry and with its prime customer, the RAF. These competitions were invariably spares inclusive, and frequently the only source of spares was from industry—which was also the prime competitor. On a number of occasions, the DARA was unable to obtain spares prices, and the margins are so high on spares, in any event, that industry has enormous flexibility to ensure it wins such competitions. The End to End Study unquestionably undermined fair competition in this respect as industry saw the opportunity to capture DARA's work.

End to End Review

10. In 2002, the DLO initiated the End to End Review which aimed at looking at all maintenance support in the RAF and Army. Regrettably, DARA was not engaged in this study until, after many protests, it became involved in 2003, by which time many key decisions had been taken that directly affected its future. In terms of deep maintenance, the review recommended all fast jet deep maintenance be rolled forward to front line bases. Harrier was the first to be rolled forward, to be followed by the Tornado. For helicopters, exactly the reverse was to be applied with programmes being rolled back into DARA Fleetlands. Removal of the fast jet programmes completely undermines the viability of the St Athan site, and, had the DARA known the RAF's intentions, it would never have embarked on Project Red Dragon. In 2003, I tried to negotiate an arrangement with the DLO and RAF, to exchange the fast jet work with large aircraft maintenance such as Hercules, C17, and VC10. Only the VC10 was agreed for roll back, but that programme alone offers insufficient volume to sustain viability. With the planned closure of RAF Lyneham, there appeared to be no reason why all Hercules operations and maintenance could not be carried out at St Athan. In that event, the St Athan site could have remained viable, and, indeed, the opportunity to migrate to civil aircraft work would have been greatly enhanced. Sadly, this deal was not agreed, but, in my view, it could still be made to happen—if there was a will. There is also a confused logic, from my perspective, in rolling back RAF Chinook helicopters into Fleetlands whilst rolling forward fast jets. Having served on RAF

helicopter squadrons, I understand the high pressures on personnel and a vital need for extra people due to the many and frequent detachments around the world. What applies to helicopters, therefore, mirrors the situation on fast jets.

RAF Service Manpower

11. When the DARA first formed, there was a large number of RAF personnel in the Agency, and they were being employed there predominantly for Crisis Manning Reinforcement (CMR) based on Cold War predictions. However, there was a high premium cost to holding service personnel in the Agency, and it could not compete using RAF tradesmen. We attempted to negotiate an agreement whereby the MoD paid the premium for the service personnel, but this was not achieved. Additionally, Service personnel have, necessarily, many levels of expensive supervision, but, to compete on a level playing field with industry, the DARA needed to move to create self directed work teams and a leaner, flatter structure. We therefore worked in conjunction with the RAF authorities to progressively reduce the level of RAF personnel, and this was largely achieved by the end of 2002. (For the senior management posts, however, we always ran competitions that were open to Service personnel, civil servants, or civilians, and a number of top positions were held in the DARA by RN and RAF officers, based on best person for the job.)

12. Part of the rationale for rolling fast jets forward to front line bases was to more efficiently utilize the RAF personnel that need to be employed in Time of Tension or War (TTW). However, there is no reason why such manpower could not be employed and accommodated at DARA St Athan, and that offer was made repeatedly—and, equally, rejected repeatedly. Additionally, when RAF personnel have been deployed forward from front line bases for operations overseas, bases cannot easily ramp up extra effort to generate more aircraft from deep maintenance for operations. In the past, the DARA ramped up to 24 x 7 support to generate aircraft for operations in the Gulf and Kosovo. By having a number of aircraft types at St Athan, the Agency was able to offer great flexibility in utilization of manpower by transferring people from low priority programmes to high priority generation of airframes. For example, during the Kosovo campaign, seven Tornados and one VC 10 were rapidly generated in less than seven days for deployment on operations. During my time in the RAF as an Air Commodore, I was involved in the decision to transfer VC10 deep maintenance from Brize Norton to St Athan, because the fleet had been consistently overflown, and, as a direct result, the condition of the aircraft had deteriorated significantly with major corrosion problems arising and consequent impact on availability. The reason the fleet had reached this state was the pressure on the technical staff on the front line base to produce aircraft for the flight line. There is a very compelling reason to take aircraft away from front line pressures to a separate site for upgrade and deep maintenance, to ensure that planned maintenance is properly carried out and delivered to schedule. Additionally, aircraft involved in intensive operations or training programmes, invariably generate large numbers of deferred defects and limitations between majors that are cleared thoroughly during major servicing and upgrade programmes away from the pressures of main base operations.

13. Sadly, aircraft have been moved recently from St Athan to front line bases, but, instead of all the work being done by RAF personnel, much of it is being done in industry or by civilian contractors. Thus DARA personnel have, I understand, been made redundant, and their jobs passed to civilians elsewhere in the UK.

14. Moreover, the decentralized maintenance on separate bases is certain to cost more compared to the centralized facilities at St Athan, and the original business case for the formation of the DARA proved this. It is ironic too that aircraft will now move from modern state of the art facilities at St Athan back to WW2 hangars on front line bases with all the ensuing maintenance costs. There is also the added cost of providing several modern aircraft paint and other facilities on the front line bases that are fully available now at St Athan. Additionally, the centralized machine shops and expensive machine tools at St Athan and Almondbank offer the front line the capability to manufacture urgent spares and carry out complex component repairs both rapidly and cost-effectively. Replication of this capability on several front line bases can hardly be cost-effective, and industry always charges exorbitant rates for this type of one-off work.

Conclusions

15. The DARA workforce delivered all that Ministers charged them with in forming and shaping a successful Trading Fund that could be a competitive alternative to industry. However, if a Trading Fund is expected to compete against its prime customer (or with industry that is charged with running competitions), it cannot survive, and this should be an important lesson for Ministers and the Treasury in respect of any future Trading Fund plans for Government agencies. When the customer is both decider and provider—and runs the competitions itself or in partnership with industry—then relationships are certain to be conflict-ridden, and that was very much the case between the DARA and its prime customer during the last year of my time as CEO. The DARA workforce has been betrayed by its Ministers and the RAF customer, and, ultimately, it is the taxpayer that pays from this inability to have a clear vision and supporting strategies. If the DARA had been properly supported as a Trading Fund, it could have been a huge success for the long term for both the MoD customer and the Taxpayer.

November 2005

Memorandum by Jane Hutt, Assembly Member for the Vale of Glamorgan

Thank you for giving me the opportunity of presenting evidence to you as part of your inquiry into Delivering Front Line Capability to the RAF. I do so as Assembly Member for the Vale of Glamorgan as many of my constituents have been affected by recent MoD decisions concerning the future of DARA St Athan. I have deep concerns for the highly skilled workforce who are substantially drawn from my constituency. I will be doing everything I can to assist them in the difficult time they face ahead and engaging with my Welsh Assembly Government colleagues to attract new contracts to St Athan. I wish to concentrate my comments, however, on my concerns about the wider issues that your inquiry is focused upon.

The new £80 million + Red Dragon super-hangar at St Athan is widely recognised as the best military aircraft repair and overhaul facility in Europe and it has state of the art facilities funded by the MoD and Welsh Assembly Government. In addition, DARA St Athan also has a number of highly specialised facilities of its own, such as state of the art paint facilities and component repair capabilities, which I understand are not available at the Main Operating Bases. Replicating these facilities in front line bases is unlikely to be more cost effective than concentrating all deep maintenance into a single pre-existing facility.

Under MoD proposals the repair, maintenance and overhaul of the RAF's fast jets will be transferred from St Athan to hangars in front line bases, which are dated and in need of substantial investment. It is unlikely that deep maintenance work carried out in such conditions will match the excellent turn-around times and efficiencies achieved at DARA St Athan. It also seems unsuitable for aircraft upgrade and deep maintenance to be carried out within the pressurized environment of front line bases. Indeed, I understand from the recent Defence debate in the House of Commons that the turnaround times at St Athan are well in advance of those at the Main Operating Bases.

Finally, part of the MoD rationale for rolling fast jet maintenance forward to front line bases was to better utilise uniformed personnel, but I understand that civilian manpower is being recruited and employed to deliver on contract expectations, which is clearly at odds with this rationale.

November 2005

Memorandum from the Vale of Glamorgan Council

In response to a Question at a Council meeting on 6 October 2004, the Cabinet Member for Regeneration Tourism and Leisure, Councillor Mike Harvey stated that the specific maintenance decision made by the Ministry of Defence lacked vision and did not demonstrate any appreciation of its social and economic impact. Councillor Harvey added that the Council will do all it can to work with the Welsh Development Agency, Welsh Assembly Government and with any other Government Agency in ensuring that this latest policy stance is reversed.

Councillor Harvey looks forward to working positively to ensuring the retention of these vitally important jobs in the Vales of Glamorgan and ensuring that the aeronautic sector continues to be a springboard to economic successes in both the Vale and for the whole of South Wales.

Aerospace is one of the sectors which is likely to prove critical to the future of south east Wales, as identified in the South East Wales Development Strategy which was endorsed by the South East Wales Economic Forum earlier this year. The forum which includes representation from the ten local authorities, which make up South East Wales, along with other organisations, exists to ensure that there is a high degree of coordination between the various organisations concerned with the regeneration and economic development in South East Wales. The purpose of the Forum is to help the region become one of the most prosperous in Europe, providing the opportunity for every individual, enterprise and community to share in that prosperity. A three year action plan has been agreed by the Forum involving a range of integrated measures including the promotion of clusters within the context of those key economic sectors identified and prioritised by the Welsh Assembly Government and others.

November 2005

Memorandum from Les Sword

During the Defence Select Committee hearing, Adam Ingram and Barry Thomton made it clear that the decision to close the DARA at St Athan was made purely on assumptions.

The Minister and his board of advisers first stated that DARA had the capability to carry out the work they had been doing whilst continuing to make savings to the taxpayer. They then stated that it would cost less by moving the GR4 work to RAF Marham and operating a pulse line system, using four separate hangars. This option is illogical when the alternative is to use the one hangar (as is currently used) then there would be no requirement to refit stress panels to ensure the integrity of the airframe was not jeopardised.

The minister then stated that the new Super Hangar has paid for itself. I would strongly question that, when one considers that the MoD is paying rent on this building and will continue to do so for the next 15 years—or until another company utilises it and takes over that responsibility.

However, when one considers that it is not viable for the VC10 workforce with 350 people, to use the super hangar there is not much hope that a company such as Lashams, which is roughly the same size as VC10 will find it commercially viable to use the new hangar. Hence the MoD will continue to be liable for the rent.

On a more practical note, I would be interested to know how the Minister and the RAF intend carrying out the support work, which is currently being done, in the super hangar.

Work such as:

— Specialist machine shop.
— Jig calibration.
— Structural wing and panel repairs and manufacturing.
— Sheet metal.
— Composite work.

This work is of a highly specialized nature and requires unique equipment Was this taken into account when the costing was done? If it was not included then we are obviously playing at different levels! Also I can assure you that if these services have to be outsourced to industry it will prove to be extremely expensive, and of course, it will be the taxpayer who will have to pick up the bill.

As a slight aside to the GR4 transfer, because the St Athan site will close it will also mean that Components Facility will close. It is here that the repair and test of the accessories for the RB1 99 engine are carried out. Items such as the:

— Main Fuel Control Unit (MFCU).
— After Burner Fuel Control Unit (ABFCU).
— Exhaust Nozzle Control Unit (ENCU).
— Thrust Reverse Control Unit (TRCU).

Again these items use specialist skills and equipment. A contract was on the point of being awarded to this facility by Rolls Royce to continue repairing these items, potentially for 15 years. This incidentally was won fairly on a commercial basis. If this is stopped the work will go to Goodrich but as they no longer repair the MFCU in this country, it will be transferred to their sister company in Germany. Not, in my opinion a very good idea, particularly with the past record of Goodrich to deliver the repair work to the RAF. Their priority is to the German Air Force and the more lucrative deliveries to the Saudi Air Force.

The IPT Tor Prop3 will, I am sure concur with this.

Given this information and as both a DARA employee and as a taxpayer I would urge this Committee to call a deferral on preferred option 40 until there has been a full public enquiry. My primary reason for asking this is that as previously stated the Minister has based his decision on assumptions which I believe are ill founded. DARA has a proven track record of delivering, not only value for money to the taxpayer, but a time efficient, quality service. The professionalism of the work force within DARA proves that we can achieve new goals, and as stated by the Minister, is not in question.

If that was not the case, why is it economically prudent to "roll back" the rotary work to DARA Fleetlands but not to roll back the fixed wing to DARA St Athan? We are the same work force operating the same systems and methodology?

Surely the minister must be made accountable for the waste of taxpayers money, bear in mind that any "savings" he is claiming has to be outweighed by the cost of not only the super hangar, but the future costs to support the roll forward of this work.

December 2005

Memorandum from the Ministry of Defence

Background

The Defence White Paper of 2003, "Delivering Security in a Changing World", set out the need for flexible and adaptable Armed Forces, configured and supported to undertake expeditionary operations, building on the strategy outlined in the Strategic Defence Review of 1998.

Experience on operations has shown that this flexibility and agility must also be reflected in the support and supply chains. These are essential to maintain front-line capability and combat effectiveness; they are a key enabler to the generation of Force Elements at Readiness (FE@R), capable of deploying wherever they may be required.

In 2003 the Ministry of Defence undertook a comprehensive review of logistics process, from the front-line to industry.[19] The review found that there was substantial excess capacity across all elements of the process; at the front line, in the MoD in-house repair capability and in industry. The required enhancements identified in this review are now being implemented under what is called the Defence Logistics Transformation Programme (DLTP), led by the Chief of Defence Logistics as the Logistics Process Owner.

The aim of the Defence Logistics Transformation Programme is to provide better logistic support to the Armed Forces, by increasing the effectiveness, efficiency and flexibility of logistics activity and optimising all such activity in support of the tasks likely to be required of the Armed Forces. For the delivery of front-line capability to the RAF, this has led to a reconfiguration of processes for aircraft support in order to meet the needs of an expeditionary air force and the achievement of better value from the resources available.

A key driver of the reconfiguration was the outcome of an extensive analysis of existing processes which showed that sizeable efficiency savings would result from concentrating depth support of the RAF's Fixed and Rotary Wing Fleets.

The analysis showed that concentrating support of the RAF's Harrier and Tornado GR4 fast jet fleets "forward" onto the RAF's Main Operating Bases would provide best value for money and operational effectiveness compared with the alternative of concentrating this depth support "backward" to DARA St Athan.

A key reason for this outcome is that RAF Aircraft support policy is underpinned by a requirement for the RAF to have a sufficient number of tradesmen, capable of deploying to operational theatres to support aircraft—this total is referred to as the RAF Crisis Manpower Requirement (CMR). This ensures that front-line capability and combat effectiveness is maintained on operations and enables the sustainment of air power operations where they are required. Within a smaller RAF, skilled technicians—and, indeed, all RAF personnel—must also maintain a war-fighting edge, as well as performing their day-to-day duties.

Where "depth" support is undertaken at RAF stations, commanders will adopt a force structure to include depth support personnel. All will be liable for deployed operations to support aircraft. Depth "hubs" on RAF Units allow "depth" personnel to train with other servicemen, including aircrew, for the deployments they may undertake.

The End to End review investment appraisal process showed clearly that the costs of moving the required RAF CMR personnel to St Athan were significantly higher than the infrastructure costs for upgrading the facilities at RAF MOBs. A key point is that, had the investment appraisal process shown that concentrating fast jet depth support at St Athan offered best value for money, this would have required the RAF CMR personnel to relocate to St Athan, displacing the majority of the DARA civilian workforce.

For Rotary Wing aircraft—Lynx and Sea King—the CMR issue was not critical and the argument was more finely balanced. By taking advantage of the synergies that could be achieved by having the depth maintenance for Lynx, Sea King and Chinook in one place, however, it became clear that concentrating the Rotary Wing depth support at DARA Fleetlands offered best value for money. The difference between the outcomes for Fixed and Rotary Wing aircraft reflects the balance of operational (primarily CMR), infrastructure and financial considerations in each case.

The new logistics support arrangements for military aircraft now being implemented will deliver the improved efficiency essential to maintain front-line capability and combat effectiveness, whilst delivering significant financial benefits over the many years of the service life of these platforms, delivering gross savings of £10 million in the current year, rising to some £40 million per annum from 2007–08.

The Department recognises that these fundamental changes will have a significant impact on its military and civilian workforce. Some 1,500 RAF posts are being reduced as a result of the End to End/DLTP decisions and some 700 DARA job reductions have already been announced, but these changes are essential if we are to maintain the required front line capability effectively and efficiently within the resources available.

The Committee posed specific questions, responses to these are given below.

The expected benefits, such as improved frontline capability, improved deployability and cost savings, which are to result from the announcements made by Mr Ingram on 16 September 2004 (and the subsequent decisions made) concerning the Government's preferred way forward for the future support of military aircraft. The timetable in which the expected benefits are to be realised.

The aim of Defence Logistics Transformation Programme (DLTP) is to improve our ability to support the outputs required of the Armed Forces. By improving value for money for the taxpayer the DLTP improves our ability to deliver the military capability required by optimising all logistics activity to enable greater availability of platforms.

The Harrier Joint Upgrade and Maintenance Programme (JUMP) continues to deliver to schedule and budget at RAF Cottesmore. The programme has created a single focal point for all Harrier upgrade and maintenance activity, combining all lines of "on-aircraft" maintenance with the Harrier GR9 upgrade programme. This solution has significantly streamlined the overall logistics footprint for the Harrier fleet

[19] Streamlining End to End Air and Land Logistics 1 July 2003.

and is delivering significant savings over the next four years. It has improved maintenance turn-around-times by 14%, and reduced man-hours for the first 10 aircraft in the programme by 13%, with the total number of aircraft undergoing maintenance and/or upgrade programmes at any one time reducing from 24 to 13. This will enable more aircraft to be made available to front-line commands, thus improving their ability to deliver the required FE@R.

So far as the Tornado is concerned, once the Tornado Future Support programme has achieved full maturity in 2008 the number of aircraft at RAF Marham undergoing "depth" maintenance and/or upgrade at any one time will reduce from 22 to 16. Further work to review maintenance policies and work-schedules is expected to reduce the work content of the maintenance packages by at least one-third. Similarly, the Tornado propulsion facility at RAF Marham will soon support the entire Tornado fleet, (with deep industrial support being provided by Rolls-Royce Ansty) reducing the number of on-base engine bays from seven to one.[20]

One of the keys to achieving savings is the application of "lean" support methodology. For example, process changes to Tornado's engine maintenance and the rationalisation of repair facilities have already led to a reduction in the number of people employed on this work from 2.6 to 0.7 per aircraft at the front-line. Cost reductions will also be achieved by better harnessing industry's design knowledge at the Main Operating Base to reduce unnecessary repair activity.

RAF tradesman and women employed on depth maintenance will maintain their high standards and remain subject to exacting quality control measures. The Tornado Project Team is negotiating a series of partnered support solutions with prime contractors.

On-aircraft "depth" maintenance for Lynx, Chinook and Sea King will deliver significant savings as a result of the concentration of "depth" maintenance for all three platforms into "pulse-lines" at DARA Fleetlands. The newly adopted "pulse-line" methodology, similar to that being adopted at RAF Cottesmore for Harrier, allows aircraft to pass through packaged maintenance activities, thereby reducing repair turn-round-times and releasing aircraft more quickly from repair to the front-line commands. For example, the time taken for Lynx major maintenance should reduce from an average of 175 days to 140 days, with the number of Lynx undergoing repair at any one time reducing from 42 aircraft to 27; higher aircraft availability improves the ability of front-line commands to deliver FE@R. Similar improvements are planned for Sea King and Chinook.

The changes we have made to the arrangements for the future support of military aircraft will deliver gross savings of £10 million in the current year, rising to some £40 million per annum from 2007–08.

The future viability of DARA as an MoD Trading Fund, given the decision to concentrate the support of Tornado GR4 aircraft forward at the MOB at RAF Marham, and the announcement made on 21 July 2005 of job losses at DARA Fleetlands (Engines Business Unit).

The Minister for the Armed Forces made clear in his announcement last November that his decision to roll forward Tornado GR4 depth support to RAF Marham would have significant implications for DARA as a whole and, in particular, that currently envisaged work would not be sufficient to sustain the St Athan business unit on an economic and viable basis, if no alternative work could be found.

DARA was formed in 1999 with the merger of the RAF Maintenance Group Defence Agency and the Naval Aircraft Repair Organisation. It became a trading fund in April 2001.

DARA's viability as a Trading Fund was an issue before the decisions on Red Dragon and the future depth support of the RAF's fast jets were taken. DARA has historically provided logistics support for legacy or obsolescent military fixed wing and rotary aircraft and their systems. Its longer term viability has, for some time, been dependent upon winning new commercial/civil work, to reduce its dependency on the MoD as its principal customer, against a background of general industrial over-capacity in this area.

The move of Harrier and Tornado GR4 depth support to RAF Main Operating Bases—taken together with other factors, such as the early withdrawal of the Jaguar fleet, the reduction in Tornado F3 force levels and other more recent initiatives to optimise aircraft depth maintenance cycles in light of operational experience—have combined to impact significantly on workloads in the short term, and the future viability of DARA as a whole and the St Athan site in particular.

[20] *Update by MoD*: The numbers of aircraft quoted as undergoing depth maintenance needs to be changed. We stated that "once the Tornado Future Support programme has achieved full maturity in 2008 the number of aircraft at RAF Marham undergoing 'depth' maintenance and/or upgrade at any one time will reduce from 22 to 16." Having reviewed again this statement it is felt that the figures, whilst correct as far as they go, do not portray the complete picture and therefore could lead to confusion and possible misinterpretation. Specifically, the figures did not include two aircraft undergoing upgrade activity using a stand-alone Contractors Working Party. By 2008 all such work will be carried out at RAF Marham. Hence it is more accurate to state that:
"Once the Tornado Future Support programme has achieved full maturity in 2008 the number of aircraft at RAF Marham undergoing 'depth' maintenance and/or upgrade at any one time will reduce from 24 to 18."
Furthermore, we indicated that the number of engine bays was reducing from seven to one. Whilst this is factually correct, in that, at one time, there were seven engine bays, from March 2003 propulsion support for the GR4 and F3 fleet was provided from only two bays. This has now been reduced to a single bay at RAF Marham.

The Trading Fund comprises five Business Units; Fixed Wing (St Athan); Rotary Wing (Fleetlands); Engines (Fleetlands); Electronics (Sealand); and Components (Almondbank). The outcome of the E2E review and the Defence Logistics Transformation Programme will have a different impact on each of these and work is in hand to assess the way forward for all parts of the DARA business (See Answer to Question 3).

The recent announcement by DARA of up to 50 redundancies in the Engines Business Unit at DARA Fleetlands follows the loss, in open competition, of a major contract servicing and repairing Tornado RB199 engine modules. We are optimistic that we will be able to achieve a significant number of these reductions through voluntary means and natural wastage. The loss of this work must, however, inevitably have an impact on DARA's ability to win work competitively in this very difficult market sector in the future.

The progress made in exploring with other Government Departments alternative options for the DARA St Athan site and the progress made on the study reviewing the strategic options for the site's future.

In 2003 a decision was taken to consolidate the work at DARA St Athan into a single purpose-built building, replacing a series of badly maintained WW2 facilities. The project, (Red Dragon) was part of an overall agreement to lease the St Athan site to the Welsh Development Agency (WDA) and involves investment from the WDA in the construction of the hangar, with the MoD leasing the hangar back from the WDA.

The decision to proceed with the Red Dragon Superhangar was based on a sound business case and the balance of the evidence available at the time. This was subsequently overtaken by the conclusions of the end to end review of military aircraft support, which sought to address over capacity in the logistics process as a whole (both within the Department and in Industry), but Red Dragon has already enabled the achievement of significant efficiencies and cost savings by DARA. Construction was well underway before the emerging conclusions of the end to end review were known and these would not, at that stage, have altered the basis of the business case for consolidation of DARA's existing business at St Athan.

Since Minister (AF)'s announcement on the way ahead for the depth support of the RAF' fast jet fleets we have been working closely with our colleagues in the Welsh Assembly Government and others to explore all alternative options for the viable and economic use of St Athan as defence work draws down. We have together formed a Joint MoD/Welsh Assembly Steering Group at senior level, which meets regularly to review progress and consider key strategic issues. Representatives from other Government Departments, including the Wales Office and the Department of Trade and Industry have been co-opted onto the Steering Group to ensure pan-government coherency. In addition we have, together with the Welsh Assembly, formed and funded a Joint Marketing team, drawing on expertise from within our respective departments, and external marketing assistance, in the search to draw in new commercial business to the St Athan site.

We have also been working within the Department to examine other MoD uses for the St Athan site. The Committee may already be aware that the site already provides a home for the 1st Battalion, The Welsh Guards. We have also considered what other projects might bring benefits to the Department by their location at St Athan. This work is continuing.

The Department is currently considering the future options for DARA (and DARA St Athan in particular), as a matter of urgency, given the need to resolve the various uncertainties, not least for the DARA workforce. Once a Departmental view has been reached we will discuss our conclusions with key stakeholders, including the Trades Unions and our colleagues in the Welsh Assembly Government, before any final decisions are taken. The criteria for any final decisions will be quality of support to the front line and overall value-for-money. We would hope to be able to make an announcement about the preferred way forward for DARA later this year. The Department would welcome an opportunity to brief the Committee on the proposed way forward at the appropriate time.

The progress made in preparing the MOB at RAF Marham to support Tornado GR4 aircraft, including the progress made in transferring the required number of RAF tradesmen from other bases, such as RAF Lossiemouth.

Since Minister (AF) announced on 25 November 2004 that support for the Tornado GR4 aircraft would be concentrated "forward" on the Main Operating Base at RAF Marham, significant progress has been made to prepare 'depth' facilities at the Station in support of the whole Tornado GR4 fleet. This activity can be summarised under three main headings: process, people and infrastructure.

Process

The maintenance organisation at RAF Marham (and other Tornado Main Operating Bases) was re-configured to the "forward" and "depth" construct on 1 April 2005. Since then, all "depth" maintenance at Marham has been controlled by the Defence Logistics Organisation's Tornado Integrated Project Team. A specialist team has also been established to reorganise existing maintenance activity, using "lean" principles. The support solution for Tornado GR4 at RAF Marham will centralise both on-aircraft (whole aircraft maintenance) and off-aircraft (component repair and overhaul) work. Progress to date includes replacing the traditional maintenance system with a "pulse-line" similar to that successfully employed at RAF Cottesmore to support the RAF Harrier fleet.

The majority of "off-aircraft"' work will be carried out at RAF Marham in existing workshops that have been radically re-organised and re-configured. For example, the pylon maintenance bay has been re-configured and, by September 2005, will carry out all Tornado work. By December 2005, all on-base engine work will have transferred to RAF Marham. Work to centralise repair and overhaul of structural components is progressing. Work still being carried out at RAF Lossiemouth is planned to transfer by March 2006. Based on current plans, all work will have transferred to RAF Marham by March 2007.

People

There will be an impact on people working on aircraft support at other Tornado MOBs. On 10 March 2005, Minister (AF) announced how the overall reductions in RAF uniformed personnel and MoD civilians, achieved as a result of the application of the End-to-End logistic principles, would affect manpower levels. The number of personnel supporting the Tornado fleets will be reduced by some 931. This figure is made up of around 896 service personnel and 35 civilians. There will also be a rebalancing of posts across units as work is centralised. It is planned that 35 posts will have transferred from the RAF Lossiemouth propulsion facility by 31 March 2006 to fully enable the centralised facility at Marham. Over the next two years, as more work is centralised at Marham, a total of around 260 posts will transfer from the other Tornado bases to Marham, to support work in areas such as the paint bay, structures bay and hydraulic bay. The precise numbers and dates are yet to be finalised as they depend on factors such as the outcome of Lean Events and contract completion dates.

Infrastructure

Finally, some work will be undertaken to upgrade the infrastructure at RAF Marham. The Station has sufficient hangars and bays to support the Tornado GR4 aircraft fleet but a programme of improvement, to be implemented over the next two financial years, will be undertaken. The costs of this work were included in the appraisal work leading to the end to end review decision. Additional accommodation requirements for those personnel transferring to Marham are being assessed.

The progress made in concentrating depth support for Lynx, Chinook and Sea King back to DARA Fleetlands.

Although not without risk, the programme to concentrate Rotary-Wing "depth" maintenance at DARA Fleetlands is making good initial progress. Work is in hand to address the risks and refine the programme in the optimum way.

The revised maintenance programme at DARA Fleetlands was implemented in April 2005 and is running to schedule. The first Lynx entered the new lean "pulse-line" at DARA Fleetlands in mid-April, while the first Chinook and Sea King entered their respective "pulse-lines" in June. It is planned that all "depth" maintenance for Chinook will have transferred to Fleetlands by October 2005, for Army Lynx by November 2005, for RN Lynx by March 2007, RN Sea King by September 2005 and all RAF Sea King by October 2006.

A Roll Back Programme Director, supported by an internal DARA team from within the Rotary business, was immediately established in November 2004 to start mapping the new processes that will help deliver the anticipated efficiency and cost savings.

The Programme is based on Value Stream Analysis, whereby the "as is" end-to-end process is mapped and measured, future state options developed and an implementation plan agreed. The aim is to ensure consistent and measurable improvements that guarantee the successful delivery of the increased Roll Back volumes. The Fleetlands team secured the involvement of key MoD stakeholders from the outset. Industry partners, Westland and Boeing, are also an important and integral part of the Roll Back Programme in their roles as Original Equipment Manufacturers (OEMs).

With the help of experienced external consultants, DARA has been able to set some challenging efficiency targets to ensure that unnecessary costs and activities are driven out of the business.

DARA's "Pulse line" closely mirrors the approach that is operating at RAF Cottesmore, where depth maintenance work on the Harrier fleet is now undertaken. It is expected that the introduction of pulse lines will also help improve the availability of spares and smooth the demands on the complicated logistics supply chain. 'Pulse' applies the methods of production to the delivery of depth maintenance. The work environment is configured in phases and the aircraft moves from phase to phase (pulse) at defined intervals, ensuring each phase is conducted to a set schedule of work.

The agreed future state will see three pulse lines on Lynx, two pulse lines on Sea King and two pulse lines on Chinook. Detailed planning and understanding of customer demand and optimisation of current real estate determines that this is the most efficient way to satisfy DARA's customers and drive the efficiencies necessary to reduce overheads.

The Pulse line approach will result in planned turn around time reductions of between 20% and 35% on Lynx, 21% to 34% on Sea King and 20% to 26% on Chinook. These turn round time (TRT) improvements will enhance front line capabilities by reducing the number of aircraft in maintenance by 36% for Lynx, 27% for Sea King and 22% for Chinook, thus increasing the availability of aircraft for operations.

Operational efficiencies and overhead cost reductions are progressing with DARA on target to achieve a 20% reduction in charging rates for 2005–06.

How Typhoon aircraft and Joint Strike Fighter aircraft are currently supported/are planned to be supported in the future.

Typhoon

Between the commencement of RAF Typhoon development flying and the end of June 2005, aircraft were operated, temporarily, from BAE Systems Warton, Lancashire. This successful arrangement allowed the RAF to benefit from the infrastructure and skills at the company's site before transferring aircraft to RAF Coningsby in July this year.

The Defence Logistics Transformation Programme (DLTP) is focussing on Typhoon to ensure more cost-effective, through-life support arrangements reflecting the current best practice and the lessons learned from "leaning" support to current platforms, such as Harrier and Tornado GR4. The Typhoon's "depth" support "hub" is being established at RAF Coningsby progressively from July 2005.

A "Whole Aircraft Scheduled Maintenance and Upgrade" facility is envisaged. An interim arrangement will be in place later this year, followed by a full facility expected to be operational by the end of the decade. *Inter alia*, this will provide for planned maintenance and "upgrade" activities to bring earlier aircraft up to the later standards as Typhoon is developed incrementally.

Industry partners are being engaged, to establish a Prime Support Contractor Management (PSCM) relationship in order to deliver long-term, cost-effective support. The principle is to provide single-point accountability for delivery of an output-based, integrated support solution to the Front-line Command. The selection of repair and overhaul contractors for "off-aircraft" component maintenance (by competition against long-term value-for-money criteria) has commenced with the first contracts expected to be in place in early-2007.

Joint Strike Fighter

Support for Joint Combat Aircraft (JCA) is planned to benefit from the economies of scale that the full 3,000-plus global aircraft Joint Strike Fighter production base will bring.

It is likely that a depth maintenance facility, at a Main Operating Base in the UK, will be feasible. If this demonstrated to be cost-effective in the wider programme it will be operated through a partnership between the MoD and Team Lockheed (Lockheed Martin, BAE Systems and Northrop Grumman).

How transport aircraft (such as C-130 aircraft, C-17 aircraft and the A400M aircraft) and reconnaissance/surveillance aircraft are currently supported/are planned to be supported in the future.

Support arrangements for the MoD's fleets of transport and reconnaissance/surveillance aircraft have been developed over the past five years in line with the MoD's strategy to seek long-term partnered arrangements with industry. In the case of the C-17 fleet, this arrangement takes advantage of the wider global support solution provided by Boeing.

For the VC10 fleet, DARA has successfully partnered under a BAE Systems prime contract arrangement to deliver the long-term support solution with DARA St Athan as the "depth hub". These partnered solutions are already driving down support costs while at the same time improving the availability of platforms to the front-line.

We will continue to explore support arrangements for the large-aircraft fleets that will offer best value to the MoD. In the majority of cases these would be partnered support solutions achieved through a prime contractor, such as Marshall Aerospace in the case of C-130.

The progress made in relation to the Airfield Review and how the outcome of the review will affect the future support of military aircraft and the delivery of frontline capability to the RAF.

In March 2004 the then Under Secretary for Defence announced the Department's intention to consolidate Defence activity onto fewer, more densely utilised sites[21] to optimise MoD's use of land and facilities and hence to enhance the delivery of military capability and improve value for money. The Defence Airfield Review, announced in July 2004,[22] is part of this work. The aim of the Review is to create the optimum basing posture to meet the security challenges of the 21 century and best suited to the new aircraft types coming into service.

The Review takes the form of a series of business cases. Those currently being examined are:

[21] *Official Report*: Column 47WS—23 March 2004.
[22] *Official Report*: Column 348—21 July 2004.

— Joint Combat Aircraft basing.
— Nimrod MRA4 basing.
— Volunteer Gliding School basing.
— University Air Squadron/Air Experience Flying basing.
— UK Military Flying Training System.

The Department expects to announce a decision on JCA basing later this year. Five candidates are under consideration; RAF Lossiemouth, RAF Marham, RAF Leeming, RAF St Mawgan and RAF Cottesmore.

On 10 March 2005[23] the Minister for the Armed Forces announced that the MRA4 will initially enter service at RAF Kinloss and that work continues to assess whether the optimum long term basing solution will be RAF Waddington or Kinloss. If Waddington is selected as the long term base for MRA4 the aircraft would not relocate until at least 2013.

Opportunities will also be explored to rationalise gliding and University Air Squadron activity onto fewer sites where this provides cost-effective support arrangements.

The outcome of the Review will not drive the provision of future support to aircraft. Nor will support solutions drive airfield requirements. These processes work hand in hand to deliver the optimum frontline capability within the resources available.

An update on the RAF redundancy programme, including the number of redundancies made to date and the percentage of these from the aircraft engineering trades.[24]

The December 2003 Defence White Paper, *Delivering Security in a Changing World*, set out a comprehensive statement of Defence policy and the strategic environment in which the UK's Armed Forces operate. Further work was undertaken on a sustainable and affordable future force structure to support this policy and the Secretary of State announced the resulting plans to restructure the Armed Forces[25] in July 2004. For the RAF, the changes in the force structure and the achievement of planned organisational efficiencies resulted in a reduced RAF trained manpower requirement of around 41,000 by April 2008. The trained strength on 1 July 2005 was 48,610.

The RAF is exploiting the opportunity provided by the new strategic environment and advances in technology to adapt its structure and employment patterns to meet the demands that it will face for the foreseeable future. The tempo of change in RAF manpower will also be driven by a range of initiatives that seek to make more efficient use of the mix of regular, reserve, civilian and contractor personnel. The RAF has completed its initial work to plan the drawdown of RAF regular manpower numbers by April 2008 and is undertaking further detailed work to identify future manpower structures and capabilities that effectively support operational capability in the new strategic environment, and which are affordable and taut.

The drawdown in the trained strength of the RAF is being achieved through a balanced strategy of normal outflow, reduced recruitment and a targeted redundancy programme. The redundancy programme will entail around 2,750 redundancies, in three Tranches, spread over two years. Tranche 1 is well underway with 507 applicants selected for redundancy who are due to exit in September 2005; only one non-applicant was selected for redundancy in Tranche 1 and is due to leave in March 2006. As expected, most of the

[23] Via letter to affected MPs.

[24] *Update by MoD: In addition, the information regarding the RAF redundancy programme contained in this reply is updated below to take account of the outcome of Tranche 2, announced at the end of September:*
The December 2003 Defence White Paper, *Delivering Security in a Changing World*, set out a comprehensive statement of Defence policy and the strategic environment in which the UKs Armed Forces operate. Further work was undertaken on a sustainable and affordable future force structure to support this policy and the Secretary of State announced the resulting plans to restructure the Armed Forces in July 2004. For the RAF, the changes in the force structure and the achievement of planned organisational efficiencies resulted in a reduced RAF trained manpower requirement of around 41,000 by April 2008. The trained strength on 1 July 2005 was 48,610.
The RAF is exploiting the opportunity provided by the new strategic environment and advances in technology to adapt its structure and employment patterns to meet the demands that it will face for the foreseeable future. The tempo of change in RAF manpower will also be driven by a range of initiatives that seek to make more efficient use of the mix of regular, reserve, civilian and contractor personnel. The RAF has completed its initial work to plan the drawdown of RAF regular manpower numbers by April 2008 and is undertaking further detailed work to identify future manpower structures and capabilities that effectively support operational capability in the new strategic environment, and which are affordable and taut.
The drawdown in the trained strength of the RAF is being achieved through a balanced strategy of normal outflow, reduced recruitment and a targeted redundancy programme. The redundancy programme will entakil around 2,750 redundancies, in three Tranches, spread over two years. Tranche 1 is all but complete with 508 applicants selected for redundancy who were due to exit in September 2005; one one non-applicant ws selected for redundancy in Tranche 1 and is due to leave in March 2006. As expected, most of the redundacies (463–around 90%) in Tranche 1 are in the aircraft engineering trades. This is due mainly to the efficiencies arising from the Defence Logistics Transformation Programme and, in particular, the implementation of plans to realign RAF logistic support structures from the traditional four lines of maintenance to two levels (Forward and Depth).
Tranche 2 will comprise around 1,200 personnel all of who were applicants. Those selected have been notified and should leave the Service in April 2006; a small number of exit dates may be deferred to meet transient manning needs. Around 65% (790) of those selected are from aircraft engineering trades.
The balance of around 1,050 redundancy places will form Tranche 3 of the programme, with most applicants expected to leave in April 2007 and non-applicants in September 2007. Tranche 3 is only in the initial planning stages, although we would expect the aircraft engineering trades to feature again but probably at a lower percentage than in the first two tranches.

[25] *Official Report* col 343.

redundancies (463—around 90%) in Tranche 1 are in the aircraft engineering trades. This is due mainly to the efficiencies arising from the Defence Logistics Transformation Programme and, in particular, the implementation of plans to realign RAF logistic support structures from the traditional four lines of maintenance to two levels (Forward and Depth).

Applications have already been received for Tranche 2 of the redundancy programme. It is anticipated that Tranche 2 will comprise around 1,200 personnel, and that those selected will be applicants who will leave the Service in April 2006; any non-applicants selected will leave in September 2006. Quotas for Tranche 2 have yet to be finalised but it is anticipated that around 60% (690) of those selected will be from aircraft engineering trades.

The balance of around 1,050 redundancy places will form Tranche 3 of the programme, with most applicants expected to leave in April 2007 and non-applicants in September 2007. Tranche 3 is only in the initial planning stages, although we would expect the aircraft engineering trades to feature again but probably at a lower percentage than in the first two tranches.

An assessment of how the changes to RAF Force Restructuring announced on 21 July 2005 (closure of RAF Saxa Vord and changes to the RAF Regiment) will impact on the RAF's frontline capability and whether further changes relating to RAF Force Restructuring are expected and, if so, in what areas.

The RAF Regiment's Force Protection capability will increase as a result of the restructuring announcements made in July 2005.[26] The addition of 40 personnel to both 3 Squadron RAF Regiment and the Queen's Colour Squadron, (63 Squadron RAF Regiment) will enable both squadrons to augment their existing capabilities by broadening the range of skills available to them, eg the use of mortars and enhanced surveillance, and bring their holistic capability up to the levels of other squadrons in the same role. As a result, the number of fully formed RAF Regiment Field Squadrons available for deployment will rise from four to six, generating greater operational flexibility for the RAF Regiment overall in its core force protection role.

A reduction in the strategic requirement for Ground Based Air Defence (GBAD) coverage prompted the rebalancing of GBAD roles announced as part of the Addendum to the Defence White Paper: Delivering Security in a Changing World, "Future Capabilities", in July 2004.[27] The re-allocation of the RAF's GBAD role to the Army will not reduce the quality of GBAD coverage. The new Joint GBAD Headquarters, launched on 1 July 2005, remains within the RAF Command Structure. The disbandment of the four RAF Regiment Rapier squadrons has enabled the transfer of the additional personnel to both 3 Squadron and the Queen's Colour Squadron cited above. The augmentation of Field Squadron capability reflects the higher operational priority, against current threat assessments, of this role.

The decision to base RAF Regiment Force Protection units at Main Operating Bases will also generate operational benefits. Operational commanders will be able to draw on a package of force elements who, through co-location, will have trained together on a regular basis. This development of understanding and shared skills will greatly enhance the RAF's holistic capability to deliver Air Power.

Changes in the strategic environment mean that the level of capability provided by RAF Saxa Vord in its Air Surveillance and Control System role is no longer required. The level of air surveillance coverage assessed as necessary can be provided by other RAF radar sites, augmented by the National Air Traffic Service. The site will continue to be maintained so that, should the strategic environment change, it can be re-activated.

RAF force levels and structures are kept under constant review in light of changes to the global security environment. Work continues to implement the changes already announced, including the co-location of HQ STC and HQ PTC at RAF High Wycombe. The changes to RAF force structures made over the last 18 months will contribute to the RAF's manpower reduction target of 7,500 personnel by 2008. These changes are balanced against an equipment and infrastructure investment programme which will improve capabilities in areas required to deliver expeditionary air power.

September 2005

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[26] *Official Report*: column 117WS—21 July 2005.
[27] *Official Report*: column 343—21 July 2004.

Further memorandum from the Ministry of Defence

The Committee requested further information to our memorandum submitted in September 05.[28]

DARA St Athan/RAF Marham/RAF Cottesmore

What, if any, preparations have been made for the sale of the DARA site?

No preparations have been made for the sale of any of the DARA sites. As part of DARA's "Red Dragon" new build project, the Welsh Development Agency (WDA) acquired a 125 year lease on the St Athan site in Jul 2003, with the exception of West Camp, occupied by the Army, for which MoD has retained the freehold.

How much public money was spent by MoD on developing the DARA site as part of the Red Dragon project?

Public money spent by MoD on developing the DARA site as part of the Red Dragon project is as follows: DARA Project costs £5.3 million.

And subsequent to construction: DARA Fixtures and Fittings £10.9 million.

There were DARA removal costs which were paid by Defence Estates of £1.2 million.

The Red Dragon project was funded via a commercial operating lease, payable annually by DARA commencing in December 2004.

What investment has been necessary to upgrade facilities at RAF Marham to make it suitable for depth support?

The End to End Review recognised the need for financial investment in logistic support facilities at RAF Marham as part of the decision to concentrate "forward" the logistic support of the Tornado GR4 to the Main Operating Base. The financial analysis which supported the Ministerial announcement on Air Depth support took into account the potential investment of some £8 million at RAF Marham over the period 2004–05 to 2006–07. Latest estimates indicate the need to spend £5.9 million on Depth Support facilities such as hangar floor resurfacing, gantry cranes and upgrading electrical power supplies.

Is there currently a full complement of engineering posts at RAF Marham?

RAF Marham has its full complement of engineering posts in Forward and Depth. 1,476 engineering posts are established at RAF Marham to meet its tasking, at present there are 1,487 personnel in post plus an additional 117 overborne personnel.

Has Harrier flying time between servicing been extended? If so how by how much and what risk appraisal has taken place?

The flying time interval for the maintenance cycle of Harrier GR7/GR9 aircraft has recently been extended by 44%. The most notable effect in the Depth domain is that the scheduled maintenance interval for Minor maintenance has been extended from 500 to 720 flying hours and from 2,000 to 2,880 flying hours for Major maintenance. The extension was approved in July 2005 following a two-year study and in-depth analysis carried out in consultation with the aircraft, engine and equipment design authorities; there is no increase in engineering or operational risk.

Have any Harriers had to be sent to BAE Systems for major repair since Harrier support has been based at RAF Cottesmore? If so, how many and what was the nature of the repairs? And at what cost?

No Harrier aircraft have been sent to BAE Systems Warton for major repair since the commencement of the Harrier Pulse Line in February 2003.

A contract was let with BAE Systems Warton for 11 aircraft to be upgraded to Harrier GR9/T12 standard. This requirement was identified in 2003 to ensure the Harrrier GR9 in-service date would be achieved. The last six aircraft undergoing the upgrade are all due to be delivered to front line service by the end of this financial year. Two other Harriers are currently at Warton; one aircraft is being used for trials work for future capability, and one T Mk 10 is the final aircraft of 11 two-seaters being modified to improve the aircraft's structural integrity and avionics fit under a contract awarded in 1999.

[28] Ev 48–55

FLEETLANDS/ROTARY WING

MoD's submission states that the decision to concentrate Rotary-Wing "depth" maintenance at DARA Fleetlands is "not without risks". What are these risks and how are they being managed?

The risks to the programme to concentrate Rotary-Wing (RW) depth maintenance at DARA Fleetlands are primarily:

(a) Provision of support from the customer base:

(i) Volume of work: The commitment to provide DARA with 700 million hours in 2005–06, 850K hours in 2006–07 and 1 million hours of work in 2007–08 is challenging. Current estimates for the total depth task across the Lynx, Chinook and Sea King platforms adds up to only c 900 million. There is a risk that we won't fly enough hours to generate the maintenance requirement, which is very dependant on the operational situation; in addition the DLO is constantly striving to reduce man-hours per maintenance event in order to improve efficiency. The Rotary Wing Cluster leader, together with each platform IPT leader, are investigating all possible options to move work to DARA.

(ii) Efficient operation of the new, lean pulse lines will be critically dependant on the timely provision of spare parts. On site support teams are being established at Fleetlands to mitigate this risk.

(b) Benefits Realisation:

(iii) DARA Prices not only depend on volume of work, but also on achieving an internal transformation within DARA, who have adopted Lean principles to reduce waste and drive through effectiveness and efficiency improvements. The lean transformation programme being implemented by DARA is recognised as one of the most challenging in Europe. DARA has committed the resources of senior Board-level management to oversee the successful delivery of the programme. A full-time Programme Director, along with IPT support at the highest level, is ensuring the programme plan is on track for a successful delivery of the agreed £per hour rate. However, it will remain dependent on the IPTs delivering the agreed hours.

(iv) Full benefits realisation of transferring work to DARA Fleetlands, which was previously undertaken by military personnel at 2nd Line in Front Line Commands, is reliant on the timely redeployment of those personnel elsewhere within their respective Service or release through premature voluntary retirement, natural wastage or where necessary redundancy.

Why is the RAF's support policy, which requires a sufficient number of tradesmen capable of being deployed to operation theatres to provide support, not being applied in the case of Rotary Wing aircraft?

There is no difference between RAF support policy for Fixed and Rotary Wing aircraft: each is based on the concept of "Forward" and "Depth"' support for each platform, with depth support being concentrated at the most cost-effective location. Just as with fixed-wing platforms and stations, each of the RAF Rotary Wing stations has examined their requirements for manpower in order to meet the Service harmony guidelines. The requirement is driven by the number of personnel who are deployed on operations to support a particular platform type. The number of people deployed will depend on the surge of the operational fleet, the complexity of the platform and its support arrangements, and the intensity of operations. In the case of Chinook and Puma forces, the conclusion was that there were sufficient numbers employed forward on the station to meet these requirements without the need to embed any additional personnel in Depth. This is not the case for the Fast Jet Force.

Who will be responsible for maintaining rotary-wing aircraft on operations? Will the RAF have a sufficient number of tradesmen capable of deploying to operational theatres to support rotary-wing aircraft?

Support at the Deployed Forward Operating Base will be provided by RAF manpower from the home station, whilst more complicated and time consuming maintenance effort will be provided by personnel from all three services working jointly and, where feasible, deployed contractor support. More complicated and time consuming maintenance is that which is conducted in the forward area, but is not possible within the six hour notice to move times of the forward operating bases. Such work includes both scheduled maintenance and the repair of a very limited number of components; in particular composite repairs.

Following this concept of operations the Joint Helicopter Command does have sufficient support personnel to meet all contingency operations. There is no plan for "Depth" activity to be carried out at "Deployed Forward" locations.

Who were the "experienced consultants" referred to in the MoD submission?

The consultants employed to assist DARA prepare for roll back are a US-based company, Simpler. DARA selected Simpler Consultants to provide external assistance because they were already a proven supplier to the DLO (Harrier and Sea King) with considerable expertise in the aviation business. They have applied the principles successfully achieved by the Toyota Company to remove all non-value added activity and create a "flow" line of work similar to a production line.

Where does MoD plan to provide depth support for Puma and Merlin rotary-wing aircraft?

Puma depth support will be provided at RAF Benson and is a roll forward solution. Merlin support for the RAFs Mk3 aircraft will take place as part of the joint roll forward solution at RNAS Culdrose along side the larger RN Mk1 fleet.

Why, given the fact that Chinooks form part of RAF expeditionary forces, was Crisis Manpower Requirement (CMR) not considered a critical factor in deciding where its support was located?

CMR consists of more than just the personnel required to deploy, it also takes account of personnel required to defend and support a Station during a crisis. The Joint Helicopter Command sees no requirement for additional support staff other than those required to deploy. RAF Odiham examined their requirements for manpower in order to meet the requirements of expeditionary forces and concluded that there were sufficient numbers on the station to meet these requirements without the need to embed personnel in Depth.

When does MoD expect the savings from Lynx, Chinook and Sea King depth support, referred to in the submission, to be realised?

Expected savings will be realised from 2006–07.

General

MoD's submission states that a key reason for concentrating support of the RAFs Harrier and GR4 Tornado fleets forward onto the RAFs Main Operating Bases is that RAF Aircraft support policy is underpinned by a requirement to have a sufficient number of tradesmen capable of deploying to operational theatres to support aircraft—referred to as the RAF Crisis Manpower Requirement (CMR). Has there been sufficient RAF personnel to support the Harrier and GR4 Tornado in recent operations? Given that depth maintenance was undertaken at DARA St Athan is this a change in RAF support policy?

Yes there has been sufficient RAF personnel to support the Harrier and GR4 Tornado in recent operations.

This is not a change in RAF support policy. Under the old structure of 4 Lines of Maintenance, what is now classified as Depth maintenance for the Harrier and Tornado GR4 was carried out in three locations: Second Line on the MOB, Third Line at DARA St Athan and Fourth Line at BAES. The RAF tradesmen within what was Second Line provided sufficient manpower to meet the Crisis Manpower Requirement (CMR), which is why there has been sufficient RAF personnel to support Harrier and the Tornado GR 4 in recent operations. In collapsing the original three lines of Depth maintenance into single Depth hubs at RAF Cottesmore and RAF Marham respectively, the RAF will retain sufficient numbers of what was Second Line manpower in Depth to meet its Crisis Manpower Requirement.

When considering the best way to provide depth support for air platforms, we considered whether the Depth hub should be based at St Athan or MOBs and the IA concluded MOBs were significantly more cost-effective. Even if the Depth hubs were to be based at St Athan, second line military personnel would have been transferred in, resulting in a significant number of redundancies.

What are MoD's trade/engineer officer recruitment targets per annum until 2008–09?

The RAF's recruitment targets for the Engineering Branch and On-Aircraft Engineering Ground Trades until 2008–09 are shown in the table below:

Provisional Recruiting Targets

	FY 2005–06	*FU 2006–07*	*FY 2007–08*	*FY 2008–09*
Engineering Officers	50	39	117	101
On-aircraft Engineer Trades				
Aircraft Technician Mechanic (A Tech M)	125	125	125	180
Aircraft Technician Avionics (A Tech Av)	96	82	165	350
Aircraft Technician Weapons (Eng Tech W)	40	35	70	70

Notes:

1. Future recruiting targets are reviewed at least annually and adjusted to reflect the latest forecast of requirement and outflow.
2. Given the nature of the current RAF drawdown programme, the above targets should be viewed as provisional.
3. Engineering Officer Targets are a combination of civil life intakes and recruitment from serving airmen.
4. Ground engineering and Communication and Information Systems trades are not included.

The submission states that Tranche 3 of the redundancy programme will be complete by September 2007. What risk assessment has been done concerning the RAF's future capacity to react to surge demands as a result of operational demands?

The future levels of trained manpower that the Service will need to meet the range of operational commitments that are likely to be placed on it are assessed on a regular basis, in line with Defence Planning Assumptions. This analysis helps to assess the RAFs Crisis Manpower Requirement (CMR) for all branches and trades across all platforms and supporting functions. The CMR comprises regulars and reserves, and includes the minimum number of RAF regular personnel required in the future to enable it to meet its likely operational commitments. In constructing the RAFs current redundancy programme, which will culminate in Tranche 3 in 2007, full account is being taken of the CMR to ensure that the overall pool of trained and available manpower will be sufficient for the RAF to meet the operational commitments placed upon it. Tranche 3 final selections will be announced in September 2006, and the RAF manpower situation will continue to be scrutinised in advance of that date, to ensure that the final quotas protect the RAFs future operational needs.

October 2005

Further memorandum from the Ministry of Defence

Further information following the Committee's visit to RAF Marham on 16 November 2005.

CUSTOMER SUPPLY AGREEMENTS

A Customer Supplier Agreement (CSA) is an internal MOD agreement defining the output required from a supplier organisation to enable its customer organisation to meet its Defence outputs. It sets out the working relationship between the organisations, the resources involved, and the performance targets against which delivery will be judged.

CSAs are a key element of the Department's financial planning and management processes, as they are the mechanism by which the demands placed on a supplier by a customer, to satisfy an intermediate or final output, are specified. They make costs visible and facilitate the continuing drive for greater efficiency.

The CSA agreed by Commander-in-Chief Strike Command (CINCSTC) and Chief of Defence Logistics articulates the business relationship between Strike Command (STC) and the Defence Logistics Organisation (DLO). It formalises the funded outputs, in terms of quantity, quality, timeliness and cost, and defines the services provided to STC by the DLO. It also details the services provided by STC to the DLO in support of depth logistics on STC main operating bases.

The principal aim is to ensure STC's ability to deliver the peacetime levels of force elements at readiness and current military tasks, which CINCSTC is mandated to deliver in the Departmental Plan and RAF Management Plan.

Leaning and Pulse Line Maintenance at RAF Marham

The use of the term "Lean" in a business environment describes a philosophy that incorporates a collection of tools and techniques into the business processes. These tools are incorporated to optimise time, human resources, assets and productivity, while improving the quality of products and service to customers.

The application of lean techniques in aircraft depth support at RAF Marham involves the removal of non-value-added activity (or "waste") from the process. This includes:

- Waiting time for an item;
- Unnecessary movement or travel to obtain items;
- Overproduction;
- Unnecessary transportation of component parts;
- Excess inventory;
- Surplus resources; and
- Incoherent work tasking.

The pulse line is a logical outcome when lean methodology is applied to aircraft maintenance activity. In this circumstance each workstation is configured with exactly the support resources required to carry out the work content of that workstation. Further efficiencies are achieved by streamlining the supply chain.

Civilian Contractor Integration with RAF Personnel

Civilian contractors will be fully integrated with RAF personnel in the Depth organisation at RAF Marham both on the hangar floor and within the management structure.

As an example of integration; it is proposed that Tornado GR4 on-aircraft maintenance at RAF Marham will be contracted to BAE Systems under the Combined Maintenance and Upgrade programme. The team will comprise 243 RAF technical staff, 60 full-time BAE Systems staff, and on average, 46 agency staff. (The number of agency staff will vary to meet the peaks in maintenance man-hours required above those provided by Service manpower.)

Important points to note are:

- To ensure operational military requirements remain the priority, Station Commander RAF Marham will continue to have full command of RAF personnel.
- All staff work the same shift patterns, to the same procedures on the pulse line.
- Responsibility for the efficient operation of all the workstations on the pulse line is held jointly by the RAF and industry, and the overall responsibility for the output of Depth will remain with a RAF Depth manager.
- RAF personnel will have a clear military chain of command leading to Junior and Senior Subordinate Commanders.
- All personnel will periodically transfer between workstations on the pulse line to maintain motivation and increase skills, but the rate of rotation will be controlled to ensure efficient output.
- There will be a common training package for both industry and RAF personnel to meet the particular task requirement.

December 2005

Further memorandum from the Ministry of Defence

Further information following the evidence session on 21 November 2005.[29]

Is there a formula to decide CMR for each aircraft and if so what is it?[30]

The Crisis Manpower Requirement (CMR) for the RAF is determined by the size of the deployed force needed to satisfy an agreed scenario in Defence Planning Assumptions, along with any residual military capability that needs to be retained in the United Kingdom to support the deployed operations. Defence Planning Assumptions lay down the precise number of each aircraft type to be deployed, planned activity levels and the number of Deployed Operating Bases to be supported in each theatre of operation. For manpower directly associated with the support of a particular aircraft type, such as aircraft technicians, the CMR is determined by the number of aircraft deployed, the planned sortie rate for that aircraft type and how many different Deployed Operating Bases the aircraft type is deployed to. For manpower not linked to a particular aircraft type, such as logistics specialists, the CMR is determined

[29] Ev 1–15
[30] Q 11.

by the number of Deployed Operating Bases to be supported, planned activity levels on those bases and the support of key enabling capabilities such as the supply chain. For enduring operations, the CMR allows for a rotation of deployed personnel so as to ensure a break from deployed operations in accordance with RAF harmony guidelines.

There is no difference in the way in which CMR is calculated between Fixed Wing and Rotary Wing forces. However, in the case of the RAF rotary wing aircraft rolled back to Fleetlands, there is no requirement for CMR, for the RAF Sea King because it has no deployment role; for the RAF Chinook there are sufficient numbers employed forward on the Station to meet the full CMR. This is not the case for the RAF Fast Jet Force.

The Recommendation 40 E2E Investment Appraisal (IA) work compared the incremental costs in net present value (NPV) terms of locating depth support for these aircraft at RAF/RN Main Operating bases and DARA St Athan. These costs principally covered the incremental investment required at each location to provide the necessary technical and living accommodation to deliver depth support. For Fast Jets, given the significant CMR implications, eg for Tornado GR4 the CMR was 637 service personnel in depth, the IAs showed that locating depth support forward offered best value for money and operational effectiveness. For Rotary Wing aircraft—Lynx, Sea King and Gazelle—the CMR number was not as large and therefore was not critical; the argument was more finely balanced. In further IA work it became clear that, by taking advantage of synergies and the potential for cost reductions—and hence lower prices—concentrating the depth support for Lynx, Sea King and Chinook at DARA Fleetlands offered best value for money. It should be noted that, had the Investment Appraisal work concluded in favour of roll back of fast jet depth support to St Athan, the move of the RAF manpower required to support the Harrier and Tornado GR4 fleets to St Athan would have displaced a broadly similar number of the DARA civilian workforce.

RAF Regiment/Force Protection

Is the RAF Regiment and Force Protection included in that calculation?

Yes, the RAF Regiment are included in the overall RAF CMR calculation, though they are not included platform-specific numbers. The RAF Regiment is used for Force Protection, and its CMR is calculated using the same Defence Planning Assumption scenario as for the rest of the RAFs crisis manpower. It is determined by the number of Deployed Operating Bases to be protected, rather than by the needs of any specific aircraft type. In addition, the CMR assumes that all RAF personnel deployed will work for 12 hours per day six days per week on their primary duty, such as aircraft maintenance, plus up to two hours per day for general guard duties.

Red Dragon Project Costs

The MoD's estimation of the breakdown of the total expenditure associated with the Red Dragon Project at DARA St Athan, by MoD, the Welsh Development Agency and any other public body involved[31]

The Welsh Development Agency has advised MoD that expenditure to date amounts to £16 million on the St Athan project, relating to purchase of land and project costs, and believes that the current values of its assets are at least equal to the expenditure incurred.

The earlier HCDC question sought details of MoD development costs which amounted to £17.5 million. Total MoD expenditure to date, which includes these development costs, amounts to some £43.9 million, out of a total net MoD estimate of £90–£104 million (depending on the future use/value of the facility); all these cost are expected to be wholly offset by operating efficiencies.

The MoD is not aware of any other public body that incurred expenditure regarding the Red Dragon Project.

December 2005

[31] Q 28.

Further memorandum from the Ministry of Defence

CMR FLOW DIAGRAM—STORY BOARD FOR AIRCRAFT SUCH AS THE TORNADO GR4 LOOKING ONLY AT AIRCRAFT TECHNICIANS

Introduction

The following is designed to demonstrate both the methodology and complexity of the CMR process using as an example, the calculation of the CMR for one of the Concurrency Suites. The context for the specific deployment is explained together with the operational factors that impact on the size of both the deployed manpower requirement and the non-deployed manpower requirement. Using the process described in the associated flowchart, all of the factors are combined to produce a CMR figure for the illustrative deployment.[32]

Guidance and Planning Assumptions—Concurrency Suites (CSs)

- Assumes that a number of ac are to be deployed concurrently, together with supporting equipment and manpower, to undertake specified military operations at either one of the following sets of locations;
  - CS 1 Large Scale deployment (non-enduring[33])
    Small Scale deployment (non-enduring)
  - CS 2 Medium Scale deployment (enduring[34]—4 roules)
    Small Scale deployment (enduring—4 roules)
    Small Scale deployment (non-enduring)
  - CS 3 Medium Scale deployment (enduring—1 roule)
    Small Scale deployment (enduring—1 roule)
    Medium Scale deployment (non-enduring)
- By way of an illustrative example, we will use the RAF Trade Group 1 and 2 manpower requirement figures calculated under CS 2 for the Initial Deployment, each Roulement and the residual Non-Deployed task.
- Factors that affect the Deployed manpower requirement are as follows:
  - Basing options—facilities and services available/provided, host nation support, support from coalition partners, etc.
  - Number of ac required at each location, which may reduce over successive roules.
  - Sortie details—rates, duration, weapon/equipment fit.
  - Technical support arrangements for the ac—split into Forward and Depth activities (some activities that sit naturally in Depth on the MOB may need to deploy, such as Avionic Test Rigs) and based on the following factors; availability of spares, assumptions for the repair of equipment in-theatre including the availability of facilities on the deployed operating base, and/or to replace and return unserviceable equipment through the logistics chain.
  - Effect of Crisis Working Rates.
  - Use of Reserves.
- Factors that affect the Non-Deployed manpower requirement are as follows:
  - Number of ac required to satisfy training requirements, Non-Deployed operational tasking and support to Deployed operations.
  - Sortie details—rates, duration, weapon/equipment fit.
  - Maintenance/repair activity and tasking in support of the respective MOBs.
  - Effect of Crisis Working Rates.
  - Use of Reserves, MoD civil servants and contractors.
- Example Tornado GR4 Manpower Requirement—TG 1 and 2

[32] Q123
[33] Assumes that the peak manpower requirement is only sustained for a period of four months.
[34] Assumes that the peak manpower requirement is sustained for an initial period of four months, plus an additional requirement for each of a specified number of roules (up to four for CS2).

Forward			*Depth*[35] *(Used to be 2nd Line)*		
Initial Deployment	*Roulement (Roules 1–4)*	*Non-Deployed*	*Initial Deployment*	*Roulement (Roules 1–4)*	*Non-Deployed*
260	540[36]	750	60	195	650

— Harmony CE[37] (Forward and Depth)

Initial Deployment **(260 + 60)** + Roulement **(540 + 195)**
= Harmony CE **(1055)**

— Raw CE (Forward and Depth)

Initial Deployment **(260 + 60)** + Non-Deployed **(750 + 650)** + GUE from Non-RAF TLBs[38] **(0)**
= Raw CE **(1720)**

— Most Demanding CE

Harmony CE **(1055)** vs Raw CE **(1720)**
= Most Demanding CE **(1720)**

— Regular CE

Most Demanding CE **(1720)**—Reserve Establishment[39] **(0)**
= Regular CE **(1720)**

— Most Demanding—Regular CE vs GUE

Regular CE **(1720)** vs GUE[40] **(N/A)**
= Risked Regular CE **(1720)**

— Crisis Manpower Requirement

Risked Regular CE **(1720)** + Manning Training Margin[41] **(2% = 34)**
+ **Disease and Non-Battle Injuries**[42] **(0)** + In-Theatre Replacements[43] **(0)**
= **CRISIS MANPOWER REQUIREMENT (1754)**

[35] Some deployable facilities fit better in Depth on the MOB when not deployed.

[36] Would normally be 4 x the Initial Deployment, but as CS2 allows for reduced number of aircraft in later phases, it is less than this.

[37] Crisis Establishment.

[38] Global Unit Establishment—although RAF posts do exist within the Tornado IPT under the Defence Logistics Organisation (a non-RAF Top Level Budget), assume zero for this example.

[39] No TG 1 or 2 Reserve establishment in support of Tornado GR4.

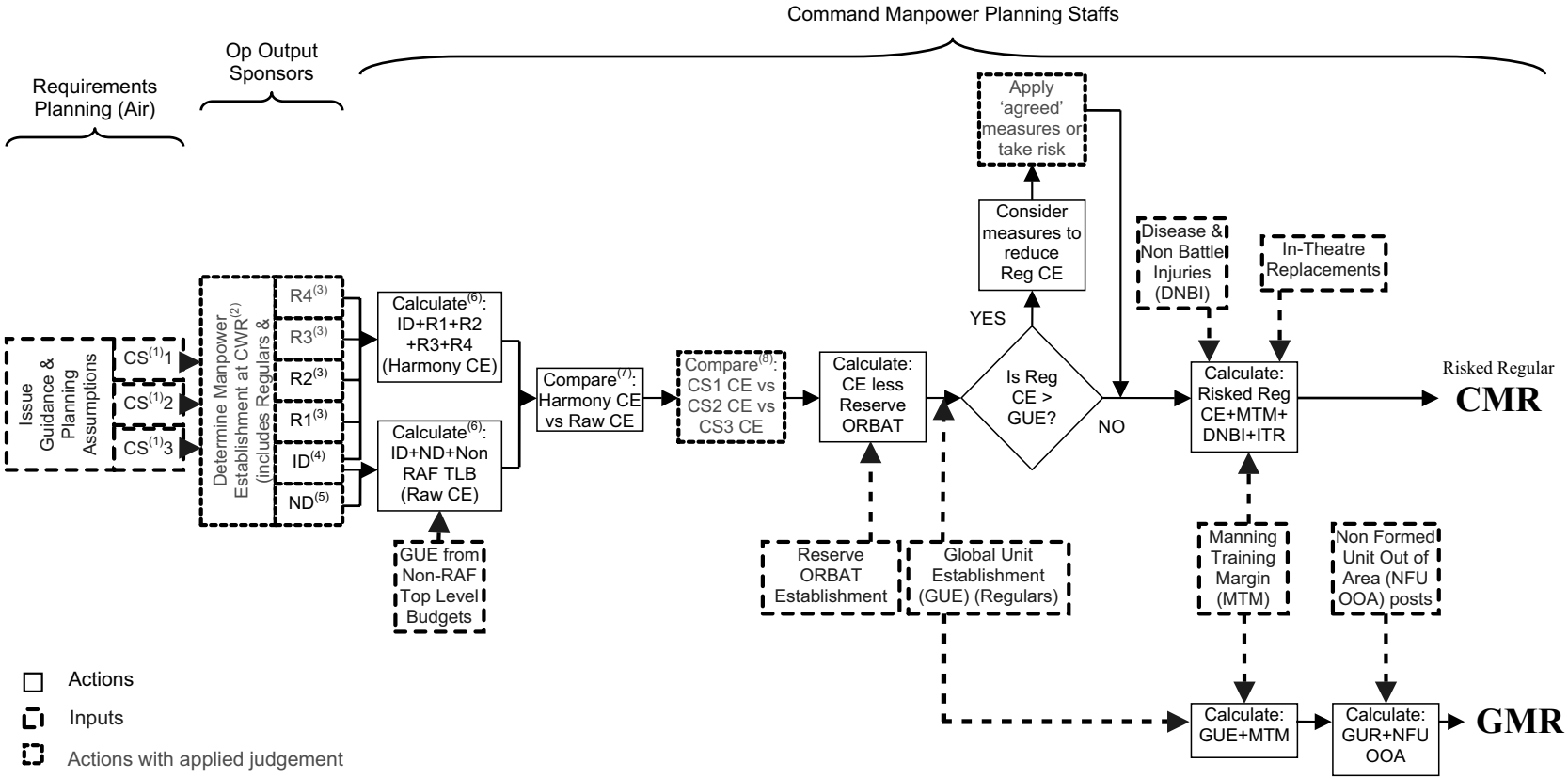
[40] Normally, Regular CE compared with the GUE for a particular Trade or Branch, not a platform. In this example, assume the Regular CE does NOT exceed the GUE, hence no risk is required to reduce the Regular CE.

[41] Used to generate an uplift in requirement and calculated as a percentage of the establishment to account for individuals unable to fill posts due to long-term sickness, maternity leave, relocation leave, terminal leave and training courses normally in excess of three months.

[42] Calculated as a percentage of the establishment to account for individuals returning home due to disease/injury, but assumed to be zero for the current CMR process.

[43] Calculated as a percentage of the establishment to account for casualties returning home, but assumed to be zero for the current CMR process.

CRISIS MANPOWER REQUIREMENT (CMR) PROCESS



Notes:
(1) Concurrency Suite – set of assumptions for concurrent operational activities valid at the start of a future FY (set approximately 18 mths from date the assumptions released)
(2) Crisis Working Rates – assume Deployed; 6 day week/12 hr day + 2 hr guard commitment (no leave) – Non-Deployed; 6 day week/10 hr day (no leave). Peace: 5 day week/9 hr day
(3) Roulement - manpower requirement to support tasking on each roulement (as required)
(4) Initial Deployment – manpower requirement to support tasking on the initial deployment
(5) Non-Deployed – manpower requirement to support residual non-deployed tasking
(6) For each Branch & Trade against each CS
(7) Take the highest figure of either the Harmony CE or the Raw CE, for each CS
(8) Take the highest CE figure based on stochastic judgement and the most demanding manpower requirement over time

Memorandum from the Welsh Assembly Government

The Welsh Development Agency (an Assembly Sponsored Public Body which from 1 April, 2006 is to be merged with the Welsh Assembly Government) acquired RAF St Athan from the Ministry of Defence (MoD) in August, 2003. Its purposes in doing so were twofold; to develop a combined Military and Civil Aerospace centre of excellence and to support the retention and growth of the Defence Aviation Repair Agency and its workforce.

As part of that agreement, arrangements were put in place to enable MoD to construct a new facility (the Red Draft Super-hangar). This facility would allow DARA to rationalise its disparate activities on site into one building and enable it to achieve the financial and operational efficiencies necessary to deliver both to the military customer and potential future civil aerospace customers. The building was completed in February, 2005 and DARA took up occupation shortly thereafter.

From the outset, therefore, the St Athan project was founded on a strong partnership between MoD, the Welsh Assembly Government and DARA, supported by public sector investment of over £100 million to date. This would give DARA every opportunity to develop a strong business base for the future and using DARA's presence at St Athan, help develop an aerospace park with the capacity to create a very significant number of additional jobs over the next 15 years.

At that time a contemporaneous Department for Transport White Paper on the future of Air Transport in the UK identified a strong need for regional Centres of Excellence for maintenance, repair and overhaul and proposed St Athan as a key location.

South-East Wales already contains a nationally important cluster of aerospace maintenance companies, and St Athan is one of very few sites which can offer significant airside development land and has a runway long enough to accommodate a large range of civil and military aircraft. It is therefore an essential physical constituent of any strategy for the growth and safeguarding of the aerospace sector in Wales and the UK.

In September 2004, MoD took the decision (as a result of the End-to-End review) to transfer work on the Harrier and the Tornado from DARA to RAF main operating bases. This has also resulted in the announcement of approaching 1,000 job losses at DARA, St Athan.

The Welsh Assembly Government has consistently stated that it believes this judgment was wrong. It does not understand how, having constructed a new purpose-built facility for an organisation which has consistently exceeded targets and reduced maintenance turn-round times, it can be better value to return this work to main operating bases where such facilities do not exist.

The Welsh Assembly Government has a real concern about the long-term viability of the St Athan facility, which by design is intended to house fast fixed wing jets. The decision does not just threaten the St Athan Aerospace Park proposition, it also has a potential impact on the critical mass of the nationally important aerospace engineering cluster that exists in South-East Wales.

With a world-wide and UK shortage of aerospace engineers, the existing skilled workforce at the facility is the main attraction for aerospace companies when they consider St Athan. However, the fast timetable for job reductions makes it incredibly difficult to attract sufficient new job opportunities to the base before the essential skills are lost to the wider economy.

Nonetheless, "Team Wales" has been constructive at all stages and is committed to transforming St Athan into an Aerospace Centre of excellence employing a significant number of people in well paid jobs. With this very much in mind, following the End to End review announcement a joint inter-Government Working Group between Welsh Assembly Government and the MoD was formed, with representation from the Wales Office and the DTI, to take the St Athan project forward. This Working Group operates from a permanent project office on the St Athan site with dedicated human and financial resource from both parties. The MoD has been extremely supportive in this endeavour and we are grateful for their continued commitment.

The joint Government team has been actively marketing the aerospace park and as a result, there has been and continues to be interest from a number of aerospace operators. The development recently secured its first two civil aerospace occupiers, ATC Lasham and the TES Group. DARA's efforts in making the Twin Peaks building available for ATC Lasham's occupation within a prohibitively short time-scale are particularly to be applauded in the circumstances.

However, it is a fact of life that efforts to attract corporate players are bound to be affected by the uncertainty over DARA's long term presence at the site, with all this implies in terms of retaining the critical mass of skilled labour needed to make a long term success of the aerospace park concept. Notwithstanding this, the Welsh Assembly Government and its Team Wales partners are totally committed to doing everything that needs to be done to give St Athan a new future in the Knowledge Economy. MoD support for this, now and in the future, will be indispensable.

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