

Logistics Transformation, Availability Contracting and Cost Savings

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Society for Cost Analysis & Forecasting: “Affordable Defence”
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Introduction – Purpose

- Provide a riposte to the ongoing (and much-quoted) claim that **“Availability Contracting has halved the cost per flying hour for Tornado and Harrier”**
 - This opinion is derived from the conclusions of the NAO Report “Transforming logistics support for fast jets”
 - Demonstrate that some of the key figures and quotes from the NAO Report are inaccurate/unreliable/misunderstood
- Discuss (briefly) what Logistics Transformation & Availability Contracting *really* offer to MoD



Introduction – Background

- Transforming logistics support for fast jets
National Audit Office, 17 July 2007
- Main Conclusions (from Contents Page)
 - “Logistics transformation has produced positive results in terms of cost and performance
 - The cost of support has decreased significantly
 - The Department has reduced the manpower required to support depth repair
 - Performance has broadly been maintained throughout the transformation of support to fast jets, with some shortfalls associated with transition”
- 52 pages – lots of additional information
 - Recommendations are good

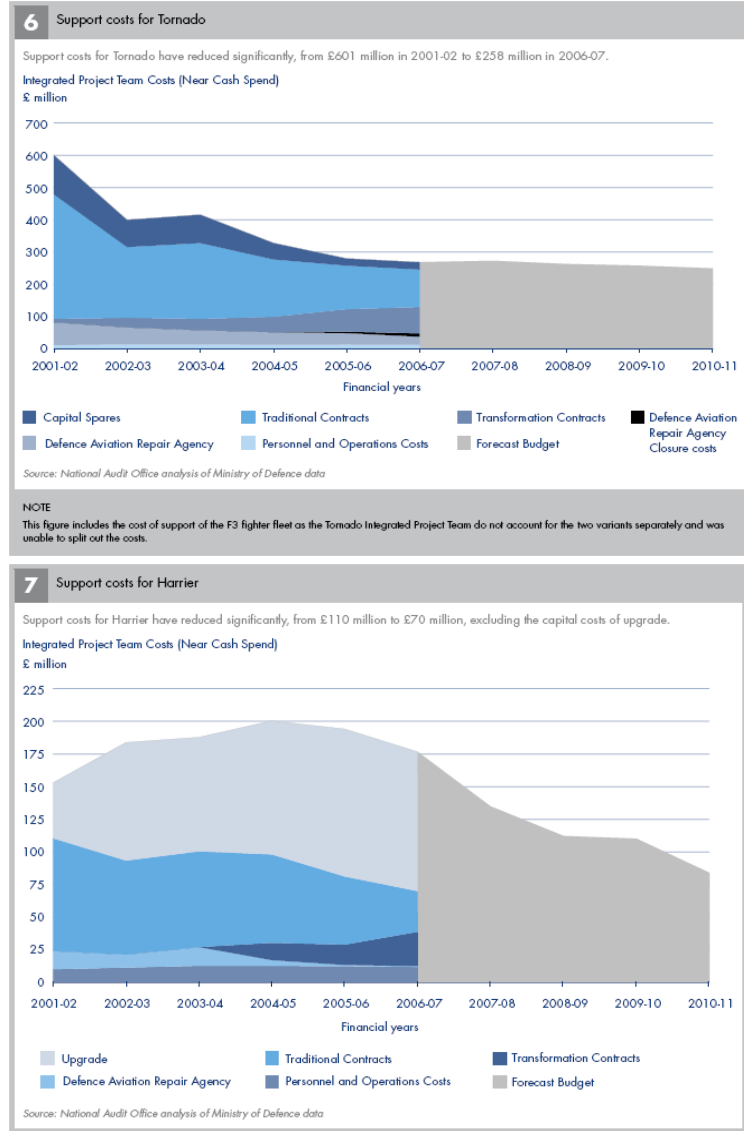


Transforming logistics support for fast jets

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL | HC 825 Session 2006-2007 | 17 July 2007

Introduction – Key Data Values

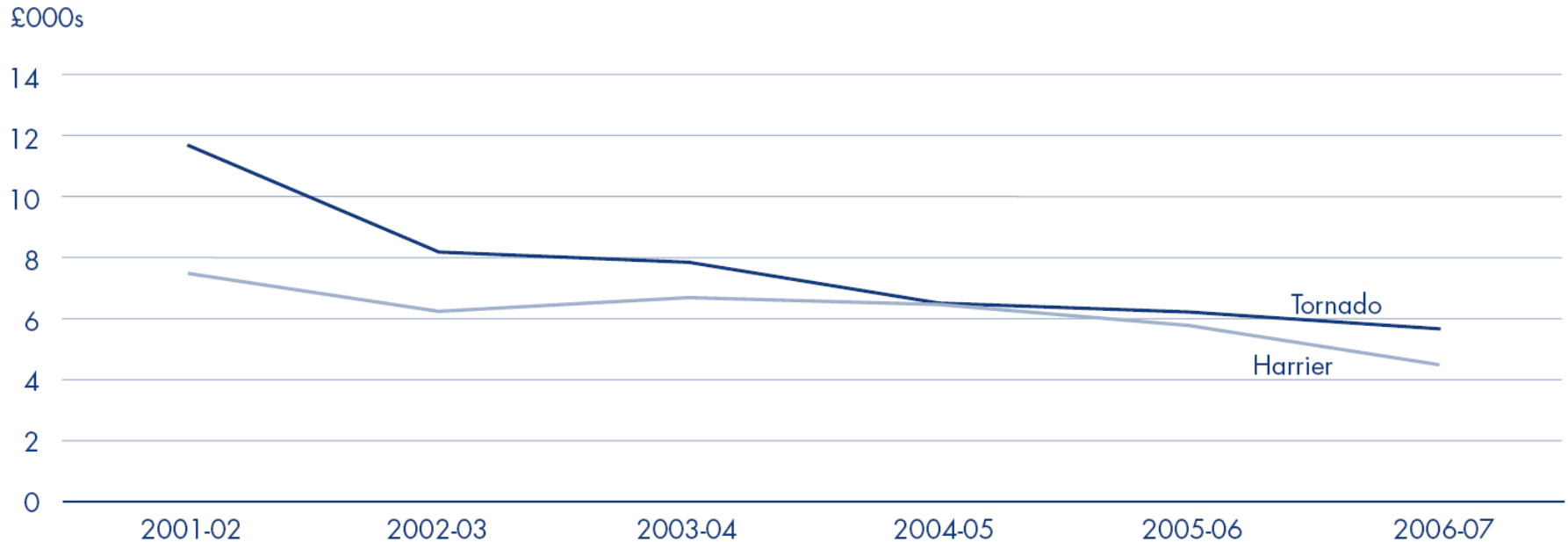
- “The **Tornado Integrated Project Team’s** costs have reduced from **£601** million in 2001-02 to **£258** million in 2006-07 (Figure 6).”
- “The **Harrier Integrated Project Team’s** costs have reduced from **£110** million in 2001-02 to **£70** million in 2006-07, excluding the capital cost of the upgrade programme (Figure 7).”



Introduction – The Whole Story (according to everyone else)

8 Cost per flying hour for Tornado and Harrier aircraft

The cost per flying hour for Tornado aircraft has reduced by 51 per cent and for Harrier by 44 per cent based on the Integrated Project Team budgets.



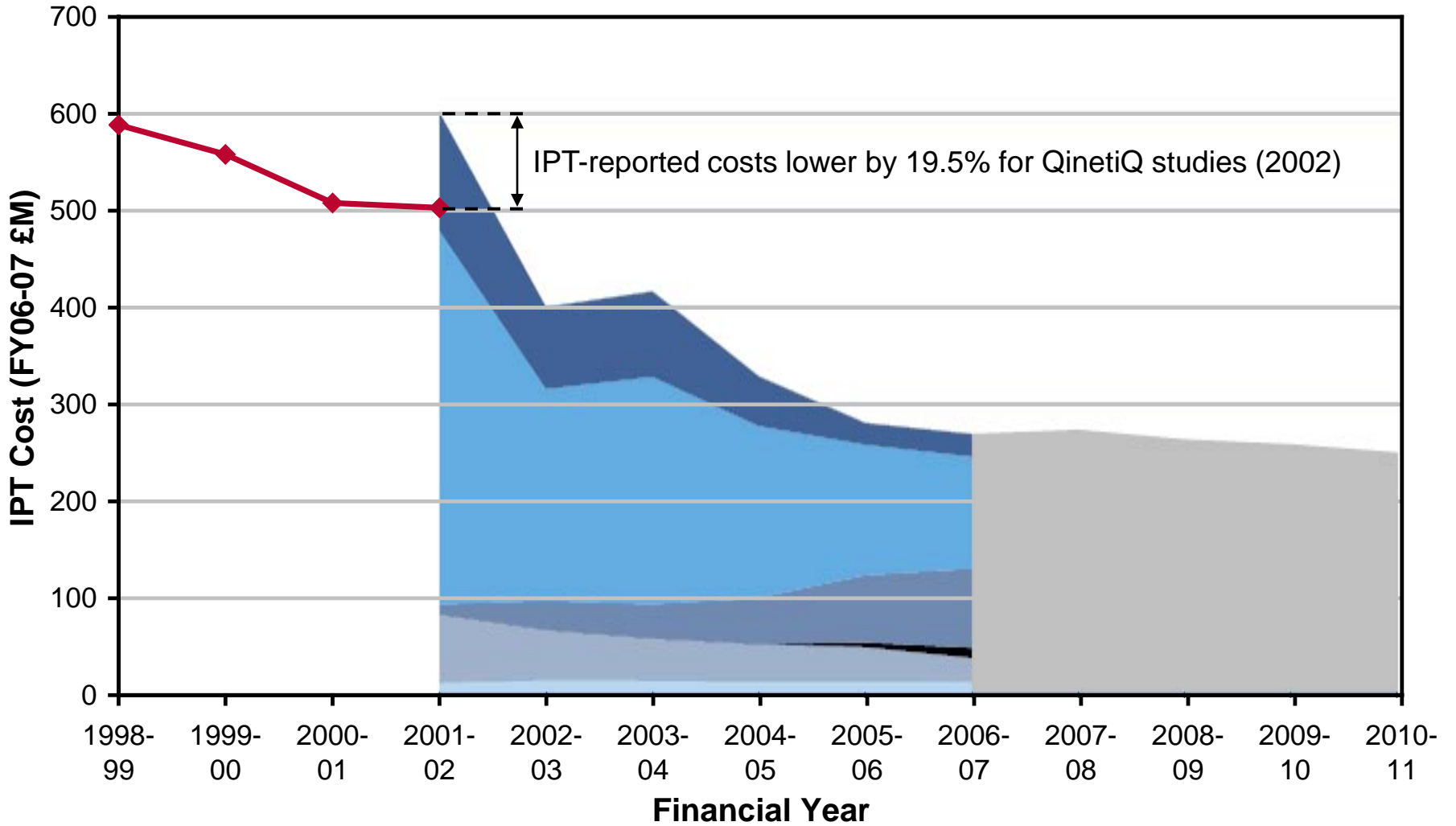
Source: National Audit Office analysis of Ministry of Defence data

NOTE

Harrier budget excludes the capital cost of the GR9 upgrade programme.

Report Issue 1 – NAO data are not reliable

Tornado IPT-provided vs NAO-reported Costs



Report Issue 1 – NAO data are not reliable

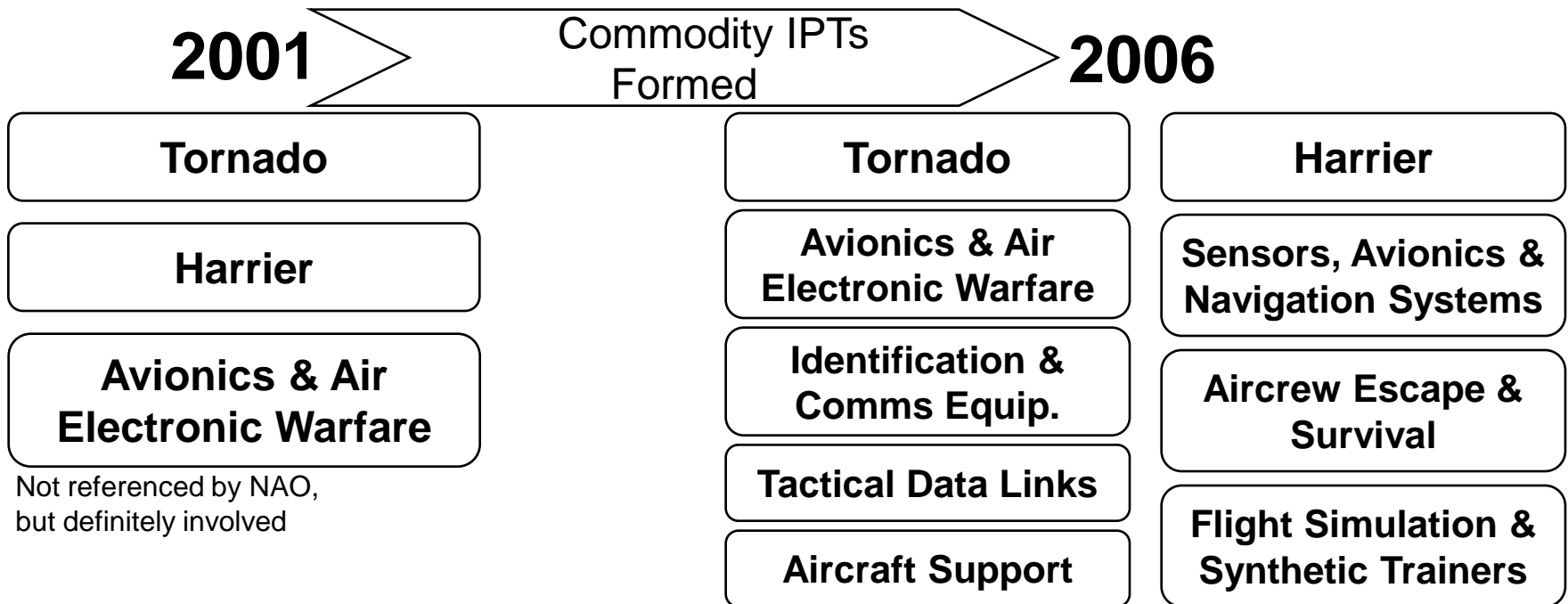
- Differences between NAO numbers & 'SW' data for Tornado
 - NAO states Tornado IPT costs of £601m in 2001-02, £258m in 2006-07
 - Cost reduction of 57%
 - Cost/Flying Hour (FH): NAO states reduction of 51% for Tornado
 - Suggests a **reduction** in FH of **~11.9%**
 - 'SW' data indicates a FH **increase** of **~4.5%** comparing 2001-02 & 2006-07
 - Cost/FH: NAO Costs + 'SW' FH data \approx 59% reduction in Cost/FH
 - 'SW' data suggests that initial cost was £503m, not £601m
 - Cost/FH: using NAO FH suggests reduction of ~44%
 - Cost/FH: using 'SW' FH suggests reduction of ~51%
 - Unclear which is the 'right' answer
- Comparison above assumes that cost in 2006-07 was actually £258m



Report Issue 2 – Formation of Commodity IPTs

- NAO states:

“Supporting fast jets is the **responsibility of multiple budget holders** and the **Department does not have an overall picture of the cost of repair and maintenance** of the Tornado and Harrier fleets.”



Report Issue 2 – Formation of Commodity IPTs

- NAO only considered the cost of the Tornado & Harrier IPTs
 - Budgets reduced because they manage a reduced numbers of systems and equipments
- **Transferring** money to another RAF/MoD budget is **NOT** a **saving!**
- Recent analysis suggests that **Aircraft IPTs** are responsible for only **~75%** of total IPT expenditure
 - £258m for Tornado IPT could quite easily become £344m for all IPTs
 - NAO Cost savings potentially reduced from £343m to £159m
 - Cost/FH reduced from 51% to ~28% (~33% using 'SW' FH)



Report Issue 3 – F3 fleet run-down & spares ‘holiday’

- NAO states:
 - “Tornado and Harrier support costs have reduced significantly, as has the cost per flying hour”, and: “Over the same period, the Department has maintained a broadly similar level of flying hours and the cost per flying hour has reduced for both aircraft fleets (Figure 8)”
- Tornado F3 fleet is being retired from service, and replaced by Typhoon
 - Purchase of capital spares (& PDS?) for Tornado F3 reduced significantly
 - Spare parts cannibalised & used to stock the spares pool as aircraft are retired
 - No mention of this effect is made in the report
 - Assume that no allowance has been made in calculating ‘real savings’
- Reduced IPT costs are partly due to the removal of F3 from service
 - Completely separate from ‘logistics transformation’
 - Real savings reduce further from ~28% (~33%) to ~25% (~30%)?



Report Issue 4 – NAO costs are not total O&S costs

- NAO states:

“Tornado and Harrier Integrated Project Teams are the largest purchasers of support services, but **other teams are responsible for supplying spares and equipment common to more than one aircraft type**. RAF Strike Command is responsible for the associated **manpower and infrastructure costs** but these are **small relative to the Integrated Project Team budgets for the aircraft...**”

- Previous studies have showed that total O&S costs are split (roughly):
 - RAF Manpower (inc. aircrew) 40%
 - Support Contracts (inc. spares) 40%
 - Main Operating Base (inc. fuel) 20%
- Reducing cost of support contracts by ~25% (30%) leads to a reduction in the total cost per FH of ~10% (12%)



Report Issue 4 – NAO costs are not total O&S costs

9 Total Manpower reductions for Tornado and Harrier repair

The Department has reduced the number of Service personnel employed in both forward and depth repair.

Establishments	2005 Starting Establishment	2005-06	2006-07	2007-08 Forecast
Tornado Actual	5,282	5,171	5,012	–
Tornado Planned	–	–	–	4,859
Harrier Actual	1,078	1,079	984	–
Harrier Planned	–	–	–	926
Total	6,360	6,250	5,996	–
Planned	–	–	–	5,785

Source: National Audit Office analysis of Ministry of Defence data

- Calculated weighted average RAF total manpower capitation rate = £61.8k*
- Tornado Forward & Depth manpower cost for 5,012 people ~ **£310m**
- This is **NOT** “small relative to the Integrated Project Team budgets for the aircraft” (NAO state **£258m** in FY06-07)
- Excludes Aircrew, (Supply ?), Operation & Administration Wings

* Total weighted manpower capitation rate by RAF rank (Group Captain & below) based on FY07-08, reduced by 3.5%

Report Issue 5 – Reduced system resilience

- NAO claims:
 - **“Performance has been broadly maintained”**... “some shortfalls associated with the transition”
- Savings are only presented as cost and cost per flying hour
 - Do not take holistic view of overall capability (draw-down of F3 fleet), fleet readiness, military resilience, and recuperation time
- ‘Logistics transformation’ has had the effect of reducing the total number of aircraft that can be made serviceable in short timescales
 - Consequence of setting fixed-price contract with stated availability targets
“As industry is paid for a level of availability, it is incentivised to reduce support chain costs and make the aircraft more reliable and processes more efficient”
- Although costs have reduced, overall level of ‘performance’ is not the same as in 2001
 - Recognised by senior RAF staff



Perception Issue 1 – Transformation = Availability Contract

- NAO report considers '**logistic support** for fast jets'
- Availability Contracting is only one element within the overall Logistics Transformation process
- Several other activities are identified as having significant impacts
 - Rationalised four Lines of Maintenance to Forward & Depth
 - Reduced number of maintenance locations from ~9 to 2
 - Implementation of Lean techniques and Pulse Lines
 - Combined Maintenance and Upgrade activities
 - Availability Contracting is last to be mentioned



Perception Issue 2 – Immediacy of Availability Contracts

5 The main contracts for Harrier and Tornado GR4 aircraft

The numerous existing contracts for the repair and overhaul of fast jets will be rationalised into two or three high value availability contracts with Prime Contractors.

Contract	Detail	Costs	Date signed
Joint Upgrade and Maintenance Programme (JUMP) with BAE Systems plc	Upgrade of Harrier GR7 to GR9 standard combined with scheduled maintenance	£59.6 million	November 2004
RB199 Operational Contract for Engine Transformation (ROCET) with Rolls-Royce plc	Availability contract for Tornado engines	£501 million	December 2005
Availability Transformation: Tornado Aircraft Contract (ATTAC) with BAE Systems plc	Providing maintenance and upgrade of Tornado aircraft through an incentivised availability contract	£1,472 million	December 2006
Harrier Platform Availability Contract (HPAC) with BAE Systems plc	Spares inclusive whole aircraft availability contract for the Harrier aircraft	around £700 million	Planned around December 2007
Mission Ready Management System Phase II with Rolls-Royce plc	Similar to ROCET, whole engine availability contract for both Harrier Pegasus Mark 105 and 107 engines	around £350 million	Planned May 2007

Source: National Audit Office analysis of Ministry of Defence data

NOTE

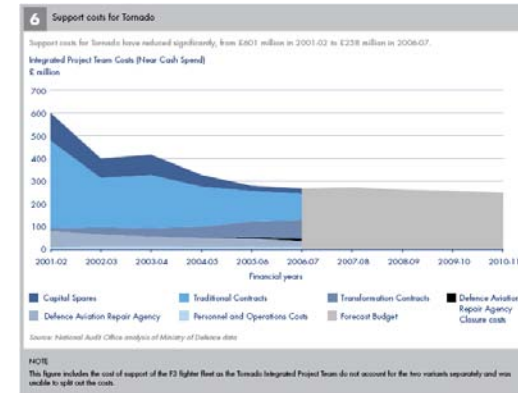
Availability transformation: Tornado Aircraft Contract and RB199 operational contract for Engine Transformation costs are for 10 years; the Joint Upgrade and Maintenance Programme contract is planned to end in 2009.



Perception Issue 2 – Immediacy of Availability Contracts

- NAO claims:

“Over the period 2001-02 to 2006-07, the Department has achieved cumulative savings on the support of Tornado and Harrier aircraft of £1.3 billion and £109 million respectively.”



- By July 2007 (Report publication date), Availability Contracts worth £2,032.6 million had been signed (Figure 5, previous slide)
- Figures 6 and 7 show total spend on Tornado and Harrier Availability Contracts by July 2007 was ~£270m and ~£53m, respectively
 - Impossible that ~£270m of Availability Contract expenditure delivered £1.3 billion in cumulative savings for Tornado by July 2007
 - Very unlikely that ~£53m of Availability Contract expenditure delivered £109m in cumulative savings for Harrier by July 2007
- Availability Contracts are not solely responsible for the claimed savings

Perception Issue 3 – Industry business ‘incompetence’

- Defence Industrial Strategy expects that UK Industry generates profit in order to remain in business to support MoD’s equipment
- High-level aim “Over the period April 2000 to March 2006” to “Reduce by **20%** the output costs of the Defence Logistics Organisation, whilst maintaining support to the Front Line.” MoD Annual Reports and Accounts 2002/2003
- “Availability Contracts have **halved** the cost per flying hour for Tornado and Harrier” – NAO claims 51% & 44% respectively for ‘transformation’
- Why would UK Industry reduce support costs by approximately half to meet a 20% cost reduction target?
 - Industry staff that signed the Availability contracts must be either totally naive or completely incompetent (and perhaps should be shot)
 - I don’t believe they are naive or incompetent
- How did industry reduce MoD costs by >50% on a gain-share contract?



Summary of Views: 'Transforming logistics support for fast jets'

- The savings quoted in the Report are not well founded
 - Initial costs appear to include items outside the scope of this study
 - Costs transferred into other IPT budgets are counted as 'savings'
 - The run-down of the F3 fleet has not been taken into account
 - Analysis doesn't include all the costs of (Operating and) Supporting fast jets
- The level of overall performance is not comparable over the period
 - Cost/FH is a very limited performance metric
- Logistics Transformation is much wider than Availability Contracting
 - Availability Contracts alone have not generated the savings quoted
 - Availability Contracts could not have delivered the savings in the timescale
 - Industry ≠ charity – will NOT deliver the 'same performance' for half the cost



Why it matters

- Much of what is presented as ‘fact’ is wrong (or, at best, debatable)
 - As an engineer, that’s annoying!
 - It is not helping MoD become/remain an ‘intelligent Customer’
- It is being widely quoted

- Within the RAF/MoD, to external agencies and companies, to foreign governments, e.g.

“In 2007, the United Kingdom’s National Audit Office reported that the Ministry of Defence has experienced significant reductions in the costs to support its fast jets.” DEFENSE LOGISTICS: Improved Analysis and Cost Data Needed to Evaluate the Cost-effectiveness of Performance Based Logistics. US GAO, December 2008

- Poor data and information are likely to lead to poor decisions
 - It is promoting a rush towards Availability Contracting that cannot be justified from a costing perspective



Views on Logistics Transformation

- RAF has changed significantly the way it maintains its fast jets
 - Rationalised four Lines of Maintenance to Forward & Depth
 - Reduced number of maintenance locations from ~9 to 2
 - Implementation of Lean techniques and Pulse Lines
 - Introduced Combined Maintenance and Upgrade activities
- Rationalisation has reduced cost
 - At the expense of overall fleet readiness, military resilience, & recuperation times
- It is a high-risk strategy
 - Monopoly suppliers and reduced overall military capability



Views on Availability Contracting

- Availability Contracts were introduced by MoD to save money, reduce risk, improve performance, and maintain the supplier base
 - KPIs are written around Availability – that is what will be delivered
 - The other goals are expected to be delivered as a by-product
- Industry is incentivised to achieve some of the same goals as MoD
 - Aligns with the Defence Industrial Strategy
- Contracts do not contain funds to enable achievement of targets
 - Reliant on efficiencies to meet availability targets
 - Possible that future contracts may be significantly more expensive
- Being tied into a long-term legal contract restricts central ‘salami-slicing’
 - Protects individual & Service budgets
- No conclusive evidence that Availability Contracts save money
 - Are they really an affordable option for MoD?



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Few things in life are as simple as Black and White

