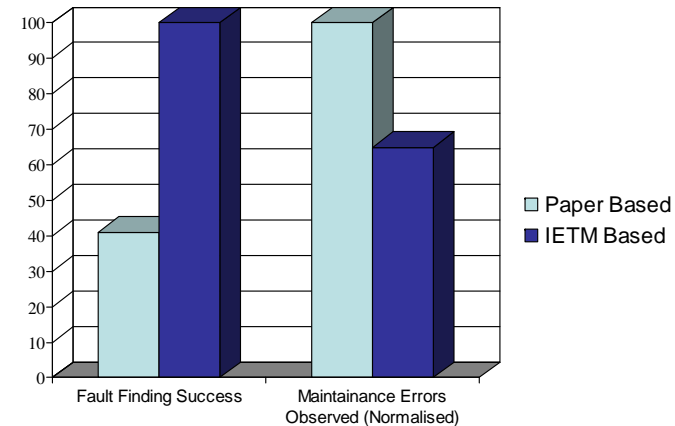


# Information integration and the needs of the maintainer

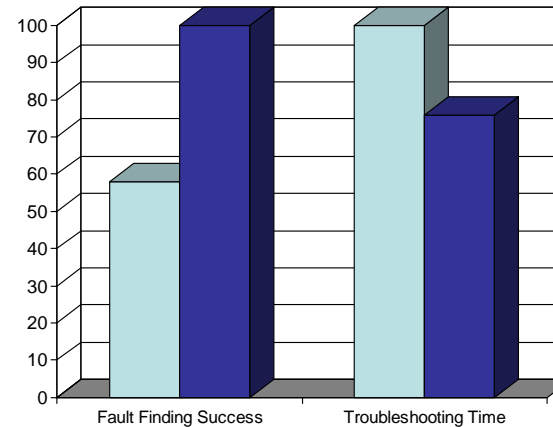
Chris Wood  
BAE Systems

# Success of electronic maintenance information

- In the maintenance arena, the use of electronic information has been shown to deliver:
  - Increase in Fault Finding Success
  - Reduction in Troubleshooting Time
  - Reduction in Maintenance Errors



US Navy F-14A IETM Trial

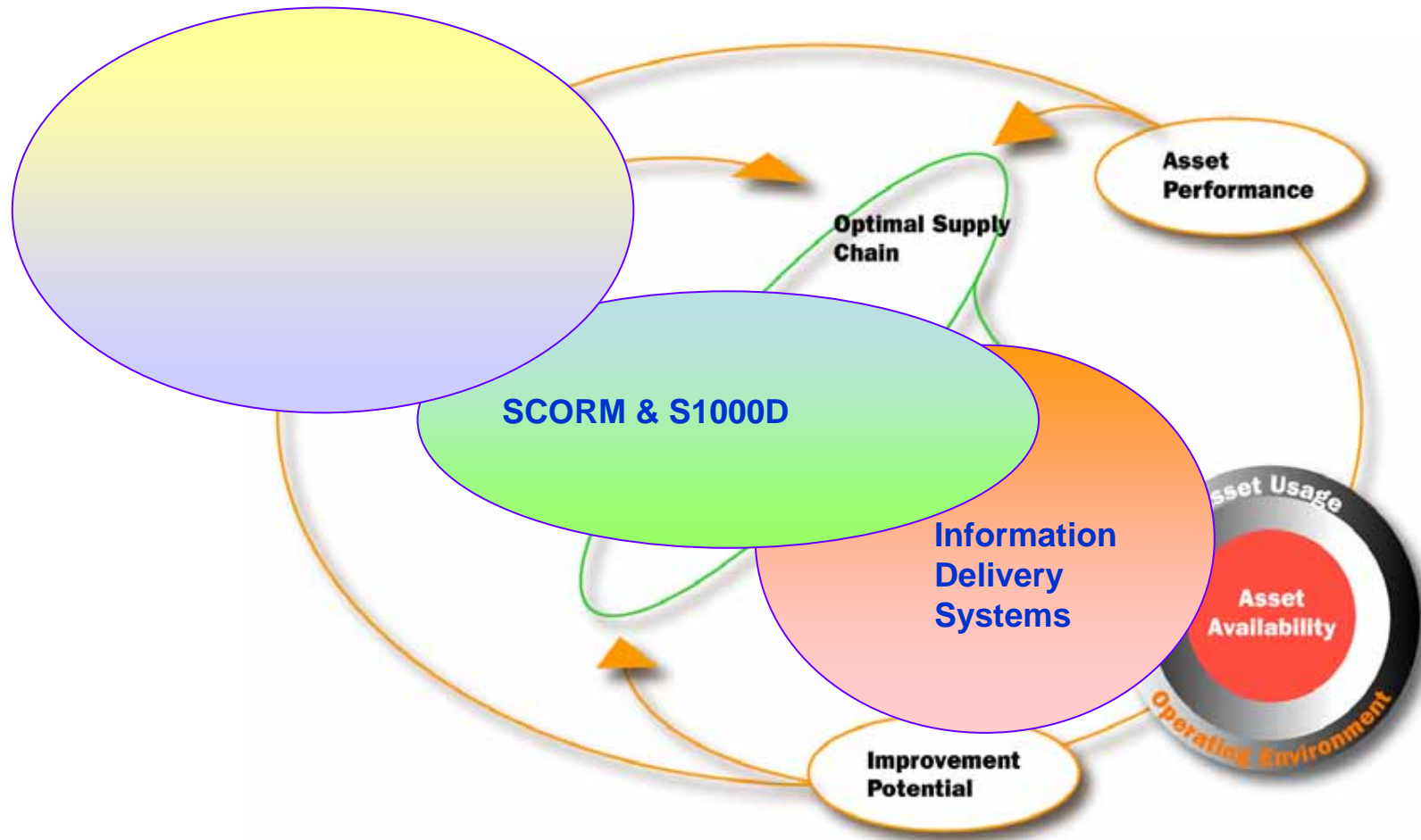


US Navy AN/SPA 25 Radar Repeater Trial

# Key Commercial Drivers

1. Emerging market conditions for output based contracts across sensitive Defence and high value regulated industries
2. Increased market pressure on Information Supply Chain costs as offshore commodity outsourcing develops
3. Technological Developments offer an opportunity to integrate support information applications and processes

# Generic Information Supply Chain



# ATTAC Contract &

# Technical Information solution

- We are supporting the ATTAC contract by delivering a Technical Information solution that is a significant cost saver for the ATTAC programme.
- The ATTAC Technical Information solution delivers improved performance to maintainers on the ATTAC programme by applying innovative information technology solutions and by driving highly integrated support optimisation between information generators and information consumers
- Total cost of the ATTAC Technical Information solution is around £18M over 10 years
- Target is to facilitate savings >£18M by:
  - Inclusion of enriched data (photographs, video, 3-D animation) etc.
  - Closer alignment of the publication content with actual maintenance activities
    - Little black book
    - need only to know what's relevant for the task
  - Technical Information specialists on-base as part of the integrated engineering team
  - Integration of a range of maintenance information applications to deliver increased efficiency to the maintainer

# ATTAC Contract – example of cost savings opportunities

- Power Take Off Shaft
- Used to direct power from the engine to a number of aircraft systems
- Annual returns to industry for repair - >600
- Average repair cost - £6500
- Total annual repair bill - £3.9M
- Following incorporation of improvements to the information in the publication suite, no of returns reduced by >270
- ...producing an annual saving of £1.7M

# ATTAC Contract -

http://127.0.0.1:1332 - trilogView 3.1 - Microsoft Internet Explorer

**46-30 DRIVES - Power take-off shaft removal**

DAP 101B-4104-1FG NATO RESTRICTED

**PROPULSION**

**4. EXAMINATION**

Note . . .

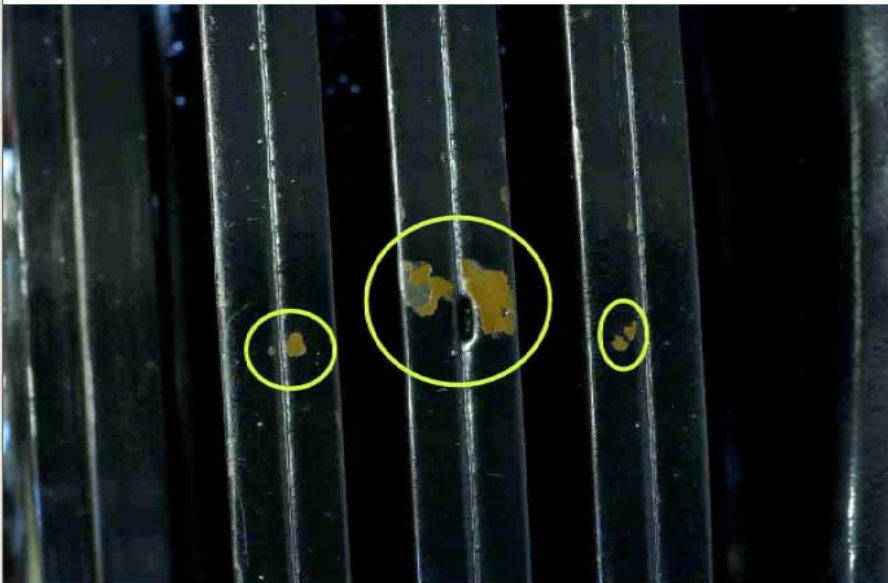
When carrying out the ball-joint check ([Item 4.1](#), sub-item (i) and [Fig.10](#)) do not remove circlip (1), locking washer (2) and inner clamping nut (3).

**4.1 Ball-joint ([Fig.10](#))**

(i) As far as possible, check each end of the PTO shaft assembly for signs of wear and fretting on the following items:

- o circlip (1)
- o locking washer (2)
- o inner clamping nut (3)
- o ball socket housing (4)

**Fig. 3. (Photo) Diaphragm within limits (surface paint flaking only)**



The photograph shows a dark, cylindrical metal component with several vertical ridges. Three yellow circles are drawn around the surface, highlighting areas where the black paint has chipped or flaked away, revealing a lighter, metallic surface underneath. The largest circle is in the center, and two smaller ones are on either side.

Tornado GR4

# Information Integration – the issue.....

- Information Overload ....
  - Release to Service
  - Maintenance procedures
  - Repair procedures
  - Fleet management information
  - Maintenance management information
  - Training information
  - Spares information
  - Engineering information
  - Modifications
  - Capability insertion
  - Design, manufacturing & build information
- All this information is necessary and can be integrated, but .....
  - Who generates it ?
  - Where is it generated
  - Who approves it
  - Is there a recognised authority
  - Who are the approved recipients
- And what about information generated by maintainers for use by Engineers
  - Is there an approval route
  - How authoritative is it

# Approved Data Architecture – the challenge

- To define a Data Architecture that includes all information issued by the Design Authority for the purpose of operating and/or maintaining the platform in service, ensuring it is.....
  - Efficient
  - Effective
  - Safe

## the challenge is data configuration

- Many information deliverables that are used by maintainers and operators are subject to a rigorous and repeatable approval and release process. However, this is not true for all the information they have at their disposal.
- Technology developments and the needs of output-based contracts are dictating that information deliverables become much more integrated.
- This is placing significant emphasis on **cross-discipline data configuration**. E.g. Maintenance management “Reference Data” and Maintenance procedures must be at the same modification standard and must be upgraded, approved and released in alignment throughout the life-cycle.

**This is not a trivial challenge given the breadth of these information deliverables and the associated organisational complexities.**