

# Defence Aviation Asset Management Project

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# Background

- Defence **First Principles Review** proposed integrated **Capability Life Cycle** management
- Capability Acquisition & Sustainment Group (CASG) has particular responsibilities for CLC management
- **ISO55000 Asset Management principles** adopted by **CASG** as the methodology for CLC management

# Air Domain Accountability

- Air Domain has an accountability to assure the Capability Sponsors (Chief of Air Force, Chief of Army, and Chief of Navy) that Defence aviation Products can achieve Capability, Cost and Risk requirements across the Capability Life Cycle, and to advise (preferably in advance) of any issues that might prevent that achievement.

*For those who aren't familiar with our strange language, a Product equals a "Weapon System" and is broadly described in a document called a Product Schedule or Product Agreement*

# Why ISO55000?

- ISO55000 is a structured approach to CLC management
  - A core of ‘systems engineering’
- International standard:
  - Industry and Commonwealth can import expertise
  - Benchmarking within and across industries

**The goal: Avoiding surprises**

**Asset Management = Capability Assurance**

# Air Domain Response

- Air Domain initiated the Defence Aviation Asset Management Project (DAAMP) within context of CASG CLC management initiatives
  - DAAMP objectives:
    - Create a consistent system of Asset Management across Air Domain
    - Inform CASG approach to Asset Management
- Major focus on:
- Managing *aviation* (specific risks, technology etc)
  - *Operationalising* Asset Management

# Overall Project Approach

- Interpret and operationalise ISO55000 for Defence context
- Focus (initially) on In-Service Phase of Capability Life Cycle (with a clear link to the Acquisition Phase)
  - Creates a deliverable for Acquisition projects
- Integrating multiple Assets (eg all of Air Force)
- Tailorable at Product level, but standardised information outside the SPO
- Smart Buyer compatible
- Generic & aviation (delete “aircraft”; insert “ship”, “tank”, etc)
- Define an “Asset” - Conceptually & actually
- Macro and micro-process definition
- Standardisation & innovation (they don’t have to conflict!)
- Integrative management – use extant systems (where possible)
- Initial roll-out of basic elements
- Develop the infrastructure (a medium to long term proposition)

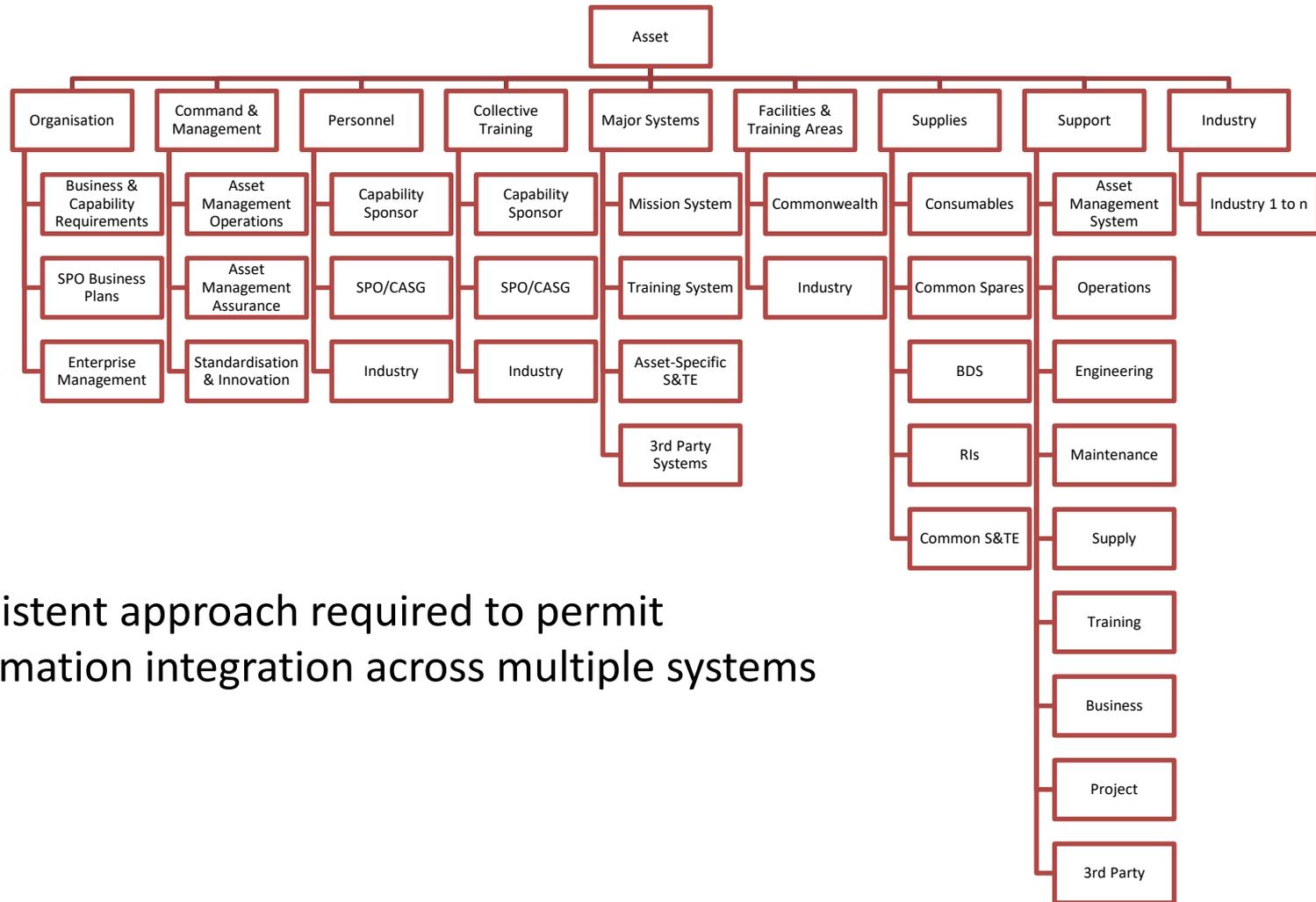
# What is an Asset?

- ISO55001 defines an **Asset** in the context of the **value** that can be derived
  - Not just physical things: **Asset=Capability**
  - **Many definitions of Capability**
  - *No point in managing a fraction of what we do or own!*
- **Asset = Product** in Defence terminology
  - ***Every thing/aspect/idea and every action we perform that goes to delivering a specified Capability***
  - Risk-based approach in definition
  - *Includes items managed by third-parties*
  - *But it doesn't actually matter – these things can be defined and integrated in many ways (provided the information is there)*
- Value obtained from **integration** of Capability, Cost and Risk

# Defining an Asset

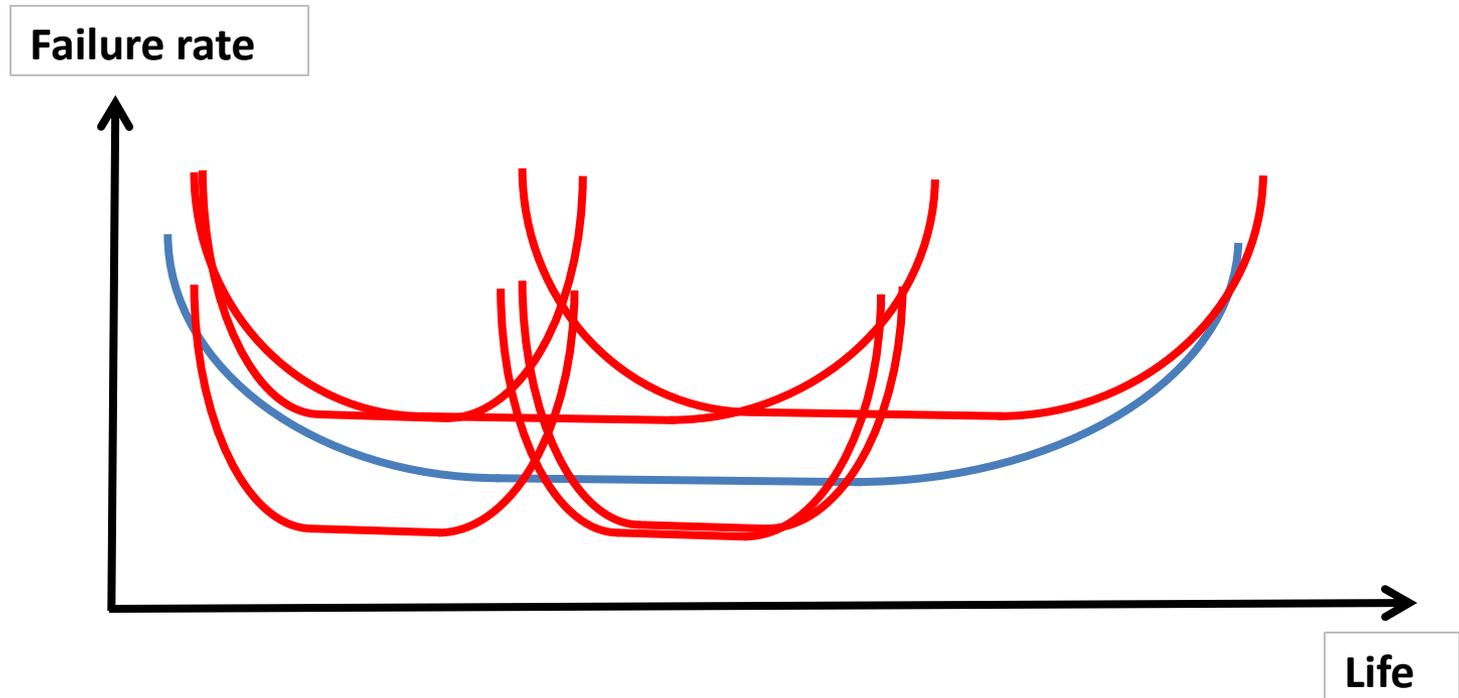
- Defence consists of a complex set of inter-locking Capabilities
- *Required Capability* defined in a *Product Schedule* – agreement between a *Capability Sponsor* and a *Delivery Agency*
- *The Asset consists of the required Capability and the Capability necessary to deliver those requirements to the Capability Sponsor*
- Risk-based assessment of the boundaries
  - Includes Capabilities managed by third-parties
- Work Breakdown Structure based on Fundamental Inputs to Capability (FIC)

# FIC-based WBS of an Asset



Consistent approach required to permit information integration across multiple systems

# The Bathtub Curve



The Capability Degraders for every system element need to be managed in order to manage the whole.

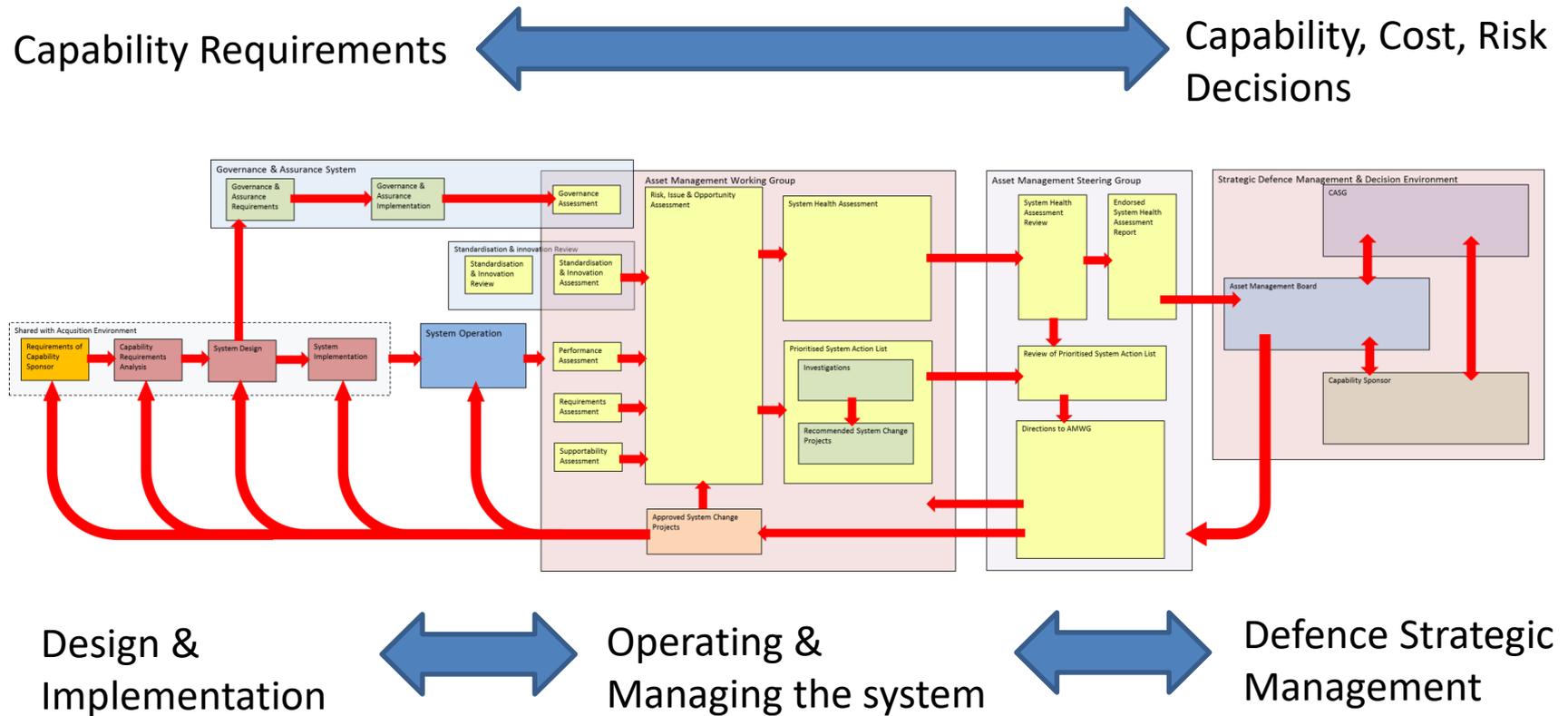
# Purpose of an Asset Management System

- The Asset Management System acts on the Asset in order to deliver the *required* Capability at an accepted Cost and level of Risk across the Capability Life Cycle
- Key outcome from SPO level is:
  - Assurance that Capability can be achieved across the CLC within agreed Cost and at accepted level of Risk, or
  - Identification of key risks and issues that prevent Capability achievement to PWD (and recognition that we might also wish to extend)

# AM in the Smart Buyer Framework

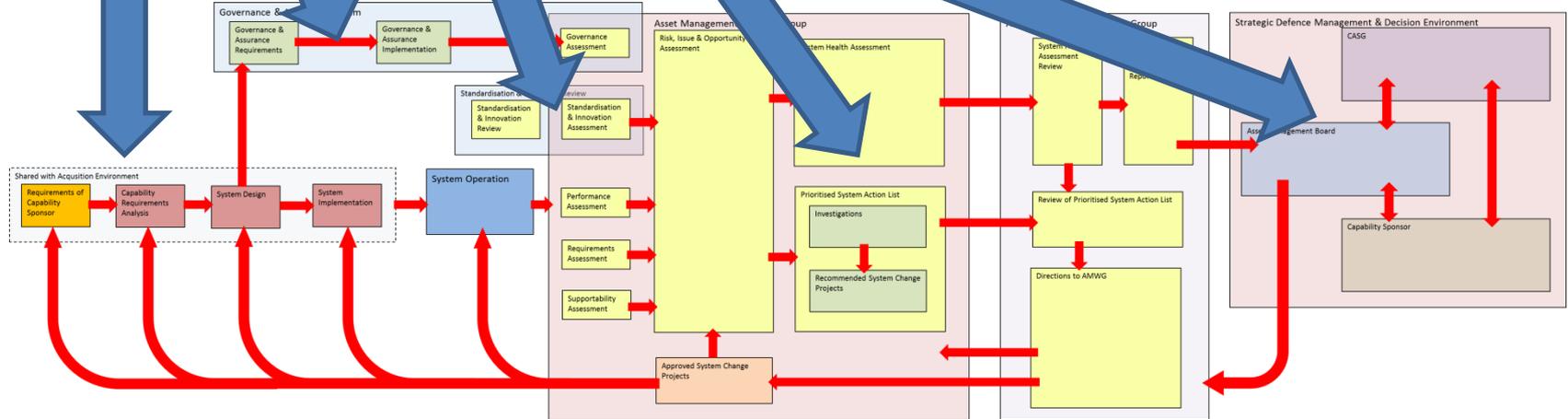
- Systems Program Office (SPO) as AM System 'owner'
- Integration between CASG and Capability Sponsor (Owner/Operator)
- Commonwealth as key decision-maker – follow the money!
- Industry as key practitioner (stewardship)

# Asset Management Macro-Process



# Key Elements of the Macro-Process

- Continuous review and change-management process
- System Design (and redesign!)
  - Link to Acquisition Phase
- Asset Management Operations
- Governance & Assurance
- Standardisation & Innovation
- Link to Defence strategic decision environment



# Analysis & Decision

- **Asset Management Working Group (Product Integrators – SPO, Operator & Industry)**
  - Integration and assessment
  - Plans & recommendations
  - Implementation coordination & oversight
- **Asset Management Steering Group (OC Wing & OC SPO)**
  - Endorsement of plans & resourcing
  - Capability Life Cycle Assurance
- **Asset Management Board (FEG CDR & CASG DG)**
  - Link to the Defence strategic decision environment
  - Strategic trade-offs of Capability, Cost and Risk

# Key Risks

- Detailed identification and characterisation of our Assets
- Information availability & integration
- Inadequate governance:
  - Foresight, innovation, standardisation, efficiency, effectiveness, assurance
- Performance degradation
- Changes to requirements
- Changes to resources
- Obsolescence (operational and supply chain)

# Standardisation

- Information set for strategic decision making
- Multiple systems – integration into multi-dimensional programs
- Industry interface
- Skilling
- Management Information System support
- Tailorable for each Asset (Enterprise)
- 3<sup>rd</sup> party engagement
- Innovation and standardisation are two sides of the same coin (implementing best practice everywhere)
- Core system has to work across multiple Domains (CASG)
- Aircraft-specific requirements (the bailiwick of Air Domain, and (primarily) Air Force)

# Aircraft Specific Risks

- Operating environment(s)
- Validation & Verification
- Regulatory environment
- Specific materials and systems
- Maintenance and engineering practices
- Asset condition, life consumption, environmental degradation, configuration
- Life Extension (we do it all the time!)

**We want our people to be skilled and supported in the management of aircraft!**

**Clear link between Asset Management and DASRs!**

# Governance

- Commonwealth as the 'owner' must have far greater knowledge of the status of our Assets and where we are on the CLC journey than we do today
  - Obligation under the PGPA Act to govern *effectiveness* and *efficiency*
- *Commonwealth engineers need to be knowledgeable about the CLC status of our aircraft (and other technical equipment)*
  - *Condition, performance, capability validation, configuration, maintainability, supportability*
  - *The Commonwealth is obliged to verify!*
  - *Knowledge integration and assurance role centred on SPO Chief Engineer*

# Major AM processes

- Asset identification & characterisation:
  - Breaking down the system into manageable component parts (Asset Elements)
  - Linking Capability, Cost and Risk both top-down and bottom-up

# Major AM Processes

- Performance Assessment
  - Seeking lead indicators of performance degradation based on past & current performance
  - Efficiency and effectiveness
  - Life consumption, condition, reliability, cost, KPIs, risks
    - Aircraft condition assessment needs to be a formal part of the AM process (industry, Commonwealth, 3<sup>rd</sup> Party)
- Supportability Assessment
  - Forward looking
  - Supply/Manufacturing chain

# Major AM Processes

- Capability Validation & Verification
  - End-to-end validation of “war-shot” capability
    - ... and it is about ensuring that *all of our capability* works, not just weapons
  - *Look up “Mark 14 torpedo” on Wikipedia if you want to know why this is so important (Quote: “Inexplicably, no live fire trials were ever done with production units.”)*
    - *Subtitle: How would you like your name on the front page of a national paper alongside this statement?*

# Capability, Cost & Risk Trade-offs

- Ultimately, the role of the Capability Sponsor
  - Within and between Products
  - In the context of the Defence strategic decision environment
- Based on consistent and predictive information from CASG

# Project Constraints

- *Infrastructure!!!*
  - Non-standard implementation of multiple systems
  - Information & decision availability integration
    - Within each system and across multiple systems
  - Skilling & employment (Defence & Industry)
  - Commercial/contract arrangements
  - 3<sup>rd</sup> party support
  - Budget and cost integration (particularly across multiple cost centres)

Some of these issues are going to take some time to address

# Next steps

- Increased engagement with Capability Sponsors and Industry
- Issue **standardised** “Aviation Asset Management 101” (AvAM101) instruction to Air Domain SPOs
- Engage with specialists to integrate support systems
- Engaging 3<sup>rd</sup> party support
- Develop specialist aviation instructions
- Develop the integrated infrastructure

Asset Management  
Equals  
Capability Assurance

