

MOSAIC

ELS Task Acq 01 Cost of Open Systems
Architectures

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Introductions

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Background

- White Paper “Technology, Equipment & Support for UK Defence & Security”
- Incremental & Modular Acquisition based on OSA
- Issues poorly understood
- Research Goals: SEIG, Cap TA, Cap CI, wider DE&S, CSA
- A tool to assess OSA WLC to inform decision making

Objectives

- Consortium Approach – Best Athlete
- Phase 1
 - Define an Open System - SEA
 - Stakeholder review to Inform the Model on the Key Requirements - Arke
 - Provide Auditable Requirements and a Framework model to be developed into an OSA Cost Model – Arke
 - Exploitation assessment of OSA : Benefits & Disadvantages - Axotec
 - V&V WLC Specification and Framework to ensure Consistency with Requirements - Persides
- Phase 2
 - Model Development – Iterative Approach
 - 6001: basic capability
 - 6002: Initial Operating Capability
 - Testing and V&V
 - Roll-out (case studies)

Why build an Open System?

- Many reasons for Open systems (from the AoF)
 - Improved interoperability and agility
 - Reduced costs through access to mass market products and competitive sourcing
 - Increased access to COTS solutions
 - Cheaper and quicker updates and technology insertion.
 - Increased operational availability through greater flexibility in repair and upgrade.
 - Reduced reliance on specialised support equipment, resources and personal.

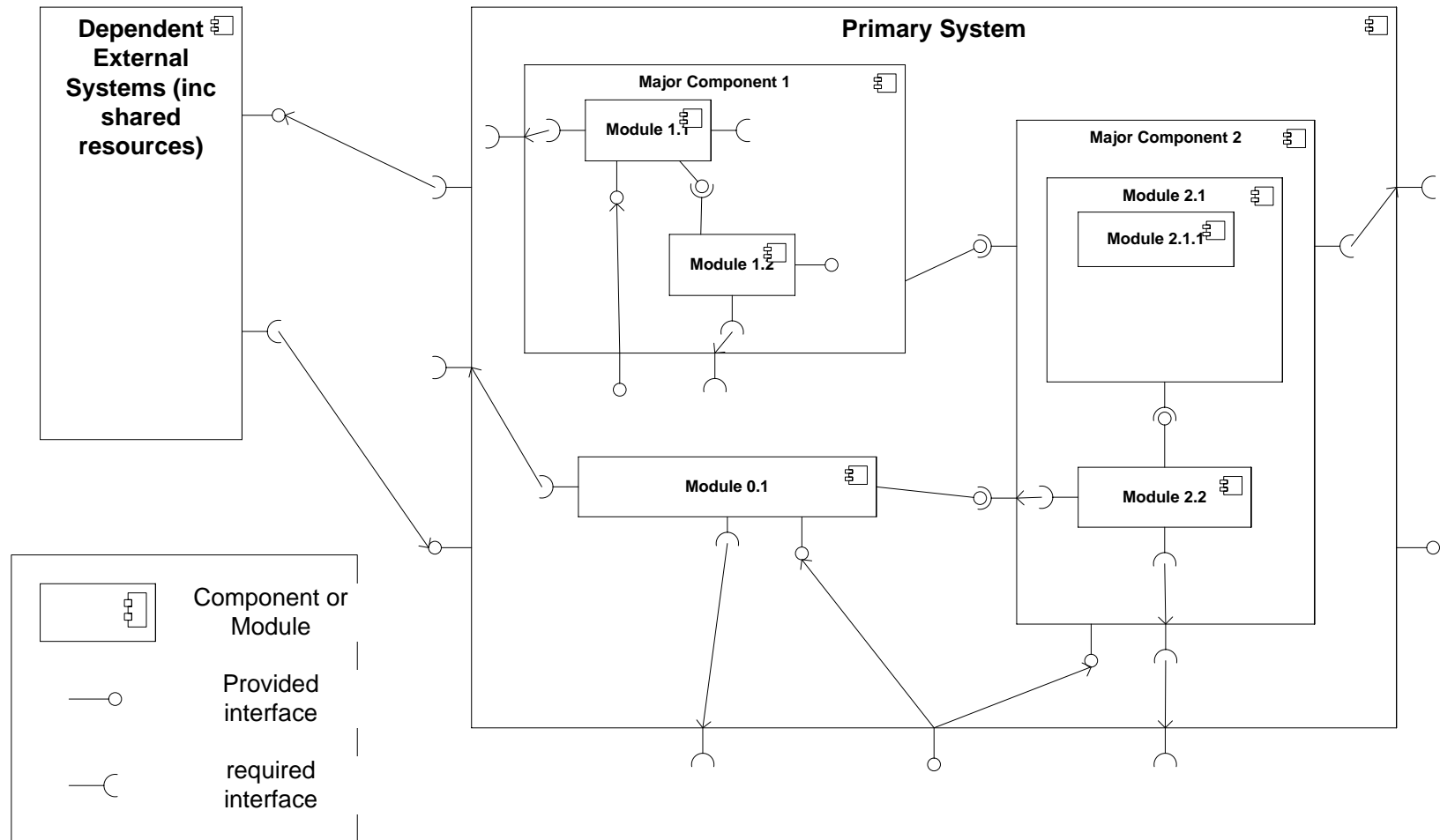
What is an Open System?

- “The term “Open System” refers to a system whose major components and interface specifications adhere to specific, freely-available standards”
- Considerations
 - Who is the system Open to?
 - How Open is the System?
 - To what level is the system Open?
- Most systems are partially Open
- Maintaining Openness is a through life consideration

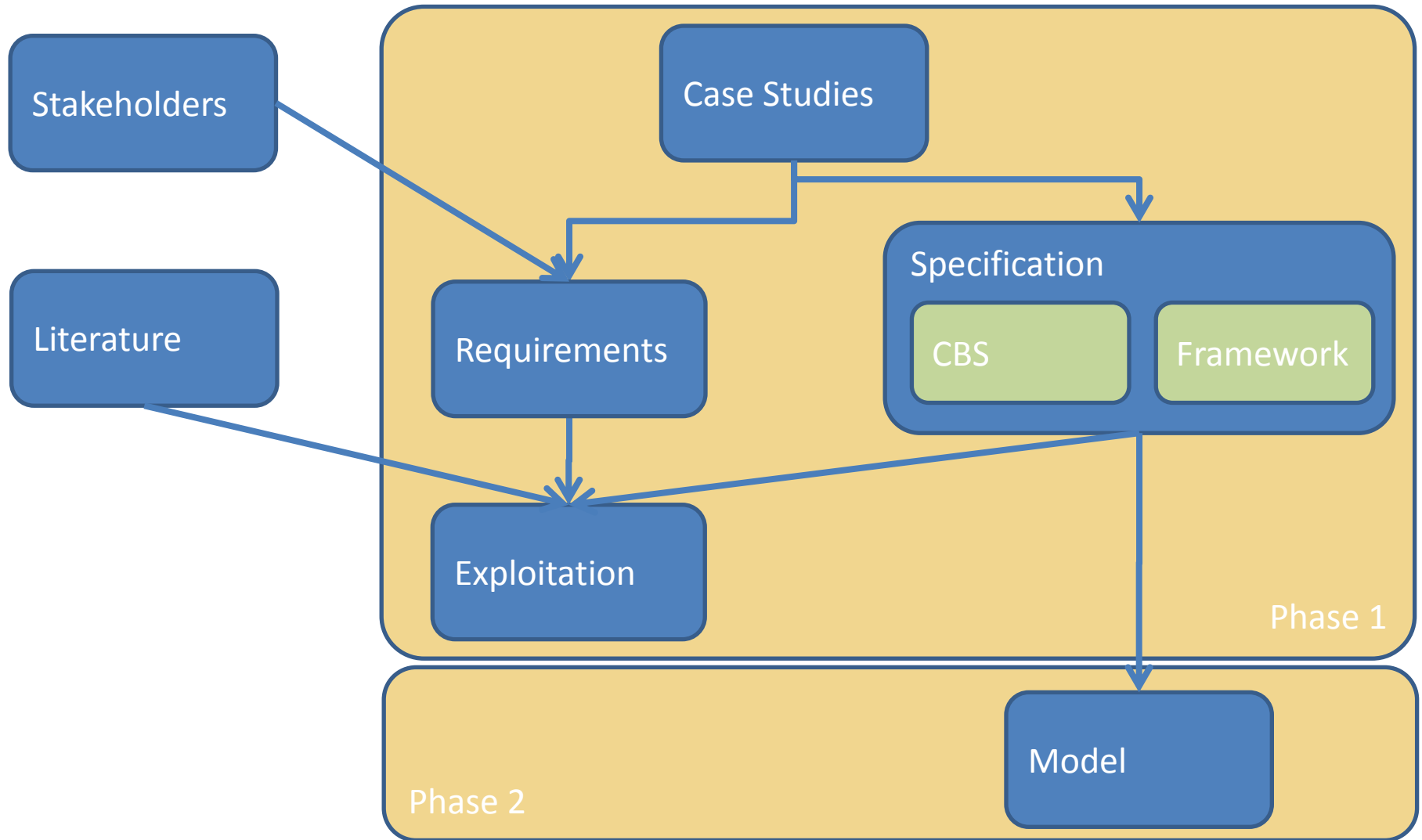
Building an Open Systems?

- Any system can be made Open
- Modular Open Systems
 - Modularity is a design decision where components are systematically broken down into smaller elements that can be treated separately and easily changed with minimal disruption
 - Modules can be Fully open, Partially open or Closed
- Consider what needs to be open
 - What is likely to change
 - What is likely to go obsolete
 - How may the external systems change

Describing an (Modular Open) System



Approach

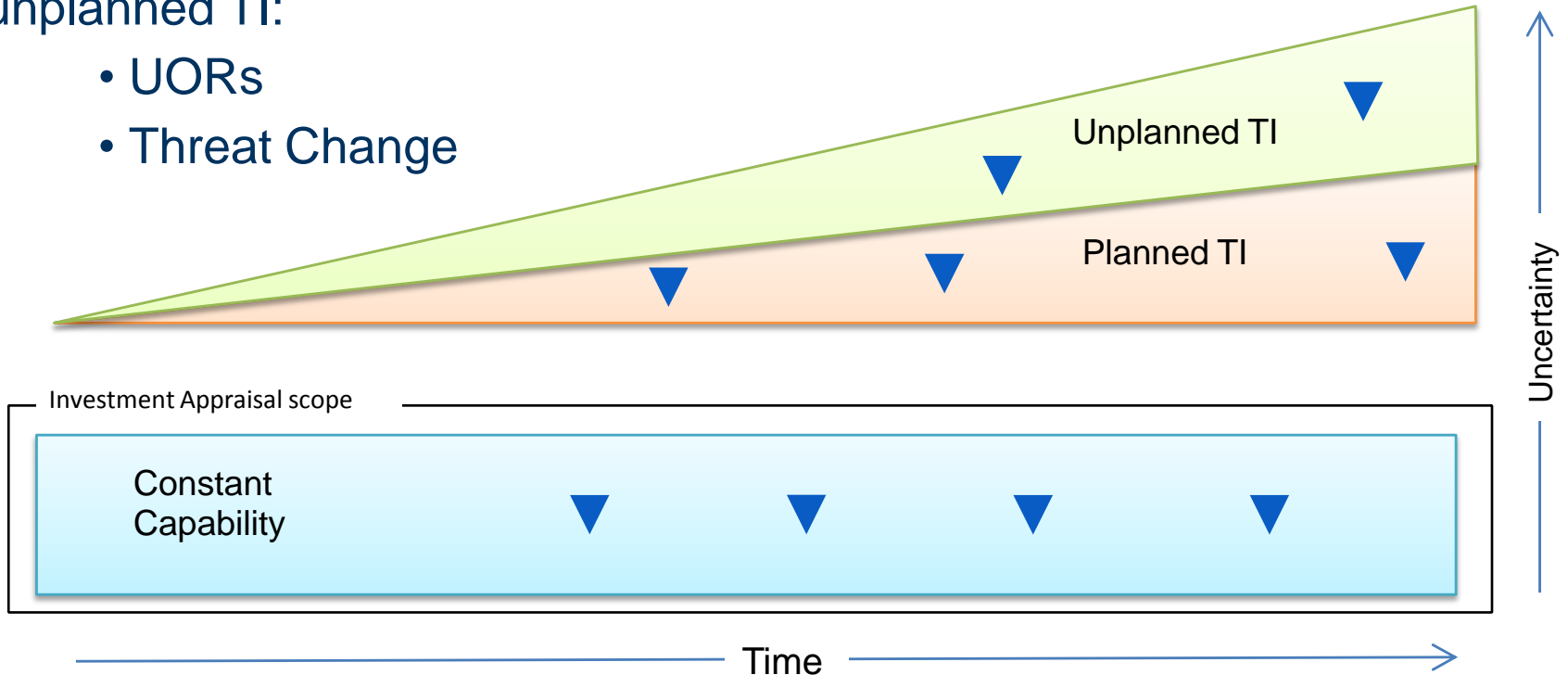


Stakeholder Engagement

- Requirements Capture
 - AgustaWestland - Air
 - BAE MS - Maritime
 - CAAS IA - Policy
 - CAAS QMA - Policy
 - Dstl – End User
 - Dstl PCS – End User
 - IMaGE - ISTAR
 - JBTSE - Land
 - LEPPS - Land
 - MCS PT - Maritime
 - PTG-TD – Tri Service
 - UKMFTS - Air

Requirements – The IA Problem

- Traditional IA Scope assumes *Constant Capability*
 - Planned updates maintain obsolescence
 - Planned upgrades maintain capability against requirements
- OSA Through-Life Cost Benefits realised against planned and unplanned TI:
 - UORs
 - Threat Change



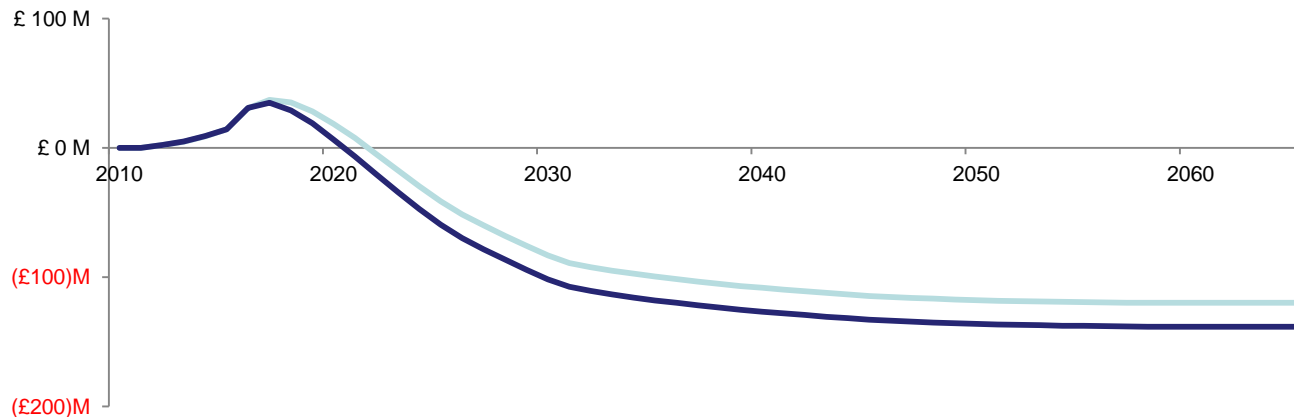
Requirements

Key OSA cost model challenges:

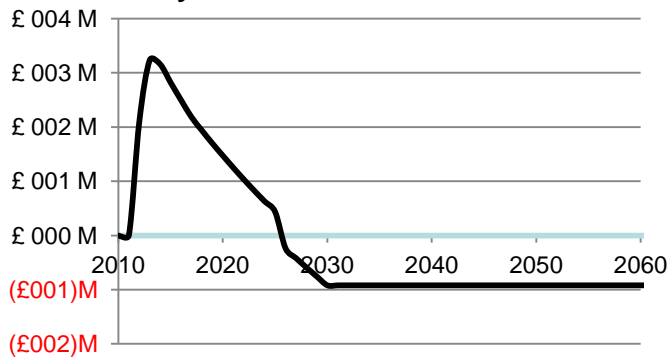
- Technology Insertion (JSP507 Compliant) – the use of Other Contributing Factors (OCFs)
- Generic & Scalable – JCB01 to MG
- Intelligent User (WLC Practitioner) not Parametric
- Cost to MoD at all levels (Component, System, SoS)
- System of Systems (SoS) approaches
 - Allocation of shared costs to individual systems, DLoD

Requirements – Cost to MoD & SOS Challenge

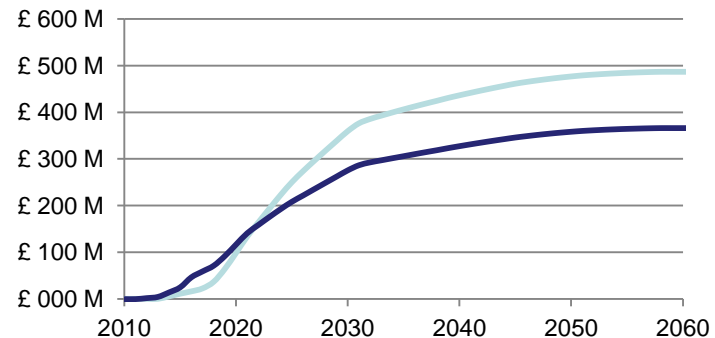
SOS / Wider MoD Justification



System / PT



System / PT

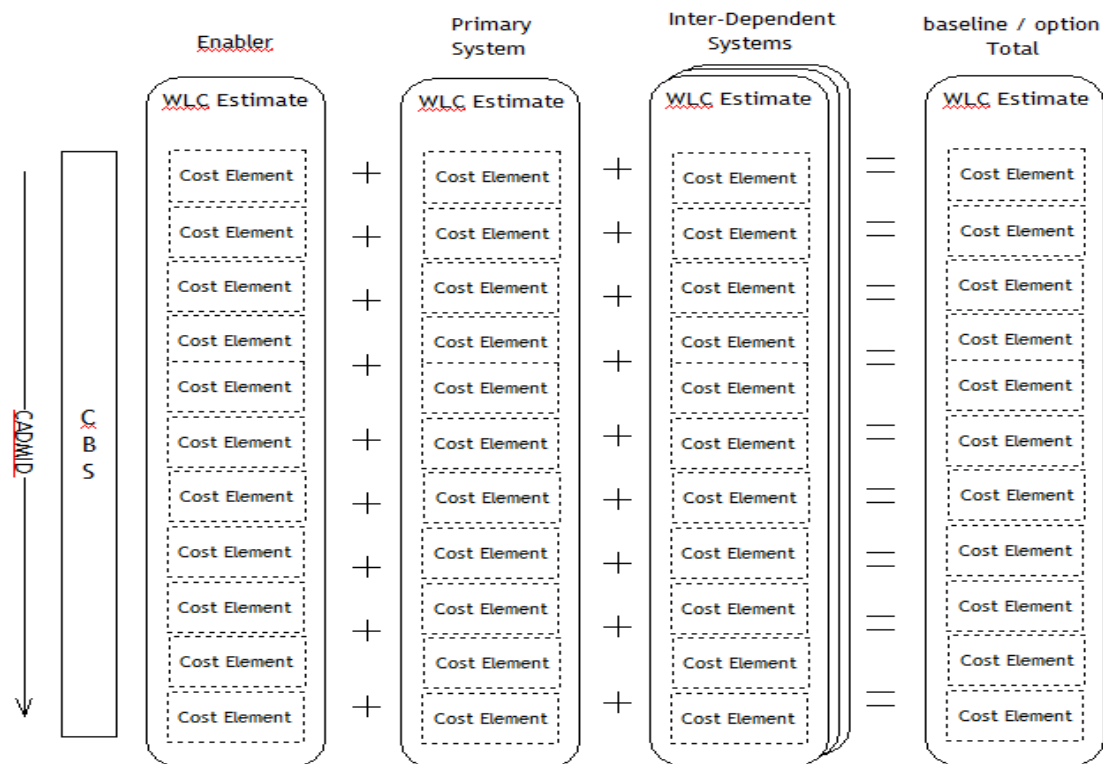


Framework

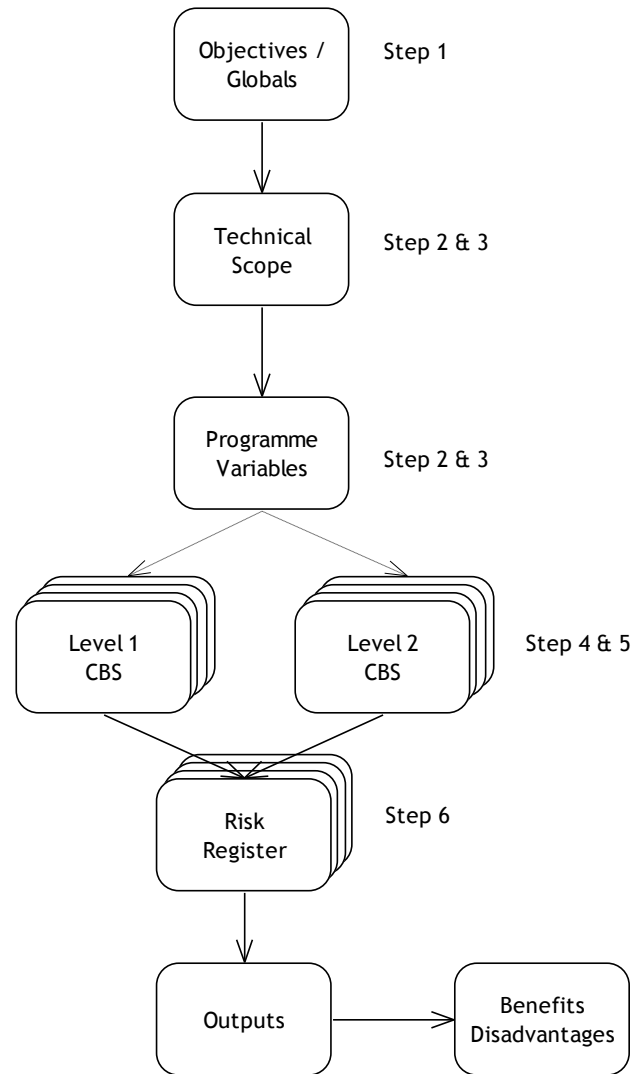
- Practical Step by Step guide
 - For WLC practitioners
 - Includes potential benefits/ disadvantages check list
 - Identifies:
 - Enabler
 - Primary System
 - Inter-Dependent System
 - Budget Holders

Framework – Scalable & pan MoD

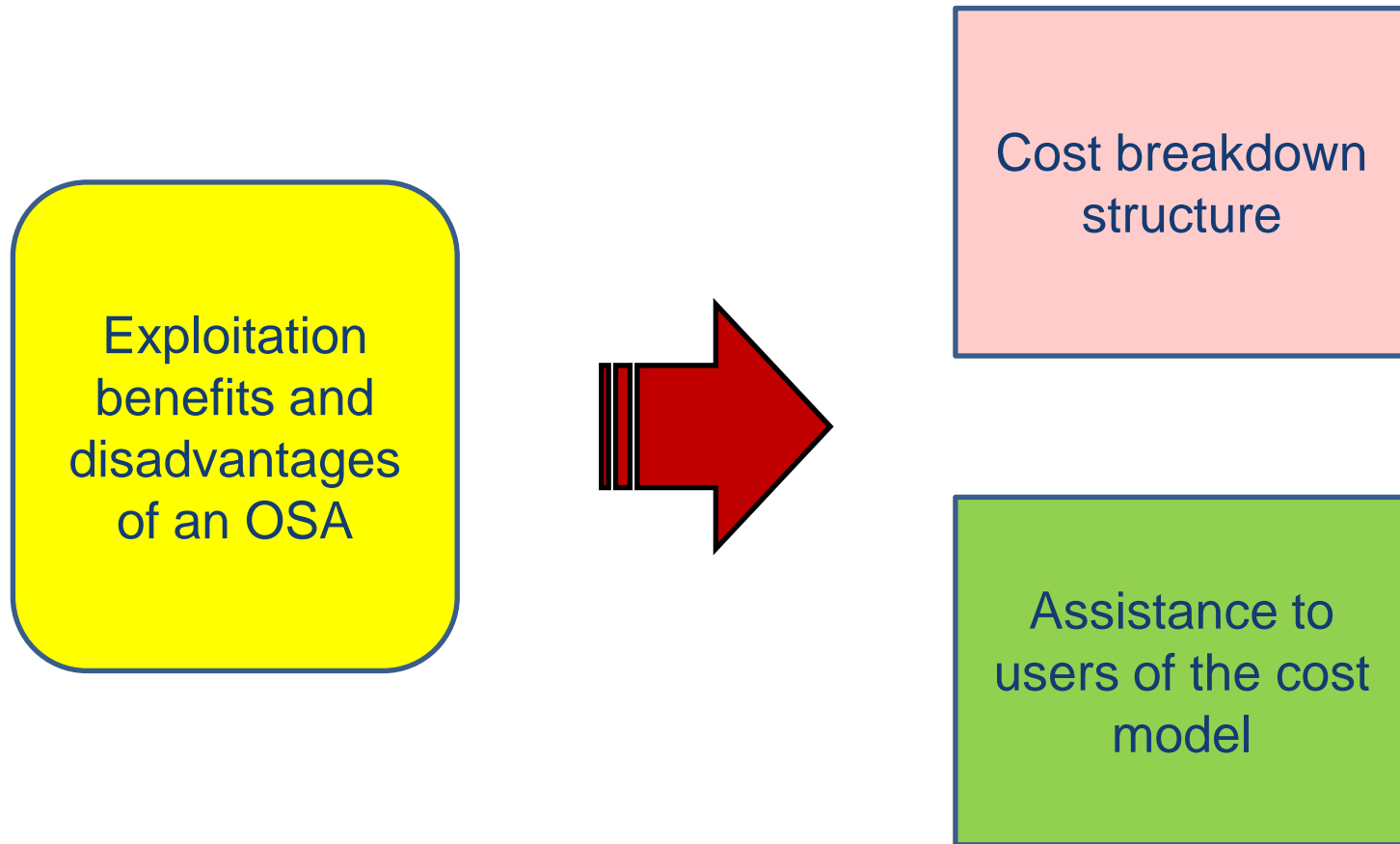
- Generic OSA Cost Breakdown Structure (CBS)
 - Level 1 - JCB 1&2
 - Level 2 - IG MG business case



Framework steps



OSA Guidance



Proposed Implementation

- Excel (2003 version)
- Risk Inputs
- Monte Carlo
- Baseline + 3 options
- Budgetary Outputs
- Dynamic Cash Profiling
- Cost Breakdown Structure (CBS) –
 - High level fixed structure by CADMID
 - Low level defined elements with additional user defined elements
 - 2 levels of WBS

Case Study Selection

- Key considerations
 - Availability of data
 - Open vs Closed systems options
- Case Studies
 - LPH & LPD CMS replacement – DNA2 vs SCE
 - Type 26 CMS – Discrete Vs Shared
 - Family of Weapons – BoB Vs FoW
 - UOR into Core – Bespoke Vs GVA
 - LOSA Warrior CSP Training – Bespoke Vs GVA
 - Situational Awareness – Bespoke Vs NATO standard

Model V&V Plan

- Independent Verification Model testing.
 - Level 1 Development Check - Forms, Data entry and Data manipulation checks to be conducted by the development team and documented (iterative checks)
 - Level 2 Blank copy check – A blank copy will be provide to Persides for data entry and output checks. (iterative checks)
 - Level 3 functional checks – An independent Persides member of staff (with WLC experience) will review the model to ensure the outcome follows a logical path
 - Case study Reviews – Persides will be provide with a Case study and populate the Model to ensure the model provide the expected outcomes
- Independent Validation Activities
 - Requirements and model outputs check against
- CAAS Assurance – V&V the V&V