INTRODUCTION TO THE
CAPABILITY LIFE CYCLE
AND
CAPABILITY MANAGEMENT
PRACTICES

Part I

Dr Mike Ryan
Dr Shari Soutberg
Your Presenters

Dr Mike Ryan holds BE, MEngSc and PhD degrees in electrical engineering from the University of New South Wales. He is a Fellow of Engineers Australia (FIEAust), a Chartered Professional Engineer (CPEng) in electrical and ITEE colleges, a Senior Member of IEEE (SMIEEE), a Fellow of the International Council on Systems Engineering (INCOSE), and a Fellow of the Institute of Managers and Leaders (FIML). Since 1981, he has held a number of positions in communications and systems engineering and in management and project management. Since 1998, he has been with the School of Engineering and Information Technology, University of New South Wales, at the Australian Defence Force Academy where he is currently the Director of the Capability Systems Centre. His research and teaching interests are in communications and information systems, requirements engineering, systems engineering, project management, and technology management. He is the Editor-in-Chief of an international journal, and is the Chair of the Requirements Working Group INCOSE. He is the author or co-author of twelve books, three book chapters, and over 200 technical papers and reports.

Dr Shari Soutberg has over 30 years experience in Defence, with a focus on materiel acquisition, sustainment, organisational improvement and reform. Shari is currently an Industry Fellow at the UNSW Capability System Centre. Significant activities include development of a framework for delivery of joint force outcomes and training courses on capability development practices applicable to Defence. Prior to this, Shari was the acting Chief Systems Engineer for CASG and a member of the First Principles Review (FPR) Capability Lifecycle (CLC) team which developed capability management reform initiatives. As Director Systems Engineering and later Director Materiel Engineering in CASG, Shari led the development and implementation of Defence engineering policy and guidance, including fundamental changes arising from the WHS Act 2011. Shari provided stewardship of the Defence Engineering and Technical Job Family through establishing learning and development structures. She also supported Defence corporate engineering and technical workforce planning including industrial relations engagement. Whilst in the Office of the Parliamentary Secretary for Defence Industry, Shari was a significant contributor to the Defence Industry Policy leading to the role of Director Industry Policy. After joining the Department of Defence, Shari worked on maritime platforms and equipment and as a project manager for naval projects. Shari has a Bachelor of Engineering (Electrical), Masters of Management Economics, and a Doctor of Philosophy which addressed requirements development in Defence capability management.

Books
Book Chapters

Major Recent Consultancies
1999 An analysis of the effect of radio-frequency directed-energy weapons (RF DEW)
1999 Development of an architecture for a battlespace communications system for the Australian Army
2000 An analysis of the fitness-for-purpose of SSB mode for receive-only Link-11 communications
2001 An investigation into the impact of environment on a ship-based UHF SATCOM receiver
2002 C4I study and development of technical specification for ATHOC: Athens 2004 Olympic Games
2002 Land 125 (WUNDURRA) Soldier Combat System—System Integration Study—Communications
2003 Independent validation and verification (IV&V) of NZ Joint Command and Control System (JCCS)
2003 Land 125 (WUNDURRA) Soldier Combat System—System Integration Study—Security
2004 Development of Strategy Paper for the ADF Tactical Information Exchange Environment
2005 Development of a Security Architecture for the Land Force Information Network
2005 Development of a Space Policy for the Australian Army
2005 Development of a web-services strategy for Air Services Australia
2005 Review of functions and responsibilities for delivery of the ADF Battlespace Network
2005 Strategic appreciations for the layers of the Defence Information Infrastructure (DII)
2005-6 Rewrite of Defence Approved Technology Standards List (ATSL)
2006 Independent validation and verification (IV&V) for JP2072
2007 Independent validation and verification (IV&V) for JP2097
2007 Advice on design acceptance for JP141/2087
2007 Systems Engineering Independent Review Team for JP2072
2007 Independent validation and verification (IV&V) for Land 75/125 BMS T&E
2007 Physical/Functional Audit Review for the Hazard Prediction Modelling and Geospatial Subsystem
2008 Development of system architecture / functional specification for Modular Engineer Force
2008 Development of CDD suite for Land 125 Phase 4
2009 Business Case for Annual Defence-wide EW Capability Review
2009 Business Case for Defence-wide EW Training and Education Review
2010 JP 2089 Phase 3B—Tactical Information Exchange Domain—ARH—Requirements Workshop facilitation
2010 Rewrite of Defence Approved Technology Standards List (ATSL)
2011 IV&V for ADF EW Training Needs Analysis
2011 Review of AIR 5431 OCD
2012 Requirements Workshop for ADF Enterprise Content Management and Collaboration System (ECMS)
2012-3 JP 2030 Phase 8 Evolution 1 and 2 Operational Test and Evaluation (OT&E) Documentation Update
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<tr>
<td>2015</td>
<td>Revision of Defence Simulation Strategy and Roadmap</td>
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<td>AIR 9000 Capability Development Document Redevelopment</td>
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<td>AIR 9000 Life cycle Modelling</td>
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<td>Lifecycle Modelling—LAND 2110 and LAND 907</td>
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<td>Land Network Integration Centre Test &amp; Evaluation Study</td>
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<td>Land Training Areas and Ranges (LTAR) Design Facilitation</td>
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<td>2017</td>
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<td>2017</td>
<td>SEA1000 Through life support modelling</td>
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<td>2017</td>
<td>JP91001 FPS and OCD Development IV&amp;V</td>
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The CLC and Capability Management Practices

- This course is aimed at Defence personnel with responsibilities in the capability domain.
- It is intended to not only describe the CLC but also explain the broader context and underpinning activities which need to be done to implement it.
The Capability Life Cycle (CLC) and Capability Management Practices

The CLC and Capability Management

This course:
– explains the Capability Life Cycle (CLC) including:
  • attributes, principles and expected behaviours
  • governance, roles and accountabilities
  • the core CLC process and management
– explains the underpinning practices to implement the CLC
– describes the CLC artefacts and their development

The CLC and Capability Management

Day 1  Overview of the CLC including:
  • Key Attributes
  • Principles and Behaviours
  • Leadership
  • Governance
  • Phases of the CLC
  • Capability management practices
  • Organisational support

Days 2-4  Applying capability management practices to CLC

Day 5  Documents and artefacts for the CLC
The Capability Life Cycle (CLC) and Capability Management Practices

### Capability Life Cycle (CLC)

Day 1:
- explain the intent and features of CLC policy including context, behaviours, principles and management arrangements
- provide an overview of the CLC process
- describe the CLC artefacts and their development
- identify the capability management practices necessary to deliver the CLC

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### Background to CLC
The Capability Life Cycle (CLC) and Capability Management Practices

FPR: How did we get here?

1973 – Tange Review
2003 – Defence Procurement Review
2008 – Mortimer Review
2011 – Black Review
2014 – First Principles Review
Numerous Senate Reviews and Audits

Reason for First Principles Review (FPR)

- FPR conducted due to recognition that Defence needed to work much more effectively to meet future challenges.
- For capability development FPR found (inter alia):
  - extant processes were complicated, slow and inefficient with unclear accountabilities
  - evidence of waste, inefficiency and rework
  - delayed decisions and over-escalation of issues for decision
- So . FPR report identified the need for: simplicity, greater agility and timely delivery.

Source: FPR Creating One Defence
The Capability Life Cycle (CLC) and Capability Management Practices

FPR Recommendations

Six core recommendations:
1. Strong *strategic centre*, stronger *accountability* and decision-making
2. Single *end-to-end* capability development function
3. *Enterprise* approach to corporate and military enabling services
4. Right *skills* in appropriate jobs to create the One Defence workforce
5. Manage *staff resources* for optimal use of funds and efficiencies
6. Commence implementation *immediately* with the changes required to deliver One Defence in place within two years

Source: FPR Creating One Defence

First Principles

The ‘Principles’ against which the FPR conducted are:
- Clear authorities and accountabilities that align with resources
- Outcome orientation
- Simplicity
- Focus on core business
- Professionalism
- Timely, contestable advice
- Transparency

Source: VCDF Group
FPR – Key Messages

“*The strengthening of the strategic centre* and the establishment of a *single end-to-end capability development function* is reshaping how we think and act.”

“…in conceiving of the future force, we need to talk about the integrated force, integrated at an organisational level and integrated technically and culturally”

“…If you follow the integration logic, we are moving, inexorably, towards a *single war-fighting domain*. Our ability to operate effectively across this ‘One Domain’ will depend on our ability to build an *Integrated Joint Force by design*”.

Source: VADM Ray Griggs, VCDF, ASPI Building the Integrated Joint Force Seminar, 7 June 2017

One Defence is key

“*Intent of the First Principles Review, to transition to a One Defence model* and focus on achieving a truly integrated joint force by design.”

AVM Mel Hupfeld, Head Force Design, INCOSE IS 17 July 2017

Source: VCDF Group

One Defence Business Model

Source: VCDF Group
Relationship between FPR and the CLC

“At the heart of the FPR implementation has been the Capability Life Cycle redesign, which is heavily focused on tailoring, streamlining and better integrating our capability solutions. It is equipping us to take that conceptual journey towards a single domain.”

Source: VADM Ray Griggs, VCDF, ASPI Building the Integrated Joint Force Seminar, 7 June 2017

What is the CLC?

• described as a policy (captured in Interim CLC Manual)
• core business process for realising capability solutions
• spans introducing, sustaining, upgrading and replacing Defence capability
• covers major capital equipment, ICT and facilities
• designed to support integrated joint force by design
• supports One Defence Business Model
• tailored to suit circumstances
The Capability Life Cycle (CLC) and Capability Management Practices

CLC – Principles

1. Joint and integrated capability outcomes
2. Integrated planning
3. Flexible, risk-based, tailored
4. Contestability
5. Discouraging risk aversion
6. Defence focus on core business
7. Default to fastest and simplest
8. Transparency
9. Clear responsibilities and accountabilities
10. Early and transparent industry involvement

Emphasis on behaviour change

- Acceptance of Accountability at all levels
- Embracing Contestability
- Discipline in documentation
- One Defence: Partnership, cooperation and collaboration
- Strong behavioural leadership at all levels
- Demonstrably delivering on Government direction
- Improved relationships within Defence and between Defence and Central Agencies
- Deal with ambiguity and manage risk – don’t be risk averse

Source: Updated Interim CLC Manual
Source: One Defence Leadership Behaviours, Nov 17
Collaboration with Industry and Academia

• Industry as a FIC (DWP 2016).
• Industry engaged early in the CLC.
• Consider the resilience and capacity of industry as capability plans are developed.
• Smart Buyer.
• “Industry Engagement is the process of engaging industry to ascertain capabilities, capacity, risks and opportunities for capability acquisition, realisation and sustainment.”

Ensure engagement across the Defence ‘Enterprise’

Source: Updated Interim CLC Manual

So ….

• What has changed as a result of CLC?
• What hasn’t changed?
What **has** changed as a result of CLC

- **Emphasis on behaviours:** accountability, contestability, collaboration.
- **Modified process:** and decision points up to Acquisition.
- **Additional frameworks:** Force Design, Contestability, Smartbuyer, Integration and Interoperability (I2F).
- **Modified management ‘structures’:** such as Program layer, new roles.
- **Approach:** default to simplest, tailored, risk-based, sufficient.
- **New artefacts:** such as Program-level capability narrative, strategy.
- **Modified Industry role:** part of IPT, ‘above the line’.

What **hasn’t** changed as a result of CLC

- **Traceability** to government direction is still necessary.
- **Requirements** still need to be defined.
- **Practices** in capability management: still need to be applied and integrated across the CLC including PM, SE, ILS, risk management, assurance.
- **Compliance** with applicable legislation and regulations still needed.
- **Accountability** for proper use of Commonwealth resources by Commonwealth officers is still necessary (even if activities are contracted out).
### The Capability Life Cycle (CLC) and Capability Management Practices

#### Snapshot of key changes as a result of CLC

<table>
<thead>
<tr>
<th>Modified Process and Decision Points up to Acquisition Phase</th>
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<tr>
<td>Strategy and Concepts</td>
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<td>Gate 0</td>
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</table>

#### Behaviours and Approach
- One Defence
- Joint/integrated
- Transparency
- Tailored
- Sufficiency
- Risk-based

#### Additional frameworks
- Force Design (incl DCAP)
- Contestability
- Smart Buyer
- Integration and Interoperability

#### New Management roles and ‘structures’
- Investment Committee
- Integrated Investment Program
- Management layers: Portfolio (Capability Streams), Program, Product, Project
- CLC Accountability Model: roles, responsibilities and relationships

<table>
<thead>
<tr>
<th>New Artefacts</th>
<th>Proposal</th>
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<tr>
<td>Program: CPN, JCN, Program Strategy, PIOC</td>
<td>Proposal: JCNS, PES, Business Case, IPMP</td>
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<tr>
<th>Industry Role</th>
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<tr>
<td>Engage early, Part of IPT and ‘above the line’ support</td>
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### FPR and CLC: Recap

- **One Defence**: Portfolio investment, collegiate between Capability Managers (CM) and Delivery Groups
- **Single warfighting domain**: Integrated Joint Force by Design
- **Strategy-led**: traceable to Government Direction
- **Single end-to-end capability development**: across all CM and Delivery Groups
- **Approach to Capability Management is**:
  - determined by CM
  - tailored, risk-based, simple, sufficient
- **Contestability**: test and improve proposals
The Capability Life Cycle (CLC) and Capability Management Practices

CLC – Implementation

• Transition – commenced 1 Apr 16 and matured 1 Jul 17
• Full description:
  – CLC Manual on VCDF CLC website; and
  – DRN CLC Website

Session 2

CLC Context and Behaviours
Day 1

The remainder of Day 1 will discuss application of the CLC including:

- The context in which you must do your work.
- Behaviours and related factors when working in the CLC.
- CLC process.
- Capability management practices that enable the CLC.

Applying the CLC

Legislative, Regulatory, and Policy context

↓

Defence Behaviours (etc)

↓

CLC Process

<table>
<thead>
<tr>
<th>Strategy and Concepts</th>
<th>Risk Mitigation and Requirements Setting</th>
<th>Acquisition</th>
<th>In-Service and Disposal</th>
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<tr>
<td>Gate 0</td>
<td>Gate 1</td>
<td>Gate 2</td>
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</table>

Capability Management Practices

- Systems Engineering
- Product and Project Management
- ILS / Logistics
- Procurement and Contracting
- Assurance and Risk Management
Applying the CLC

Legislative, Regulatory, and Policy context

Defence Behaviours (etc)

CLC Process

Strategy and Concepts
Risk Mitigation and Requirements Setting
Acquisition
In-Service and Disposal

Gate 0
Gate 1
Gate 2

Capability Management Practices

Systems Engineering
Product and Project Management
ILS / Logistics
Procurement and Contracting
Assurance and Risk Management

Legislative, Regulatory, Policy Context
Defence and its officials operate in an environment of legislation, Commonwealth policy, and Defence policy and regulation with which you must comply.

Key Commonwealth Legislation
Including but not limited to…

- Public Governance Performance and Accountability Act (PGPA) 2013
- Public Service Act 1999
- Defence Force Discipline Act 1982
- Work Health and Safety Act 2011
- Crimes Act 1914
- Defence Act 1903
- Archives Act 1983
- Public Interest Disclosure Act 2013
- Environment Protection and Biodiversity Conservation Act 1999
Public Service Act Code of Conduct

- The Code of Conduct requires that an APS employee must (inter alia):
  - act with care and diligence;
  - comply with all applicable Australian laws;
  - avoid any conflict of interest (real or apparent);
  - use Commonwealth resources in a proper manner and for a proper purpose; and
  - not improperly use inside information.

PGPA Act 2013

- The PGPA Framework requires Defence officials to:
  - not be inconsistent with the policies of the Australian Government;
  - use and manage public resources in an efficient, effective, economical and ethical manner;
  - exercise ‘care and diligence’ in performing their duties;
  - “act honestly, in good faith and for a proper purpose” performing their duties;
  - not improperly use their position in performing their duties
  - not improperly use information; and
  - disclose interests in relation to the performance of their duties.

Source: DPPM April 2017, Paragraph 21
Key Commonwealth Policies
Including but not limited to:

- Commonwealth Procurement Rules
- Procurement Connected Policies eg Indigenous Procurement Policy
- Commonwealth Risk Management Policy

Commonwealth Procurement Rules

- Commonwealth Procurement Rules (CPR) have effect under the PGPA Act 2013.
- CPR:
  - set out the rules that officials must comply with when they procure goods and services;
  - indicate good practice;
  - are the keystone of the Government’s procurement policy framework, and
  - are fundamentally focused on achieving value for money.
Key Defence Policies
Including but not limited to…

- Defence Environment Policy
- Defence Industry Policy Statement 2016
- Defence Procurement Policy Manual (DPPM)
- Joint Directive on the Management of Risk in Defence (30/2015)

Defence Procurement Policy

- Defence Procurement Policy Manual (DPPM) incorporates CPR and additional Defence Procurement Policy Directives that must be complied with by Defence officials in relation to procurement.
- Defence Procurement Policy Directives supplement specific CPR in the context of the particular circumstances and needs of the Defence.

Source: DPPM April 2017
The Capability Life Cycle (CLC) and Capability Management Practices

Purpose of CPR and DPPM

The DPPM provides a framework that promotes responsible and accountable spending by Defence officials when procuring goods and services for Defence. This framework supports the proactive management of the risks relating to procurement, as required by the CPR.

Source: DPPM April 2017 Paragraphs 34 and 35

Key Regulations

Including but not limited to...

- Commonwealth Legislation
- Commonwealth Policy
- Defence Policy
- Defence Regulation

Defence Technical Regulation

Provides confidence to CM about the safety and technical integrity of their systems and equipment across fitness for service, safety and environmental compliance.
The Capability Life Cycle (CLC) and Capability Management Practices

Technical Regulation

• Seaworthiness:
  – Defence Seaworthiness Management System Manual (DSwMS) (Jun 17)
  – N4 Library
• Airworthiness:
  – Defence Aviation Safety Regulation (DASR) introduced in 2016 and replaced the Military Operational and Technical Airworthiness Regulations
• Land Technical Regulation
• Explosive Ordnance Regulation

Bottom Line on Context

• Those involved in the CLC must comply with legislative, regulatory and policy requirements.
• Defence Policy leads and Centres of Expertise (COE) are responsible for ensuring that the policies, processes and tools they provide satisfy those requirements.
• By complying with Defence policy, processes and tools you will be satisfying your obligations.
Applying the CLC

Legislative, Regulatory and Policy Context

Defence Behaviours (etc)

CLC Process

- Strategy and Concepts
- Risk Mitigation and Requirements Setting
- Acquisition
- In-Service and Disposal

Gate 0 → Gate 1 → Gate 2

Capability Management Practices

- Systems Engineering
- Product and Project Management
- ILS / Logistics
- Procurement and Contracting
- Assurance and Risk Management

Behaviours
Earlier we identified expected behaviours

- Acceptance of Accountability at all levels.
- Embracing Contestability.
- Discipline in documentation.
- One Defence: Partnership, cooperation and collaboration.
- Strong behavioural leadership at all levels.
- Demonstrably delivering on Government direction.
- Improved relationships within Defence and between Defence and Central Agencies.
- Deal with ambiguity and manage risk – don’t be risk averse.

Key Behaviour: Embrace Contestability

- Culture of wanting ideas, proposals and agendas contested.
- Makes proposals robust and helps improve decisions (not make them).
- Establish and maintain trust with Government and Central Agencies.
- Engage with Contestability early so can be ‘built into’ brief.
The Capability Life Cycle (CLC) and Capability Management Practices

Key Behaviour: One Defence

• Collegiate approach: open, transparent and collegiate approach to all CLC activities.
• Critical to development of the Joint Force.
• To be demonstrated from working level practitioners through to senior committees (such as Investment Committee) and other fora (such as Independent Assurance Reviews).

Key Behaviour: Tailoring and Sufficiency

• Tailor implementation to circumstances including risk – no prescribed approaches and not a ‘cookie cutter’ approach.
• Sufficiency: Work and documentation is only done to the extent necessary.
• Discipline in Documentation: Selecting only the level and volume of detail necessary.
• Those accountable and responsible must define and argue the tailored approach.
Key Behaviour: Discipline in Documentation

- Proposals and Briefs must reflect discipline:
  - Simple, readable, plain English
    - ‘tell the story’
    - not excessive technical language
    - write for final audience—Ministers
    - clearly link effort to Government priorities
      - Capability Streams
      - Show support for Government’s broader view
    - evidence-based, identify risks, and identify unknowns
    - include Contestability
  - CM prepare Cabinet Submissions (CabSub) and Ministerial Submissions (MinSub).

Source: Defence CLC Seminar Feb 2107

Key Behaviour: Manage Risk

- Deal with ambiguity, manage risk, and discourage risk aversion.
- Conscious risk reduction mindset throughout the CLC.
- Clearly identify risks and associated risk mitigation efforts.
- Use risk profiles to define work including tailored approval authorities and pathways.
The Capability Life Cycle (CLC) and Capability Management Practices

CLC Behaviours add to extant Values

- Defence-wide Values (PLICIT):
  - Professionalism – Courage
  - Loyalty – Innovation
  - Integrity – Teamwork

- PLICIT Values apply to ADF members and APS employees.

- APS employees are obliged to follow APS Values, Employment Principles and the APS Code of Conduct.

- PLICIT Values do not replace or override the Single Service or APS Values—they are complementary and apply to everyone in Defence.

Specialist practitioners: Codes of Ethics

- Specialist practitioners who support the CLC are also subject to Codes of Ethics, such as:
  - Project Management: AIPM Code of Ethics: Act with Integrity; Practice Competently; Demonstrate Leadership; Act with Responsibility (Source: www.aipm.com.au).
  - Engineering: Engineers Australia Code of Ethics: demonstrate integrity; practice competently; exercise leadership; promote sustainability (Source: Engineers Australia Code of Practice).
Key features relevant to CLC

• Professionalism
• Integrity
  – Act on the basis of a well-informed conscience
• Competence
  – Maintain and develop knowledge and skills
  – Represent areas of competence objectively
  – Act on the basis of adequate knowledge

Implications for Defence Managers

• Defence managers will employ specialist (non-core) skills sets.
• Must assure that those employed have appropriate competencies and comply with applicable codes of ethics.
• Defence managers are accountable to ensure value from non-core support.
Therefore Defence Managers should…

- Have a sound understanding of the CLC and knowledge of capability management so that you:
  - Know what work is to be done
  - If appropriate, know how to do it yourself
  - Know how to task others to do the necessary work
  - Be able to assess necessary competencies and assure outcomes and deliverables
# Session 3

## CLC Process: CLC Frameworks and Roles

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<td>8</td>
<td>Practices- Procurement &amp; Contracting Risk Management &amp; Assurance</td>
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### CLC Process

- Describing the CLC will be structured as follows:
  - Defence Frameworks, Roles, and Management Structures that are relevant to the CLC.
  - Overview the CLC Process including decision points.
  - CLC Documents and Artefacts that are to be produced.
- This will be followed by a description on how to apply supporting 'toolkit' of Practices to implement the CLC.
Implementing the CLC

Legislative, Regulatory and Policy Context

Behaviours

Frameworks, Roles, and management structures

CLC Process

Documents and Artefacts

Strategy and Concepts
Risk Mitigation and Requirements Setting
Acquisition
In-Service and Disposal

Gate 0
Gate 1
Gate 2

Capability Management Practices

Systems Engineering
Product and Project Management
ILS / Logistics
Procurement and Contracting
Assurance and Risk Management

Defence Frameworks, Roles, and Management Structures relevant to the CLC
Force Design Framework

Force Design

- Force Design provides the ‘front-end’ to the CLC and is the core function of the Strategy and Concepts phase.
- Force Design supports FPR Recommendation 1:
  “Establish a strong, strategic centre to strengthen accountability and top-level decision-making”
- ‘Joint Force by Design’ is a key aspect of Force Design to enable realisation of an integrated and interoperable ADF.
Force Design

- Force Design is the set of concurrent processes including:
  - analysis of the current integrated and joint force,
  - development of force options to meet future operating environment, and
  - prioritisation of options including timing.
- The cycle consists of four phases: Assess, Understand, Design, and Decide.
- The Force Design Cycle is how Force Design Division (FDD) will deliver capability investment and force structure options.

Force Design Cycle: DCAP

- Defence Capability Assessment Program (DCAP) is the annual program of activities supporting the Force Design Cycle.
- DCAP outcomes are prioritised capability investment recommendations (based on force options):
  - traceable to strategic guidance, and
  - for potential inclusion in the Integrated Investment Program (IIP).
Contestability Framework

• Key assurance activity during Investment Approval Pathway.
• Reviews force design outputs and all Gate submissions to ensure:
  - alignment with strategic resource and capability guidance; and
  - an acceptable basis for decision making.
• Checks that plans to proceed to next gate can be executed.
• Reviews risk assessments and treatment strategies.
• Reviews cost and schedule estimates.
• Participates in IAR and ‘deep dives’.
Contestability

- Is this the right thing to do?
- Will we receive the outcome we expect?
- Have things been done right?

Benefits of Contestability

- Makes submissions robust.
- Helps improve decisions (not make them).
- Checks key content such as Joint Capability Needs Statement (JCNS) before Smart Buyer workshops.
- Key to establishing and maintaining trust with Government and the Central Agencies.
- Supports a strengthened Defence strategic centre.
The Capability Life Cycle (CLC) and Capability Management Practices

Smart Buyer Framework

Intent of Smart Buyer

• Improve strategy development and outcomes.
• Ensure investment approvals better informed, contested, flexible and timely.
• Deliver better value for money across the CLC.
• Explicitly define, plan, manage projects based on identified risks.
• Be commercially aware and cost conscious.
What is Smart Buyer?

• Smart Buyer is a decision-making framework that supports CLC Proposals through development of a tailored Project Execution Strategy (PES).

• Smart Buyer activities develop:
  – Acquisition Strategy.
  – Sustainment Strategy.
  – Approval Strategy:
    • Basis of Government approval process (one or two Minister, NSC).
    • Recommendation on approval pathway (Gate 1 and 2, Combined, Multiple Gate).

Smart Buyer Workshops

• Core to Smart Buyer activities are two distinct types of structured workshops:
  – Risk and drivers analysis.
  – Tailored strategy development.

• Workshops facilitated and supported using members of the CASG Independent Assurance Review team.

• Explicitly considers the project context, objectives, risks and drivers to develop a tailored approach as then captured in the PES.

• First Smart Buyer workshop conducted prior to Gate 0 using JCNS as input.
Smart Buyer ‘Risk and Drivers’

- **Acquisition**
  - Requirements
  - Technology
  - Schedule
  - Commercial
  - Project Integration
  - Defence Integration
  - Financial
  - Strategic
  - Industry

- **Sustainment**
  - In-service Requirements
  - Obsolescence
  - Commercial
  - FIC
  - Financial
  - Strategic
  - Operational
  - Industry

For each Project/Proposal these are rated as:
High, Medium-High, Medium-Low or Low.

Roles in the CLC
CLC Leadership

Two types of CLC leadership:

- governance of the CLC Policy and Process.
- clearly defined CLC accountability roles as per the CLC Accountability Model.

CLC Governance
### Governance of CLC Policy and Process

- **VCDF**
  - Chair of the Investment Committee (IC)
  - Managing the IIP
  - Operating the CLC
  - Joint Force Authority
  - C4ISR Design Authority
- **Associate Secretary / DEPSEC SP&I**
  - Contestability
- **DEPSEC CASG**
  - Smart Buyer

### CLC Accountability Model

- Consistent with One Defence, CLC focuses on building partnerships between those involved in the CLC.
- CLC roles and relationships between stakeholders have been clearly defined as per the Accountability Model.
The Capability Life Cycle (CLC) and Capability Management Practices

Accountability Model

Investment Committee (IC)

- Subsidiary of the Defence Committee.
- Ensures that resourcing, including capital investment and operating costs, is consistent with Defence's strategic priorities and resourcing strategy.
- Gate 0 decisions for the majority of proposals across Major Capital Equipment, major ICT and infrastructure procurements.
- Oversees the implementation and integrity of the IIP.
- VCDF (Chair), Assoc Sec, DEPSEC SP&I, CFO, CN, CA, CAF, DEPSEC CAS, CDS, FAS Contestability, Central Agencies (Finance, PM&C).
Capability Managers (CM)

- Capability Managers (CM) are accountable to raise, train and sustain capabilities as directed by Secretary and CDF.
- CM are:
  - VCDF: Joint Capability
  - Deputy Secretary Strategic Policy and Intelligence: Strategic Intelligence and Cyber Programs, Geospatial Intelligence and, Information and Services
  - Chief of Navy: Maritime capability
  - Chief of Army: Land capability
  - Chief of Air Force: Aerospace capability.

Capability Manager (CM)

- Develops project risk profile with the Delivery Group.
- Makes funding available to the Delivery Group.
- Chairs the Program Steering Group.
- Appoints the Program Sponsor.
- Develops the Proposal/ Business Case for Gate decisions.
- Develops Program Strategies supported by Delivery Group.
- Leads Test and Evaluation (T&E).
The Capability Life Cycle (CLC) and Capability Management Practices

Program Sponsor

• Program Sponsor represents the CM.
• Accountable to the CM for outcomes of all Program activities.
• Accountable for ensuring Program remains aligned with Defence strategic objectives.

Program Manager

• Appointed within the Delivery or Enabler Group to conduct Program Management for acquisition and sustainment activities.
• Success dependent on partnership between the Program Sponsor and Program Manager.
Delivery Groups

- Develop the Project Execution Strategy (PES).
- Conduct Independent Assurance Reviews (IAR).
- Coordinate early Industry involvement.
- Execute Integrated Project Management Plan (IIPM) for CM.
- Sustain the capability as directed and resourced by CM.
- Dispose of capability and provide advice to CM on sustainment obsolescence and disposal.

Contestability

- Provides independent assurance to VCDF (as Chair of the IC), Secretary and CDF, Central Agencies, Ministers and Government.
- Ensures Defence's capability needs and requirements are aligned with strategy and resources and can be delivered in accordance with government direction.
Enabler Groups

- Subject matter expertise to:
  - Force Design Division,
  - Contestability Division, and
  - Delivery Group's Integrated Project/Product Management
- Contribute to CM's Program Strategy.
- Develop FIC and enabler components, coordinated by the Delivery Group.

Project/Product Sponsor

- Project/Product Sponsor represents both CM and the Program Sponsor.
- Liaises directly with the Integrated Project Manager.
- Sets direction for the Project and ensures that Project activities and outputs are consistent with the capability needs and priorities of the capability user.
Integrated Project/Product Team (IPT)

- Integrated Project Management Team (IPT) is established with the Delivery Group to manage project functions.
- Managed by the Integrated Product/Project Manager.

Session 4

Management Layers of the CLC
The Capability Life Cycle (CLC) and Capability Management Practices

CLC Management Layers

Implementation of the CLC relies on three layers of management:

- **Portfolio** view of capability investment and management.
- Management of capability groupings through **Programs** which deliver joint force outcomes and supports an improved strategic view.
- Clear recognition of the capability **Product** outcome which is enabled in part through **Projects**.

| Portfolio | Program | Product / Project |

- **Portfolio**
  - The Defence Portfolio is now managed through:
    - an Integrated Investment Program (IIP)
    - comprised of multiple Programs of initiatives
    - which clearly reflect Defence’s strategic goals
  - ‘Managing the Portfolio’ means balancing Defence’s prioritised strategic capability needs against the business realities of risk, resources, and changes over time.
Portfolio Engagement with Government

• Cycle:
  – IIP approved annually as part of Budget; and
  – Bi-annual IIP performance updates to the Minister.
• Continuous engagement with Central Agencies and Minister.
• Individual project and program engagement:
  – Timely, transparent and two-way engagement; and
  – Supported by Contestability and Investment Portfolio Management Branch.

Integrated Investment Program (IIP)

• Rolling ten-year expenditure plan approved annually by government.
• Managed through the IC and Defence Committee (DC).
• Includes activities and projects approved via:
  – Defence White Paper (DWP)
  – Program update
  – Gate 1
• Spans all investment activities, including Major Capital Equipment and Enterprise ICT and Estate initiatives, over the entire CLC.
The Capability Life Cycle (CLC) and Capability Management Practices

Integrated Investment Program (IIP)

- The IIP is structured into six Capability Streams taken from the Defence White Paper.
- Organised into 40 Programs mapped to the Capability Streams.
- Provides the Portfolio view.

Six Capability Streams

- ISREW, Space and Cyber
- Air and Sea Lift
- Land Combat and Amphibious Warfare
- Strike and Air Combat
- Maritime and Anti-Sub Warfare
- Key Enablers
The Capability Life Cycle (CLC) and Capability Management Practices

Capability Stream to Program Matrix

Source: Updated Interim CLC Manual

Capability Streams and Programs

- **Vertical Streams:**
  - Structure for Defence Business
  - Communication with Government
  - Make Defence efforts visible

- **Horizontal Streams:**
  - CM domains
  - Both major capital and key enablers
  - Whole of FIC and Whole of Life and all investment
  - 40 Capability Programs
  - Strategic narratives in DWP16 and FSR inform Program definition
  - Plan for proposals to Government to be at Program level
The Capability Life Cycle (CLC) and Capability Management Practices

Program

Each of the Programs in the Defence Portfolio is:

- a group of related projects, existing products and activities
- managed by a Program Sponsor
- to be managed to optimise capability outcomes within allocated resources

Program Summary

- The CLC focuses on Programs rather than individual Projects.
- Programs deliver capability outcomes in support of government-endorsed Capability Streams.
- Program Sponsors is to manage the Program as a group of Products, Projects, and Activities.
- Program Management cuts across operational, technical, and management aspects including integration and interoperability.
Program Approach - Benefits

• Allows the IC and Capability Stream Leads to more effectively prioritise across the Defence Portfolio.
• Improves the strategic view for government direction.
• Efficiencies across groups of similar products and projects.
• Facilitates Joint Force by Design through deliberate management of related capabilities (Projects and Products).
• Provides a common reference across operational, technical and management interdependencies for each project and sustainment activity.

Program Management

• A Program is:
  – an enduring capability outcome;
  – delivered through a group of related Projects, Products and activities;
  – the component can be pre-Project Proposals, in-flight Projects, and fully realised Products.
The Capability Life Cycle (CLC) and Capability Management Practices

Product

• Product:
  – Capability (based on Platform, equipment or commodity) managed in a Program
  – Includes all Fundamental Inputs to Capability (FIC)
  – Whole of life cycle (concept to disposal)
  – deliver capability effect

• Project:
  – Activity which delivers Products including all FIC
  – Requires Integrated Project Management

CLC Product/ Project Relationship

A Project is:

• a unique, finite, multidisciplinary and organised endeavour to realise discrete changes to the capability managed in a Program.
• the means by which a Product/s are delivered.
The Capability Life Cycle (CLC) and Capability Management Practices

Program/ Product/ Project Relationship

Program is made up of Products, Projects, and Activities which:
– deliver a capability outcome
– have relationships
– likely need to be synchronised or coordinated

Portfolio/Program/Product/Project

Strategy and Concepts
Project life cycle
Product life cycle

Program

Portfolio/Program/Product/Project

Program

Product A
Project 1
Project 2
Product B

Activity: eg preparedness analysis
Activity: eg modelling
Programs and the Joint Force

- Programs support the delivery of the Joint Force through explicitly recognising interdependencies between capability systems and deliberately managing implementation of joint force outcomes across CLC activities:
  - Force Design
  - Requirements Setting
  - Acquisition
  - Integration and Interoperability
  - Acceptance into Service
  - Sustainment

Aspects of Interdependency

- Requires management of four aspects of interdependencies between capability systems in Proposal, Project, or Product ‘stage’:
  - Operational needs and requirements (based on CONOPS)
  - Function and Performance requirements
  - Technical requirements: system and interface requirements
  - Implementation Management including planning, assignment, contracting, and assurance across all FIC
The Capability Life Cycle (CLC) and Capability Management Practices

Program Management for Joint Capability

What are the operational interdependencies between the related capability systems?

What are the function and performance dependencies between the capability systems that deliver the required operational effects?

What are the technical requirements and constraints between capability systems (system interface requirements, system requirements and associated standards) that will enable the required function and performance outcomes?

What are the Program, Project and Product management interdependencies (such as system development activities, contracting actions, T&E events) that must be coordinated and synchronised to enable definition, realisation, and ongoing management of system interdependencies?

Joint Force: Programs/Products/Projects

PORTFOLIO FEATURES
- Enterprise Architecture
- Force Design (including joint force outcomes)

PROGRAM FEATURES
- Capability Program Narrative (CPN)
- Program Integration Operating Concept (PIOC)
- Program Architecture (inclusive of interface requirements and standards)
- Program Strategy (inclusive of realisation interdependencies)

PROJECT FEATURES (for acquiring a Capability System)
- Joint Capability Needs Statement (JCNS)
- Operational Requirements (OCD)
- Function and Performance Requirements (FPRs)
- Technical/Non-functional requirements (TPFRs)
- Capability System Architecture (incl of all FIC)
- Implementation (IPM)
Overview: CLC Artefacts and relationships

What and Why

- Defence White Paper
- DPG
- AMS
- IIP
- Strategic Guidance
- FOE
- JCF
- AJOC
- FJOC
- Concepts
- CPN
- PIOC
- JCN

Raised within Force Design as Program level direction

How

- PGPA Act
- CPRs
- DIP
- Smartbuyer
- DPPM

Program Strategy

Proposal = Sponsor’s Paper + JCNS + PES

- JCNS
- OCD
- FPS 1
- FPS 2

- PES
- IPMP
- IMS

Tender and Contracting Documents

Issued by JCA to the CM

Overview: CLC Artefacts and relationships
The Capability Life Cycle (CLC) and Capability Management Practices

Session 5

Phases of the CLC

Overview: Phases of the CLC

The CLC is a four-phase, risk-based decision-making process which:

1. Identifies capability needs
2. Defines and decides capability solutions
3. Acquires the capability and introduces it into service
4. Support the capability through its life including disposal

Strategy and Concepts 1
Risk Mitigation & Requirements Setting 2
Acquisition 3
In-Service and Disposal 4
The Capability Life Cycle (CLC) and Capability Management Practices

CLC Process and Decision Points

From the post-FPR perspective most CLC initiatives affect the Investment Approval Pathway up to Gate 2:

• Four Phases
• Three Decision Gates:
  • Gate 0 internal to Defence to progress a proposal
  • Gate 1 formally adds the proposal to the Defence investment plan (IIP)
  • Gate 2 is approval to acquire a solution

CLC Phase Changes post-FPR

• Strategy and Concepts Phase focusses on Force Design which provides the basis for the Proposal/Business Case to be presented at Gate 0.
• Risk Mitigation and Requirements Setting Phase develops sufficient definition and reduces risk to an acceptable level for decision makers at Gate 1 and 2.
CLC Gate Changes post-FPR

• There are three decision gates:
  – Gate 0 is the decision point to either progress to the next Gate, require more work or reject the documentation. All projects go through Gate 0.
  – Gate 1 is the Government decision to select a specific option(s) and progress to Gate 2.
  – Gate 2 is the Government decision to acquire a fully defined and costed capability.

STRATEGY AND CONCEPTS
The Capability Life Cycle (CLC) and Capability Management Practices

**Strategy and Concepts Phase**

- Emphasis on:
  - ‘Joint force by design’; and
  - integration and interoperability of Defence capabilities.
- VCDF as Joint Force Authority:
  - is responsible for design, integration and assurance of the future joint force in accordance with strategic and resource guidance;
  - requires that new and extant capabilities are developed in accordance with:
    - strategic guidance,
    - joint concepts,
    - force design priorities, and
    - Doctrine.

**Strategy and Concepts Phase**

- Draws on a continuous force design cycle to evolve joint capability concepts and identify capability needs.
- Identifies current, forecast or potential capability gaps, risks and issues that may need further investment.
- Develops capability options to meet missions stated or derived from strategic guidance.
- Basis for a CM to develop the Gate 0 submission.
Force Design

- Core to the Force Design effort is the new Defence Capability Assessment Program (DCAP) framework which identifies force design options.
- Force Design Division will use a combination of activities:
  - experimentation
  - war-gaming
  - simulation and modelling
  - operations analysis
  - options development and analysis

Gate 0 – Overview

- Internal Defence decision point which considers the capability need, possible options, risk and strategy to progress.
- Gate 0 Proposal based on a Proposal/Business Case which evolves for Gate 1 and Gate 2.
- At Gate 0 the IC approves further development of a range of options with agreed requirements, timeframes, and funding to Gate 1 or agreement to proceed directly to Gate 2.
- Gate 0 approval is issued by the VCDF.
Gate 0 - Proposal

- Presented to IC by the CM to enable informed investment decision.
- Identifies a set of feasible and achievable options.
- Provides sufficient argument for the investment proposal and a strategy for its implementation.
- Gate 0 Proposal prepared with support from Delivery Group/s and FIC providers.

Gate 0 - Proposal

Comprises:

- Sponsor Paper:
  - Business Case argument (based on five ‘cases’)
  - Contestability Statement
  - Total Cost of Ownership (TCO)
  - Industry considerations
- Joint Capability Needs Statement (JCNS)
- Project Execution Strategy (PES)

Addressed later in discussion on ‘artefacts’
Gate 0 Proposal – Key features

- Documents requirements, risk profile*, strategy and funding
- Proposes tailored strategy including:
  - Approval Authorities eg
    - National Security Committee (NSC), One or Two Ministers
    - Internal to Defence
  - Approval Pathway eg
    - Fast track from Gate 0 to Gate 2
    - Significant risk reduction studies Gate 0 to Gate 1
  - Acquisition and Sustainment Strategies

* Smart Buyer risk profiling across eg Financial, Requirements, Technical and Integration, Industrial and Strategic

Industry Engagement

- CM and Delivery Groups are expected to engage with industry* to:
  - support analysis,
  - promote innovation,
  - procure industry services, and
  - test concepts.

* Defence Industry Policy discussed in greater detail later
Gate 0 - Outcomes

- Issued by the VCDF.
- Constitutes formal endorsement of the PES and funding (including any adjustments as necessary).
- Endorses activities and defines expected outcomes for next Gate.
- Can initiate entry into IIP through higher delegation.

Tailoring

- Tailoring is based on the identified risk in early project management planning.
- Analysis including Smart Buyer informs tailored investment approval pathway, strategies and level of contestability.
- Tailoring allows simpler capability investments to be expedited, freeing up resources to apply sufficient scrutiny, resources and work to more complex initiatives.
- The expectation of tailored and innovative CLC implementation demands greater understanding and knowledge of capability management and the CLC.
The Capability Life Cycle (CLC) and Capability Management Practices

Tailoring practices

Every capability development proposal and its implementation must be tailored to particular circumstances:

✓ Must be:
  • ‘fit for purpose’,
  • sufficient, and
  • cognisant of unique factors especially risks

✗ Must not be:
  • a ‘cookie cutter’ approach based on other efforts
  • use templated content

RISK MITIGATION AND REQUIREMENTS SETTING

Strategy and Concepts

Gate 0

<table>
<thead>
<tr>
<th>Risk Mitigation &amp; Requirements Setting</th>
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<tbody>
<tr>
<td>Acquisition</td>
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Gate 2

In-Service and Disposal
Risk Mitigation and Requirements Setting

• Develop and progress capability options to achieve government approval for acquisition.

• Develop plans to deliver the full scope (all FIC), identifying risks, and ensuring budgets, resources and timescales are aligned.

• Develop a firm contractable proposition to acquire and sustain the capability for Gate 2 Business Case.

• Requirements (including FIC) sufficient for capability acceptance.

Risk Mitigation and Requirements Setting

• Core to the CLC is risk identification and corresponding targeted risk reduction activities to define requirements.

• Explicitly applies the process of analysis and progressive requirements definition so as to provide:
  – informed basis for trade-offs;
  – reduced level of uncertainty for decisions at Gates; and
  – contract-ready requirements.
Managing risk is an absolutely crucial part of the redesigned CLC.

“We often think that having a 6,000 line item risk register will solve all our problems; it doesn’t. So where our focus is now is on identifying the risk at that point of the life cycle that is appropriate, and then working out the controls, making sure those controls are effective and monitoring the outcomes. We really need to rethink what we think risk management is all about”.

VADM Ray Griggs, VCDF 2016
Risk mitigation and sufficiency

- The purpose of **risk mitigation** is to develop understanding, information and confidence sufficient (and appropriate to risk appetite) to enable informed decisions at each decision point and Gate.

- Risk mitigation reduces the level of uncertainty so that investment and other decisions can be made with an appropriate level of confidence.

- Risk mitigation focuses on risks identified in the risk profile.

- Requirements definition based on structured derivation and evidence-based decision-making is key to reducing uncertainty and therefore risk.

Risk Mitigation Activities

- Risk mitigation is implemented through a combination of:
  - risk reduction activities (eg analyses, modelling, studies);
  - improving understanding and definition of requirements, costs and schedule;
  - planning which demonstrates sound consideration of appropriate strategies, options, and contributing factors; and
  - assurance to check and confirm that the above is sound.
Implementing Risk Mitigation

Requirements Setting
Requirements Setting Overview

- **Purpose:** Converting the requirements provided by Force Design (JCNS) into a contractable requirement statement and preparing for release of tender documentation (competition or sole source).
- **Method:** Implemented through structured Systems Engineering and Requirements Engineering methods.
- **How much is to be done?:** Sufficient to provide adequate certainty about requirements (balance beyond the Program requirements) which meets risk appetite of decision-makers.
- **Who is involved?:** CM, Systems Engineer/ Requirements SME, FIC providers, and Delivery Agency/s.

Sufficiency of Requirements

"Requirements need to be developed to a sufficient level of specificity to support industry engagements, capability acceptance, and detailed analysis (particularly of implications for the fundamental inputs to capability) to understand the full scope and broad feasibility and risks of the proposal."

Source: Para 2.69 Updated Interim CLC Manual
The Capability Life Cycle (CLC) and Capability Management Practices

Requirements Traceability

<table>
<thead>
<tr>
<th>What and Why</th>
<th>How</th>
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<td>Defence White Paper</td>
<td>DIP</td>
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<td>DPG</td>
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<td>AMS</td>
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<td>Strategic Guidance</td>
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<td>Tender and Contracting Documents</td>
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Program-level requirements aid efficiency

All artefacts shall satisfy the CLC expectation of sufficiency.

That is, each subordinate artefact leverages the parent artefact and other information so that only the essential ‘delta’ is developed.
Requirements scope and considerations

- All FIC Elements
- Whole of life cycle
  - Risk Reduction activities
  - Acquisition activities
  - Transition: into Service
  - Sustainment
  - Operational Support
  - Disposal
- Joint Force Integration and Interoperability
- Legislative and Regulatory requirements
  - Seaworthiness, Airworthiness, Technical Regulation
  - WHS Act, EPBC Act etc
- Must be unambiguous, testable etc

“Begin with the end in mind”

Dr Stephen Covey
The 7 Habits of Highly Effective People

Fundamental Inputs to Capability

- FIC Elements:
  - Command and Management,
  - Organisation,
  - Major Systems,
  - Personnel,
  - Supplies,
  - Support,
  - Facilities,
  - Collective Training,
  - Industry.

FIC must be integrated and managed to realise and sustain a capability: a deficiency in any one adversely impacts the whole.
Requirements for major systems

- The scope of requirements considerations for a major system can be extensive such as:
  - Capability: operational, function, and performance
  - Interfaces and Interoperability
  - Materiel Safety (including WHS)
  - Security
  - Human factors
  - Reliability, Maintainability, Obsolescence, Supportability
  - Software
  - Electromagnetic Environmental Effects
  - Environmental factors
- Systems engineering expertise should be sought to determine what is applicable to a particular situation and what is sufficient for an acquisition.

Requirements for support systems

- The scope of requirements considerations for a support system can also be extensive such as:
  - CM requirements
  - sovereign capability requirements
  - technical data requirements
  - location constraints
  - component packaging
  - transportability
  - deployability, fault isolation and maintainability
  - disposal requirements
- Systems engineering and materiel logistics expertise should be sought to determine what is applicable to a particular situation and what is sufficient for an acquisition.
The Capability Life Cycle (CLC) and Capability Management Practices

Requirements effort across the CLC

- **Strategy and Concepts**
  - IPT develops high level requirements based on JCN, CPN, PIOC, JCNS
- **Risk Mitigation & Requirements Setting**
  - IPT further develops requirements appropriate to risk drivers and appetite
- **Acquisition**
  - Refinement of requirements through solicitation activities
  - Use of Requirements
    - Down Select solution classes
    - Cost, Schedule Estimates
    - Value Proposition
    - Analysis of alternatives
  - Government endorsed requirements as reference for upgrades etc.
- **In-Service and Disposal**
  - Refinement of requirements and use of requirements in validation, verification and assurance
  - Ongoing management and use of requirements as reference for sustainment activities

Requirements SMEs

Dedicated Requirements SME sourced from the Engineering COE will allow warfighter and other SME to focus on their specialist contribution to the IPT

- **Engineering Centre of Expertise (COE)**
  - Policy and Practice
  - Requirements Advice
  - Engagement of Industry support
  - Requirements Service

- **IPT**
  - Project/Product Sponsor
  - Integrated Project/Product Manager
  - Industry Representative
  - FIC SME
  - Acquisition or Asset Mgt Specialist
  - Government Submission SME
  - Requirements SME

- **Delivery Group**
  - Head
  - Program Manager

- **Program Sponsor**

- **Project/Product Sponsor**

- **Integrated Project/Product Manager**

- **Acquisition or Asset Mgt Specialist**

- **Government Submission SME**

- **Requirements SME**
Summary of Requirements Setting

- Requirements Setting incorporates:
  - joint force requirements (integration and interoperability)
  - Whole of Life requirements for the capability system
  - all FIC factors
  - implementation/transition/realisation requirements

- Requirements efforts:
  - must have access to upstream outputs including rationale for requirements decisions made
  - use methods, processes, tools, type and level of detail tailored to the risk and relevant features of the capability and development strategy
  - must be traceable across the CLC
  - must adopt consistent rigour across FIC elements
  - should be performed by skilled personnel

Gate 1 (if required)

- Gate 1 approval required for complex and high risk proposals or when a government decision is required in order to narrow the field of options.

- Gate 1 is the Government decision to:
  - select a specific option or options; and
  - proceed with agreed timeframes, technical requirements and financial commitments to Gate 2.

- Gate 1 approval is not a commitment to acquire a new capability; it only gives approval to conduct the necessary work to progress to Gate 2.
Gate 1 considerations and artefacts

- Gate 1 Proposal describes:
  - results of risk reduction activities since Gate 0,
  - progress in reducing options
  - progress in requirements definition, cost estimation
  - plans (incl risk mitigation activities) to proceed to Gate 2
  - Industry engagement outcomes

- Incorporates:
  - updated PES
  - Draft Submission to Government

- CM is responsible for Gate 1 Proposal

Gate 1 outcomes

- Approved Project enters IIP.
- Options to Gate 2.
- Plan to Gate 2.
- Permission to engage industry.
SOLICITATION AND SOURCE SELECTION

Solicitation and Source Selection

- Pre-Gate 2, industry engagement in the form of solicitation is generally conducted to inform approval to acquire.
- Range of solicitation mechanisms from Invitation to Register Interest (ITR) through to a Request for Tender (RFT).
- Can include additional risk reduction methods such as Offer Definition Activities (ODA).
- Rigorous Source Selection activities are conducted in accordance with the DPPM.
Sound requirements are critical

- Requirements are currently defined in terms of requirements documents which are traceable to government direction through:
  - Operational Concept Document (OCD)
  - Function and Performance Specification (FPS)
  - Test and Evaluation Master Plan (TEMP)
- Sound Requirements underpin:
  - what is to be acquired
  - work to be done to implement the acquisition and sustainment outcomes
  - Basis of Estimates (BoE) in terms of work, cost, schedule
  - confirming that deliverables are satisfactory

Defining the work is also key to Solicitation

- Work Breakdown Structure (WBS) captures the work to be undertaken.
- WBSs are generally constructed at the:
  - Project-level ie PWBS
  - Contract-level ie CWBS
- WBS underpin the BoE in terms of work, cost, schedule.
- WBS informs the SOW used for Solicitation.
## Solicitation and Source Selection documents

### Defence Documents
ASDEFCON Suite including:
- SOW
- Conditions of Tender
- OCD, FPS, TEMP
- Data Item Descriptions (DIDs)

### Tenderer Responses
Tender documents including:
- Compliance Matrix
- Specifications
- Plans
- Costs
- Schedules

### Source Evaluation
- Tender Evaluation
- Source Evaluation Report

*Must be robust and fully defensible*

## Summary of pre-Gate 2 activities
- Updating the PES
- Risk Management
- Requirements Setting
- Options Refinement
- Cost Estimation
- Final Project Strategy
- Industry Solicitation and Evaluation
- Source Selection report development
- Initial negotiations
- Project Management and Sustainment Planning
Gate 2

- Solicitation outcomes and source selection recommendations are presented to Gate 2 for approval
- Focus of Gate 2 is on acquisition based on solicitation results including:
  - Final PES
  - Preferred Contractor
  - Draft Govt Submission
  - Contestability Statement
- Gate 2 is the Government decision to acquire a fully defined and costed capability including: acceptance of risks, authority to conduct acquisition and sustainment and assignment of budget, schedule, scope

Gate 2 Outcomes

- IC considers the Submission.
- As a result of Gate 2, Defence has authority, budget and timeframe to acquire a selected Product.
- Government approval allows commencement of the Acquisition Phase.
The Capability Life Cycle (CLC) and Capability Management Practices

### Summary of what to take to the IC

<table>
<thead>
<tr>
<th>Use</th>
<th>Gate 0</th>
<th>Gate 1</th>
<th>Gate 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>CabSub or MinSub</td>
<td>CabSub or MinSub</td>
<td>Draft Approval Submission to Government either Ministerial submission or Cabinet Submission</td>
</tr>
</tbody>
</table>
| Investment Committee | • IC Synopsis  
• Sponsor Paper:  
  - Business Case argument  
  - Contestability Statement  
  - Total Cost of Ownership (TCO)  
  - Industry considerations  
• JCNS  
• PES | • IC Synopsis  
• Sponsor Paper - no longer than 3 pages  
• Draft Approval Submission to Government either Ministerial submission or Cabinet Submission | | |

| Key Considerations | | |
|---------------------|---|
| Business Case, Risk Assessment and mitigation actions, Acquisition and Sustainment Strategies, IPMP, Cost Estimates, Workforce Estimates, Whole FIC | Business Case, Risk Assessment and mitigation actions, costs and schedule estimates, IPMP, Requirements (OCD, FPS, TEMP) | Business Case, Risk Assessment and mitigation actions, costs and schedule estimates, IPMP, Requirements (OCD, FPS, TEMP), Source Evaluation |

### ACQUISITION

- Strategy and Concepts
- Risk Mitigation and Requirements Setting
- Acquisition
- In-Service and Disposal

Gate 0  Gate 1  Gate 2
The Capability Life Cycle (CLC) and Capability Management Practices

**Acquisition**

- Capability is acquired by one or more Delivery Groups, for the CM, in accordance with:
  - Requirements Documents (OCD, FPS, TEMP)
  - Integrated Project Management Plan (IPMP)
  - Integrated Master Schedule
- Post-CLC changes:
  - Now even stronger recognition of Whole of Life and all FIC across requirements, costs, integrated planning
  - Legislative and Regulatory requirements are changing:
    - including environment and safety
    - Defence regulatory frameworks

**IN-SERVICE AND DISPOSAL**

- Strategy and Concepts
- Risk Mitigation & Requirements Setting
- Acquisition
- In-Service and Disposal

Gate 0  Gate 1  Gate 2
In-Service and Disposal

• Commences with the Initial Operating Capability (IOC) Introduction Into Service and concludes with Product disposal.

• In Service Phase commences when the Product is operated and sustained by the CM.

• The Disposal Phase commences with the transition to the replacement capability (if one is required)

In-Service and Disposal

• Key aspects of Introduction Into Service are:
  – acceptance of the capability system by the CM from the Delivery Group based on a range of factors including compliance with:
    • legislative requirements including environment and safety
    • regulatory requirements drawn from Defence Seaworthiness, Airworthiness and other regulatory frameworks
  – appropriate transition into service activities
  – acceptable sustainment arrangements
Session 6

Artefacts and Documents

Program-level Artefacts

<table>
<thead>
<tr>
<th>What and Why</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defence White Paper</td>
<td>PGPA Act</td>
</tr>
<tr>
<td>Force Design</td>
<td>CPRs</td>
</tr>
<tr>
<td>Defence White Paper</td>
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<td>Force Design</td>
<td>DPPM</td>
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<td>Strategic Guidance</td>
<td>Smartbuyer</td>
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<td>Force Design</td>
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<td>FJOC</td>
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<tr>
<td>Concepts</td>
<td></td>
</tr>
</tbody>
</table>

Issued by JCA to the CM

Raised within Force Design as Program level direction

CPN

PIOC

Program Strategy

Issued by JCA to the CM

Proposal + Sponsor’s Paper + JCNS + PES

PES

IPMP

IMS

Project WBS

Tender and Contracting Documents

FPS 1

FPS 2
Program-level Guidance

• Proposal including JCNS and PES based on and informed by higher-level (Program) guidance:
  – Joint Capability Narrative (JCN)
  – Capability Program Narrative (CPN)
  – Program Integrating Operational Concept (PIOC)
  – Program Strategy (PS)

Joint Capability Narrative (JCN)

• Developed by Force Design Division (Force Options and Plans Branch).
• Used to task appropriate CM to develop a JCNS.
• Issued for a capability or enabling gap, risk or issue.
• Provides resource boundaries and broad options.
• Pathways:
  – Presented to JWC if risk, cost or complexity is of concern.
  – JCNS raised by CM.
• JCNs are still being developed.
• In the absence of JCN, use FSR Narratives and IIP funding profiles as reference.
Capability Program Narrative (CPN)

- Raised by Force Design Division.
- Program-level direction.
- Distillation of Program concepts and requirements.
- Provides the CM with a synopsis of:
  - operational environment
  - joint force needs
  - constraints
  - governance
  - sustainment arrangements and priorities where relevant.
- The CPN distils strategic and conceptual guidance into actionable deliverable terms.
- CPNs drafted but not all approved.

Program Integrating Operational Concept

- Detail on capability integrating concepts, needs and objectives.
- Written and owned by the Program Sponsor to coordinate intra and inter-Program linkages.
- Ensures that the Programs constituent projects are aligned with uniform guidance.
- Complements and expands on the PS.
- Provides impacted Projects and Programs with consistent overarching design direction.

Source: Update Interim CLC Manual
The Capability Life Cycle (CLC) and Capability Management Practices

PIOC

- Provides clear design guidance for relevant Programs, Products and Projects.
- Program's needs derived from relevant operational scenarios.
- Program level operational architectures based on joint war fighting architecture content defined by the C4ISR Design Authority.
- Design guidance for proposals, reducing the level of detail required in documentation (such as as operational concepts).

Source: Update Interim CLC Manual

Program Strategy (PS)

- Developed by the Program Sponsor based on the CPN.
- Describes how the Program outcomes will be achieved.
- Helps the CM (through the PS) coordinate the activities of the CM, Delivery and Enabling Groups for Proposals, Projects and Products that make up the Program.
- Defines:
  - How Program aligns with strategic guidance.
  - How projects/products integrate within the program.
  - How Program will develop, deliver and sustain capabilities.
  - Risks, issues gaps.
Program Strategy (PS)

- Identification of all constituent Proposals, Projects, Products and activities and their relationships/dependencies across operational, technical and programmatic aspects including:
  - Schedule and delivery milestones.
  - Activities (eg interface definition).
  - Resourcing including budget and workforce.
  - FIC elements.
- Linkages and critical dependencies with other Programs (including enablers) across all FIC elements.

Source: Defence Program Strategy Guide
CLC Business Case

- Evolves over the CLC Process CLC Business Case (Gates 0 to 2).
- “Business Case presents an argument which demonstrates that the benefits or outcomes are worth the commitment of the planned resources ($, people, time)” (Defence CLC Seminar Feb 2017).
- Business Case argument addressed five ‘cases’:
  - Strategic Case
  - Economic Case
  - Financial Case
  - Commercial Case
  - Management Case

Summary of Five ‘Cases’

- **Strategic Case**: Proposal aligns with strategic intent and priorities.
- **Economic Case**: Consideration of options and value proposition for the proposed investment is sound.
- **Financial Case**: Resourcing provisions are addressed.
- **Commercial Case**: Requirements, execution strategy including acquisition and sustainment strategy, risk.
- **Management Case**: Management arrangements.
Joint Capability Need Statement (JCNS)

- Developed by CM.
- Articulation of the need consistent with strategic guidance.
- How CM plans to address issue provided through higher level guidance ie JCN, CPN, PIOC or other.
- JCNS defines:
  - How Proposal aligns with strategic guidance
  - How projects/products integrate within the program
  - Scope boundaries
  - How Proposal will develop, deliver and sustain capabilities
  - Define IOC and FOC
  - Risks, issues, gaps

Project Execution Strategy (PES)

- Underpinned by SmartBuyer principles and development approach.
- Tailored in accordance with key project risks.
- Reviewed and revalidated at each subsequent CLC approval.
- Forms the basis of the detailed IPMP.
Project Execution Strategy (PES)

- Developed by CM and Delivery Group
- Covers:
  - Project management:
    - how the Project will be managed
    - High-level view of resources desired
    - Schedule to next milestone
  - Approvals:
    - Tailored approvals path to the next Gate
  - Acquisition and Sustainment
    - Single view of whole life cycle across FIC
    - Acquisition concept
    - Industry involvement

Session 6

Capability Management Practices
Practices are critical to the CLC

- Practices as the underpinning ‘toolkit’ for undertaking activities and developing artefacts across the CLC.
- Understanding capability management Practices will enable Sponsors and CM to properly analyse and appropriately tailor their Activities so that you:
  - know what work is to be done;
  - if appropriate, know how to do it yourself, or know how to task others to do the necessary work; and
  - be able to assess the outcomes and deliverables.

Capability Development Practices

- Program, Product and Project Management
- SE
- ILS
- Procurement and Contracting
- Assurance and Risk
Capability Development Practices

Practices are applied throughout the CLC Process tailored to the CLC Phase and the nature of effort.

Practices are not separate activities rather need to be managed as inter-related streams of work throughout the CLC.
Program, Product and Project Management

Program

A program is a group of related projects managed in a coordinated manner to obtain benefits not available from managing them individually. Program management is the application of knowledge, skills, tools and techniques to meet program requirements.

Source: PMI website

A Program, in the context of managing Defence capability, is defined as a group of related Projects, Products, and activities that are managed in a coordinated way to optimise capability outcome within allocated resources.

Program Management

- Who needs to know how Programs work:
  - those responsible for delivering joint force outcomes and sponsoring and managing Programs eg Program Sponsors and Managers
  - those who are part of a Program eg Project and Product Managers

Programs

- The common features of Programs:
  - Group of related interdependent Projects, Products and activities that are expected to contribute to an overarching objective.
  - Constituent Products, Projects, and activities which are largely managed separately and will likely be at different phases of the capability life cycle.
  - The Program Authority (Sponsor or Manager) is accountable for the combined outcomes.
Objectives of Programs

• The Interim Capability Life Cycle Manual cites two primary purposes of the Program approach:
  – aid prioritisation of the Integrated Investment Program;
  – group similar Products and Projects in order to realise efficiencies
• Another important reason is to enable joint force outcomes across operationally related products.

Program Management in the CLC

• Program Management is important in the CLC:
  – for managing appropriate groupings of Projects, Products, and activities is often the only way feasible way to identify and achieve shared objectives;
  – it is how Defence joint capability will be achieved; and
  – can significantly enable efficiencies in a resource constrained environment.
Role of the Program Sponsor and Manager

• Oversight, monitoring, and decision-making including the authority to reconcile issues between constituent Projects, Product and activities.
• Define shared objectives across Projects/Products.
• Provide appropriate governance arrangements including clear decision-making and escalation structures.
• Establish common business and technical requirements and processes applicable to all constituents of the Program.
• Identify and manage risks relevant to Program objectives.

Program Management for Joint Capability

• Requires management of four related types of interdependencies between capability systems that are either in Proposal, Project, or Product ‘stage’:
  – Operational (based on CONOPS)
  – Function and Performance
  – Technical requirements: system requirements, system interface requirements (including eg standards and their versions and tailoring)
  – Programmatic/Management (all FIC): schedule etc
Key enablers for Program Management

- **CPN and JCN**: narratives on the expected operational effects of the group of capability systems.
- **PIOC**: operational relationships between capability systems both within the Program and with other Programs.
- **PS**: activities, management arrangements, including integrated schedule across Projects and Products.
- **Program Architectures**: Program features using Defence Architecture Framework (DAF) conventions.
- **I2 Framework**: I2-Focussed guidance and requirements to achieve joint force outcomes.
- **Program and Materiel Standards Governance Fora**: Intra and inter-Program governance bodies such as PMSG and working groups.

SoS engineering

- Program Management can be aided by System of Systems (SoS) thinking and management approaches.
- SoS problems have been described (by DeLaurentis and Maier) as problems which exhibit a number of traits:
  - Operational Independence of Elements
  - Managerial Independence of Elements
  - Evolutionary Development
  - Emergent Behaviour
  - Geographical Distribution of Elements
  - Interdisciplinary Study
  - Heterogeneity of Systems
  - Networks of Systems
## SoS Approach and Engineering

- SoS approach and SoS engineering (SoSE) can be used in the CLC to:
  - optimise the outcomes delivered through the new systems (Projects) and legacy (Products) which together satisfy the Program objectives;
  - provide techniques that enable decision-makers to make informed decisions on architectural solutions for SoS problems across such as technical performance, costs; and
  - provide a deliberately managed approach to the definition, design and delivery of capability systems in a Program across Projects and Products.

## SoS architecture practice for Programs

- “An architecture is the structure of components, their relationships, and the principles and guidelines governing their design evolution over time” (IEEE 610.12-1990).
- Can use architectures for CLC SoS and Programs to provides a common and enduring reference for decisions for Proposals, Projects and Products
- SoS (and Program) architectures describe:
  - how constituent systems are used (CONOPS);
  - operational, functional and technical relationships and dependencies between constituent systems; and
  - end-to-end functionality and flows of information and data (and other resources).

Based on SEBoK Architecting approaches for SoS
Session 7

Practices: PM, SE, ILS

Product Management
The Capability Life Cycle (CLC) and Capability Management Practices

**CLC Product**

- A Product is:
  - Platform, equipment or commodity managed in a Program
  - Includes all Fundamental Inputs to Capability (FIC)
  - Whole of life cycle (concept to disposal)
- Product Management is the ‘end to end’ management of the Product inclusive of the Project which delivers the Product

![Product Management Diagram](image)

**Product Management**

- Product Management Practice as it relates to Defence is, in turn, informed by two key practices:
  - Asset Management (ISO 55000)
  - Systems Engineering (ISO/IEC 15288)
Asset Management

• The Asset Management Council defines asset management as, “the life cycle management of physical assets to achieve the stated outputs of the enterprise”.

• ISO 55000 Asset Management defines:
  – an asset as “an item, thing or entity that has potential or actual value to an organisation”; and
  – Asset Management as “the coordinated activity of an organisation to realise value from assets.

• ISO 55000 can be viewed as strategic and principles-based view in support of Product Management.

Systems Engineering

• ISO 15288 Systems Engineering is a common framework of processes applied throughout the system life cycle.

• SE Practice provides practical guidance, processes and techniques to:
  – progress the capability system life cycle from concept to disposal;
  – integrate contributing disciplines throughout the life cycle, and
  – ensure an integrated approach to the system development activities across the life cycle.
Product Management Practice - summary

- ISO 55000 Asset Management provides a strategic and principles-based view in support of Product Management.
- ISO 15288 Systems Engineering provides a practical system life cycle view applicable to complex military systems.
- While satisfying the principles of Asset Management, Defence capability development draws heavily from SE practice to implement the CLC.
CLC Project

- A Project is a unique, finite, multidisciplinary and organised endeavour to deliver a Product or Products.
- A Project generally occurs in the early part of the Product Life Cycle although Projects can be established later (eg for Product upgrades).
- A Project has its own life cycle which delivers the Product.

What is Project Management?

- Project Management provides a structured and reliable means to realise the Product.

- Project management is:
  
  \[ \text{the application of knowledge, skills, tools and techniques to project activities to meet project requirements.} \]

What is Project Management?

Project Management (PM) is achieved through a number of well-defined and proven processes across ten project management knowledge (PMBOK) areas*:

- Integration Management
- Scope Management
- Time Management
- Cost Management
- Quality Management
- Human Resource Management
- Communications Management
- Risk Management
- Procurement Management
- Stakeholder Management


Total Cost of Ownership

- Costing approaches:
  - Bottom-up
  - Top down
  - Combination
- Bottom-Up:
  - Utilises WBS (based on the requirements set)
- Top-down:
  - Parametric (use a known attribute eg weight of ship, SLOC to develop estimates)
  - Analytical techniques using historical data and application of factors for projections
  - Exemplar solution (estimate based on existing system/s)
  - Indexing
Importance of good costing practice

- Supports consideration of Options for Gate decisions.
- Fundamental part of the Business Case and Government submissions.
- Budgeting.
- Particular aspects have proven to be difficult, such as estimating developmental and/or integration projects.

Total Cost of Ownership (TCO)

- Pre-Gate 0, 1 2: cost activities including risk reduction efforts.
- Acquisition Costs which reflect the cost to Defence of acquiring an asset.
- Cost of bringing capability systems into service.
- Cost of sustaining and operating the asset over its life.
- Cost of disposing the asset.
Scheduling Practices as part of PM

- Complex Projects require Program Sponsors and CM to have a sound understanding of scheduling practices.
- Schedule Construction must be based on rigorous WBS, BoE and logic.
- Schedules must be constructed using techniques which are:
  - able to capture the complex interdependencies between activities;
  - assist in understanding risks to achievement; and
  - able to accommodate risk mitigation efforts.

Systems Engineering
Materiel Engineering in Defence

“Defence is reliant upon materiel engineering and maintenance to properly define, acquire and support materiel that is fit for purpose, legislatively compliant and effective. The appropriate application of materiel engineering and maintenance processes and procedures is to provide systems and equipment that can achieve a desired operational effect, in a nominated environment, within a specified time and to sustain that effect for a designated period.”

Source: DEFLOGMAN Part2 Vol10 Chapter 2

Engineering in Defence

“In its purest sense, engineering is the application of technical analysis and decision making processes to efficiently produce and/or sustain materiel solutions that safely satisfy the user’s requirements. The technical knowledge or solution is articulated in technical documentation, which fully describes the item for subsequent construction/manufacture/production.”

Source: DEFLOGMAN Part2 Vol10 Chapter 2
Materiel Engineering in Defence

- Materiel engineering involves:
  - development and control of a product in terms of:
    - requirements,
    - design,
    - construction/manufacture/production,
    - configuration,
    - performance,
    - verification and validation,
    - maintenance and modification of a product.
  - conduct of technical investigations, reviews, and the assessment of designs, materiel, incidents and organisations.

Source: DEFLOGMAN Part2 Vol10 Chapter 2

Engineering disciplines

- Engineering incorporates and integrates disciplines:
  - Mechanical
  - Civil
  - Electrical
  - Aerospace
  - Telecommunications
  - Specialist disciplines:
    - logistic support analysis
    - human engineering
    - configuration management
    - safety risk engineering and
    - reliability engineering

Materiel Engineering across the CLC

- Materiel engineering is fundamental to the Defence CLC and is involved in every phase of the capability systems life cycle:
  - up-front development of user needs:
    - including operational,
    - test and support concepts and
    - higher level specifications
  - solicitation and evaluation of proposed design solutions (including viability of solution)
  - evaluation and oversight of the development, integration, verification and validation, ongoing support and if required modifications and ultimate disposal of a materiel system.

Source: DEFLOGMAN Part 2 Vol10 Chapter 2

CASP Engineering Policy

- Systems engineering practices are applied for acquisition and sustainment activities.
- Scope and application of engineering must be tailored, approved, managed and controlled; and compliant with any applicable Defence regulatory or certification frameworks.
- Engineering activities must be performed by appropriately authorised individuals who have the necessary training, qualifications, experience, competence and professional integrity.

Source: DEFLOGMAN Part2 Vol10 Chapter 2
CASP Policy (E&T) 12-0-001 – Policy on Engineering (2017)
System

- A *system* is defined by ISO/IEC 15288 as:
  
  *a combination of interacting elements organized to achieve one or more stated purposes*

- In the broadest sense, a system is something that provides a solution to a complex problem.

- A system combines a number of resources together in an organized manner so as to perform a collection of specified functions to specified levels of performance.

- A system meets defined needs, which must be clearly stated by stakeholders, and which represent the start point of the design process as well as provide the basis for the ultimate test of the system’s fitness-for-purpose once fielded.

What is Systems Engineering?


- “Systems engineering encompasses:
  - technical efforts related to the development, manufacturing, verification, deployment, operations, support, disposal of, and user training for, system products and processes;
  - definition and management of the system configuration;
  - translation of the system definition into work breakdown structures; and
  - development of information for management decision making.”

SE relevance to the CLC

- Method for deriving and defining Capability System Needs and Requirements that ensures traceability from Strategic Guidance to Capability Need through to delivered systems.
- Supports Identification of the best system development life cycle for a capability need.
- Integrates contributions of disciplines and specialisations that deliver and support a capability system across the life cycle.
- Underpins Defence’s established technical processes from requirements definition, system development, integration, validation and verification, test and evaluation, certification, maintenance, and disposal.
- ...

SE relevance to the CLC

- ...
- Method for defining and implementing integration and interoperability requirements.
- Structured assurance approach (such as system reviews process) from requirements definition to acceptance into service.
- Supports rigorous consideration of all feasible alternatives.
- Enables structured identification of system development and technical risks so as to target risk reduction.
- Provides the basis for defining scope of all requirements and work across the life cycle which is basis for defining Product and Project Management efforts (including cost and schedule).
Integrated Logistics Support

Logistics

- ADDP4.0 Defence Logistics defines logistics ‘as the science of planning and carrying out the movement and maintenance of forces’.
- It encompasses Defence activities including:
  - design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of materiel;
  - transportation of personnel;
  - acquisition or construction, maintenance, operation, and disposition of facilities;
  - acquisition of furnishing of services; and
  - medical and health support.

DMM (LOG) 04-0-001
Sustainment and Asset Management

- As an asset-intensive business, Defence manages its physical assets consistent with Asset Management principles—that is, life-cycle management to meet enterprise objectives.
- Asset Management involves the balancing of costs, opportunities and risks against the desired performance of assets, to achieve the organisational objectives.
- ISO 55000 Asset Management documents the fundamentals upon which Asset Management is based.
- Sustainment Management (and Asset Management) concepts and language are being progressively introduced into Defence logistics guidance.

Defence Logistics

- A core goal of Defence Logistics is to contribute to the preparedness of the Australian Defence Organisation (ADO) through acquisition and through-life support of military equipment and supplies.
- A key challenge is balancing how these preparedness requirements are met while optimising Life-Cycle Costs (LCC).
Defence Logistics

Defence Logistics contributes to the delivery of force effects through the key functions of:

- force generation (which includes requirements definition and acquisition) and
- in-service support, including preparedness management, support to operations and disposals.

Logistic support is effectively provided within two support dimensions: capability support and operations support.

Two aspects of Defence Logistics

- Capability support:
  - support needed to acquire and support capabilities in-service and to ensure that capabilities meet the preparedness requirements
  - includes the definition of support requirements, acquisition of capability and in-service support, which encompasses preparedness management and support to Defence operations.

- Operations support:
  - support needed to deploy and redeploy a tailored force and sustain it for the duration of an operation.
  - is enabled by, the capability support dimension, in that it mounts and sustains forces using the logistics system established in the capability support dimension.
Integrated Logistics Support (ILS)

- US DoD developed ILS to address availability challenges for complex Materiel Systems and escalating support costs.
  
  Para 15.4 DEFLOGMAN Part 2 Volume 10 Chapter 15

- ILS is a management function that provides the initial planning, funding, and controls which help to assure that the ultimate consumer (or user) will receive a system that will not only meet performance requirements, but one that can be expeditiously and economically supported throughout its programmed life cycle.
  
  System Engineering Management, Blanchard and Blyler, 2016

Defence Logistics and ILS

- “The discipline of ILS is conducted almost solely within the capability support dimension, although the consequences of ineffective ILS will manifest themselves in ineffective support to operations and ultimately ineffective operations.”
  
  Source: DEFLOGMAN Part 2 Volume 10 Chapter 3

- ILS is a component of logistics which is focussed on achieving cost-effective and value-for-money support for a materiel system comprising both the mission system and support system.
Defence Policy on ILS

Defence is to apply the principles and practices of ILS during all phases of the CLC to ensure that the required supportability outcomes are achieved, at a minimised LCC and commensurate with operational, preparedness, regulatory, legislative and contractual requirements.

FIC and ILS

• Within the ADF, capability is generated by the combination of all FIC comprising organisation, personnel, collective training, major systems, supplies, facilities and training areas, support, and command and management.

• Focus for ILS is on logistics inputs that are required to generate and sustain capability.

• ILS generally addresses:
  – the mission system (prime equipment) and
  – the support system required for this equipment

Source: Para 15.4 DEFLOGMAN Part 2 Volume 10 Chapter 15
The Capability Life Cycle (CLC) and Capability Management Practices

### Focus of ILS in relation to FIC

![Focus of ILS in relation to FIC](image)

**Defence Capability**

<table>
<thead>
<tr>
<th>FIC</th>
<th>Major Systems</th>
<th>Collective Training</th>
<th>Personnel</th>
<th>Support</th>
<th>Facilities/Training Areas</th>
<th>Supplies</th>
<th>Command and Management</th>
<th>Industry</th>
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</table>

**Mission System**

**Support System**

*Note: Support System development for a materiel/major system can leverage or augment relevant FIC elements*

### ILS applied across the CLC

ILS is applied to all **activities** across the CLC which help deliver supportability for the mission system and its support system:

- management,
- needs analysis,
- requirements determination,
- design and development,
- acquisition and procurement,
- implementation,
- V&V,
- introduction into service,
- support,
- performance management and
- disposal.

*Source: DEFLOGMAN Part 2 Vol 10 Chapter 3*
Support elements addressed through ILS

The support elements are all functions and resources necessary to ensure that each mission system is effectively supported during the in-service phase:

a. engineering support;
b. maintenance support;
c. supply support;
d. training support;
e. packaging, handling, storage and transportation (PHST);
f. facilities;
g. support and test equipment;
h. personnel;
i. technical data; and
j. computer support.

Source: DEFLOGMAN Part 2 Vol 10 Chapter 3

Support System Constituent Capabilities

• Defence groups the support elements that comprise the Support System through five functional categories (or sub-domains), which are known as the Support System Constituent Capabilities (SSCC):
  1. Operating Support
  2. Engineering Support
  3. Maintenance Support,
  4. Supply Support, and
  5. Training Support.
Session 8

Procurement and Contracting

CLC: Tender and Contracting documents

What and Why

- Defence White Paper
- DPG
- AMS
- IIP

Strategic Guidance

- FOE
- JCF
- AJOC
- FJOC

Concepts

- JCN

Raised within Force Design or Program level direction

- CPN
- PIOC

Program Strategy

- JCN Spons
- Proposal = Sponsor’s Paper + JCNS + PES

- OCD
- FPS 1
- FPS 2

Product

- IPS

Tender and Contracting Documents

How

- PGPA Act
- CPRs
- DIP

- Smartbuyer
- DPPM

Issued by JCA to the CM

- Program Strategy

- Project WBS

- IMS
Procurement and Contracting

• In FY 2014-15 the Commonwealth procured goods and services worth $59.4 billion through 69,236 contracts above $10,000.

• Defence and CASG procurements accounted for approximately 52% of the value of these contracts.

• During this period, the then DMO entered into contracts with a total combined value of $11.9 billion to provide safe, quality and fit-for-purpose equipment for use by the ADF.

Source: Contract Template Selection and Tailoring Guide Version 2.1 April 2016

Procurement and Contracting

• Capability management and the CLC is critically dependent on sound procurement and contracting practices.

• In order to maximise the return on its procurement investment the Government expects that Defence will deliver and sustain required capabilities to high quality standards, at optimum cost and within agreed schedules.

• It is also expected that the procurement practices are properly matched to the level of risk and complexity in order to reduce the cost of tendering and contract management for both Defence and industry.

Source: Contract Template Selection and Tailoring Guide Version 2.1 April 2016
Legislative and Policy Context

Resource management framework

- The Commonwealth Resource Management Framework governs how officials in the Commonwealth public sector use and manage public resources.
- Defence operates within the Commonwealth resource management framework.
- The resource framework is part of the broader Commonwealth legislative and policy environment, and consists of the legislation and policy (including the CPR) governing management of the Commonwealth’s resources.
- The cornerstone of the framework is the PGPA Act.
PGPA Act 2013

- The PGPA Framework requires Defence officials to:
  - not be inconsistent with the policies of the Australian Government;
  - use and manage public resources in an efficient, effective, economical and ethical manner;
  - exercise ‘care and diligence’ in performing their duties;
  - “Act honestly, in good faith and for a proper purpose” performing their duties;
  - not improperly use their position in performing their duties;
  - not improperly use information; and
  - disclose interests in relation to the performance of their duties.

Source: DPPM April 2017 Paragraph 21

Resource management framework

- The PGPA Act authorises the Secretary, as Defence’s Accountable Authority, to issue Accountable Authority Instructions (AAIs) (PGPA Act, section 20A) which provide internal instruction for Defence.
- The PGPA Act also contains provisions dealing with:
  - commitment of relevant money and officials entering into arrangements such as contracts and deeds (PGPA Act, section 23).
  - indemnities, warranties and guarantees (‘contingent liabilities’) (PGPA Act Section 60)
- Sections 23 and 60 of the PGPA Act are key provisions relating to procurement.
Proc and Contracting Policy Context

- Defence and its officials also operate in an environment of broader legislation and policy:
  - Commonwealth, State and Territory legislation: such as PGPA.
  - Commonwealth Policy: Commonwealth Procurement Rules (CPRs)
  - Defence Policy: Defence Procurement Policy Manual (DPPM) and Defence Procurement Policy Directives

- In many cases legislation and policy affects Defence procurement which is given effect to through contracts.

Source: DPPM April 2017

Hierarchy of Legislation and Policy


Commonwealth Procurement Rules (CPR)

Mandatory Defence Policy

Defence Accountable Authority Instructions (AII)

Defence Procurement Policy Manual (DPPM)

CPRs Defence Directives

Guides and Tools

Defence Complex Procurement Guide

Defence Simple Procurement Process

Better Practice Guides

Contracting Handbook

Templates, tools and resources

Source: DPPM
Compliance with DPPM, CPR, Directives

- Defence officials are not permitted to depart from the mandatory requirements of the PGPA Act, PGPA rule, CPR, AAI, and FINMAN 2.

- If a Defence official departs from the DPPM in a way that results in a departure from the CPRs, then the official will have contravened the law.

- When considering a possible departure from a Defence Procurement Policy Directive contained in the DPPM, Defence officials should:
  - consider if reasonable and justified;
  - consult their supervisor; and
  - be responsible and accountable for the consequences.

Contractors and DPPM, CPRs, Directives

- Defence officials should consider whether contractors should be required to comply with the DPPM when undertaking procurement on behalf of Defence and communicate this requirement to the contractors, including the incorporation of appropriate provisions in contracts.

- For more information about when it might be appropriate to require contractors to comply with the DPPM, see paragraph 4.15 of the CPR and the related Note.

- Defence is always under an obligation to ensure that its procurement activities (whether outsourced or not) deliver value for money to the Commonwealth.

Source: DPPM
The Capability Life Cycle (CLC) and Capability Management Practices

Purpose of CPR and DPPM

• The CPR and Defence Procurement Policy Directives in the DPPM exist to assist Defence officials make proper use of public resources when undertaking procurement related activities for the Commonwealth. Defence officials, like officials from other Commonwealth agencies, are accountable for how they spend relevant money (also known as ‘public money’).

• The DPPM provides a framework that promotes responsible and accountable spending by Defence officials when procuring goods and services for Defence. This framework supports the proactive management of the risks relating to procurement, as required by the CPR.

Source: DPPM April 2017 Paragraph 34 and 35

CPR Core Principles

• The CPR have some core principles that Defence officials need to consider when planning and undertaking their procurement activities:
  – Value for Money
  – Competition
  – Non-discrimination
  – Ethical behaviour – the balance between probity and industry engagement

• Risk management: risks should be borne by the party best placed to manage them incl technical, operational, industrial, managerial, work health and safety, financial, legal, commercial, or probity risks.
Defence engagement with Industry

Defence engages with industry in a range of contexts including:

- Support to early CLC activities such as force design.
- As an element of FIC:
  - Support to the IPT.
  - Suppliers of Goods and Services such as supply of platforms and systems; repair, maintenance and adaptation of platforms and systems in-service.
- Support to Defence efforts (above the line):
  - Major Support Contractors / ISC.
  - SME.

Defence and Industry

- Defence Industry Policy Statement 2016 promotes an internationally competitive and innovative Australian Defence industrial base and identifies sovereign capabilities.
- Centre for Defence Industry Capability (CDIC) is cornerstone:
  - advisory board (co-led by industry and Defence)
  - provides strategic leadership for the sector
  - helps build Australian industry to support the ADF
  - identifies (with Defence) sovereign industrial capabilities
- Innovation and commercialisation:
  - Next Generation Technologies Fund
  - Defence Innovation Hub
Industry as a FIC

“The recognition of industry as a Fundamental Input to Capability will ensure Defence fully considers the industrial capabilities and the capacity of Australian businesses—micro, small, medium and large—to deliver Defence capability, including operational capabilities and the full spectrum of support functions.”

Source: Defence Industry Policy 2016

Industry as a FIC

- Defence White Paper 2016: Defence Industry is ninth FIC.
- Industry advisory representative is part of the Integrated Product (Project) Team.
- Industry is engaged early in the CLC as a key partner in delivery of Defence capability.
- Engagement with industry is transparent to Defence and wider government stakeholders ie identify risks and be commercially aware through relationships with industry.
- Consider the resilience and capacity of industry as capability plans are developed – not boom or bust.
Industry Engagement

“Industry Engagement is the process of engaging industry to ascertain capabilities, capacity, risks and opportunities for capability acquisition, realisation and sustainment.”

(Source Updated Interim CLC Manual)

- Support analysis and promote innovation, identify technology options and conceive delivery plans.
- Early engagement to implement Smart Buyer principles.
- Obtain input to the tender documentation; through solicitation obtain tender quality information around cost, scope and schedule; and shortlist if appropriate.
- COE manage contracted services to provide a readily available pool of trusted experts from industry.

Industry Solicitation and Evaluation

“Requests for industry support are issued in the Risk Mitigation and Requirement Setting Phase. This includes any formal request that invites a manufacturer, distributor or service provider to provide a response to a specific request. This may take the form of: Request for Tender; Request for Information; Request for Proposal; Request for Quotation; Initial Design Activity, or other solicitation mechanisms.”

(Source Updated Interim CLC Manual)
### Commercial Acumen

- Essentially, Commercial Acumen means:
  - having an appropriate understanding of how industry is and can be used in Defence business;
  - understanding the commercial drivers of industry;
  - how to engage with industry and manage commercial relationships and services; and
  - dealing appropriately with potential suppliers, tenderers and suppliers.

- Effective engagement with and management of the business relationship between Defence and industry is an increasingly important aspect of capability management.

- It is essential that you understand your obligations as a Defence officer in the procurement of goods and services in all contexts.

### Procurement Life Cycle

- The Procurement Life Cycle is scalable and tailorable. In its most general form it is divided into three phases and seven distinct but interrelated stages:
  - **Planning**
    - 1. Plan the procurement
    - 2. Develop ‘Request documentation’ such as RFT
  - **Sourcing**
    - 3. Approach the market
    - 4. Evaluation
    - 5. Negotiation and contract signature
  - **Managing**
    - 6. Contract management
    - 7. Disposal.

Source: DPPM
The Capability Life Cycle (CLC) and Capability Management Practices

**Relationship to CLC**

- The CLC reflects the procurement life cycle for a major acquisition ie planning through defining the requirement and selecting the acquisition strategy through to solicitation and disposal.
- Procurement for activities can also be nested *within* the CLC which also reflect the procurement life cycle—for example acquiring risk mitigation studies or other services.

**Procurement and Contracting for Materiel**

- For Materiel Procurement and Contracting activities should account for:
  - Scope of activity: acquisition and support.
  - Goods and/or services to be procured.
  - Procurement delivery model such as Evolutionary Acquisition, Public Private Partnership, Project Alliencing.
  - Contracting template(s) to be used.
  - Acquisition and/or Support Strategy for the Program/Project/ Product.
Contracting Templates

- Various contracting templates have been developed by Commonwealth entities to meet different procurement needs and profiles, depending on the size, complexity and nature of the procurement activity.

- These include:
  - Commonwealth Contracting Suite
  - The Australian Standard for Defence Contracting (ASDEFCON)
  - Defence Suite of Facilities Contracts

- The focus of the following sections is on ASDEFCON as utilised in Capability Management.

Acquisition Contracting Spectrum

Source: Contract Template Selection and Tailoring Guide Version 2.1 April 2016

ASDEFCON
(Complex Materiel)
Volume 1

ASDEFCON
(Complex Materiel)
Volume 2

ASDEFCON
(Complex Materiel)

Standing Offers

Simple Procurement
Range of ASDEFCON templates

- **Simple** Procurement of Goods and Repair / Maintenance Services Procurement or disposal/transfer of asset;
- **Materiel Acquisition**: selection of appropriate Materiel Acquisition Templates:
  - ASDEFCON (Strategic Materiel).
  - ASDEFCON (Complex Materiel) Volume 2.
  - ASDEFCON (Complex Materiel) Volume 1.
  - ASDEFCON Standing Offers.
  - Simple Procurement of Goods.

Source: Contract Template Selection and Tailoring Guide Version 2.1 April 2016

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Range of ASDEFCON templates

- **Materiel Support**: Materiel Support Templates:
  - ASDEFCON (Support)
  - ASDEFCON (Support Short)
  - ASDEFCON Standing Offers
  - Simple Procurement of Repair / Maintenance Services
- **Linked and Combined** Materiel Acquisition and Support Contracts:
  - Most materiel acquisitions will require follow-on support for the materiel so be arranged in a single procurement.
  - ASDEFCON Linkages Modules are designed to help ‘link’ draft contracts based on the ASDEFCON templates for acquisition and support released under a single RFT.

Source: Contract Template Selection and Tailoring Guide Version 2.1 April 2016
Contract Template Selection and Tailoring

- “ASDEFCON suite is a set of proforma documents for use by Defence procurement officers when drafting request documentation for the acquisition of goods and services.”

Materiel procurements include Good and Services:
- Goods include major platforms, such as ships, vehicles and aircraft to consumables, such as oil, and nuts and bolts used on materiel systems.
- Services include those services applied:
  - directly (‘physically’) to the materiel, eg maintenance and supply activities (‘Materiel Support Services’),
  - indirect materiel services eg reliability analysis, maintenance requirements determination
Contract Template Selection and Tailoring

For Major Capital Equipment (MCE) and Minor Capital Equipment (MINCE) acquisitions and materiel support use:

- ASDEFCON suite of procurement templates:
  - Select the right template based on scope and nature of activity and goods and/or services to be acquired.
  - Determined by ‘best fit’ SOW for the scope of work.
- Specialist assistance including for technical aspects, financial and contracting advice, and environmental and risk factors.

Session 8

Risk Management and Assurance
Governance

• Public sector governance covers:
  ‘...the set of responsibilities and practices, policies and procedures, exercised by an agency’s executive, to provide strategic direction, ensure objectives are achieved, manage risks and use resources responsibly and with accountability.’

• Good governance is about both:
  – Performance: using governance arrangements to contribute to performance and delivery of goods, services or programs, and
  – Conformance: ensuring that agency meets requirements of the law, regulations, published standards and community expectations of probity, accountability and openness.

Source: Building Better Governance, Commonwealth of Australia 2007

PGPA Act 2013

• An Act about the governance, performance and accountability of, and the use and management of public resources by, the Commonwealth, Commonwealth entities and Commonwealth companies, and for related purposes

• The PGPA Act applies to all Commonwealth entities and Commonwealth companies. Related rules and other legislative instruments establish the requirements and procedures necessary to give effect to the governance, performance and accountability matters covered by the PGPA Act.

Governance: CLC Accountability Model

The CLC Accountability Model is a key element in Defence governance.

Assurance, Compliance, Risk Management

- Also fundamental to successfully implementing better governance are comprehensive:
  - risk management,
  - compliance and
  - assurance systems
- Governance and assurance regimes aim to manage risk in business operations while preserving accountability for performance.
Governance, assurance, and risk

- Implementing the CLC requires stakeholders to recognise and understand the legal and administrative obligations and to ensure all necessary activities are in place.
- Key legal obligations include:
  - PGPA Act
  - WHS Act
  - EPBC Act
  - Technical Regulations

PGPA Act 2013

- The PGPA Act sets out the financial management, accountability and audit obligations of agencies (including Departments) that are financially part of the Commonwealth (and form part of the General Government Sector), in particular:
  - for managing public resources efficiently, effectively and ethically;
  - for maintaining proper accounts and records of the receipt and expenditure of public money; and
  - compliance from 1 July 2014.
The Capability Life Cycle (CLC) and Capability Management Practices

PGPA Officials
Objectives of the Act include inter alia:
• to establish a coherent system of governance and accountability across Commonwealth entities; and
• to require the Commonwealth and Commonwealth entities to use and manage public resources properly.
• Officials of a Commonwealth entity includes:
  – a person who is, or is a member of, the accountable authority of the entity; or
  – a person who is an officer, employee or member of the entity.
• The status of consultants or advisers is provided under the PGPA.

Risk Management
The Capability Life Cycle (CLC) and Capability Management Practices

Duties with respect to Risk Management

- The PGPA Act seeks to improve the high level accountability of all Commonwealth entities through focusing on their duties, internal controls and the way they engage with, and manage, risk.
- Officers of the Commonwealth must observe their obligations in relation to risk management and risk control ie “duty to establish and maintain systems relating to risk and control”.
- The accountable authority of a Commonwealth entity must establish and maintain:
  - an appropriate system of risk oversight and management for the entity; and
  - an appropriate system of internal control for the entity.

Definitions

- **Risk** is defined as the ‘effect of uncertainty on objectives’.
- **Risk Management** as the ‘coordinated activities to direct and control an organisation with regard to risk’.*
- **Risk Control** is the means by which organisations take action to reduce or eliminate threats to their operations. It is a technique that uses findings from risk assessments of potential risk factors which can include technical and non-technical aspects of the business.

Source: PGPA Section 16

AS/NZS ISO 31000 Risk management pp 1-2
**Risk Management Process**

- Establishing the Context
- Communication and Consultation
- Risk Assessment
  - Risk Identification
- Monitoring and Review
- Risk Analysis
- Risk Evaluation
- Risk Treatment


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**Commonwealth Risk Management Policy**

- A Commonwealth Risk Management Policy is in place to set out obligations of Commonwealth entities in relation to risk management and its role in decision-making.
- The goal of the Commonwealth Risk Management Policy is to embed risk management as part of the culture of Commonwealth entities where the shared understanding of risk leads to well informed decision making.

Source: DOF Website Commonwealth Risk Management Policy

- The Commonwealth Risk Management Policy sets out nine elements which non-corporate Commonwealth entities (entities) must comply with in order to establish an appropriate system of risk oversight and management.
Commonwealth Risk Management

- The nine elements of the Commonwealth Risk Management Policy are:
  - Establishing a risk management policy;
  - Establishing a risk management framework;
  - Defining responsibility for managing risk;
  - Embedding systematic risk management into business processes;
  - Developing a positive risk culture;
  - Communicating and consulting about risk;
  - Understanding and managing shared risk;
  - Maintaining risk management capability; and
  - Reviewing and continuously improving the management of risk.

Defence Risk Management

“Risk management is to be integrated into all planning, approval, review and implementation processes, at all levels, to ensure that risk is one of the major considerations in decision-making. Risk assessments are to be conducted in all new activities and functions.”

30/2015 CDF/OUT/2015/682

The Joint Directive by CDF and Secretary of Department of Defence on the management of risk in Defence
Defence Risk Management Policy

- The Joint Directive emphasises that a key principle applying to all decisions is to accept and treat individual risks based on evidence.
- Evidence-based risk management across the CLC requires a strong risk framework supported by proven methodologies.

Risk Management and Procurement

- Key principle of CPR regarding risk management is that risks should be borne by the party best placed to manage them.
- Depending on the nature of the procurement, the risks to be considered include technical, operational, industrial, managerial, work health and safety, financial, legal, commercial, or probity risks.
- These risks need to be considered across the procurement life cycle.
- Smart Buyer framework sets out various risk categories that should be considered when developing the PES and the procurement and contracting strategies for the procurement.

Source DPPM April 2017
Risk Management and the CLC

- Core requirement of CLC is a deliberate approach to risk:
  - Must understand and assess risks
  - Must have targeted approach to risk management and control
  - Decisions are made with understanding of risks
  - Must no longer be risk averse in decision-making
- Multiple risk frameworks in Defence relevant to CLC include but are not limited to:
  - CLC Risk Mitigation Phase emphasising risk treatment
  - Smart Buyer Risk Framework (Risk and Drivers Analysis)
  - Technical Risk Assessment (TRA), Technical Implementation Risk Assessments, Technical Certification and Acceptance

Risk Management Frameworks

- Each of the Risk Frameworks may adopt different approaches and risk matrices to reflect their business needs.
- Defence officers must ensure that under these circumstances risks are adequately consulted, assessed, understood and communicated.
- As an example technical certification authorities (such as Maritime and Air) may use a different risk matrix structure to the standard risk matrix used in ISO 31000. Under these circumstances the risks must be assessed, recorded and communicated in a consistent manner.
Risk Management and WHS Act

- Key aspect of Risk Management obligations relate to WHS.
- WHS requirements are integrated into the CLC.
- Primary duty holders have been identified for each CLC phase.
- Duty holders are accountable for the guidance, supporting processes and evidence to ensure that Defence’s WHS obligations are met.

Source: Interim CLC Manual

Risk Management as part of Smart Buyer

- Risk identification, assessment and treatment actions are central to Smart Buyer to help CM and Delivery Groups identify key project risks early in the CLC.
- 17 areas of risk are used as the basis for risk identification and assessment – nine during acquisition and eight during sustainment which are likely to be common to many if not all Defence projects and programs.
- Smart Buyer provides high level guidance but relies heavily on the experience and expertise of those applying it.
- Outcomes are captured in the PES.
Integrated Project Management Plan

Management of risk is addressed in the IPMP which is expected to describe the Project Risk Register (PRR) including:

• where the PRR is located and how it is managed;
• any tool support or implementation details (e.g. CDMRT2 and PREDICT!); and
• how often the PRR and the associated risks are to be reviewed and identify the records to be maintained.

Risk Mitigation

• Projects can seek Capability Development Funding between Gates to conduct risk mitigation activities and solicitation.
• PES and IPMP will include details of proposed risk mitigation studies that will inform cost, schedule and performance considerations. Examples of risk mitigation activities include:
  – Platform surveys and analyses;
  – In/Outsourcing support trade study;
  – Basis of Provisioning Study; and
  – Facilities Requirements Study.
Expectations of risk approach to CLC

- Clear understanding and consideration of risks in decision-making.
- Conscious risk reduction mindset throughout the CLC (not just to Gate 2).
- Targeted risk control actions focused on identified risks.

Implementing Risk Mitigation

Risk Reduction Studies (technical and implementation risks)
- Risk Reduction Studies (technical and implementation risks)
- Further Requirements Definitions
- System Engineering Activities
- System Reviews
- Reducing/Uncertainty and Mitigating Risk

Risk Reduction continues after Gate 2 through System Engineering and other practices including System Review activities
Example of Risk Mitigation

• ANZAC Electronic Support System Project instituted a comprehensive and targeted risk mitigation program addressing a range of risks:
  – Development and Implementation Risks
  – Installation/Platform Integration complexity
  – Continuity of vendor workforce through the different phases of the Defence approval life cycle
  – Different parts of the system being developed to different timelines
  – Multiple interdependent vendors
  – Overseas design and production of significant part of system with local platform installation
  – Geographically distributed design and production efforts (and timezone differences)

Assurance
The Capability Life Cycle (CLC) and Capability Management Practices

Meaning of Assurance

- **Assurance**: a positive declaration intended to give confidence; a promise.  
  Source: Oxford Dictionary
- **Compliance Assurance**: measures instituted by a government agency to ensure that the provisions of its regulations are being met.  
  Source: http://www.businessdictionary.com
- **Technical Assurance**: process by which the technical integrity of a product, process, or system is monitored and maintained.  
  Source: http://www.businessdictionary.com

Legislative and Regulatory obligations

- Assurance practices are to be applied throughout the CLC.
- Application is dictated by Defence frameworks, compliance obligations, and nature of the CLC effort.
- In practical terms compliance with the legislative and regulatory obligations spans the operational, management, and technical aspects of the CLC.
- Sponsors and Managers must understand their obligations and the practices to ensure compliance.
Assurance in Capability Management

- Risk-based decision-making across the CLC requires confidence that:
  - arguments presented are sound and based on evidence;
  - claimed status of capability management is accurate; and
  - outcomes satisfy organisational objectives.
- Undertaking an appropriate Assurance Program supports your obligations as a Commonwealth Officer.
- Assurance activities are conducted across the entire CLC and across various dimensions of capability management (e.g., technical, safety, financial, seaworthiness) to provide confidence to decision-makers and managers.
- Assurance outcomes provides evidence-based arguments for action.

Types of Assurance across the CLC

- Contestability
- Gate Reviews / IAR
- Deep Dive Reviews
- Schedule Compliance Risk Assessment Method (SCRAM)
- Major System Reviews
- Audit
- Reporting
- V&V
- T&E
- Certification
- I2 Assurance
- QA: Supplier and Product Assurance
- Engineering Assurance
### Establishing the Assurance Program

- It is important that Program, Product and Project Sponsors understand the range of assurance activities that they will be engaged in from initiation of Proposal through to realisation and in-service operation of a capability.
- Understanding of the assurance activities enables appropriate planning and collection of evidence to support assurance cases.
- The assurance activities should be captured in the IPMP and appropriate subordinate plans.
- Assurance activities should be tailored to the particular circumstances and needs.

### Assurance Cases

- “Reasoned, auditable artefact created that supports the contention that its top-level claim (or set of claims), is satisfied, including systematic argumentation and its underlying evidence and explicit assumptions that support the claim(s)”.
- Assurance Cases contain the following:
  - one or more claims about properties;
  - arguments that logically link the evidence and any assumptions to the claim(s);
  - a body of evidence and possibly assumptions supporting the arguments for the claim(s);
  - justification of the choice of top-level claim and the method of reasoning.

Source: ISO/IEC 15026-1:2013
Centres of Expertise (COE)

Purpose of COE

• Expertise, advice and support services.
• Professionalisation.
• Skilled resources.
• Policy and Standards.
• Independent assurance and compliance services.
COE

• Range of COE servicing Defence including:
  – Commercial
  – Engineering and Technical
  – Materiel Logistics
  – Program Management
  – Corporate Performance
  – Decision Support

The Capability Life Cycle (CLC) and Capability Management Practices

Dr Mike Ryan
Dr Shari Soutberg
About the Capability Systems Centre

The Capability Systems Centre at UNSW Canberra is a centre of research excellence focused on disciplines related to the development, acquisition and sustainment of capability throughout the capability life cycle (CLC).

The principal focus of the Centre is to address shortfalls in research of methodologies, tools and techniques for developing capability. We do this through cutting-edge research and analysis, publications, education, and events; drawing on world-class academic expertise across our disciplinary areas.

The Centre is able to provide research, mentoring and assurance support to decision makers, systems engineers, business analysts, and project, program and portfolio managers in Defence, Government and Industry.

Our services include:

- **Independent Assurance**
  - Project and program reviews, technical and engineering risk assessments and business and innovation assessments.

- **Research & Independent Advice**
  - Mentoring, technical ‘deep dives’, investigations and research.

- **Education, Training & Events**
  - Postgraduate courses, professional education short courses and events.

Tailored Education and Training

The Centre offers organisations the flexibility to choose unique education and training solutions to fit organisational objectives:

- Custom Programs: Fully customised in-house development to align with your business education and training strategy.
- Tailored on-campus programs.

CLC/Capability Management Short Courses

The Capability Systems Centre offers the following CLC and capability management related professional education short courses.

- **Introduction the CLC and Capability Management**
  - 4-9 Feb 2018 (Canberra)

- **Systems Engineering Practice**
  - 19-23 Mar 2018 (Canberra)

- **Introduction to Capability Management**
  - 25-28 Mar 2018

- **JCNS and OCD Development**
  - 16-18 Apr 2018 (Canberra)

- **Requirements Writing**
  - 19-20 Apr 2018 (Canberra)

- **Systems Engineering Practice**
  - 7-11 May 2018 (Melbourne)

- **Introduction to Project Management**
  - 23-25 May (Canberra)

- **Introduction to Systems Engineering**
  - 28-30 May 2018 (Adelaide)

- **Introduction to the CLC and Capability Management**
  - 25-29 June 2018 (Canberra)

- **Systems Engineering Practice**
  - 27-31 Aug 2018 (Canberra)

- **Introduction to Capability Management**
  - 17-19 Sep 2018 (Canberra)

- **JCNS and OCD Development**
  - 8-10 Oct Apr 2018 (Canberra)

- **Requirements Writing**
  - 11-12 Oct 2018 (Canberra)

Further Information

Further information on these courses or the Capability Systems Centre in general is available by contacting Centre staff at:

**Telephone:** 02 6268 8960 or 02 6268 9566

**Email:** capabilitysystems@adfa.edu.au

**Web:** capabilitysystems.unsw.adfa.edu.au