



Australian Government
Department of Defence



Defence Capability Development Manual

2006



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Feedback on the Defence Capability Development Manual is welcome. Users of the manual are invited to make comments, including proposals for amendment to the procedures contained in the manual. People interested in making comments are requested to direct their comments to the Director, Capability Operations and Plans at the address shown above.

Questions regarding the processes and business rules discussed in the Defence Capability Development Manual can be submitted via email to **DCDM.Helpdesk@defence.gov.au**

Preface

In 2004 the Australian Government announced major changes to the way the Australian Defence Organisation (ADO) is organised and operates with regard to the development of major proposals for new Defence capabilities. These changes followed the publication of the *Defence Procurement Review 2003*, also known as the 'Kinnaird Review', and resulted in the Capability Development Group (CDG) releasing the inaugural *Defence Capability Development Manual (DCDM)* in February 2005.

Replacing the *Capability Systems Life Cycle Management Manual (2002)*, the DCDM provides authoritative guidance to CDG staff in carrying out the Group's core tasks of developing investment proposals (including options) for new Defence capabilities for consideration by Government and managing the Major Capital Equipment program.

A further benefit of the DCDM is its value to the very wide range of organisational stakeholders in the capability development process in the ADO and with whom CDG needs to engage fully if it is to carry out its role effectively. It has also been welcomed by Defence industry seeking to understand how new Defence capabilities are developed since the *Kinnaird Review*.

The processes of identifying defence capability needs, establishing priorities, examining options for meeting those needs, managing an ongoing investment program, and doing so within financial guidance and with high levels of accountability are of necessity complex, rigorous, time-consuming and resource-intensive.

The DCDM aims to articulate and, if need be, demystify these processes by providing a concise yet comprehensive coverage of the main steps and features of these processes, and of the considerations involved in assisting the development of the Government's investment program for new Defence capability.

This second edition of the DCDM reflects the continued evolution of capability development activities within the ADO and incorporates feedback from those who use the processes in the conduct of their daily business.

Foreword

Welcome to the second edition of the Defence Capability Development Manual. The response to the inaugural DCDM exceeded my expectations, with 4800 copies distributed throughout Defence and Industry - the majority in response to specific requests. While the mission of the Capability Development Group has changed, *"To shape Defence's future joint war fighting capability"*, and the processes through which we deliver this mission are evolving, our core business remains largely the same - to provide Government with sound investment advice regarding future Defence capabilities. The DCDM 2006 is therefore issued to keep you abreast of the latest developments in how CDG conducts its core business and of the outcomes that are expected, both within Defence and by Government.

In his address to the Senior Leadership Recall Day in August 2005, Chief of the Defence Force, Air Chief Marshall Houston stated in reference to new equipment being delivered to the ADF that *"...it's just equipment until we do all the coordination of the fundamental inputs to capability"*. This is a theme I have impressed upon my staff within CDG and you will see a much greater emphasis on fundamental inputs to capability throughout this edition of the DCDM. We have also included a number of other issues that impact on the capability development process, including capability roadmaps, the use of simulation and the development of robust cost estimates.

During 2005, I conducted a survey to gauge the performance of CDG in the eyes of our staff, our stakeholders and our customer (which is the Minister). A key outcome is the need for CDG to develop "winning submissions" when presenting capability proposals to the Minister and Government. Not only is it essential that our proposals provide clear, concise and well justified options, but CDG staff must also have a thorough understanding of the issues implicit in each option and be able to discuss them in detail, not only with internal Defence stakeholders and the CDG Executive, but also with central Government agencies and the Minister if required.

The DCDM remains the authoritative guidance for the development of capability proposals by staff of the Defence Organisation, particularly CDG, and while this edition includes the latest developments in the capability development process, I can assure you that the process will continue to evolve so that CDG can deliver the outcomes of its mission as efficiently and effectively as possible. I encourage Defence staff to use this manual in conjunction with the CDG Process Map (available from the CDG intranet site) to keep abreast of the latest developments and to also utilise the DCDM Helpdesk (**DCDM.Helpdesk@defence.gov.au**) if you have any questions or require further guidance on the processes described in this manual.



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CANBERRA ACT 2600

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Chapter 1

Introduction

SECTION 1-1

The Concept of Capability

What is capability?

- 1.1 In ordinary usage, 'capability' means the capacity to be or do or affect something. The term can refer to a quality, capacity or ability. In the context of the Australian Defence Organisation (ADO), being a complex and diverse organisation, the term can similarly have a variety of meanings. In the context of the Capability Development Group (CDG), however, which focuses on developing proposals for Major Capital Equipment (MCE) to be used by the Australian Defence Force (ADF), 'capability' has a more specific meaning, namely, the capacity or ability of the ADF to achieve a particular operational effect. That operational effect may be defined or described in terms of the nature of the effect and of how, when, where, and for how long it is produced.
- 1.2 'Capability' in the Defence context is the combined effect of multiple inputs. It is not the sum of those inputs, but the synergy that arises from the way those inputs are combined and applied that determines the level of capability in a particular context. In Defence, the 'Fundamental Inputs to Capability' (FIC), are categorised and broadly defined as:
- a. **Personnel.** All people within Defence, both military (permanent and Reserves) and civilian. The input incorporates recruiting, individual training and all conditions of service and employment, including entitlements, salaries and wages, superannuation and allowances;
 - b. **Organisation.** Flexible functional groupings with an appropriate balance of competency, structure and command and control to accomplish their tasks. This input also includes critical organisations that directly support the ADF effort;
 - c. **Collective training.** A defined training regime undertaken by organisations that is validated against the preparedness requirements for operations, derived from Government guidance. The regime is to include frequency and depth of competency in skills with a particular emphasis on long-term readiness critical war fighting skills;
 - d. **Major Systems.** Systems that have a unit cost of A\$1m or more, or have significant Defence policy or joint Service implications designed to enhance Defence's ability to engage military power. Input includes, but is not limited to, ships, tanks, missile systems, armoured personnel carriers, major surveillance or electronic systems, and aircraft;
 - e. **Supplies.** Supplies needed for Defence to operate including stock holdings, provisioning lead times, serviceability and configuration status. Ten supply classes are described in Australian Defence Doctrine Publication (ADDP) 4-Defence Logistics and ADDP 4.2-Support to Operations;
 - f. **Facilities.** Buildings, structures, property, plant, equipment, training areas, civil engineering works, through life maintenance and utilities necessary to support capabilities, both at the home base and at a deployed location. Input may involve direct ownership or leasing;

- g. **Support.** Infrastructure and services from the wider national support base within Australia or offshore which are integral to the maintenance of Defence effort. The input is encompassing and could originate from civil/private industry/contractors, other Government agencies and international support base agencies; and
 - h. **Command and Management.** Written guidance such as regulations, instructions, publications, directions, doctrine, tactical level procedures and preparedness documents required for Defence to support decision making, administration and operations. Input also includes funding not readily attributable to any other FIC element (eg. discretionary funding).
- 1.3 When developing capability proposals for Government approval, CDG ensures that all of the capability elements listed above are examined with a view to determining how individual FIC need to change in order to bring about a desired change in ADF capability. This comprehensive approach to capability not only focuses attention on the combination and integration of the FIC, rather than on the individual inputs separately, but also enables Defence to better understand the whole of life funding implications of the new capability. Capability is thus viewed as a 'system' of interlocking and inter-dependent FIC.
- 1.4 The definition of capability used in CDG, incorporating both the operational and systems aspects outlined above is:
- Capability is the power to achieve a desired operational effect in a nominated environment, within a specified time, and to sustain that effect for a designated period. Capability is generated by Fundamental Inputs to Capability comprising organisation, personnel, collective training, major systems, supplies, facilities, support, command and management.*

Capability Life Cycles

- 1.5 Capability systems have a 'life cycle' that begin with the identification of the need to address a current or prospective capability gap. This need is progressively translated into a working capability system that is operated and supported until it is ultimately withdrawn from service. Once a capability is withdrawn from service, the associated physical and personnel assets can either be disposed of (for physical assets), redeployed or reallocated as an offset for another capability.
- 1.6 The capability life cycle is divided into the following phases:
- a. **Needs** - capability gaps, derived from consideration of strategic guidance, current and future operational concepts, future technology and the current and emerging force structure, are identified by Defence. Government endorses the need to address the identified gaps and approves the inclusion of a project with an indicative budget provision in the Defence Capability Plan (DCP);
 - b. **Requirements** - each capability need endorsed by Government is transformed progressively into a costed, defined solution to that need, and approved by Government with a schedule for acquisition leading to operational release, and budgetary provision to both acquire the capability solution and to fund through-life personnel and operating costs;
 - c. **Acquisition** - an approved capability solution is acquired/established and, in the case of platforms, weapons systems and other materiel, entered into service;





- d. **In-service** - the individual FIC that make up the capability system are operated, supported, modified as necessary and managed by the relevant authorities in Defence (who are referred to generically in Defence as Capability Managers (CM)); and
 - e. **Disposal** - the capability system as a whole is withdrawn from service (in what is usually a process rather than an event) and disposed of or redeployed, depending on the nature of the individual capability input.
- 1.7 In Defence, capability is developed and managed with both a system perspective and a life cycle perspective. The key challenges of capability management in Defence are to:
- a. optimise the design and development of the system to satisfy the capability gap(s), meet operational requirements and manage risk;
 - b. manage the system in the most cost effective way over the whole life cycle, that is, optimise the capability system Life Cycle Costs (LCC); and
 - c. orchestrate the development and life cycles of various capabilities so that collectively they optimise the ability of the ADO to carry out its missions and roles.
- 1.8 Capability development can occur via a number of means, but will primarily be conducted through Major & Minor Capital Acquisition Programs. This manual relates specifically to the framework for developing MCE proposals, and does not detail the Minor Capital Acquisition Program or other capability programs (such as Rapid Acquisition), as these processes are specific to each Service/Group. It should be noted that minor capital equipment can contribute to rectifying capability deficiencies, and CMs coordinate their Minors programs along processes aligned to the capability life cycle. Reviews of relevant minors documentation by appropriate Branches within Capability Systems Division (CS Div) and CMs ensures appropriate coordination and integration between the Major and Minor Programs.
- 1.9 This manual focuses on the two life cycle phases within the MCE Program for which CDG is responsible, being the Needs and Requirements phases. CDG must, however, consider all phases when identifying and assessing capability needs and requirements, and CDG shares responsibility across other phases as detailed below.

Organisational Arrangements over the Life Cycle

- 1.10 The responsibilities for managing the phases of the capability life cycle in the ADO are dispersed and, usually, shared. Those organisational units responsible for managing, coordinating or developing policies or activities across the capability life cycle need to consult widely across the ADO. In particular, the Single Services, as CM, play an important contributing role, and sometimes the primary role, at all stages of the capability life cycle.
- 1.11 In relation to Defence's MCE program, which is the aspect of capability development of primary interest to CDG, the main allocation of responsibilities at each stage of the capability life cycle is:
- a. The **Needs Phase** - Responsibility is shared by:
 - (1) Deputy Secretary, Strategy (DEPSEC S) - for development and articulation of the strategic guidance and military strategic priorities that form the starting point of the needs analysis; and

- (2) Chief, Capability Development Group (CCDG) - for conducting the 'gap analysis', based on input from DEPSEC S and in consultation with CMs, from which a statement of capability needs, consistent with resource guidance, is developed for Government consideration.
- b. The **Requirements Phase** - Responsibility for this phase rests with CCDG. CDG, in consultation with a wide range of stakeholders, develops the options for Government decisions on MCE acquisitions that meets the defined strategic need and also explores the non-equipment aspects of capability development.
- c. The **Acquisition Phase** - Responsibility for this phase rests with Chief Executive Officer, Defence Materiel Organisation (CEO DMO), however:
 CMs (usually Single Service Chiefs) are key stakeholders during the Acquisition Phase and are closely involved in the process of accepting MCE through the Acceptance into Service (AIS) process. As sponsor, CCDG is also an important stakeholder throughout the Acquisition Phase and plays an important role in monitoring and reporting progress, agreeing any changes to the Capability Baseline and closing the Business Case against the original project approval once the project has achieved the Final Operating Capability (FOC). Additionally, CCDG has a supporting role in the development of FIC not under the management of CEO DMO; and
 The Chief Information Officer (CIO), Information Systems Division, is responsible, in lieu of CEO DMO, for the acquisition of MCE specific to the Information Capability Program.
- d. The **In-Service Phase** - Responsibility is shared by:
 - (1) Capability Managers;
 - (2) CEO DMO, Commander Joint Logistics (CJLOG) and other agencies, responsible for aspects of sustainment and support; and
 - (3) CCDG - for requirements aspects of any upgrade programs (noting that significant capability upgrades will normally be managed under the two pass process described in this manual)
- e. The **Disposal Phase** - Responsibility is shared by:
 - (1) Capability Managers, and
 - (2) CEO DMO.



SECTION 1-2

Capability Planning Principles

Key Principles

- 1.12 The aim of capability planning is to develop and maintain the most operationally effective and cost efficient mix of capabilities for achieving the Australian Government's strategic objectives.
- 1.13 The capability planning system needs to support these decisions in a way that is rational and robust, yet simple and manageable. The following principles are part of Defence's approach to capability planning:
- a. **Top down** - Capability decisions need to be traceable back to the Government's judgement of its strategic priorities - in particular, what roles it wants the ADF to undertake, what contingencies it wants the ADF to respond to and what threats need to be deterred and/or defeated. Ultimately, it is the ability of actual military and non-military capabilities to contribute to meeting Government's strategic priorities that determines the value of those capabilities.
 - b. **Bottom up** - Where the top-down perspective starts with the highest goals of the organisation, the bottom-up approach starts with the building blocks of capability. This approach seeks to understand how to perform specific tasks most effectively, within conceivable operational and strategic scenarios, employing the most effective mix of capabilities - new and/or old. This approach also looks at what are the ADF's current and programmed platforms, weapons and systems and their performance characteristics, limitations, and anticipated in-service life.
 - c. **Value for money** - The *Commonwealth Procurement Guidelines* states that "value for money" is the core principle underpinning Australian Government procurement. This principle applies equally to Defence procurement and requires the ADO to analyse all relevant costs and benefits of any given capability throughout the life of that capability. Undertaking an appropriate régime of Test and Evaluation (T&E) is a core contributor to ensuring the user's needs are met and value for money is achieved.
 - d. **Long range view** - Inevitably there is a lag, usually of several years, between capability planning and when that planned capability enters service. Once introduced, that capability may remain in service for decades. Thus, planning needs to take a long-term view and consider the relevance of a capability throughout its effective life, ongoing operating costs, potential for upgrades and the lead times for new acquisition.
 - e. **Flexibility** - Notwithstanding the usually long range view that is needed for effective capability planning, the capability development system also needs the agility to respond to short notice change in the operational and strategic environment by re-ordering capability development priorities, and by rapid acquisition to fill newly revealed gaps.

- f. **Concept led** - It cannot be assumed that today's doctrine will be suitable for future threats and technologies. New concepts need to be developed in parallel with the development of new capabilities. The concept-led approach calls for thinking broadly about the available concepts and assessing them rigorously to determine which ones represent best value for money.
 - g. **Capability based** - The capability-based approach is in contrast to the threat-based approach. A force designed against one or two specific threats is likely to be inflexible. Capability-based planning does not mean that a particular threat or threats can be ignored. Rather, this approach aims to think more broadly about the nature and severity of possible threats, and to test capability options against a diverse set of scenarios. This approach also recognises that intentions can generally change more quickly than capabilities.
- 1.14 **Capability Roadmaps** may be produced to coordinate specific areas of capability development through or across phases of the capability life cycle. Guidance on developing Capability Roadmaps is provided in Section 7-9.

SECTION 1-3

Role of Capability Development Group

General

- 1.15 CDG is responsible, as Sponsor, for developing capability proposals, consistent with strategic priorities, funding guidance, legislation and policy, for consideration and approval by Government. In particular, the work of the Group focuses on:
- a. Defence's MCE investment program ("major" here meaning equipment projects of \$20 million or more, or of less than \$20 million but with individual items of \$1 million or more, or equipment projects of less than \$20 with strategic significance); and
 - b. capability definition, comprising the Needs Phase and the Requirements Phase, both referred to earlier.
- 1.16 As depicted in the Defence Business Model, CDG is headed by the Chief of Capability Development (CCDG). CCDG, along with the Vice Chief of the Defence Force, the Chief Finance Officer (CFO) and Chief Defence Scientist, comprise the "Owner Support Executives" who report to the Chief of the Defence Force (CDF) and the Secretary, Department of Defence.
- 1.17 CDG consists of a number of Divisions/other primary units, including:
- a. **Capability Systems Division (CS Div)** - CS Div manages the development of future capability options to assist Government decision making on investment in MCE for the ADF.



- b. **Capability, Investment and Resources Division (CIR Div)** - CIR Div provides independent analysis and review of capability issues and related costs, including the overall balance of investment in current and future capability, the future structure of the ADF, major investment proposals, preparedness, and priorities. The Division is responsible for ensuring that the DCP is appropriately programmed, for independently reviewing capital and operating costs for all projects going to the Defence Capability Committee (DCC), and for management of the Net Personnel and Operating Costs (NPOC) estimates for all unapproved MCE projects.
- c. **Capability and Plans Branch (C&P)** - C&P seeks to ensure that Defence capabilities match the Government's strategic objectives. C&P also provides mechanisms for identifying, managing and assessing the future and planned forces.
- d. **Office of Interoperability** - The Office of Interoperability oversees interoperability issues concerning capability development. The Office is also responsive to the Chief of Joint Operations for managing interoperability issues arising from a warfighting perspective.
- e. **Directorate of Trials (DTRIALS)** - DTRIALS coordinates Defence T&E policy; provides T&E advice and assistance throughout the capability life cycle; manages Defence trials, tasks and demonstrations; and provides customers with independent, objective trial reports. DTRIALS is the CDG authority for the development of the Test Concept Document (TCD), which is a part of the Capability Definition Documentation (CDD) set.
- f. **Australian Defence Simulation Office (ADSO)** - ADSO develops and oversees the implementation of Defence simulation policy and the Defence Simulation Plan.
- g. **DSTO Planning and Guidance Branch** - The Planning and Guidance Branch of DSTO is embedded within CDG to ensure the incorporation of science and technology advice and technical risk assessments.

SECTION 1-4

Capability Managers

- 1.18 The role of a CM is to raise, train and sustain in-service capabilities through the coordination of FIC. CMs are often the proponents of proposals and play an important contributing role, and sometimes the primary role, during all stages of the capability life cycle. There are seven CMs, each responsible for the following areas of ADF capability:
- a. **Chief of Navy** for Maritime force capability management;
 - b. **Chief of Army** for Land and Special Forces capability management;
 - c. **Chief of Air Force** for Air Force capability and airworthiness management;
 - d. **Chief Joint Operations** for Joint capability management, including Joint logistics;
 - e. **Chief Information Officer** for Defence Information Environment (DIE) capability management;
 - f. **Deputy Secretary Intelligence and Security (DEPSEC I&S)** for Defence intelligence agencies capability management; and

- g. **Deputy Secretary Corporate Services (DEPSEC CS)** for Estate and infrastructure management, including key Government ownership issues connected to the Estate, such as sustaining capability through management of environmental impacts.
- 1.19 During the Needs Phase, the CM contributes to the identification of capability gaps through a number of mechanisms including Force Options Testing (FOT), Experimentation, Operations Research and the Key Assets Review, and are also major contributors to the subsequent development of Capability Definition Statements (CDS) required to enter new capabilities into the DCP.
- 1.20 In the Requirements Phase, the CM is involved in development of First and Second Pass capability proposals, including the CDD, and will endorse proposals prior to them being submitted to Defence Committees and Government for consideration and approval. This endorsement includes any consideration or clearance required by the relevant single service committees. Capability Managers and Sponsors jointly ratify the Initial Operational Capability (IOC), the point in time when the first subset of a capability system is proven suitable and effective for operational employment and the FOC, the point in time at which the final subset is proven suitable and effective.
- 1.21 During the Acquisition Phase the CMs are involved in the process of accepting MCE into service through end-user involvement at the critical milestones requiring operational validation.
- 1.22 During the In-service phase, the CMs manage the in-service capability (with support from DMO, CJLOG and other Defence Groups) through the individual FIC that make up the capability system which is operated, supported, modified as necessary.
- 1.23 CMs are also directly involved in the Disposal Phase, and will work primarily with the DMO to determine how a capability can best be disposed of.







Chapter 2

The Needs Phase

SECTION 2-1

Introduction

- 2.1 Decisions on capability are made on the basis of value for money. The usual measure of value is the extent to which the proposal contributes to Government's strategic priorities or mitigates strategic risk. The Needs Phase translates the Government's priorities and our understanding of the nature of future warfare into a range of products which capability development staff use to help identify the value their proposal contributes to the development of broad and specific options.
- 2.2 The activities within the Needs Phase articulate capability goals and identify, through an annual assessment of performance, capability gaps against these goals. This provides the context to develop capability proposals consistent with strategic priorities and funding guidance for the consideration and approval by government. Figure 1 is a graphical depiction of the Needs Phase and links to the Requirements Phase.

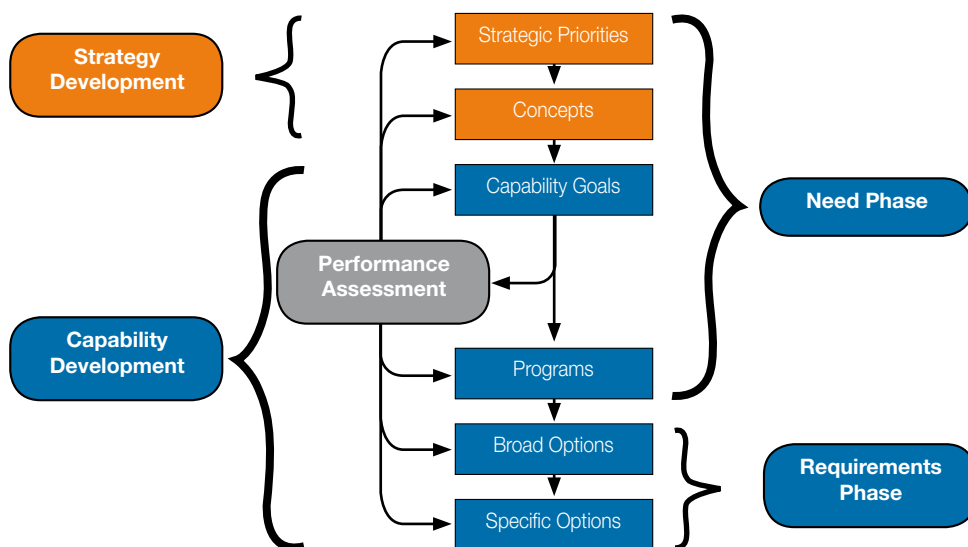


Figure 1: the Needs Phase

- 2.3 The Needs Phase involves five activities:
- identification of strategic priorities;
 - development and evaluation of concepts;
 - articulation of capability goals;
 - assessment of the performance of the current force and that expected of a planned force, including the identification and analysis of capability gaps; and
 - development of programs and plans which direct how defence capability will be developed.

Management of the Needs Phase

- 2.4 The capability development process is managed as a system. For example, a major reduction in funding can lead to a more narrowly defined set of strategic priorities, a less ambitious set of capability goals and therefore the cancellation of one or more projects.
- 2.5 While the process has many participants and stakeholders, responsibility for the Needs Phase lies with:
 - a. **Deputy Secretary Strategy.** Deputy Secretary Strategy (DEPSEC S) is responsible for delivering policy advice that enables the Government to continuously assess its strategic direction. Specifically, DEPSEC S has prime responsibility for Strategic Priorities and Defence Concepts.
 - b. **Chief Capability Development Group.** Chief Capability Development Group (CCDG) is responsible for the articulation of capability goals, performance assessment and development of capability programs. This responsibility is delegated to Director General Capability and Plans.

SECTION 2-2

Strategy Development Component

Strategic Priorities

- 2.6 The capability life cycle commences by identifying our future strategic priorities. Strategic guidance is provided through a range of Government and Departmental directions including public policy statements such as the Defence White Paper and Ministerial releases.
- 2.7 The functions of strategic development are explained within the Defence Strategy Planning Handbook sponsored jointly by DEPSEC S and CCDG. This handbook outlines how strategy development, capability development and deliberate planning for operations are conducted as part of a unified and logical framework. Within this framework the capstone strategic planning document is the Defence Planning Guidance (DPG) produced annually by DEPSEC S.
- 2.8 Capability staffs need to seek the authoritative guidance on strategic priorities from the DPG, which is a classified document outlining the strategic priorities that guide the Defence Organisation. It identifies contingencies Australia might face in the 0 to 5 year timeframe for preparedness planning, the 10 to 15 year timeframe for force structure planning and capability development, and the 20+ year timeframe for concept development. The DPG identifies the relative priority for providing a Defence response to each. Contingencies identified in the DPG are represented as scenarios





in the Australian Illustrative Planning Scenarios (AIPS) set. Such scenarios reflect the realistic application of the ADF in future contingencies and are used as part of the experimentation framework to provide context when assessing future capability requirements and nearer term capability options.

- 2.9 Additional guidance might also need to be sought from the Australian Military Strategy (AMS) if the capability proposal falls within the 0-5 year timeframe. Further details on the DPG and AMS are located within the Defence Strategic Planning Framework Handbook which is planned to be released in 2006. In certain circumstances, additional direction is provided by specific Government policy initiatives, eg Defending Australia's northwest shelf.

Concepts

- 2.10 The second step in the strategy development component is the development of concepts which inform our understanding of how the future force might fight. The functions of concept development are also further explained in the Defence Strategic Planning Framework Handbook. These concepts should be validated through experimentation before they are used in the Needs Phase and Requirements Phase.
- 2.11 The capstone concept document from strategy development is the Future Joint Operating Concept (FJOC) which is produced by DEPSEC S. The FJOC serves to inform the longer-term development of the ADF's combat capability and outlines likely future roles, missions and methods and, as such, provides the context in which to consider future capability options. The FJOC is set 20 years into the future and is reviewed at least every three years.

SECTION 2-3

Capability Decision Making Processes

Capability Goals

- 2.12 **Defence Capability Strategy.** The Defence Capability Strategy (DCS) sets the vision for the transformation of Defence capability. It is set 10-15 years hence (out to just beyond the DCP) and sets out the capability goals along with explanations of how they will be met from within available resources. While it refers to the impact across all FIC, it specifically explains how the DCP is linked to strategic guidance. As the capstone capability planning document, it provides the vision of how Defence capability is being developed and identifies the planned capability solutions in response to the capability goals. It meets the Kinnaird requirement for a document that details what capabilities will be acquired, retained or disposed of into the future. The DCS is endorsed by the Defence Capability and Investment Committee (DCIC) and updated annually to reflect the outcomes of the Defence Capability Update (DCU).

- 2.13 **Capability Goals.** The capability goals seek to describe, in specific and measurable terms, the operational effects the ADF would need to generate to meet its highest priority threats.
- 2.14 Capability goals can be derived by developing plans for each of the scenarios identified as strategic priorities, if necessary employing alternative concepts and validating the results by wargaming, extracting the effects sought and combining them to generate an overall capability goal.

Performance Assessment

- 2.15 **Defence Capability Update.** The DCU process will typically look across the totality of capability, the performance of current plans against the capability goals, and identify adjustments to ensure that the DCS and DCP best reflect strategic priorities and financial guidance. The potential outcomes of the DCU include:
- re-scoping, deleting, advancing or deferring projects within the existent DCP;
 - priorities for further analysis or for progression through non capital equipment solutions. Capability studies will generally be managed by DGCP and monitored by DCC;
 - changes to capability goals or strategic priorities; and
 - potential new capability options for further consideration. These options may be developed into an Initial Capability Definition Statement (ICDS) (see Section 2.5).
- 2.16 The DCU consists of the following key activities:
- Force Options Testing.** FOT uses professional judgement to assess the likely performance of the ADF;
 - Key Defence Asset Review.** The Key Defence Assets Review (KDAR) examines the accuracy of current Useful Life and Planned Withdrawal Date records of key Defence assets. Key Defence assets are those assets that contribute to the delivery of combat effect and have a replacement value in excess of \$50 million as well as those assets that have particular strategic, operational or political significance. The KDAR also identifies necessary asset upgrades or replacements for consideration in the development of DCS and the DCP;
 - 1 Star Workshop** - Following the completed analysis of FOT results and incorporating inputs from the KDAR, a workshop is conducted consisting of stakeholders at the 1-star level. The purpose of the workshop is to decide on the priority in which capability studies will be progressed and assign responsibility for these studies. This workshop also filters the remaining recommendations from FOT and refers them to the 2 star workshop; and
 - 2 Star Workshop** - Stakeholders at the 2-star level and chaired by CCDG meet following the 1 star workshop. The purpose of this workshop is to accept or amend the recommendations from the 1 star workshop and to consider any additional ICDS or program changes that have been proposed by other means. Following this workshop, alternate draft DCPs will be considered and, where appropriate, exposed to industry and CDAF. A draft updated DCS will also be produced.
- 2.17 To ensure transparency and enable comparisons of relative value, performance assessment during the DCU relies on a common analysis framework consisting of:





- a. **Capability taxonomy.** The capability taxonomy provides a standard way of categorising capability, which groups systems that relate to particular effects. The taxonomy structure can be obtained from DGCP or from the CDG Process Map;
- b. **Context and scenarios.** Capability needs to be assessed in a context to be relevant. A fighter may make a significant contribution to a mid intensity conflict, but may not necessarily contribute to a low intensity conflict. The AIPS set of contingencies are used to inform context. These are endorsed at COSC level and managed by Strategy Group; and
- c. **Time horizons.** Defence needs to acquire capability from today (the current force or force-in-being) into the distant future. To reduce the number of time horizons studied in detail, preference should be given to those years divisible by five (eg 2005, 2010, 2015, 2020 ...), and the current year.

SECTION 2-4

Defence Capability Plan

2.18 **The Defence Capability Plan.** The DCP provides a ten-year program of major capital equipment projects. It is prepared by Defence for approval by the National Security Committee of Cabinet (NSC) and is published in both classified and unclassified versions and contains details on:

- a. project descriptions and scope information, including the interrelationships with other approved or unapproved phases or projects;
- b. industry opportunities both acquisition or for through life support;
- c. decision timing information such as indicative First and or Second Pass dates;
- d. expected delivery date information such as:
 - (1) the In Service Date (ISD) - The ISD is the year in which the first elements of the capability are planned to enter service, though not necessarily be ready for operational employment. (ISD may, therefore, be earlier than Initial Operational Capability (IOC)); and
 - (2) the IOC is the date when the first elements of capability would be ready for operational use;
- e. Indicative cost estimate and or budgetary data; and
- f. points of contact in CDG and DMO.


2.19 Entry of projects into the DCP is the foundation for subsequent capability development work in Defence and therefore needs to consider the impact across all FIC elements. It is important that the DCP has a solid underpinning; considering capability needs and possible adjustments to each of the FIC elements. The detailed requirements that will be subsequently derived during the capability development process should be traceable back to the DCP. Likewise, the DCP entry should be traceable back to higher strategic guidance.

- 2.20 **Cost Estimation.** Cost estimates are prepared or updated in order to re-baseline the DCP and provide confidence that the cost estimates for the existing projects in the DCP are adequate to allow prioritisation and programming of new and existing projects. New projects will prepare cost estimates in accordance with the Entry to DCP process using the DCP Entry cost template. Existing projects need to provide their most recent updated estimate - for projects nearing First Pass Approval; the more detailed Two-Pass Approval cost template should be used. All cost estimates are to be prepared by sponsors (with support from DCOP), cleared by management, and passed to CIR Div for independent review and clearance before serious DCP programming decisions are made.
- 2.21 Although at this stage full details may not be available for all possible options, the acquisition estimate must be realistic and defensible. That is, the basis of the costs must be documented and appropriate contingency for risks assigned. It follows that the estimate may be an “indicative” cost band and schedule, based on the project sponsor’s best assessment, with a likely high cost risk rating, reflecting the uncertainty as to the scope, possible solutions, timing and cost of the project’s schedule for the later years. The cost band represents the range of costs between the different possible options to solving the capability gap or to delivering the desired effect. That is, there may be a ‘minimal’ option that just meets or almost meets the requirement. The cost for this option would be the bottom end of the cost band. There may be an option that exceeds the requirement as well - this would be the top end of the range. Options in between represent the different solutions or effects that would satisfy the capability gap.
- 2.22 It will become necessary to represent the DCP allocation as a single figure. This is known as a point estimate. The point estimate presented should be representative of the most likely effect/option. Documenting what this is and how it was developed supports an audit trail for the project and provides explanation as to how the original figure was derived. Then, if the scope changes, this documented record can be used to support changes to the cost estimate

Programs

- 2.23 **DCP Programming.** The outcomes from the 2 star workshop are considered in a series of meetings chaired by Head Capability Systems (HCS) and including First Assistant Secretary Capability Investment and Resources (FASCIR), DGCP, ASIA and CSDIV Branch Heads. The purpose of the meeting is to develop a final draft DCP that is affordable and focussed on meeting out strategic priorities. The final draft DCP is then presented to CCDG for consideration.
- 2.24 Further adjustments to the DCP may occur outside the DCU/DCP programming process. These adjustments can result from:
- Non-discretionary adjustments.** A range of non discretionary adjustments may be made to the DCP. These may be driven by Government decisions, project schedule slippage, and changes to cost estimates or financial guidance.
 - Other inclusions.** CCDG may recommend, and seek NSC approval of, the inclusion of a project in the DCP outside the DCU process. Typically, this is only done where there is a clearly defined urgency, or the size of the project is minor and outside the scope of the DCU.



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- 2.25 **DCIC endorsement.** CCDG presents a draft DCS and DCP to the DCIC for endorsement.
- 2.26 **Finalisation of DCP.** Once the DCIC endorses the draft DCP, CIR Div staff will finalise the financial programming and Defence Management and Financial Plan (DMFP) aspects. CIR Div will coordinate the presentation of the DCP to government for approval. Once approved, an unclassified version of the DCP will be published and placed in the public domain. The DCS may accompany the draft DCP to government.
- 2.27 Importantly, entry into the DCP needs to be sufficiently articulated to ensure further development is made in accordance with the proponents' original intent, and ensure that robust and defensible scope, costing schedule and risk estimates can be made. Well defined DCP projects will have positive impacts on the overall plan, by building a general confidence in the robustness and integrity of the DCP.

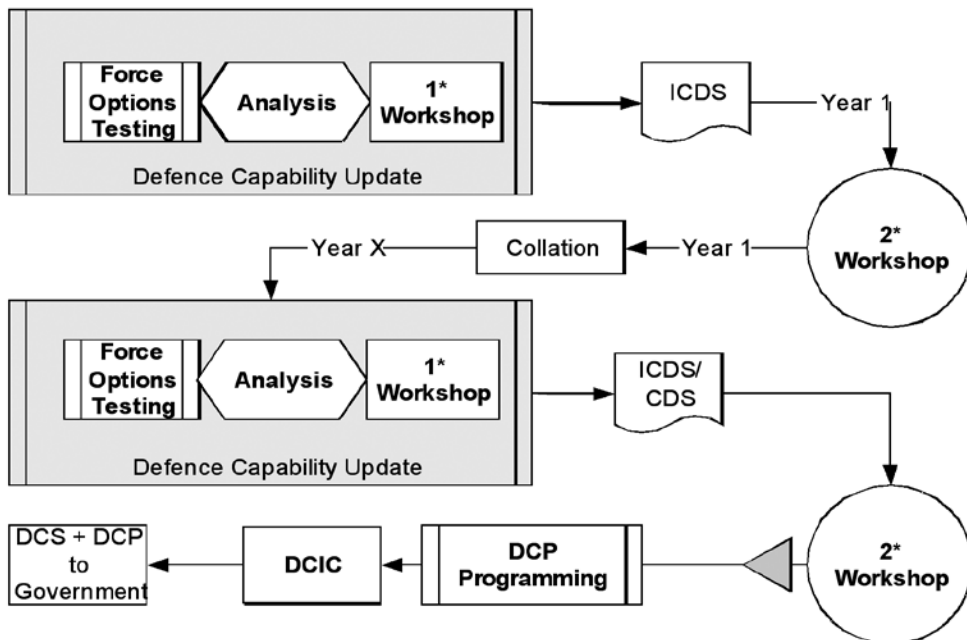
SECTION 2-5

Entry into the Defence Capability Plan

- 2.28 Any organisation or group within Defence may propose a new entry for the DCP. The proponent group or organisation will articulate the proposal using the ICDS and CDS templates as contained in the CDG Process Map - Needs Phase.
- 2.29 **Initial Capability Definition Statement.** The ICDS and the following CDS support development of the Operational Concept Document (OCD). Further explanations of the OCD and its role in the capability development process are contained later in this manual but can also be located at the CDG Process Map and Capability Definition Guide. The ICDS addresses the following key questions:
- nature of the proposal;
 - strategic need, including a value for money statement;
 - the scope and particularly why it should not be part of a broader effects-based project; and
 - estimated resource burden.
- 2.30 **Capability Definition Statement.** The CDS is an expanded version of the ICDS and includes greater detail of the capability need, initial project estimates and resources required. The CDS, due to its more detailed information requirements, is likely to require the formation of a team of stakeholders and possibly an allocation of funds. The proponents of the proposals will remain directly and continuously involved throughout this stage of the process. A preliminary OCD is an optional but useful inclusion to the CDS.

- 2.31 The CDS develops the case for a particular capability need in a way that does not presuppose a particular solution and should retain capability flexibility and a long term view. This is important so as to not prematurely close off options for meeting the identified need. The full CDS consists of:
- capability proposal. Articulation of the capability need;
 - strategic guidance. Details how the capability proposal meets Defence Capability Strategy and our strategic priorities (i.e. value for money);
 - initial identification of capability options;
 - planned capability schedule;
 - summary of FIC change details and costing;
 - estimated capability resource investment to achieve First Pass;
 - plan for further investigations; and
 - the exemplars provided as a basis for the cost estimate. These should be completed using the CCDG and CFO endorsed DCP Entry Cost Template, populated with the life cycle cost of the proposed capability - ie the Acquisition Costs and Net Personnel and Operating Costs (NPOC).
- 2.32 Either an ICDS or a CDS can be used as the basis for entry into the DCP. There are four routes for DCP entry.
- Route One.** Route one is used when a new capability proposal is generated from the DCU. In this case, an ICDS or CDS, after endorsement by the Two- Star workshop are collated and tested at a subsequent DCU. This process is depicted in Figure 2-2.

Entry in to the DCP Route 1-New Idea Generated from DCU



FigFigure 2-2: New Idea Generated from DCU

- b. **Route Two.** Route two is used when an existing proposal has been generated by Services or Groups but is neither sufficiently mature and/or urgent to progress immediately to DCP Programming. In this case the proposal will be tested in the DCU and progressed to the Two - Star workshop. If endorsed, it will proceed to DCP Programming. This route is depicted in Figure 2-3.

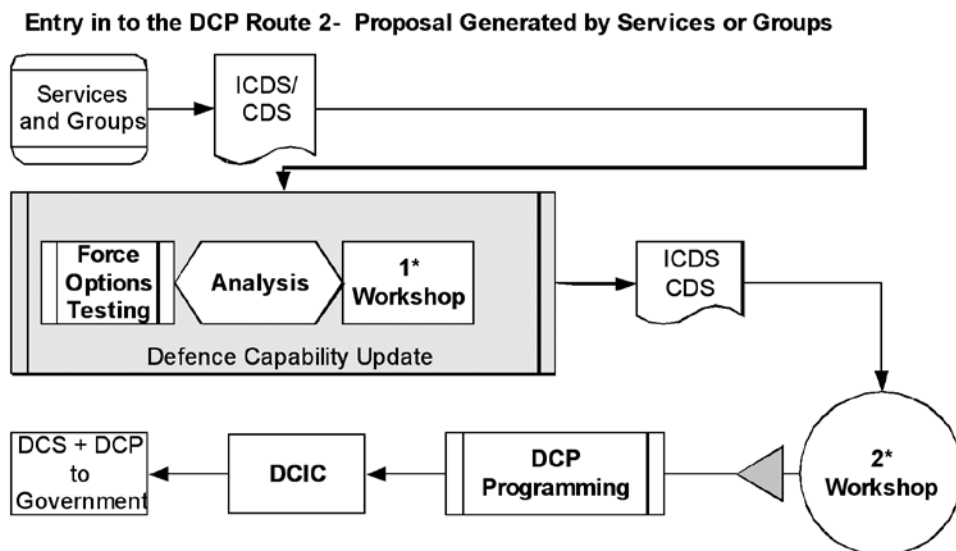


Figure 2-3: Proposals generated by Services or Groups

- c. **Route Three.** Route three is used in exceptional circumstances as described in paragraph 2.22(b). In this case, entry into the DCP does not use the DCU process and is depicted by Figure 2-4.

DCP Entry 3a By Exception

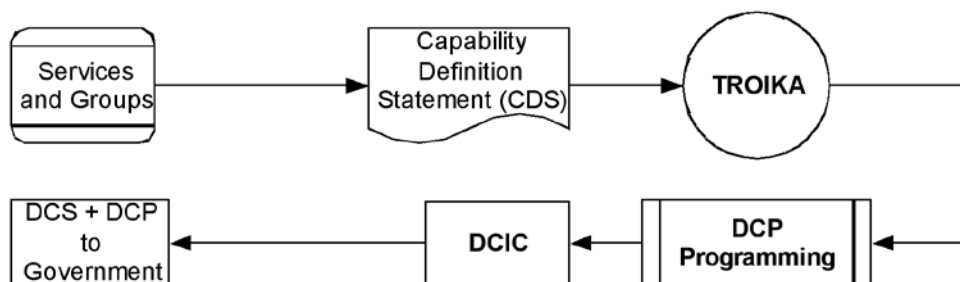


Figure 2-4: Entry into the DCP by Exception

- d. **Route Four.** Route four is similar to route three however; the proposal will join the DCU process at the 2 Star Workshop (see paragraph 2.15(c)) prior to consideration for DCP Programming. This route is depicted below.

DCP Entry 4 By Exception

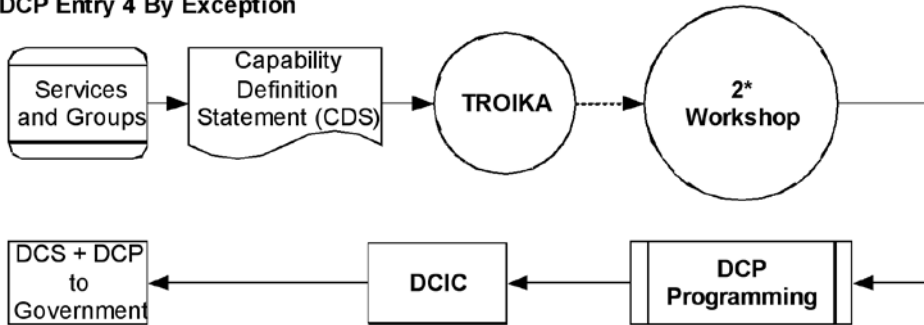


Figure 2-5 Entry into the DCP by Exception

- 2.33 The CDS' already developed and agreed from the DCU process will be analysed along with Budget and NPOC of existing projects and subject to review by the one star and DCP Program workshops. The outcome of the workshop process will be a priority list of projects generated for inclusion into the DCP. The draft DCP developed from DCP programming will be considered by the DCIC and then following approval presented for government approval by CIR Div.






Chapter 3

Overview of the Requirements Phase

SECTION 3-1

Introduction

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- 3.1 During the Requirements Phase, Defence undertakes the detailed planning required for converting the capability needs (see Chapter 2) identified by Defence and accepted by Government into an integrated set of changes in each of the FIC. These changes will be implemented in the Acquisition Phase to deliver the new or enhanced capability. During this phase, CDG staff work with the other groups to:
- identify and develop affordable options that will satisfy the desired capability needs. This work will include the development of technical products that define the capability baseline for the capital equipment, facilities, IT infrastructure and other investments required to establish the capability;
 - undertake cost and schedule estimation activities to provide the requisite quality of information that Defence requires in its business cases. (Note: this will generally include the conduct of industry solicitation prior to Second Pass (see Section 5-2));
 - prepare detailed management plans and acquisition strategies that projects require to deliver the capability; and
 - present to Government business case(s) that allow timely decisions regarding the investment required to deliver the capability sought, and any other investments required across the Defence organisation to support and sustain the new or enhanced capability.
- 3.2 CDG takes the lead role in presenting business cases to Government during this phase. In this role, they establish for Government the link between:
- strategic policy and military strategy, and the broad capability development priorities derived from them;
 - the specialist processes to develop affordable solutions that satisfy those priorities; and
 - the implementation of these processes by Defence in commercial, alliance or other arrangements developed to deliver the individual elements of the capability.
- 3.3 At the conclusion of this phase, Defence seeks Government approval of the final solution and the investment required across Defence to deliver the capability needs. This is achieved through a systematic process during the Requirements Phase that provides Government with proposals for how key strategic elements of the capability development process will be managed (eg generic and specific options for further development, research, industry development, solicitation and engagement, the engagement with allies and the sources of investment funding required by each FIC component) and informs Government of the investments required to plan and implement the necessary major capital acquisitions.

SECTION 3-2

Providing Investment Advice to Government

- 3.4 Decisions about what military capabilities to acquire, how much should be spent on acquiring, operating and sustaining them, and how and when these capabilities should be acquired, are matters for Government. In the Requirements Phase, CCDG presents Government with the decision making information needed to assess specific investment proposals and to make key, high level choices about progressing particular options where that is required. The investment information is contained in the Initial or Acquisition Business Cases (I/ABC) prepared to describe the options available to Government for maintaining or enhancing current military capability.
- 3.5 Investment proposals (capability proposals) and decision briefs are constructed to provide Government with distinct options on the cost-capability trade-offs about which Defence needs further guidance to proceed. The presentation of each option should establish:
 - a. its rationale, i.e. how it addresses the capability gap identified and endorsed by the NSC during review of the DCS (see Chap 2);
 - b. the analytical basis for its claimed operational feasibility, performance and utility;
 - c. its consistency with strategic priorities, Government legislative and policy obligations and Government financial guidance;
 - d. the expected financial impacts through its whole life cost in line with the guidance issued by FASCIR;
 - e. the expected schedule and the ability to meet key DCP milestones; and
 - f. the levels and types of risk associated with its implementation.
- 3.6 The investment proposal for an option should describe:
 - a. what FIC changes constitute the new or enhanced capability;
 - b. the major activities Defence plans to conduct to develop the new or enhanced capability, and how the various Defence groups, other Government agencies and industry will be engaged in this process;
 - c. what investments will be required overall and in each of the Defence groups to undertake the definition, design, development, production, verification and validation, deployment, operation, sustainment and disposal of the capability;
 - d. the combination of financing options that Defence propose to provide the initial capital investments and sustainment funding for the capability; and
 - e. how the major activities are related, and when they are planned to occur.
- 3.7 Detailed guidance on the development of the investment proposal are available from the CDG Process Map on the CDG website.



SECTION 3-3

The Capability Definition Process in Outline

Introduction

- 3.8 The starting point for the Requirements Phase is the identification by Defence of a capability need and acceptance of that need by the Government (see Chapter 2). Acceptance by Government of a particular capability need is generally evidenced by inclusion of the relevant item in the rolling ten year DCP. The DCP lists approved capability needs expressed in terms either of an equipment solution (broadly defined) or in terms of a desired operational effect (depending on the nature of the need). The DCP also provides an expected YOD for the solution to the need and an indicative estimate of the acquisition and NPOC funding requirements.
- 3.9 During the process of moving from an agreed need to high quality proposed solution agreed by Government for acquisition, early investments are made to develop the investment proposals and on the associated research, engineering, project development and industry engagement processes. This ensures that the advice provided to Government during the Requirements Phase meets the high standards required for investment decisions of the magnitudes involved in our major capital procurement. The significant resource cost in time, effort and money in moving through this process in part reflects:
- a. the effort required to ensure that the proposed capability, which has potentially significant implications for the ADF's future force structure, generates a sustainable strategic benefit. The ADF does not want to 'lock in' to solutions that cannot sustain such benefits, but which would be very difficult and expensive to reverse;
 - b. the complex array of technical, financial, operational, sustainment, environmental, social and other issues that need to be dealt with during the Requirements Phase; and
 - c. the need to develop and refine cost and schedule estimates for all elements of the capability and across the whole lifecycle of the proposed materiel solutions.
- 3.10 The development of capability proposals through the Requirements Phase of the capability systems life cycle passes through two essential decision points - 'First Pass approval' and 'Second Pass approval' (the two pass approval process is outlined in this chapter, and dealt with in more detail in Chapters 4 and 5). Both of these decision points are approvals by Government rather than Defence. Additional Government considerations may also be necessary depending on the strategic importance, political sensitivity or complexity of the project. The level at which any Government approval is given depends on the estimated cost of the capability development proposal, and on whether there are any political or diplomatic sensitivities associated with the proposal.

- 3.11 As also covered in the detailed procedures in Chapters 4 and 5, there are additional decision points in the capability development process over and above the First and Second Pass considerations by Government. These additional points are to satisfy CDG management requirements, as distinct from Government requirements, especially in the selection of broad options to be explored in greater depth prior to First Pass approval. There are also Defence wide requirements to obtain stakeholder approval of capability development proposals through the Defence committee system. For a diagrammatic overview of the capability development milestones during the Requirements Phase, see Figure 3-1.

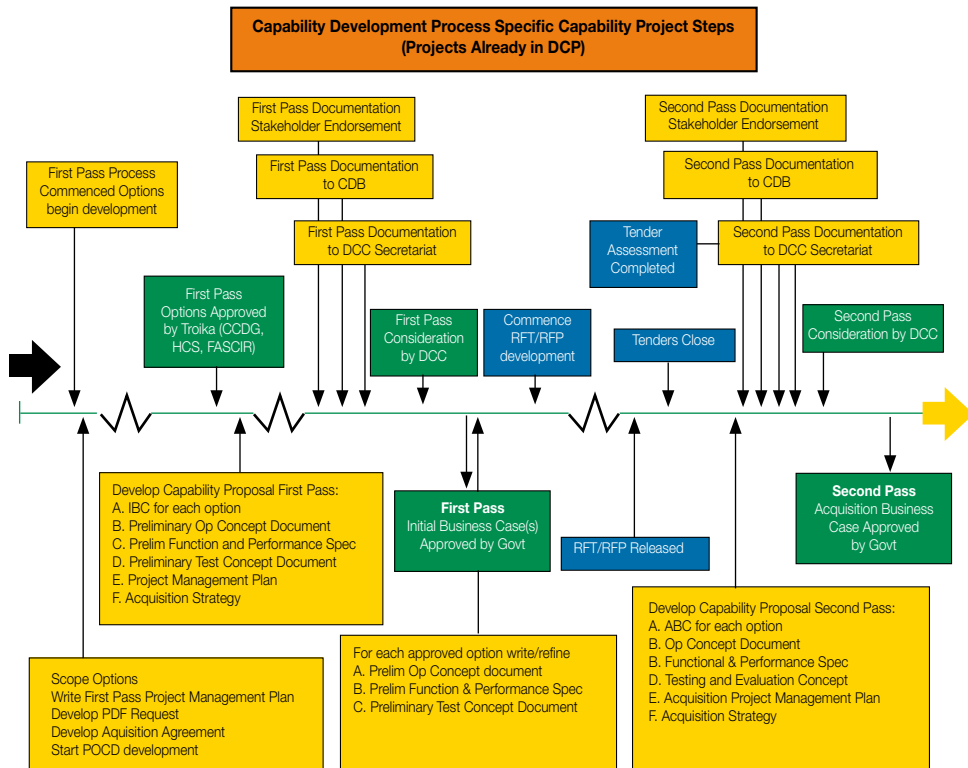


Figure 3-1 - Overview of the Requirements Phase

- 3.12 Capability development projects vary enormously with regard to their type, cost and complexity. For this reason, it is difficult to assess the likely lead times involved in moving through the various steps of the two-pass process. Each project needs to be assessed on an individual basis, but it is not uncommon for a project to take up to ten years from the time Government approves a project for inclusion in the DCP to when Government approves a specific capability solution at Second Pass approval.
- 3.13 The two stage decision making process directed by Government consists of:
- First Pass approval** - at which Government considers alternatives and approves a capability development option(s) to proceed to more detailed analysis and costing, with a view to subsequent approval of a specific capability; and

- b. **Second Pass approval** - at which Government agrees to fund the acquisition of a specific capability system with a well-defined budget and schedule, and to allocate future provision for through life support costs.

First Pass Approval

- 3.14 As indicated above, First Pass approval is, in effect, approval to proceed with more detailed analysis and costing of broad capability proposals. More specifically, First Pass provides Government approval and acknowledgement of:
- a. the broad functions and performance of the proposed capability;
 - b. the proposed timing of Second Pass approval (YOD) and other key milestones;
 - c. the set of feasible options to be explored in more detail;
 - d. the broad costing for the capability options, including all relevant FIC aspects and NPOC estimates;
 - e. the timings of the development of the option(s);
 - f. the technical risk analysis of the options and costing of risk mitigation;
 - g. the broad acquisition strategy(ies) for the options, including any solicitation to be conducted prior to Second Pass (see Section 5-2);
 - h. the studies or other activities required to support the development of options for Second Pass, and funding to conduct those studies/activities;
 - i. industry engagement to develop a business case for Second Pass approval;
 - j. the broad strategy for the transition of FIC during the Acceptance into Service (AIS) process; and
 - k. the funding needed for Defence to undertake the detailed analysis of the approved options, including any test and evaluation (T&E) required.
- 3.15 It is important to note that, in providing First Pass approval, the Government is not committed to acquiring the capability, only to the conduct of detailed studies, analysis and, possibly, funded industry studies.

Second Pass Approval

- 3.16 As indicated above, Second Pass approval is formal approval by Government of a specific capability solution to an identified capability development need. Second pass provides Government approval and acknowledgment of:
- a. a preferred specific capability solution selected from the options approved at the First Pass approval stage;
 - b. the specific functions and performance of the proposed capability;
 - c. the implications of any identified changes to each of the FIC elements;
 - d. the planned ISD, IOC and FOC;
 - e. budgetary provision for acquisition and operation of the capability solution, including all relevant FIC aspects and NPOC;
 - f. the technical risk assessment for the capability solution and costing analysis;
 - g. the acquisition strategy for the proposed capability;
 - h. the strategy for managing the transition of FIC including acquiring the capability and its transition to in-service; and

- i. critical issues to be tested, the associated T&E strategy and the resource and funding requirements to support that strategy.

Additional Consideration/Review by Government

- 3.17 Although the Requirements Phase can, in general, be described as a two-pass approval process for capability proposals, there is sometimes a need to have additional decision points. This need arises particularly in the case of capability proposals of major strategic significance, that have very high costs or that are politically sensitive. Proposals for new combat aircraft or for major surface or sub-surface combatants are examples of capability development projects likely to involve additional decision points.
- 3.18 The purpose of instituting additional approvals is generally to allow Government to make key intermediate decisions (eg approval of the Acquisition Strategy or selection of key industry partners). Intermediate passes may also be required where significant new information becomes available or strategic circumstances substantially change and Government direction is required in relation to the project's scope or direction.

Combined First and Second Pass

- 3.19 Government accepts that Defence may bring forward a proposal seeking single consideration for project approval for less complex projects, where formal project definition phases have been completed, and for follow-on activity under contract options. These are the only circumstances noted in the Cabinet Handbook which establishes the policy for combined pass approvals. Defence may argue that a combined pass submission is appropriate for a follow-on phase of a previously approved capability, or as a consequence of strategic assessments, which require acquisition of additional quantities of an extant capability. For example, Government may approve a combined pass proposal for the re-supply of weapons acquired previously, particularly if Defence can accurately determine costs internally.
- 3.20 The use of a combined pass proposal recognises that the time taken to move from First Pass approval to Second Pass approval is around two years, which may be an unnecessary interval for less complex follow-on project phases.
- 3.21 Any proposal to adopt a combined pass approach must be endorsed by CCDG prior to any detailed project development work being undertaken.

Key Mechanisms for Managing the Requirements Phase

- 3.22 The main organisational mechanisms used by CDG staff for managing the process of investigation of options and obtaining guidance and/or decisions by Defence committees and/or Government are:
 - a. **Integrated Project Teams (IPT)** - These teams are specific to each capability development project and provide guidance and technical expertise from key stakeholders in the process and/or outcomes of the capability development proposal. IPTs are usually formed at the very early stages of the Requirements



Phase, and their importance cannot be overstated. Properly formed and managed, they provide a base for undertaking the capability development process in a thorough and systematic way, particularly the consideration of FIC issues, and for engaging in a meaningful and timely way with all capability development stakeholders.

- b. **Options Review Committee** - This committee comprises CCDG, HCS and FASCIR, and is commonly known as the “Troika”. The Troika meets early in the Requirements Phase to consider initial analysis and assessments on ways to overcome identified capability gaps. The Committee provides broad advice on the generic options that should be pursued in the lead up to obtaining First Pass approval and on the general development of the project throughout the Requirements Phase. (see also 4.33)
- c. **Capability Development Board (CDB)** - This board is a mechanism for ensuring quality control of project development within CS Div. Through this board, HCS agrees to the release of capability proposals and supporting documentation for the presentation to Defence committees and to Government for approval.
- d. **Defence Committees** - There is an array of higher level committees within Defence designed to help reach a corporate view on capability development proposals, especially MCE proposals, before these proposals are put to Government for approval. Most projects will generally be considered by the DCC, although projects of high value or significant strategic importance may also be considered by DCIC.
- e. **Independent investment review** - CIR Div plays an important role in the Defence decision making process with regard to proposed MCE initiatives. CIR Div provides higher Defence committees with an independent assessment of capability development proposals from CS Div. CIR Div staff write the Submissions for the Minister and/or Cabinet seeking approvals for projects (in consultation with stakeholders), and oversee the lodgement of Submissions with Government.
- f. **FIC input and review** - Where capability proposals are affected by specific FIC elements, the relevant committee will review proposals prior to consideration by higher Defence committees. For example, the Defence Information Environment Capability Management Committee (DIECMC), for projects affecting the Defence information architecture; the Defence Infrastructure Sub-Committee (DISC), for projects with significant facilities (>\$4.5m) and/or environmental and heritage management implications; and/or the Defence People Committee (DPC) for projects with significant workforce implications, will review proposals prior to consideration by higher level Defence committees.
- g. **NPOC input and review** - CIR Division's Cost Analysis Branch, together with the CFO Resource Analysis and Performance Branch, provide direction on developing the Personnel and Operating Costs (POC) for capability development and manage the annual NPOC review for inclusion in the DMFP.
- h. **Central agency review** - The Department of the Prime Minister and Cabinet (PM&C) and the Department of Finance and Administration (DoFA), provide an additional level of scrutiny and advice on capability development proposals, from a whole-of-Government perspective. This is especially the case for major capital

expenditure decisions on new capabilities and decisions having important political and/or financial implications for Government.

- i. **Industry fora** - The CDAF, and its subsidiary domain specific Environmental Working Groups (EWGs), are fora for dialogue between CS Div and Australian industry on future capability requirements. These fora provide useful avenues for CS Div to engage with Australian defence industry on matters such as current and emerging technological competencies in Australian industry, and industry cost conditions and structures.
- j. **Defence Science and Technology Organisation (DSTO) technical support** - DSTO provides a wide range of advice to CS Div on matters relating to technical risk assessment, operations research, prototype development, options analysis, performance assessment, Science and Technology (S&T) planning, etc. For each major capability project a DSTO scientist is appointed as the project S&T Adviser and as a member of the IPT. A number of other DSTO staff who are embedded or collocated with CS Div provide ongoing advice and support throughout the Needs and Requirements phases. DSTO's support to major capability projects within the Requirements and Acquisition phases is managed via its Capability Development and Acquisition Program (CDAP).



Key Stakeholders

- 3.23 CDG staff need to engage with the following key stakeholders in exploring and analysing options for meeting an agreed capability need:
- a. the Minister and the Government (Note: this is generally conducted at the two-star (MAJGEN and SES Band 2 (E)) level and above);
 - b. Single Service headquarters;
 - c. Joint Force headquarters;
 - d. DMO;
 - e. DSTO;
 - f. CSIG;
 - g. Defence Personnel Executive (DPE);
 - h. Chief Information Officer Group (CIOG);
 - i. CFO;
 - j. Strategy Group;
 - k. Intelligence and Security Group;
 - l. Commonwealth central agencies, especially PM&C and DoFA;
 - m. Defence industry; and
 - n. allies, via established fora on interoperability issues.

SECTION 3-4

The Requirements Phase in Practice

- 3.24 Translating the Capability Need established with Government into the Capability Proposals at First and Second Pass for consideration by Government is a complex and demanding process. As the lead Group, CDG is responsible for the processes that will allow Defence to present high quality Initial and Acquisition Business Cases. It involves the application of several specific investment, engineering, technical and project planning techniques. Applied in isolation, these techniques rely upon their internal consistency to ensure that the outcomes they produce are high quality and fit for purpose. This consistency cannot be guaranteed when the processes operate in parallel, as they must in practice. As a result, the planning processes are characterised by ongoing tradeoffs between cost, capability, schedule, industry involvement and risk within and among the major streams of work.
- 3.25 A practical challenge that arises is ensuring that the decisions reached during these tradeoffs are regularly tested by senior management. In addition to formal committee consideration, more regular (and less formal) review within the line management structures of CDG and the other groups involved will go some way to ensuring that all the pressures on the project or group of projects have been identified and are given appropriate consideration in their development.



Chapter 4

The Requirements Phase: Defence Capability Plan to First Pass Approval

SECTION 4-1

Overview

- 4.1 The Requirements Phase of the capability life cycle is the phase during which an approved capability need passes through a rigorous process of identification and assessment of options, leading to a decision by the Government to opt for a particular solution to that capability need.
- 4.2 The starting point for the Requirements Phase is entry of a project into the DCP (see Chapter 2). As discussed in Chapter 3, the task of identifying and assessing options for meeting a need identified in the DCP is governed by the “two pass approval” process.
- 4.3 This Chapter outlines the capability definition and assessment process from the time an identified capability need is approved for inclusion in the DCP through to First Pass approval of a set of options for meeting that need. Chapter 5 outlines the process from First Pass approval to Second Pass approval.

SECTION 4-2

Integrated Project Team (IPT) Formation

- 4.4 The formation of an IPT is an important step in the Requirements Phase for all capability development projects. The IPT is established by the capability development branch with CS Div responsible to the project, and should include membership suitable for facilitating and guiding the capability development proposal through the Requirements Phase, as the decision-making process in Defence on capability development issues necessarily involves consultation with a range of stakeholders. IPT membership will generally include a core membership of the supplier (DMO or CIOG), sponsor (CDG) and CM.
- 4.5 The precise time at which the IPT is established is a matter of judgment, but will generally occur early in the Requirements Phase in order for a solid foundation to be established.
- 4.6 Stakeholders may be primarily interested in the particular solution to emerge from the capability development process, or in the efficiency and integrity of the process itself (as ‘gatekeepers’ of the process). Others may be primarily interested in the non-equipment aspects of the project (for example, workforce or facilities implications), or in providing specialist knowledge and skills to support the process and ensure the best outcomes. These interests will mostly align with FIC and relate to the coordinated changes in FIC necessary to realise a capability outcome.

- 4.7 The main purposes in forming an IPT is to provide:
- a. the project desk officer with access to expertise from throughout the Defence Organisation that will assist in the development of capability proposals,
 - b. a common basis for planning and analysis of options for meeting the capability need, and
 - c. early visibility of capability development projects to Defence stakeholders.
- 4.8 For any given project the composition and activities of the IPT should be flexible, so as to accommodate the wide diversity of capability development projects. The level of involvement by individual stakeholders will vary from project to project, however, the following stakeholder groups should, as a matter of course, be consulted, and invited to participate in an IPT in either a full- or part-time, or advisory, capacity:
- a. DMO - because of its acquisition, in-service support and industry development responsibilities, and also its costing and systems engineering expertise;
 - b. The relevant Single Service headquarters (as primary user of the capability and as Capability Managers) - more than one Service Headquarters may have an interest in a particular project, especially for joint capabilities;
 - c. Investment Analysis Branch, CIR Div (as part of their independent assessment role and their liaison role with external agencies);
 - d. Cost Analysis Branch, CIR Division - for providing advice on the financial resource aspects, both capital and operating;
 - e. DSTO - for their technical input to the identification and/or analysis of options and to assessment of technical risk;
 - f. CSIG - for any facilities and infrastructure development, legal, heritage, native title, environmental management, land acquisition/leasing implications and/or through life maintenance and CSIG support of the project;
 - g. DPE - for workforce planning, personnel and/or training issues;
 - h. CFO - for financial policy issues and consideration of private financing;
 - i. CIOG - for acquisition and in-service support responsibilities for specific Information and Communications Technologies (ICT) projects being acquired by CIOG, and implications for the Defence Information Environment for other projects;
 - j. Defence Security Authority (DSA) - for security implications;
 - k. DTRIALS - for test and evaluation issues;
 - l. ADSO - for simulation support;
 - m. Network Centric Warfare Program Office (NCWPO) - for advice and direct assistance in integrating projects into the wider DCP NCW construct; and
 - n. Defence Intelligence Organisation (DIO) - for intelligence implications.
- 4.9 In practice an IPT may consist of a small core team, with other members contributing at particular points in the process depending on their expertise. The important thing is that capability projects are not developed in a vacuum, but in a way that ensures visibility of the project to, and input by, the multiplicity of stakeholders in capability development projects. It is the responsibility of the project desk officer to ensure that all relevant stakeholders have an opportunity to contribute to the work of the IPT.



4.10 The initial tasks of an IPT are to:

- a. identify the proposed broad options for the project and obtain high-level approval to pursue those broad options;
- b. consider FIC transition management strategies, aligned with the AIS process, for each proposal;
- c. if appropriate, develop a Project Development Fund (PDF) request to realise these options;
- d. develop a Project Management Plan (PMP) for achieving First and Second Pass approval;
- e. for MCE to be acquired by DMO, develop a Material Acquisition Agreement (MAA); and,
- f. for MCE to be acquired by CIOG, develop a Project Mandate.

4.11 The steps involved in carrying out these tasks are outlined below in Section 4-4.

DMO Emerging Project Teams

4.12 DMO has established Emerging Project Teams (EPT) within each Branch of CS Div to provide improved teaming arrangements between DMO specialist skills and the CDG professional mastery skills for all pre-First Pass projects.

4.13 The scope of the EPT's accountabilities and responsibilities covers specific DMO activities relating to MCE projects during the Needs and Requirements Phases (up to First Pass approval) of the capability life cycle: that this, the phases for which CDG are primarily accountable, but which have a lasting impact on the DMO.

4.14 In general, the EPTs will provide specialist skills and expertise in the following areas:

- a. project management;
- b. systems engineering;
- c. logistics planning;
- d. life cycle costing (for acquisition and in service support elements);
- e. acquisition, procurement and contract management strategies; and
- f. Defence industry capabilities.

4.15 A project-specific MAA is generally not required to engage the support of DMO EPTs in pre-First Pass projects, as their establishment is included in an omnibus MAA. A project specific MAA should only be developed for pre-First Pass projects where the scope of work is outside of the scope of agreed EPT support activities.

SECTION 4-3

Pre-First Pass Project Planning


Develop Project Development Fund (PDF) request

- 4.16 PDF is designed to help CS Div staff to develop capability proposals through to First Pass approval by Government. Specifically, PDF funding is available to develop the options approved by the Troika for investigation and inclusion in the Initial Business Case (IBC) presented at the time of seeking First Pass approval. PDF funding is typically used for:
- a. establishment and management of IPTs (eg interstate travel to attend IPT meetings and/or working groups);
 - b. the development of capability development documentation;
 - c. technical studies, for example, to determine capability performance requirements, assess technical risk, assess risk environmental compliance issues with legislative and policy requirements, conduct simulations, and develop and assess prototypes;
 - d. market studies, for example, to discover industry capacity and technological expertise;
 - e. costing studies to produce robust estimates of acquisition and through-life costs, including any facilities, infrastructure and environmental requirements;
 - f. occupational and training needs analyses that determine the major work force implications of the project; and
 - g. travel, domestic or international, to investigate capability solutions in other defence forces, and assess industry capability.
- 4.17 PDF money comes from the MCE budget, hence PDF spending does reduce funds available for projects overall albeit not on an individual project basis. The PDF business rules generally limit PDF spending to that required for First Pass project progression, and seek to have an audit trail linking funding to specific IBC documentation outcomes.

Write First Pass Project Management Plan

- 4.18 The PMP is a high-level planning document that provides a summary of the project and how it is to be managed. The PMP states what is to be done, when, by whom, at what cost (budget), and the risk associated with the activities. The PMP should also identify the different project processes and how they fit together to form a complete, integrated management system for the project phase.
- 4.19 It is the responsibility of the relevant desk officer to develop the PMP, in consultation with other IPT members.



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- 4.20 The PMP evolves as the project progresses through its various stages. At the initial phase when the work to reach First Pass approval is being determined, the PMP should include details on:
- a. a work breakdown structure clearly identifying the deliverables (products and services) that must be produced in order to achieve First Pass approval, including a risk management plan covering the risk reduction activities to be undertaken, through the science and technology, test and evaluation, and modelling and simulation programs;
 - b. staffing profile required to achieve First Pass approval including Professional Service Provider (PSP) /Contractor/Consultant requirements;
 - c. a schedule covering the activities, with identified resources; and
 - d. the project budget for conducting First Pass activities.
- 4.21 During the activities leading to First Pass approval, the initial PMP is refined to cover in detail the planned activities leading from First Pass to Second Pass approval. This refined PMP is to be signed off by the major resource stakeholders and included in the First Pass documentation. The PMP included in the First Pass approval documentation should particularly describe risks, and the management strategies to mitigate these risks, in the activities to be undertaken leading up to Second Pass approval. The PMP should include:
- a. the Project Work Breakdown Structure (PWBS) which breaks the project's early years into manageable deliverables (products and services) that can be organised, assigned to individuals, scheduled and monitored; and
 - b. if necessary, network diagrams or other project management tools.

Develop Materiel Acquisition Agreements

- 4.22 A key relationship in the capability development process is that between CS Div and the DMO. The DMO is involved in the Requirements Phase right from the formation of an IPT. The services provided by DMO to CS Div are formalised by means of an MAA or, more correctly, a series of MAAs at different stages of the capability life cycle.
- 4.23 An MAA defines what the DMO (as supplier) will deliver to CDG (as customer) for how much and when. It also provides a means by which performance will be monitored over the course of the project. There are a number of other project management documents, tools and processes that cover how the project is managed. The MAA is about the high-level outputs that DMO has undertaken to deliver.
- 4.24 The initial MAA is concluded between CS Div and DMO early in the life of an IPT. It covers DMO's project related services from the start of the Requirements Phase to the time of First Pass approval, which are generally delivered by the DMO EPTs. Further MAAs are then concluded for DMO's involvement in getting to Second Pass approval and beyond.
- 4.25 Different processes apply for projects to be acquired by CIOG (Information Systems Division). For further information and advice contact CIOG (Director General Information Policy and Plans).

SECTION 4-4

Option Investigation

Identify the Proposed Broad Options

- 4.26 The Requirements Phase involves a lengthy and detailed process of investigation of alternative ways of meeting a previously identified and agreed capability need. Early in the Requirements Phase, it will be necessary to identify and agree a set of broad options that will form the basis for more detailed investigation by Defence and consideration by Government. Getting this set of broad options right is crucial to the project's success, as the initial options set will drive the directions in which subsequent investigative effort is concentrated to achieve First Pass approval. First pass approval will in turn set the capability boundaries for solutions considered at Second Pass, and without further change, for the life of the asset.
- 4.27 The initial set of broad options identified for further consideration for any project will vary based on the type of project. However, it is important for the desk officer and IPT members to think laterally about possible ways of filling the identified capability need, and not simply in terms of replacing the existing capability with a similar, but newer and more advanced, capability.

Option Set

- 4.28 Without limiting the particular options or range of options that might be proposed in a given situation, the Government expects Defence to include in its set of options:

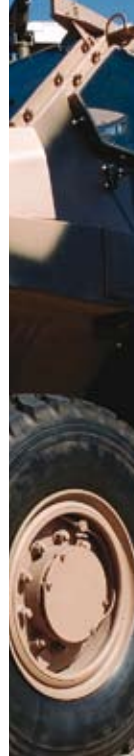
- a. **Off-the-shelf options** - Government requires that the option set include an Off-The-Shelf (OTS) option or options. An OTS product is defined as one that is available for purchase, and will have been delivered to another military or Government body or commercial enterprise in a similar form to that being purchased at the time of the approval being sought (First or Second Pass).

An option put forward at First Pass that was not considered OTS at that time, but which meets the criteria at Second Pass, may be considered as an OTS option at Second Pass.

OTS options provide Government with a benchmark against which to measure the choices presented to them. This is because OTS options are typically lower cost and risk options.

Key considerations regarding the viability of proposed OTS options are whether the options:

- (1) have the potential to meet the broad capability gap (not the specific requirements as stated in the supporting documentation such as the OCD);
- (2) are capable of safe and compliant operation in the ADF context (meet specific standards such as environmental and naval certification standards);
- (3) satisfy specific Government policies and directives with respect to industry or procurement; and



- (4) can deliver the capability solution within the budget and schedule constraints of the DCP.

To ensure that the OTS option is potentially viable, a separate sub-option should be described and any modifications necessary to satisfy legal and safety compliance costed. Additionally, any other changes that are essential in terms of Government policy to deliver the OTS option should be separately identified and costed.

The IBC needs to provide information on the extent of any deficiencies in the OTS solution to provide cabinet with a clear understanding of what the OTS baseline represents. These deficiencies could be addressed in a separate IBC that presented an enhanced capability option.

It should be noted that there will not always be OTS options for every project. In these cases the OTS IBC will need to justify the lack of an OTS solution by explaining why no available solution can meet the broad capability gap.

- b. **'Australianised' off-the-shelf options** - A modified off-the-shelf proposal may be put forward. The modifications might be proposed to meet the particular requirements of the Australian and regional physical environments and the ADF's particular operational requirements. The options presented that propose the 'Australianisation' or modification of equipment must, before being put to Government, explain their rationale, detail the associated costs and risks, and demonstrate better value for money if recommended over an off-the-shelf option.
- c. Where affordable options do not meet the minimum capability needs, an option that fully meets the identified capability need should be presented, even if the cost of that option exceeds the DCP budgetary provision for that capability.

Number of Options Investigated

4.29 The time, effort and expense of examining each option in detail makes it essential to concentrate on investigating only a small number of options, usually three or four. As mentioned above, the option set must include at least one off-the-shelf option (if available) and possibly another that fully meets the identified capability gap. The First Pass documentation should explain why specific options have been selected for investigation and why other alternatives have not been investigated.

4.30 The options identified should focus on those that are affordable within the DCP provision. The DCP provision may need to be reconsidered by Government during the annual review process, if options development work indicates this may be necessary.

Options Type

4.31 The types of options presented for First Pass approval depend on whether the project is solution based or effects based:

- a. Solution-based projects tend to emphasise different equipment options as solutions to the capability need. For example, for a solution-based air transport project, the options could be first, maintaining the current C-130H/J fleet; second, acquiring additional C-130J aircraft; and third, acquiring a new heavy-lift aircraft. The majority of projects in the DCP are solution-based projects.
- b. Effects-based projects tend to emphasise options for different ways of achieving the same effect. For example, for an effects-based long-range transport project, the options could be first, maintaining current airlift supplemented by strategic sea-

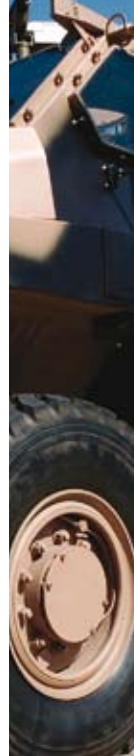
lift; and second, extend the life of the existing airlift assets. A third option might be to maintain current airlift capability supplemented by new heavy-lift aircraft; and a fourth, to replace the existing airlift capability with lighter-than-air airships. The work conducted prior to a project's entry into the DCP will generally reduce the scope of effects based projects, and their inclusion in the DCP is therefore limited.


Approval of Broad Options to be Investigated

- 4.32 As indicated above, the First Pass approval process involves the presentation to Government of a broad range of options, and the selection by Government of a narrow options set for more detailed consideration leading up to decision about the preferred solution at Second Pass approval.
- 4.33 But even the determination of the broad range of options to be considered at First Pass approval itself involves a process of selection - in this case of a broad range of options from the full range of available options. This process of selection is to ensure that DCP project schedules are met and resources are not wasted investigating impractical options.
- 4.34 Once the IPT has undertaken some identification and investigation of possible options, the project should prepare a paper for consideration by the Troika. This paper, summarises the possible options for meeting a capability need, and recommends the prospective options for consideration at First Pass approval.
- 4.35 Approval of broad options to be investigated in detail generally occurs at least twelve months before presentation of detailed options to the higher Defence committees for their consideration and recommendation. This lead time is to allow full exploration of the approved broad options in the lead up to First Pass approval.

Investigate the Approved Options

- 4.36 Using the resources available through the relevant IPT personnel, and resources approved through the PDF (if applicable), CS Div staff investigate the set of broad options approved by the Troika. Each option is likely to take between six and twelve months to develop to the specified level of detail for First Pass approval, with the options usually investigated in parallel, rather than sequentially.
- 4.37 The following sub-sections provide information on some of the more important considerations in investigating options in the lead up to First Pass approval.
- 4.38 **Industry Involvement** - Based on the project scope, and cost and schedule parameters provided by the DCP, the Rapid Prototyping, Development and Evaluation (RPD&E) unit within the CS Div's Information Capability Development Branch can be tasked with providing advice on possible development and trialling of prototypes in conjunction with defence industry, as part of the Second Pass process. Any prototype trialling will involve significant test and evaluation (T&E) activities prior to Second Pass, and these must be adequately scoped and resources sought in the First Pass approval documentation.




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- 4.39 **DSTO Involvement** - As the Department's primary S&T organisation, DSTO has significant expertise in many areas of military systems and related technologies, operations research and experimentation, and can offer this expertise to put forward, assess and analyse capability options. It will normally be possible, for example, to quantify the contribution of various options, and thus identify those options that provide a desired minimum acceptable level of capability. These studies would be carried out in conjunction with Service operational staff and IPT members to ensure stakeholders' views are considered, and to ensure wide-ranging ownership of the results. DSTO has several staff embedded in CS Div, who provide technical advice on matters relating to technical risk and on technical studies to investigate capability options.
- 4.40 **Option Acquisition and In Service Support Costing** - When taking decisions on capability options the whole-of-life costs must be presented to and understood by Government. Generally, much of the data produced for First Pass consideration will be derived from open source literature, limited studies, historical experience, allied sources or limited initial consultation with industry. Therefore, for most options, cost data will necessarily be indicative and be presented as cost-bands however, the project cost estimates at First Pass consideration should be of sufficient quality to:
- allow valid discrimination between the options and to support the analysis given in the documentation of the cost/capability trade-offs between options, particularly where it is proposed to discard options;
 - provide a high degree of confidence that any option(s) approved for Second Pass analysis will not, on deeper investigation, exceed the cost range advised at First Pass approval, particularly if this would result in the option being beyond the DCP provision (where costs are likely to exceed the DCP provision, this should be advised to Government for their decision);
 - identify personnel and operating cost offsets from extant capability; and
 - capture all known cost risks and assign contingency to each cost element based on assessed cost risk exposure.
- 4.41 **Capability Development Costing** - Detailed estimates should also be provided covering project related activities necessary to conduct further investigations of the option if endorsed at First Pass. Cost estimates for the activities to be conducted between First and Second Pass need to be accurate, as this funding is provided from within the project's DCP allocation and there is little opportunity to increase funding as the project progresses. These estimates must identify the costs to be incurred by DMO and other stakeholders and should include:
- the cost of studies or discrete risk reduction activities (including any T&E or environmental studies) to be conducted by the ADO and/or Industry;
 - the total DMO and PSP manpower costs (CIOG manpower costs should be included where they will be the acquirer);
 - a provision made for the internal conduct of tender activities such as advertising and the hire of resources for evaluation;
 - cost of prototype items for testing and analysis;
 - the level of contingency required and the risks to which it is allocated; and
 - any other costs such as travel or legal.

- 4.42 It is essential that all cost estimates prepared, be they Option Acquisition and In Service Support Costs or Capability Development costs, clearly articulate the:
- associated scope and cost basis,
 - source of the estimate,
 - recency of the estimate, and
 - confidence of the estimate as assured by the source.
- 4.43 All business cases prepared by CS Div are to be based on current values. These current values will then be converted to an estimated future dollar value for Defence Cabinet Submissions - these conversions are prepared by the Programming Section within CIR Div based on data supplied by DoFA.

Key Considerations for Investigating Approved Options - a Checklist

- 4.44 Turning statements of a capability need into realistic, well-defined options takes considerable time and effort, and a degree of trial and error. The process also requires consultation with stakeholders, a willingness to think laterally, and an appreciation of the full range of inputs to the future capability. There are numerous aspects to consider when determining and refining capability options, but among the more important considerations are:
- Operational concepts - *This is the primary consideration when developing a capability proposal.*** Operational concepts look at the proposed capability through the lens of the warfighter and consider *why* the proposed capability is needed, and *how* the proposed capability will be used to meet the identified capability need. CS Div staff need to consult closely with the Single Services headquarters on these issues.
 - Function and performance specifications** - This is an extension of the consideration of operational concepts. Having identified why and how a capability is to be used, it is important to identify *how well* the proposed capability should perform in an operational environment. The various function and performance parameters of the proposed capability will give an indication of its likely effectiveness (although, in practice, effectiveness depends on the interplay of a wide range of factors). Consideration of both operational concepts, and function and performance specifications, will require close consultation with the Single Services as the primary users of the proposed capability. Function and performance specifications also take into account constraints on performance, for example, to comply with environmental and Occupational Health and Safety (OH&S) legislative requirements.
 - Cost** - The overriding principle for procurement by Commonwealth agencies is that of 'value for money'. Value for money is derived by consideration of the interplay between the operational effectiveness of a capability proposal and its resource cost to Defence. Cost is a highly problematic, but important, consideration when assessing capability options. Ultimately, all capability enhancements are delivered against a budget constraint, and robust costing will allow more informed choices to be made between different capability options.





Costing needs to cover whole-of-capability costs and whole-of-life costs (POC/NPOC). Robust costing is often difficult to achieve, not least because of risk and uncertainty arising from long lead times for key decision points and acquisition, changing technology, and changes in the strategic environment. It is therefore necessary to document the level of contingency required against an option to address the risks identified should they be realised (noting that not all risks can be resolved through additional funding).

- d. **Current capabilities and their FIC.** Capability proposals must address the interfaces with existing capabilities to ensure that the ADF remains a cohesive and interoperable force. New capabilities cannot be considered in isolation from other capabilities, whether in service or also under development, and early identification of any capability interfaces will ensure that interoperability or duplication issues are addressed throughout the capability life cycle.
- e. **Occupational Health and Safety.** Capability development proposals need to address legislated OH&S requirements including human factors design and integration, injury prevention and reduced risks to health or safety associated with systems and equipment. For further guidance on OH&S issues contact the Occupational Health, Safety and Compensation Branch within DPE.
- f. **Acceptance into Service** - AIS is a process that provides the framework upon which the transition of FIC to enable an option's capability outcomes can be planned and then executed. The AIS process encompasses the transition of the materiel system through acquisition and into the In-Service Phase and provides the concepts for interaction between contractors, DMO, CDG and CMs. The transition of other elements of FIC are linked to the materiel system through the AIS process in order to culminate FIC at a point in time and achieve endorsed capability outcomes. The AIS process also provides the basis for consideration of the impact of an option on the finite resources that will limit what is possible in the transition between existing systems, new or upgraded systems and the withdrawal of outdated systems. The Defence AIS process is intended to be promulgated as a Defence Instruction (General) in 2006.
- g. **Workforce Consideration** - An integral and important part of examining options to meet a capability gap is to explore the possible workforce implications and risks. The size, skill sets, training requirements and costs of military and civilian personnel are all important considerations in the acquisition of new platforms and/or weapon systems. Consultation across relevant areas of Defence is important to ensure that workforce planning issues are addressed in a timely and effective way. The DCC has mandated the use of a workforce checklist to ensure that workforce issues are adequately considered in all pre-approval stages of the capability development process. For further information and advice, contact DPE.
- h. **Legal and policy constraints** - Capability development proposals need to be tested against legal and political constraints affecting Australia's use of armed force. Examples include prohibitions on the use of land mines, and nuclear and chemical weapons. For further guidance on legal issues contact the Defence Legal Service. For guidance on political constraints contact the Strategic and International Policy Division.

- i. **Interoperability opportunities** - The ADF needs to be able to operate effectively as a joint force, and also to be interoperable with allies. 'Interoperability' means the ability of systems, units or forces to provide services to, and accept services from, other systems, units or forces and to use the services so exchanged to enable them to operate effectively together:
- (1) **Joint interoperability** - This refers to interoperability between systems, units or forces of the ADF when operating together. Joint interoperability is to be seen as an essential consideration for all ADF capability development proposals; and
 - (2) **Combined interoperability** - This refers to interoperability between systems, units or forces of the ADF and those of other countries. Combined interoperability is to be seen as an important consideration for ADF capability development proposals. The most important other country in this context is the United States. Australia and the United States have agreed to collaborate closely on capability development in support of our shared security interests. The other main countries with which Australia seeks to promote greater interoperability are New Zealand and the United Kingdom. For further guidance, contact the Office of Interoperability within CDG.
- CLOG can also provide advice on information systems interoperability.
- j. **Network Centric Warfare (NCW) Considerations** - CCDG has the responsibility, mandated by the Defence Committee (DC), of ensuring that the ADF develops into a comprehensive network-centric force. Accordingly, each unapproved project in the DCP must be integrated with all other ADF force elements in a manner that is compatible and consistent with this objective. NCW considerations are managed through the following means:
- (1) **Defence Capability Committee** - Authorises high-level implementation and coordination of NCW activities.
 - (2) **NCW Program Office** - The NCWPO provides desk officers with advice and direct assistance in integrating their project into the wider DCP NCW construct. The main tool for integration is the Defence Architectural Framework. Consequently, the NCWPO is charged with maintenance of the ADF Battlespace architecture. The NCWPO leads the NCW compliance process which oversees integration and architecture throughout the capability life-cycle.
 - (3) **Rapid Prototyping Development and Evaluation** - The RPDE program is a collaboration between Defence and Industry whose mission is to *enhance ADF warfighting capability through accelerated capability change in the NCW environment*. While RPDE tasks are generally identified to impact on current problems, they can be used in specific instances to develop and test options for First Pass consideration where solutions from normal processes are likely to be inadequate. Specific tasks for RPDE are filtered through the NCWPO and prioritised by a one star steering group. The NCWPO is the 'anchor' for RPDE into Defence and be consulted on process regarding the entry of tasks into the RPDE program. The focus of RPDE is on producing solutions that can be readily integrated into Defence. The timeframe for RPDE tasks is between 6-18 months from start to completion. Many RPDE tasks can play an important role in risk mitigation for large Defence acquisition projects.





- (4) **NCW Australian Industry Aspects** - With the development of network-centric warfare concepts, Australian industry may become more important for systems integration, both at the platform and network levels, to enable newly acquired or newly modified equipment to be interfaced into existing command and control systems and the overarching communications architecture. In general, maximising the opportunities for Australian industry participation in the provision of systems engineering and integration services is desired.

- k. **Facilities, infrastructure, and land issues** - Consideration of new or upgraded platforms or weapon systems requires consideration of possible implications for basing including modification, acquisition or disposal of associated facilities, infrastructure and/or land. Facilities, infrastructure and land also have through-life management costs which must be included in the overall capability cost. Other issues such as leasing options and costs or potential native title implications must also be taken into account when considering facilities and land issues.

Government has agreed that infrastructure consideration should be included within First and Second Pass documentation. The investment costs and lead times involved in providing associated facilities and land will have an important bearing on the whole-of-capability costs and life cycle costs of the proposed capability, the scheduling of the proposed capability, and orderly investment and development across the whole Defence portfolio.

CSIG, as the Defence Group charged with managing facilities, infrastructure and land issues (ie the Defence Estate), has developed a process to assist in defining the project requirement and capturing the through-life-costs. This process is aligned with the DCP 1st and 2nd Pass approval process and has been approved by Government. The starting point for this process is through the development of a Corporate Services and Infrastructure Requirement (CSIR) Part 1.

The Directorate of CSIG Strategic Planning (DCSP) within Infrastructure Division is the entry point into CSIG for all DCP projects. Early engagement with DCSP should occur, including invitations to IPT Meetings, to ensure all CSIG requirements are assessed and identified prior to 1st Pass Approval. Engagement with DCSP is to take place at least six months prior to 1st Pass CDB consideration to ensure appropriate CSIG processes are followed. For further guidance on the process involved to develop a CSIR Part 1, analysing facilities requirements and identifying other issues relating to the Defence estate, visit the Infrastructure Manual (IM) website <http://defweb.cbr.defence.gov.au/im/> or contact DSCP

- l. **Environmental assessment and protection** - Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) if the Commonwealth undertakes an action that has, will have or is likely to have a significant impact on the environment, it must be referred to the Department of the Environment and Heritage for consideration and possibly approval. Where a referral is not required, there may still be environmental aspects and impacts of the project that require some degree of environmental consideration and management.

Capability development proposals may have environmental impacts that need to be considered under the framework of the EPBC Act. If required, a referral under the EPBC Act can be a lengthy and complex process. Additionally, there may also be a requirement to factor in any associated environmental assessment costs into the overall project budget prior to Government consideration at First and Second

Pass . For these reasons, it is vital that environmental issues are identified and considered at the earliest stage of the planning process.

The introduction of new capability and materiel needs to be approached through an Ecologically Sustainable Development (ESD) framework. The main drivers behind ESD for Defence are:

- (1) sustainable environmental management of training areas so that they are available for the ADF in the future;
- (2) the reduction in costly remediation works and the need to minimise 'whole of life' costs in managing and operating Defence assets;
- (3) reduction in energy use and greenhouse gas emissions;
- (4) maintaining the trust of communities surrounding bases and training areas; and
- (5) Commonwealth environmental legislation that requires Defence to maintain and preserve the environmental issues of Defence land.

For further guidance, contact the Environment Heritage and Risk Branch, CSIG, or visit Defences Environment and Heritage website:

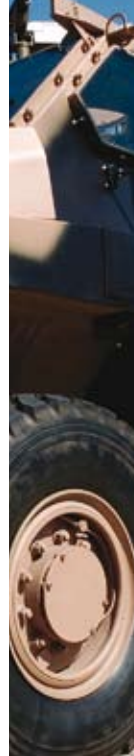
<http://intranet.defence.gov.au/environment/>

m. **Chemical Biological, Radiological and Nuclear Defence (CBRND)**

Considerations. CBRND requirements for major systems should be considered during the production of the CDD. Within the spectrum of major systems, the need to incorporate CBRND requirements may require equipment capable of being operated by personnel wearing the full individual protective ensemble and equipment that is capable of being decontaminated if exposed to CBRN Agents. Major systems should ideally be fitted for, and in some cases fitted with, CBRND facilities, such as collective protection. While acknowledging the cost-capability trade-offs, it is critical that these considerations be made, costed, and incorporated in advice to senior Committees for their consideration. Retro-fitting of CBRND capabilities to major systems is highly cost prohibitive, so design decision are essential early following consideration of the long-term capability requirements. Further guidance on CBRND Considerations is available from the CBRND Steering Committee chaired by Director General Land Division within CS Div.

- n. **Industry input** - Consultation with representatives of Australian defence industry on capability development proposals should be an integral part of the capability definition process. Appropriate consultation with industry can help clarify the range of feasible options to meet a capability need, provide information as to emerging technologies, and also provide information that will support the development of robust cost estimates. The primary mechanisms in place to facilitate this consultation are the CDAF and its subsidiary Environmental Working Groups, and the Industry Division of DMO.
- o. **Technical risk** - Many future capability options involve a degree of technical risk. This may be, for example, because of the long acquisition lead times in an environment of rapid technological change, a desire to "Australianise" an overseas commercial off-the-shelf (COTS) or military off-the-shelf (MOTS) solution, or a unique 'tailor made' solution involving the development and application of new technology.

It is important to note that the objective is not to avoid technical risk, but rather to identify and manage it, possibly through the implementation of carefully designed



risk mitigation activities. Some degree of technical risk may be necessary to optimise the solution to a given capability gap, especially in circumstances where there is a high rate of technological change, perhaps even the existence of revolutionary technological change. It is mandatory to carry out a technical risk assessment as part of the capability development process. Although DSTO provides formal endorsement on technical risk at First and Second Pass, other stakeholders such as the DMO should be consulted when considering technical risk.

- p. **Schedule risk** - Defence's experience with projects for the acquisition of MCE has shown that schedule risk is an important source of cost overruns. It may not always be possible to avoid schedule risk entirely, especially if related to technical risk, but the aim should be to minimise schedule risk. This should be done both in the interests of meeting Government expectations about projects being delivered 'on time, on budget', and also for reasons of prudent resource management (avoiding unnecessary cost overruns). DMO provides formal sign-off on schedule risk.
- q. **Test and Evaluation** - An appropriate régime of T&E can be used for managing technical risk, in particular, the risk of not meeting the user's needs, as well as schedule and cost risk. Therefore, as part of the capability definition process, it is necessary to determine the test and evaluation criteria that will be used to establish whether a particular capability option will meet the defined capability requirement.

As the capability definition proceeds, T&E will tend to become a more important part of the process. As requirements are progressively refined and the field of options narrowed, the emphasis in the capability definition process correspondingly shifts from generic options and conceptual requirements to more precise, quantitative requirements for prospective solutions. This includes developing a strategy for T&E that contributes to the management of capability risk by providing information to answer critical questions at key project milestones. The initial point of contact on T&E matters is DTRIALS (within CDG).

Testing or trials of capability options may also necessitate some form of environmental impact assessment

- r. **Simulation** - Simulation is increasingly being acquired as a capability to support ADF personnel and equipment readiness and sustainability. It is also being increasingly used to support decision making in the capability development process to evaluate capability options. The initial point of contact on simulation matters is ADSO, within CDG.
- s. **Capability and Technology Demonstrators** - In addition to its scientific research program, DSTO manages a significant program of technology development called Capability and Technology Demonstrators (CTD). Funded from the DCP, CTDs have the purpose of demonstrating the Defence capability potential of various technologies. CTD projects are sponsored by CS Div and are often related to DCP or Approved MCE projects for consideration for transition of their output into Defence capability, or to inform the development of DCP projects. All linked CTDs should be addressed when developing the First and Second Pass documentation for DCP projects. The CTD Program specifically selects technology demonstration projects, involving principally Australian industry, that have good prospects for inclusion in ADF capability development. CTD projects in existence or planned should be included within the capability options set and considered for their potential to form or contribute to an option. Further information and advice is available from the CTD Program Office in DSTO.

- t. **Intelligence** - Proposals may have intelligence implications, and these may or may not be readily apparent. As part of the capability definition process, it is necessary to consider all aspects of intelligence relating to the proposed capability. For further guidance on Defence intelligence considerations, contact DIO.
- u. **Security** - Security issues associated with proposals must be considered, as they can impact on both project budget and schedule. There may be security implications concerning project equipment, facilities and deliverables, personnel security clearances, information and communications technology systems, transmitting information between the project and industry, handling and storing classified information and releasing classified information to foreign nationals or entities. There may also be security requirements that need to be considered in the interaction between projects and contractors, including in request documentation and contracts. Projects will develop a number of documents to assist them in meeting security requirements, including a Project Identification Document and Security Classification Grading Document. For further guidance on any security issues, contact the Capability Projects and Industry section of DSA early in the project's development (DSA.ProjectSecurity@defence.gov.au).
- v. **Acquisition Strategy** - Consideration needs to be given regarding the best way to acquire the proposed new capability. This would draw together many of the individual considerations dealt with above. Defence should present the Government with all the information necessary to select a, acquisition method that maximises value for money. This includes consideration of the potential for innovative contracting options, including an assessment of the scope for private financing. The DC requires consideration of private financing at First Pass approval stage for all MCE and facilities projects. This examination should include a preliminary screening of private financing suitability in terms of operational feasibility, practicality, risk and financial validity. The Private Financing and Commercial Support Directorate in CFO can provide advice during this process. Further guidance on the role of private financing is also available from the CDG Process Map on the CDG web site.

Another consideration is the optimum level of Australian defence industry involvement both for acquisition and in-service support, and how best to secure that involvement. DMO is responsible for advice on acquisition strategies.
- w. **Obsolescence Management** - Consideration of the expected Life of Type (LOT) for the option and an assessment of the likely obsolescence risk and potential treatment options (assessment of risks and agreement on treatment options is required before contract signature, or the project budget is set, whichever is sooner. DI(G) LOG 07-19 provides the formal Defence policy for obsolescence management.
- x. **Defence Information Environment** - Consideration of new or upgraded capabilities requires consideration of the possible implications for the Defence Information Environment. For some projects, CIOG provides formal sign-off on the Defence Information Environment aspects. For further information and advice contact CIOG (Director General Information Policy and Plans).
- y. **Explosive Ordnance** - All new projects that acquire weapon systems or munitions are to make provision for an initial war reserve buy. DGCP within CDG is to be contacted for advice on the means and timing of the production of an initial buy quantity for endorsement by the War Reserve Explosive Ordnance Committee (WREOC). This should occur at least 12 months before scheduled Second Pass approval is sought.



SECTION 4-5

First Pass Documentation

Develop Capability Proposal First Pass and Supporting Documents

- 4.45 Once options have been investigated and refined to the point of submitting them for First Pass approval, CS Div personnel prepare a detailed package of covering and supporting documents. These documents consist of a 'Capability Proposal First Pass' (CPFP) and its supporting documents. The key supporting documents are:
- an Initial Business Case for each option;
 - First Pass capability cost estimates;
 - Preliminary Capability Definition Documents;
 - First to Second Pass Project Management Plan; and
 - Acquisition Strategy.

Capability Proposal First Pass

- 4.46 The CPFP, prepared by CS Div staff, is the key document presented to the DCC, upon which the DCC Agendum and subsequent First Pass Cabinet Submission prepared by CIR Div is based. The CPFP incorporates and summarises the key points of the IBCs for each option and recommends preferred options for further investigation after First Pass.
- 4.47 The content of the CPFP should therefore address:
- the project's background, including the capability gap being addressed, desired high level effects, current means of meeting the requirement (if any) and its life and any short term measure in place to meet the deficiency (if any);
 - previous Cabinet considerations including rationale for entry into the DCP;
 - relevant strategic guidance including White Paper guidance and annual strategic review determinations;
 - the proposed capability in terms of broad high level requirements and desired effects;
 - the options examined in broad detail;
 - a comparison of the options against the requirements and effects described and detailed in the earlier proposed capability section, and including acquisition costs, mature operating cost and a value-for-money assessment;
 - a summary of the risk assessment of cost, schedule, technical, environmental and workforce aspects of each of the proposed options;
 - the options recommended for further examination and an explanation of why these have been selected from the full option set;
 - how the selected recommended option will be investigated further, including the level of funding required;

- j. potential implications for Australian industry; and
- k. any DCP schedule issues, including an analysis of whether the ISD will be met by the recommended options.

4.48 It is essential that project staff have a thorough understanding of the issues within the CPFP, and are able to explain and argue (if necessary) any aspect of the capability proposal or subordinate business cases.

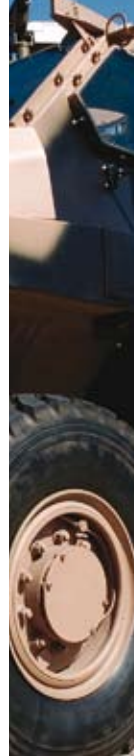
Capability Proposal Supporting Documentation

Initial Business Case

- 4.49 For each option presented to Government for First Pass consideration, there is to be a supporting IBC. In summary, an IBC should contain:
- a. an overview of the option;
 - b. an outline of the key advantages (or disadvantages) of the option (this should relate back to Defence planning guidance contingencies or planning scenarios);
 - c. schedule information for key events/decision points in the Requirements Phase, the AIS milestones in the transition through acquisition to in-service through, ultimately, to the planned withdrawal date of proposed capital equipment;
 - d. estimates and confidence levels for acquisition and through-life costs, broken down by major components of the proposed equipment/system, and contingency levels;
 - e. assessments for technical, schedule, cost, workforce and environmental risk, with endorsement of these assessments by relevant organisations in Defence;
 - f. the expected LOT for the option and an assessment of the likely obsolescence risk and potential treatment options;
 - g. any test and evaluation that could be undertaken prior to Second Pass to mitigate risk;
 - h. advice as to industry implications, including the general intent for both acquisition and through-life support. Industry implications should cover both sectoral implications and regional implications in Australia;
 - i. advice as to proposed subsequent reporting to Government on progress of the project; and
 - j. a strategy for getting from First to Second Pass approval, including studies to be carried out and funding requested to finance these studies. These requests should also include any required science and technology, modelling and simulation, test and evaluation activities and environmental impact assessments.

First Pass Capability Cost Templates

- 4.50 For each IBC presented, there is to be a completed First Pass capability cost template.
- 4.51 The Capability Development Cost Template is completed for the project for First Pass Approval. Both the Acquisition Cost Template and the NPOC Template are completed for each option for First Pass approval, and are updated again for Second Pass approval.
- 4.52 The cost templates are for presentation purposes, and are a mandatory attachment to all business cases. The cost templates are standardised spreadsheets used to present summary level cost information. These cost templates are not cost models.



- 4.53 The cost templates facilitate the presentation of cost model results by providing a standard, generic, summary level structure that is consistent with Defence core business.

Preliminary Capability Definition Documents

- 4.54 The CDD will provide the basis for agreeing the technical requirements of the proposed capability between CDG and the DMO following Second Pass approval, when these documents will provide the Capability Baseline. The CDD consist of the following documents:
- a. Operational Concept Document (OCD);
 - b. Function and Performance Specification (FPS); and
 - c. Test Concept Document (TCD).
- 4.55 The OCD and FPS form the basis for communicating End-user and other stakeholder requirements to the DMO and its suppliers, and are therefore critical documents for the CDG-DMO interface and the DMO-to-supplier interface. The TCD will communicate to stakeholders, the T&E concepts to be funded and employed to achieve assurance that the capability acquired will have the greatest potential of successfully meeting the stated user requirements
- 4.56 Preliminary versions of these documents are required prior to First Pass to support development of the IBCs and associated costs, and to provide a basis on which cost versus capability tradeoffs can be made if required. The level of detail required in these preliminary documents will be influenced by the strategic importance, complexity, technology maturity and technical risk inherent in the capability, although sufficient detail must be provided to support the development of robust business cases and well founded arguments for the level of capability being sought.
- 4.57 **Preliminary Operational Concept Document (POCD)** - The POCD is developed to provide initial definition of the Capability System needs and as such must address all the FIC elements. At First Pass the document should include enough detail to adequately capture the scope of capability need and FIC system changes. The document breath and depth must be sufficient to support the initial cost, schedule and risk assessments, initial cost capability tradeoffs and presentation of possible solutions to Government. Therefore at First Pass the scope of the document may be broad but relatively shallow in depth and content, consistent with the level of project complexity.
- 4.58 **Preliminary Function and Performance Specification (PFPS)** - The PFPS should be developed for each of the Capability Solution Options being considered which provides enough technical analysis and understanding (depth) to support the capability, cost, schedule and risk assessments required to be produced.
- 4.59 **Preliminary Test Concept Document (PTCD)** - The PTCD is submitted as part of the First Pass capability proposal and outlines the T&E strategy to be undertaken following Second Pass approval for each capability option to be considered and, if applicable for that option, the strategy for T&E between First and Second Pass. The associated resource and funding requirements are also identified. Further guidance on the development of the PTCD is provided in Section 7-4 and in the Defence CDD Guide.

First to Second Pass Project Management Plan

- 4.60 The CPFP also includes a PMP, outlining the activities required to progress the project beyond First Pass. The emphasis in this PMP is therefore on the tasks to be undertaken and products to be delivered between First Pass approval and Second Pass approval.

Acquisition Strategy

- 4.61 The Acquisition Strategy presented at First Pass provides an outline strategy on how the broader capability could be acquired beyond Second Pass (which may be different for each option) and will also consider strategies for progressing the project from First to Second Pass approval, particularly where solicitation activities are planned before Second Pass.
- 4.62 The acquisition strategy informs both Government and Defence delegates and builds their confidence that the basis for the acquisition of each capability option is well founded and will effectively support the delivery of the required capability.

SECTION 4-6

First Pass Approval


Defence Committee Reviews

- 4.63 Once the CPFP and supporting documentation for a particular capability proposal are complete, they are considered by a number of Defence committees to achieve an agreed departmental position. The committees through which these proposals pass are:
- any relevant Single Service committee;
 - the CDB;
 - the DCC and/or, depending on the size of the project, DCIC; and
 - depending on the nature of the proposal, also to the DIECMC, for projects affecting the Defence information architecture; the DISC, for projects with significant facilities (>\$4.5m), infrastructure and/or environmental, native title and heritage management implications; and/or the DPC for projects with significant workforce implications.

Single Service Committees

- 4.64 As the CM is the eventual owner/operator of the capability and related specialist military equipment in that environment, it is essential that their headquarters are consulted on the proposals that will ultimately affect them. This consultation will already be under way through the inclusion of Single Service representatives in IPTs from the beginning of the capability development project. However, it is also appropriate that there be formal Single Service consideration of the capability proposal at the First Pass approval stage (and later, too, at the Second Pass approval stage).



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- 4.65 The CS Div desk officer responsible for the project should consult with the relevant Single Service headquarters to ensure that the CPFP and supporting documentation are considered by the relevant Single Service committee for that committee's agreement. The principal concerns of the Single Service committee are whether the proposed option set for First Pass consideration will meet the requirements of that Service, the workforce implications and the estimated cost of the proposed options.
- 4.66 In some cases, it may be appropriate for a particular proposal to be considered by more than one Single Service committee, depending on the nature of the proposed capability. For example, Navy manages amphibious ships, but these ships are primarily intended to meet an Army requirement. In that case, both of those Single Service committees should agree any proposal to acquire such ships.
- 4.67 Consideration by Single Service committees would normally be conducted as part of the stakeholder endorsement process, prior to consideration of the CPFP by the CDB.

Capability Development Board (CDB)

- 4.68 The CDB is a key internal decision making and management tool of HCS and consists of HCS as Chair, the CS Div Branch Heads, Director, Capability Operations and Plans (DCOP), Director of Trials (DTRIALS), ASIA and a representative from each of DMO and DSTO. CIOG would be represented on the CDB for projects to be acquired by CIOG (ISD) and DIE projects more generally. CCDG and FASCIR are permanently invited to CDB meetings to provide advice to HCS.
- 4.69 The CDB considers all capability proposals for First Pass approval, following endorsement by relevant stakeholders and prior to consideration by higher Defence committees. The Board is a mechanism that enables HCS to ensure that First Pass documentation produced in CS Div is complete and of a standard that allows the proposals to go forward for consideration.

Higher Defence Committees

- 4.70 As indicated above, the higher Defence committees relevant to capability proposals will normally be the DCC and may also be considered by the DIEC and the DPC. For more strategic or sensitive capabilities, however, the DCIC may review the proposal prior to it being considered by Government.
- 4.71 CS Div officers need to consult with IA Branch about the precise timing, approval and documentation requirements for submitting agenda items to the DCC and DCIC. CS Div officers can consult the Governance and Committees directorate within the Coordination and Public Affairs Division (CPA Division) about the precise timing, approval and documentation requirements for submitting agenda items to other committees. Further details of these committees are available from the Committees section of the CPA Division web site on the Defence Intranet.

First Pass Approval by Government

- 4.72 Once capability development proposals for First Pass approval have been agreed by the relevant Defence committees, these proposals are submitted to Government for First Pass approval. The level at which a particular proposal requires Government approval, that is, by the Minister, the NSC, or the full Cabinet, depends on the nature and likely cost of the proposed capability.
- 4.73 The development of Ministerial or Cabinet submissions and presentation of those submissions for First Pass approval are the responsibility of Investment Analysis Branch in CIR Div. The lead times for approval are subject to the requirements of the Minister, the Cabinet Handbook and the timing of NSC and Cabinet meetings. CS Div officers need to allow a minimum of three months in their project planning to achieve Government approval beyond the Defence organisation approval.
- 4.74 Once Government has given First Pass approval to a particular project, Investment Analysis Branch liaises with CFO (First Assistant Secretary Budget and Financial Planning (FASBFP)) to release funds to DMO and other Defence groups (eg CLOG, DSTO, CSIG) to cover the cost of approved work to refine options for Second Pass approval. CS Div can also draw down funds, within budget allocation, to pursue the approved work.








Chapter 5

The Requirements Phase: First to Second Pass Approval

SECTION 5-1

Introduction

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- 5.1 As indicated in Chapter 3, the outcome of First Pass approval is Government approval of:
- the options to be explored between First Pass and Second Pass approval;
 - the options to be discarded;
 - the engagement of industry in this exploration; and
 - the funding needed in Defence to undertake the detailed analysis of the approved options, including any risk mitigation and test and evaluation required.
- 5.2 The outcome of Second Pass approval is Government approval for Defence to proceed to contract for an agreed capability solution with a defined acquisition budget, schedule and level of performance, and a budgeted whole-of-life cost.
- 5.3 This chapter outlines the process leading from First Pass approval to Second Pass approval, and consequential actions involving CDG staff. There are many similarities between this process and the process leading to First Pass approval, especially in relation to decision making bodies and mechanisms. The reader will find it useful to refer also to chapter 4, particularly the Key Consideration Checklist at paragraph 4.44, for further elaboration of features of the process that are common to both approval stages.

Focus of First to Second Pass Activities

- 5.4 Once Government has given First Pass approval to a capability proposal, the task for CS Div is to refine further the options agreed to by Government. This refined set of options is the set for which business cases will generally be developed and presented to Government at Second Pass approval, and from which them as the capability solution will be selected.
- 5.5 As in the case with lead up to First Pass approval, the project IPT is a key mechanism through which CS Div staff coordinate activities leading up to Second Pass consideration by Government. However, there are some distinctive features of the investigative and analytical effort leading to Second Pass approval, compared with First Pass approval. In the Second Pass approval stage:
- the effort in CS Div is more concentrated on a the specific options endorsed by Government at First Pass (compared with the much broader approach leading up to First Pass approval);
 - there is a strong emphasis on producing detailed and robust estimates of both acquisition costs and sustainment costs;
 - there is a strong emphasis on *refining and specifying the operational performance requirements* to meet the capability requirement and how testing will be performed to evaluate this performance against the capability requirement;

- d. there is a strong emphasis on producing *detailed and robust workforce estimates*. The risks to achieving these requirements are identified and, where appropriate, mitigating strategies are detailed;
 - e. there is a strong emphasis on undertaking a detailed technical risk assessment of the specific options being considered;
 - f. there is a strong emphasis on refining the FIC transition strategies into plans that support the culmination of FIC at key release milestones in the AIS process; and
 - g. the proposed acquisition strategy, including scope for defence industry involvement, is considered in detail. Opportunities for defence industry to participate actively in the development and/or sustainment of the proposed capability are explored in depth.
- 5.6 First pass approval may also have included agreement to conduct specific studies and capability risk management activities to help develop and cost the options approved for further examination. Funding for conducting the studies and activities will also have been approved at First Pass, brought forward from funds earmarked for the acquisition of the capability, up to 10 per cent of the estimated project cost.
- 5.7 These studies and activities may include, for example, studies by DSTO or defence industry to help specify the performance requirements of a proposed solution, to assess technical risk, to model and analyse workforce factors, to understand environmental impacts, or to estimate costs. Another example could be studies conducted by CSIG (with an industry panel member) to analyse the related infrastructure requirements and develop a Strategic Business Case for infrastructure support and services, which would be included in the Second Pass approval documentation. These studies should be considered early to ensure risks to budgets and timeframes are minimised.
- 5.8 Funding may also be required for work to be undertaken by CIOG to determine how the DIE is affected and may need to be modified.
- 5.9 Although the amount of time for a proposal to pass the various steps of the Requirements Phase will vary from project to project, a rule of thumb is that the time taken to move from First Pass approval to Second Pass approval is around two years.



Section 5-2

Industry Solicitation

Pre Second Pass

Principles for Solicitation

- 5.10 During the First to Second Pass stage there is a strong emphasis on producing detailed and robust acquisition and sustainment cost estimates. Depending on the nature and complexity of the capability, it will generally be necessary to solicit formal quotations and estimates from Industry prior to Second Pass approval.
- 5.11 The DMO has the expertise and responsibility for handling solicitation activities, and will take the lead role with CS Div providing support and coordinating FIC issues as appropriate. Arrangements for the conduct of these activities will be a major element of the Second Pass MAA, which may require update and or amendment prior to the commencement of any solicitation activities.
- 5.12 The decision to undertake solicitation activities is to be made with due and appropriate consideration to industry, given the costs and timelines involved.

Planning Solicitation

- 5.13 **Acquisition Strategy.** Each capability option proposed for First Pass consideration must be accompanied by an acquisition strategy. Each Acquisition Strategy will:
 - a. detail the procurement approach, including details of the sequence of procurement activities and stages (if applicable) and when the procurement activities will take place;
 - b. explain how the procurement approach will maintain competition; and
 - c. outline the tender evaluation approach.
- 5.14 **Staged Procurement:** Staged procurement involving separate and sequential solicitations (eg Invitation to Register Interest (ITR), Request for Proposal (RFP) or Request for Tender (RFT)) with down selection at each stage lengthens the procurement timeline and is to be used judiciously and commensurate with the complexity, risk and the prevailing market conditions for the procurement.
- 5.15 **Direct Sourcing:** Direct sourcing is a procurement method which is to be used judiciously and should only be considered when competitive procurement methods are demonstrably neither effective nor practicable. The Commonwealth Procurement Guidelines 2005 prescribes strict conditions for direct sourcing that must be satisfied. The CPFP (through the Acquisition Strategy) must have justified a direct sourcing method, seek its endorsement from Government and provide means for the Commonwealth to maintain its bargaining position.

- 5.16 **Option Refinement:** The type of industry solicitation necessary to support option refinement must take cognisance of cost of tendering and the practicality of seeking and obtaining quality proposals from companies against the range and diversity of cost-capability tradeoffs to be investigated.

Development and Clearance of Solicitation Requests

- 5.17 **Pre-Solicitation Baselining.** Prior to the finalisation of Solicitation documentation, capability and acquisition documents are to be baselined. This includes the CDD, Acquisition Strategy and Acquisition PMP. Appropriate endorsements and approvals of these documents will be required prior to the release of solicitation documentation. Note that these documents will be updated and rebaselined following source evaluation and selection.
- 5.18 **Consultation:** Solicitation documents are to be developed in consultation with CDG to ensure that capability options and costs are sought in a manner that supports progression of First and Second Pass submissions to Government. HCS, FASCIR and the respective DMO Division Head's clearance and, where appropriate DMO General Counsel, is to be sought prior to the release of RFTs and RFPs.
- 5.19 **Authority:** The DMO is the authoritative agency for the development and release of solicitation requests.

Tender Evaluation

- 5.20 The tender evaluation approach is to be based on reducing the cost of tendering, maintaining competition and facilitating the rapid extraction of cost-capability issues and other significant considerations that enable development of Second Pass submissions to Government. RFTs should be structured to facilitate this.

Source Selection

- 5.21 Source selection is not to be finalised until Government has provided Second Pass approval. Contract award is contingent on Second Pass approval.



SECTION 5-3

Second Pass Documentation

Develop Capability Proposal Second Pass and Supporting Documents

5.22 This step is broadly similar to that of developing the Capability Proposal First Pass. The proposals to be considered by Government at Second Pass are described in a 'Capability Proposal Second Pass' (CPSP) and its supporting documentation. The key supporting documents are:

- a. an Acquisition Business Case for each option;
- b. Second Pass capability cost estimates;
- c. Capability Definition Documents;
- d. Acquisition Project Management Plan (APMP); and
- e. Acquisition Strategy.

5.23 At the Second Pass approval stage the emphasis is not just on what capability is to be acquired, at what cost and when the capability will come into service. There are also important issues about how the proposed capability will be acquired and introduced into service. These issues may relate to such things as the level of Australian industry involvement, intellectual property issues, through-life support and impacts on regional economic development in Australia, and how the transition to the new capability will be managed. A failure to address these issues within the CPSP and supporting documentation may delay the achievement Second Pass approval.

Capability Proposal Second Pass

5.24 The CPSP, prepared by CS staff, is the key document presented to the DCC, upon which the DCC Agendum and subsequent Second Pass Cabinet Submission prepared by CIR Div is based. The CPSP incorporates and summarises the key points of the ABCs for each option and recommends a preferred option to be acquired.

5.25 The content of the CPSP should therefore address:

- a. the project's background, including the capability gap being addressed, desired high level effects, current means of meeting the requirement (if any) and its life and any short term measure in place to meet the deficiency (if any);
- b. previous Cabinet considerations, in particular the outcomes of the First Pass consideration such as options approved and industry solicitation endorsed;
- c. relevant strategic guidance including White Paper guidance and annual strategic review determinations;
- d. the proposed capability in terms of broad high level requirements and desired effects;
- e. the options examined in broad detail;

- f. a comparison of the options against the requirements and effects described and detailed in the earlier proposed capability section, and including acquisition costs, mature operating cost and a value-for-money assessment;
- g. a summary of the risk assessment of cost, schedule, technical, environmental and workforce aspects of each of the proposed options;
- h. the option recommended for acquisition and an explanation of why this has been selected from the option set;
- i. how the selected recommended option will be investigated further, including the level of funding required;
- j. potential implications for Australian Industry; and
- k. any DCP schedule issues, including an analysis of whether the ISD will be met by the recommended options.

5.26 As for the CPFP, it is essential that project staff have a thorough understanding of the issues within the CPSP, and are able to explain and argue (if necessary) any aspect of the capability proposal or subordinate business cases.

Capability Proposal Supporting Documentation

Acquisition Business Case

- 5.27 For each option presented to Government for First Pass approval, there is to be a supporting ABC. In summary, an ABC should provide:
- a. an overview of the option;
 - b. an outline of the key advantages of the option (this should relate back to Defence planning guidance contingencies or planning scenarios);
 - c. schedule information for key events/decision points in the Requirements Phase, the AIS milestones in the transition through acquisition to in-service through, ultimately, to the planned withdrawal date of proposed capital equipment;
 - d. detailed estimates and confidence levels for acquisition and through-life costs, including source of both costs, contingency levels, financial spend-spreads, a brief outline of the major items to be acquired, gross and net operating costs, and affordability within current departmental provisions;
 - e. assessments for technical, schedule, cost, workforce and environmental risk, with endorsement of these assessments by relevant organisations in Defence;
 - f. the expected LOT for the option and an assessment of the likely obsolescence risk and potential treatment options;
 - g. advice as to industry implications, including the general intent for both acquisition and through-life support. Industry implications should cover both sectoral implications and regional implications in Australia; and
 - h. advice as to proposed subsequent reporting to Government on progress of the project.

Second Pass Capability Cost Templates

- 5.28 For each ABC presented, there is to be a completed Second Pass capability cost template. These templates will detail the Acquisition and NPOC estimates as refined from the respective First Pass cost estimates. The costs will generally be based on industry responses from solicitation conducted during the Second Pass activities.



Refinement of Capability Definition Documents

- 5.29 As discussed in Chapter 4, preliminary CDD documents will be developed for First Pass approval. These documents need to be refined and further developed for the specific options endorsed at First Pass.
- 5.30 **Operational Concept Document.** The OCD builds on the POCD developed during the First Pass stage (see Section 4-5). The OCD must support the detailed cost, schedule and risk assessments and any final cost capability tradeoffs presented to Government. The OCD will therefore be much more detailed than the POCD presented at First Pass.
- 5.31 Explosive ordnance requirements including proposed outfit, in-service usage and initial war reserve holdings are to be developed in conjunction with DGCP and endorsed by the War Reserve Explosive Ordnance Committee.
- 5.32 **Function and Performance Specification (FPS).** The FPS should be developed for each of the options being considered and provide detailed technical analysis and understanding (depth) to support the capability, cost, schedule and risk assessments required for Second Pass.
- 5.33 **Test Concept Document (TCD).** As for the OCD and FPS, the TCD submitted for each option at Second Pass must support the relevant capability, cost, schedule and risk assessments, and outlined the T&E strategy to be undertaken following Second Pass approval for each capability option. The associated resource and funding requirements are also identified in support of the detailed cost estimates provided in the ABCs.
- 5.34 Different documentation may be required for projects acquired by CIOG (Information Systems Division). For further information and advice contact CIOG (Director General Information Policy and Plans).

Acquisition Project Management Plan

- 5.35 The APMP is crucial to the management of the project throughout the Acquisition Phase, and is to be prepared by the DMO prior to Second Pass. This document will help the DMO to:
- achieve desired targets;
 - obtain the resources needed to achieve the targets within a timeframe;
 - give guidance to all project staff, stakeholders and contractors where applicable; and
 - gain commitment from the Project Management Stakeholder Group.
- 5.36 The detail in this plan will vary according to the size of the project and where the project is in the capability life cycle.

Acquisition Strategy

- 5.37 The intent of the Acquisition Strategy presented at Second Pass is to ensure that there is a common understanding of why a specific strategy is proposed from the range of possibilities available. It is developed from the Acquisition Strategy developed for First Pass and will show how the proposed acquisition strategy delivers value for money and that sound management and review will be applied to the acquisition in accordance with the legal and policy framework for Defence and Australian Government procurement.

- 5.38 As for First Pass, the acquisition strategy informs both Government and Defence delegates and builds their confidence that the basis for the acquisition of each capability option is well founded and will effectively support the delivery of the required capability.

SECTION 5-4

Second Pass Approval

Defence Committee Reviews

- 5.39 Once the Capability Proposal Second Pass and supporting documentation are completed, CS Div passes these papers through the same approval process by Defence committees as occurs at First Pass approval (see Section 4-6 Defence Committee Reviews).

Second Pass Approval by Government

- 5.40 Once capability development proposals for Second Pass approval have been agreed by the relevant Defence committees, they are submitted to Government for Second Pass approval. This process is the same as that described for First Pass (see Section 4-6).







Chapter 6

CDG's Role in the Acquisition Phase

SECTION 6-1

Introduction

- 6.1 CDG's involvement in the capability lifecycle does not end at Second Pass approval. Whilst DMO has responsibility for the Acquisition Phase, CDG plays an important role in transitioning a project to the DMO and managing the Capability Baseline.
- 6.2 CDG is also responsible, in conjunction with the CM, for monitoring the performance of DMO as a prescribed agency and for monitoring and assisting in the coordination of FIC elements not managed by DMO to ensure that the endorsed capability states (IOC, FOC as appropriate) are achieved in accordance with the direction provided by Government at Second Pass. The context within which CDG executes this involvement is that provided by the Defence Acceptance into Service (AIS) Process which is described in Section 7.

SECTION 6-2

Transition to the DMO following 2nd Pass Approval

- 6.3 The complexity of transitioning a project to DMO will depend heavily on Government's approval at Second Pass and the extent of changes made to the project's budget, scope and/or schedule (if any). Any changes in these areas will have to be reflected in one or more of the CDD, Acquisition Strategy, APMP or MAA so that the project can be properly baselined prior to formal acceptance by the DMO.
- 6.4 Once the project has been accepted by the DMO, CS Div will prepare a Requirements Phase Closure Report to summarise the status of the Project at the point where DMO accepted responsibility for it. The key areas to be addressed with this report includes a summary of changes to the capability requirements from DCP Entry to handover to DMO, and any lessons learnt in developing the capability proposal and having it endorsed by Government.

Establishing the Capability Baseline

- 6.5 The Capability Baseline is established within the Acquisition Phase MAA through the OCD, FPS and TCD. As discussed previously, these documents provide the materiel requirements and testing framework that the DMO is being asked to deliver and comply with respectively. As such, the Capability Baseline provides the materiel scope of the project and is not to be confused with the Acquisition Baseline, which is established by the DMO and includes (in addition to the CDD) the APMP and

Acquisition Strategy which normally provide the cost and schedule parameters for the project. The Acquisition Baseline will also usually contain additional information over and above that contained in the Capability Baseline, such as compliance with standards and regulations and the identification of GFE etc.

- 6.6 Once the Capability Baseline has been agreed, any changes to the requirements within must be agreed by appropriate CDG delegates, in conjunction with the CM, prior to the DMO amending the Acquisition Baseline. This will ensure that CDG staff can impart their “war fighter” knowledge on any proposed changes and can also monitor the achievement of the capability aspects of the project and, in the case of the CM, to ensure that the changes will not adversely impact on their ability to close the capability gap.

SECTION 6-3

CDG Monitoring and Change Control Activities

Monitoring DMO Performance

- 6.7 The key governance mechanisms that allow CDG to monitor the health and progress of a project in the DMO are:
- a. representation on the DMO Project Management Stakeholder Groups (PMSG) for the individual projects;
 - b. formal reporting of the progress of each project through monthly MAA reporting; and
 - c. executive level overview reporting of the DMO's performance to the Defence Committee.
- 6.8 Materiel Acquisition Agreement (MAA) Reporting. MAA normally contain provisions for monthly reporting of key project performance measures as indicators of a project's overall health. The performance measures fall into four categories:
- a. Project Costs and Budgets;
 - b. Schedule;
 - c. Key Capability Measures / Measures of Effectiveness; and
 - d. Customer Furnished Supplies (These are ‘supplies’ that CDG coordinates in order to ensure that the project progresses smoothly. It might include access to units and bases to develop detailed user requirements or the provision of a military unit during test and evaluation activities).
- 6.9 DMO provides a combination of individual project reports, summary reports for each environmental division, and a financial overview of all projects.



Managing Changes to the Capability Baseline

- 6.10 It would be unrealistic to assume that the Capability Baseline will not change throughout the Acquisition Phase. Changes to the Capability Baseline may result from any number of actions, including:
- a change to Defence's strategic goals and priorities;
 - optimistic or 'cutting-edge' requirements not being realised; or
 - changes in scope to ease cost and/or schedule pressures or as a result of variations proposed by the Contractor once in contract (during design, development or production).
- 6.11 Whilst it is accepted that they will occur, such changes should be minimised, appropriately justified and properly managed so that the performance of the delivered capability, and of all parties involved in that delivery, can be properly measured. CDG and CM representation on DMO IPTs and PMSGs will also facilitate awareness of the status of potential and current amendments.
- 6.12 When considering changes to the Capability Baseline, it is critical that the impact of the changes be measured in terms of scope, cost and schedule. An inability to manage these aspects has often led to poor performance of Defence projects in the past.
- 6.13 Additionally, where a proposed change will require an increase in the project's approved budget (a Real Cost Increase), the impact on the DCP must be considered. Real Cost Increases to cater for scope changes can generally only be provided from the DCP - any increase to one project will therefore be funded by reducing an unapproved project.
- 6.14 As discussed in the previous section, all changes to the Capability Baseline must be endorsed by CDG, in consultation with the CM, prior to the DMO approving any Engineering Change Proposal which will impact the baseline agreed under the MAA.

SECTION 6-4

Acceptance into Service

- 6.15 CDG's role in a project's T&E program is as a facilitator to assist in ensuring that the results of T&E are timely and relevant for the task of informing critical milestone decisions. Specific areas where CDG can facilitate positive outcomes are as follows:
- Facilitate the involvement of the T&E Authority or Authorities** - Although the project T&E authority will manage the overall T&E program, it may be necessary to assist with such things as trial requests (including the development of trial aims and objectives) and test agency involvement (they do data collection etc rather than trial management and reporting) particularly across service boundaries (Note: this is also a DTRIALS responsibility if involved). This may best be achieved through involvement in T&E working groups;

- b. **Facilitate the involvement of the Environmental Technical Authority or Authorities** - Evaluation and endorsement may be required by the Environment Technical Authority to ensure that any agreed environmental approval conditions (from either an internal Environmental Clearance Certificate or an approval by the Minister for Environment and Heritage) have been met;
- c. **Ensure that test plans adequately address the Capability Baseline** - In order for the T&E program to be successful, it is imperative that the test plans address the requirements of the Capability Baseline, as modified throughout the Acquisition Phase. This reinforces the importance of CDG approving any changes to the baseline documentation as discussed in the preceding section;
- d. **Facilitate participant involvement in OT&E activities** - It may be necessary to support the T&E Authority in the identification and release of suitable units/users and the training of users and support personnel (eg: maintainers); and
- e. **Address capability shortfalls or “bonuses” with the DMO and CM** - After analysis of the results of the OT&E program the T&E Authority reports to the CM on the ability of the capability system to meet the endorsed capability state (IOC/FOC). The T&E Authority's report and recommendations are considered by the CM in his/her decision to release the capability system for operational employment. Where the capability system has not achieved the endorsed capability state, CDG will facilitate the review of factors impacting operational release and, in conjunction with the CM and relevant organisations, develop options to manage the capability shortfall in the interim and remedy the shortfall in the longer term. Conversely, T&E may show that the expected level of capability has been exceeded and that other opportunities exist to utilise the capability in scenarios not previously considered or thought possible. CDG will then work with the CM to analyse these opportunities and consider the impact on any other capabilities, whether in service or under development.

Note: The results of T&E can be used for more than assessing the performance of the capability system against the Capability Baseline. For example the Navy's T&E Authority (RANTEAA) will usually investigate the system's performance against “current” operational scenarios, which may include requirements not considered during the development of the Capability Baseline. CDG Staff need to be aware that any shortfalls identified against current operational scenarios may not in fact be shortfalls against the Capability Baseline.



SECTION 6-5

Business Case Closure

- 6.16 Following operational release of the final operational capability and Project Closure, CDG must close the Business Case. The Business Case Closure Report (BCCR) will provide a summary of the project at the point where the Capability Manager has operationally released the final operational capability and DMO has produced its Project Closure Report.
- 6.17 The objective of the BCCR is to:
- a. outline any differences (and the associated approvals) between the Capability Baseline at FOC and the capability approved for DCP Entry (noting that the DMO Project Closure Report should trace changes to the Capability Baseline from acceptance following Second Pass to FOC);
 - b. detail any outstanding action to address the inability of the capability system to meet the endorsed capability state (IOC/FOC) and identify shortfalls against current operational scenarios not captured within the Capability Baseline; and
 - c. detail any Lessons Learnt from a CDG / CS Div Desk Officer perspective.
- 6.18 The DMO's Project Closure Report should be included as an annex to the BCCR, providing a detailed account of the Acquisition Phase of the Project, whereas the CDG's BCCR will summarise the Project's development throughout both the Requirements and Acquisition Phases.



Chapter 7

Issues in Capability Development

SECTION 7-1

Introduction

- 7.1 In working through the various steps that collectively make up the two pass capability proposal process, CS Div staff need to engage with a number of specialist areas within the CDG. The need for these specialist areas arises because of the complexity of much of the capability definition process and the need for CDG to maintain and improve technical proficiency in certain skill areas.
- 7.2 This chapter provides an overview of a number of these specialised areas of knowledge. While there are references to these specialised areas in the preceding chapters, especially chapters 4 and 5, it is helpful for staff of CS Div to have an understanding of the contribution of these important areas to the capability development process more generally.
- 7.3 The specialist areas covered in this chapter are:
- a. the development of cost estimates;
 - b. the role of Science and Technology;
 - c. Test and Evaluation;
 - d. Acceptance into Service;
 - e. simulation in capability development;
 - f. the Defence Information Environment;
 - g. Network Centric Warfare; and
 - h. preparing Capability Roadmaps.

SECTION 7-2

Development of Cost Estimates

- 7.4 As discussed in previous chapters, all proposals for MCE are to include estimates of total acquisition and whole-of-life costs. These estimates are integral to the business cases for First and Second Pass and the DCP, which is a subset of the DMFP.

Components of Funding to Defence

- 7.5 Every major capital acquisition will be funded from three sources:
- a. a one-off injection of capital funds,
 - b. harvest of funds allocated to operate the current capability, and
 - c. allocation of operating funds to operate the new capability.

- 7.6 This means that the net impact on Government finances occurs in two parts:
- an allocation of new capital, and
 - a supplementation to the ongoing annual costs already being funded (if a precedent to the new system exists).
- 7.7 Both allocations have quantity and time dimensions and will only be allocated in the year corresponding to when expenditure is expected to be incurred. Cost estimates, which will become part of Government's future budgets, must be spread across future years as a reconciliation of supply, ie where Treasury anticipates funds being available; and demand, ie where Defence prefers certain capability changes to occur.

Characteristics of Cost Estimates

- 7.8 Two things are sure about cost estimates:
- Cost estimates are always wrong.** The magnitude of the error will vary and, given a stable project scope, reduce as risks are realised or removed and the estimate is updated. Early in a project's life cycle certain risks may dictate low confidence in a particular cost element and this may be acceptable to the Government. Later in the approval process finer tolerances will be sought as Government's expectations solidify. Ideas and concepts will migrate from the realm of expositions into the realm of commitments; and
 - Even when cost estimates are "correct", they remain volatile.** Government will exercise its discretion to prioritise investment within a project or across the DCP from time to time. A change in an underlying assumption will require modifications to be made to any cost estimate. Hence the vulnerability of a business case is set by its least dynamic component.

Hallmarks of a Good Cost Estimate

- 7.9 With these dynamics in mind, all project cost estimates must exhibit four hallmarks:
- Currency.** The information which CDG produces must be configured to allow Government to exercise its discretion at both project and program level. Cost estimates must incorporate new information rapidly to enable a coherent business case to be articulated on a continuous basis. This may not coincide with plans to complete decision support products, such as OCD, TCD, PMP and Cost Estimates, to an agreed standard in time for the next Committee milestone. Regardless, those products as a whole must be collectable at short notice. Cost estimates must be a responsive component within an agile set of decision support products that comprise the business case, resolvable-at short notice-to a baseline argument that is internally consistent;
 - Coverage.** Estimates are presented in the CCDG/CFO agreed format. This breakdown structure and its associated data dictionary (Guide) are compiled to best reconcile the interests of key contributors to the business case including project executive (CDG), project supplier (DMO and other relevant Groups) and project user (CM). Use of the format gives some assurance against duplication. While omissions are inevitable, especially in a project's early phases, cross reference to the FIC construct will increase the chance that the most significant implications of a change to capability and the associated fiscal demands changes are factored into the estimate sooner rather than later;



- c. **Traceability.** Cost estimates rely on the input of many contributors and will be subject to detailed and ongoing review. Every cost element must have an auditable cost basis. Even the admission that an element relies on guesswork is important in distinguishing what aspects of the estimate are repeatable and still reliable, and therefore supportable, from those which require further analysis or re-certification before a decision can be made; and
- d. **Logic.** The numbers in a cost estimate are only half of the story. How these numbers arise or are derived from a given set of assumptions can be a matter of expert judgement, but is more often challenged during review on simple matters of internal consistency. For example, a budget for five years of project staff must reflect an intent to deliver over five years or, less obviously, must be reconcilable to a project management plan showing five years from First Pass to final operational capability or project closure. Common sense cannot be assured so method must be recorded.

7.10 These hallmarks are elaborated in checklists for analysis used by CIR Div.

Designing for Usability

7.11 The generic life cycle costing process AS/NZS 4536:1999 *Life Cycle Costing - An application guide* captures key aspects of LCC Analysis in Defence.

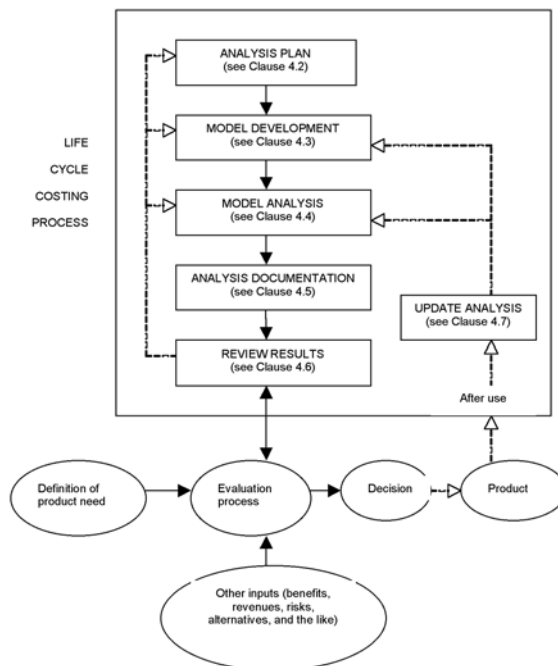


Figure 7-1: The Life Cycle Costing Process

- 7.12 Clause 4.2 of the standard specifically requires that an analysis plan must be compiled to ensure that the user's "needs have been correctly interpreted and clearly addressed." The Cost Estimation Team within CS Div designs-and for some First Pass projects completes-cost estimation work for initial and acquisition business cases to CIR Div's requirements.
- 7.13 Step One is the Preliminary Design with the Project Sponsor. This establishes:
- what information is available to support the estimating activity,
 - the strengths and weaknesses of any extant estimates,
 - what Subject Matter Experts (SMEs) will contribute to the activity, and
 - what endorsement trail will be prepared to certify the SMEs analysis.
- 7.14 Step Two is the Critical Review with Cost Analysis Branch within CIR Div. This establishes a common expectation of improved fidelity at the next decision milestone. Some cost elements will be examined in detail and an accurate estimate documented. Improvements in the other elements may not necessarily be pursued, perhaps due to resource limitations, short decision deadlines or unresolved issues in the capability baseline.
- 7.15 Step Three is the Product Review. This is the independent review of information compiled in the actual cost estimation activity by the IPT. The Product Review establishes a Departmental view on the project cost estimate suitable for external circulation and incorporation into Government budget estimates.

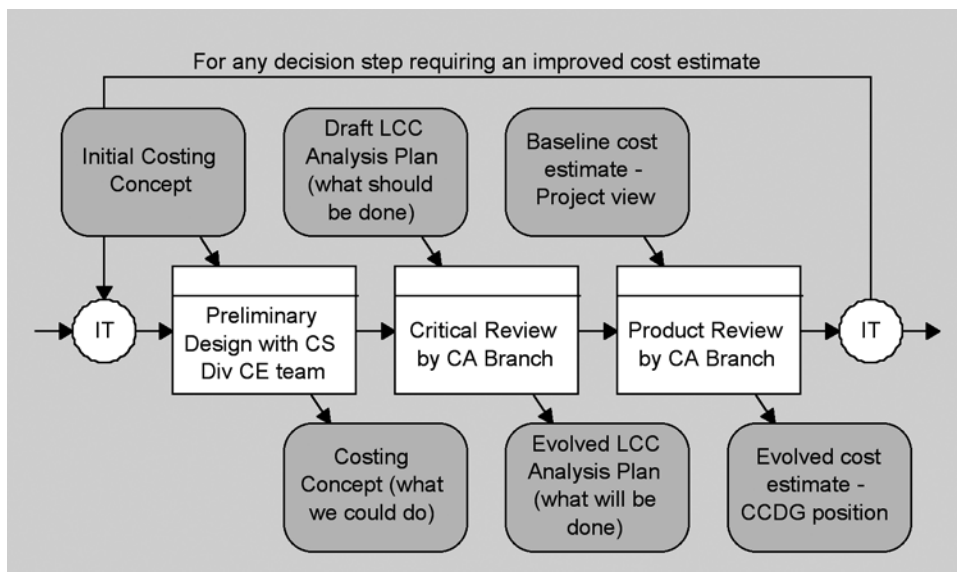


Figure 7-2: Generic Cost Estimation Process

- 7.16 This sub-process seeks a cost estimate that is made fit for purpose within that portion of resource-time and money-allocated by the relevant CS Div Branch Director.

SECTION 7-3

Science and Technology (S&T)

- 7.17 DSTO provides specific advice for major acquisition projects, with respect to analysis of the options, the technological feasibility, maturity and overall technical risk associated with the project. This section addresses how the involvement of DSTO through both the Needs and Requirements Phases of the capability life cycle will facilitate the delivery of this advice. In particular, the process and procedures for assessing technical risk should be based on the fundamental principles that they:
- a. be consistent with the capability development cycle;
 - b. be based on recognised schema of technology readiness levels, which provide a convenient method of expressing basic information that contributes to the overall assessment of technical risk;
 - c. be based on principles espoused in AS/NZS 4360:2004 (eg: the linking of likelihood and consequences and the definition of risk analysis given in that standard); and
 - d. take account of systems issues (integration, implementation, etc.).

Entry to the Defence Capability Plan

- 7.18 DSTO has considerable analytical experience to contribute to a number of activities and studies that may be undertaken to support entry of a project into the DCP. In the first instance, assistance with the development of a framework could be provided that would facilitate a structured examination of the assumptions made in the identification process of capability gaps within the DCS. Further work may include strategy to task analysis comprising force projection and force employment studies that would allow qualification and quantification of a capability gap. Participation in the capability analysis workshop activity to provide input to the DCS could also be expected. Due to their co-location with the CDG, it is anticipated that DSTO Defence Systems Analysis Division staff would lead early analysis and coordinate the participation of other appropriate divisions.

First Pass Approval

- 7.19 Following formal recognition of the existence of a capability gap, by its entry in the DCP, the next step is to identify options to address that gap. DSTO has expertise in many areas of military systems and related technologies, and will be able to bring this expertise to bear when suggesting options for consideration. Additionally, DSTO can assist with the identification of these options by assisting with the formulation of questions to be asked of industry and identifying related issues that might need to be addressed. DSTO can also assist the review of information supplied by industry.
- 7.20 Once the list of options has been agreed and information assembled, DSTO will be in a position to bring together its operations research expertise and subject matter experts in many systems and technology areas to analyse the contribution of these options to addressing these gaps. It will normally be possible, for example, to quantify

the contribution of various options and thus identify options that provide a minimum acceptable level of capability. These studies would be carried out in conjunction with Service operational staff and Investment Analysis Branch staff to ensure stakeholders' views are considered, and to ensure wide-ranging ownership of the results.

- 7.21 A technical risk assessment should be presented for each option. Where appropriate, DSTO should take responsibility for the provision of this assessment for each option. At First Pass approval, this assessment will focus on the feasibility of the technology proposed and would be particularly important for effects-based projects where a broad initial option set is presented. DSTO will address the level of maturity of the technology and advise on its availability and overall effectiveness, given the time scales proposed for the introduction of this capability. The technology readiness level methodology will be used as a vehicle for expressing basic technology readiness information, and will contribute to the overall assessment of technical risk.
- 7.22 The information derived from the studies and assessments discussed above will contribute in various ways to the project documentation, including:
 - a. The CPFP will address the proposed capability in terms of high level requirements and desired effects. Operations research and specific operational performance advice will contribute to this discussion;
 - b. The CPFP will include a high-level overview of the risk associated with the cost, schedule and technical aspects of the options. DSTO will assist in the assessment of technical risk, and will also assist in the integration of that information into the CPFP;
 - c. The CPFP will include statements addressing the selection of the preferred option, and the funding needed to investigate that option further. DSTO will be able to contribute to the development of these statements;
 - d. Each Annex to the CPFP will form an IBC for a particular option, and will address the methodology to be used during Second Pass, including the undertaking of risk assessments and other studies. DSTO will be able to advise on the extent to which DSTO resources can be used and on the need to engage industry expertise. The Annex will also address the technical risk assessment and implications of those results;
 - e. The Annex will include estimates of acquisition and operating costs. DSTO could advise on any peculiar aspect of an option that might increase costs, for example, through the adoption of particular operational or maintenance procedures;
 - f. The Annex will address the potential contribution of Australian Industry and the possible need to provide follow-on support for the option. DSTO has intimate knowledge of most technologies used in the ADF and will be able to advise on the engagement of industry and on the advice proffered.

Intermediate Decision Points

- 7.23 The results of DSTO studies, technical risk assessments and other S&T advice will form an important input to the Government's deliberations on reducing the range of options to a manageable set, if not to a single option, for detailed analysis.



Second Pass Approval

- 7.24 Preparation for Second Pass approval will focus on rigorous assessment of the remaining available options agreed to by Government for further detailed consideration. This assessment will include the solicitation of information from industry, the development of specifications particularly those in crucial areas of operational performance, the development of tender documentation, and the evaluation of tender responses. The assessment will also include the identification and execution of risk reduction activities that might involve both DSTO and industry, and the preparation of statements of technical risk.
- 7.25 DSTO may have specific data requirements for conducting supporting studies for a project, or it may request specific information be delivered by industry better to understand technical risk and develop risk mitigation strategies. Therefore, DSTO should be involved in activities such as the development of tender documentation that facilitates access to such data.
- 7.26 The nature of the assessments of technical risk will be different from those developed for First Pass approval. The focus during Second Pass approval will be on the maturity of the proposed technology and the operation of the system as an integral part of the ADF. DSTO advice will contribute to project documentation in the following ways:
- The CPSP will address the proposed capability in terms of high-level requirements and desired effects. This advice will be based in part on DSTO analysis;
 - Annexes to the CPSP will form the ABCs for each option and will detail relevant operational performance and technical risk assessments. Also included will be proposals for risk mitigation that might involve DSTO either in undertaking particular research or in managing research undertaken by industry;
 - Significant DSTO contributions can be expected for the OCD, FPS, and T&E Plan. DSTO will also contribute to the PMP.

Formal Endorsement on Technical Risk Assessment

- 7.27 DSTO has a responsibility to review all technical risk assessments, whether they are generated within DSTO or through a joint effort with industry. The review is undertaken on behalf of the Chief Defence Scientist, who has responsibility for endorsement of all technical risk statements for all projects at First and Second Pass approval. The contribution of relevant CTDs will form part of DSTO's review or generation of technical risk assessments.

Capability and Technology Demonstrator Program

- 7.28 Through its CTD Program Office, DSTO manages a large program of technology development with Australian industry that have the purpose of demonstrating the Defence capability potential of various technologies. CTDs have the additional purpose of seeding technology development in Australian industry and assisting them to position themselves as long term technology suppliers and supporters for the ADF. From 1998 until 2005, over \$140m has been invested in 50 CTD projects, the majority of which are linked to either existing MCE or DCP projects.

- 7.29 All CTD projects are sponsored by CDG in much the same way as DCP projects, to ensure their relevance to the capability development process. In the formulation and examination of options for new Defence capabilities, all linked CTDs should be considered. CTDs will provide considerable practical insight into some technologies, particularly regarding their potential capability, costs and risks. The output of the CTD projects will at least inform capability development, with some also being suitable for further development towards production items as capability options, or components of a capability option.
- 7.30 The inclusion of CTD outputs in capability options will require consideration in the IBC of their impact on acquisition, through-life support, and regional and sectoral Australian industry implications. In refining the options set for Second Pass approval, the consideration of Defence industry involvement and development of the proposed acquisition strategy will have to address the use of CTD outputs from Australian industry. Consideration may also have to be given to the inclusion of a small development phase to bring CTD outputs to a production configuration to allow them to be included or considered for inclusion in the capability.

How to Contact DSTO

- 7.31 Each project will have an appointed Project S&T Adviser. The Project S&T Adviser is responsible for providing coordinated S&T advice and assistance to the project. The Adviser can be reached through the staff in the Major Projects Support Office or the Studies Guidance Group of DSTO in Russell Offices.

When To Contact DSTO

- 7.32 The Project S&T Adviser should be contacted as soon as possible to establish communications between the desk officer/integrated project team (IPT) member and the Project S&T Adviser and other lead S&T experts. Early contact will facilitate the development of a comprehensive Project S&T Plan, leading to the development of a Technical Risk Assessment and other S&T deliverables. DSTO is represented on all IPTs.
- 7.33 The aim of capability planning is to develop and maintain the most cost efficient and operationally effective mix of capabilities to achieve the Australian Government's strategic objectives. Active and timely use of S&T support services can significantly enhance the operational and cost effectiveness of capabilities delivered to Government.



SECTION 7-4

Role of Test and Evaluation

T&E Policy and Guidance

- 7.34 The purpose of T&E in Defence is to obtain information to support the objective assessment of a capability system with known confidence. The policy objective provided by DI(G) OPS 43-1 - *Defence Test and Evaluation Policy* is that the results of T&E must be used to provide proof that risk is contained within acceptable boundaries when making key life-cycle milestone decisions and that the intended system meets safety standards and end users' requirements. The policy requires that T&E also be used to assess the acquired capability system against the required capability once it achieves its final operational capability in order to close a business case, and for assessing the ongoing operational suitability and effectiveness of capability systems.
- 7.35 T&E can be employed to prove, demonstrate or assess the ability of existing and proposed, new or upgraded capability systems to satisfy specified technical and operational requirements and objectives. When T&E is employed in this manner with the objective of providing results to inform decisions at key milestones in a capability system's life cycle, T&E becomes an effective component of capability risk management strategies. Key decision milestones that benefit from the results of T&E include but are not limited to:
- a. DCP entry,
 - b. 1st Pass Approval,
 - c. 2nd Pass Approval,
 - d. Verification of system specification,
 - e. Design Acceptance,
 - f. System Acceptance,
 - g. Initial Release
 - h. Operational Release, and
 - i. Business Case Closure.
- 7.36 The Defence CDD Guide Part 3 (to be issued in 2006) will provide further detail on the application of T&E at key decision milestones.

Characteristics of T&E

- 7.37 T&E is a scientific, systematic process to obtain information to support the evaluation of the quality of a system (or product) with known confidence. T&E employs systems engineering methods to reduce a complex system into a set of critical issues that must be resolved. To resolve critical issues they must in turn be broken down into elements that can be tested and/or measured. These elements are usually forms of 'measures of effectiveness, suitability, or performance'. Once measures are defined,

tests are conducted to obtain data that is used to resolve the critical issues through evaluation. T&E can be resource intensive so only the required testing is to be undertaken. Accordingly, T&E should be targeted at areas of risk where the benefits from the information obtained justify the resources expended. To prevent duplicated effort and to ensure that only the required T&E is conducted, a strategy for T&E must be identified early in planning in order to guide more detailed T&E planning and the subsequent execution.

Purpose in Planning

7.38 The fundamental purpose of T&E planning is to identify what must be tested, why and how, and what it will cost. The top level performance requirements or Critical Issues (CI) identify what must be tested. The CI in combination with the project's acquisition strategy, and the resultant capability risk, shape the development of an appropriate T&E strategy, which is the why and how, and provide the framework for the identification of funding and resource requirements. The CI to be tested, the T&E strategy, and the associated resource and funding requirements are the fundamental outputs of T&E planning to be presented to Government when seeking First and Second Pass approval for MCE projects.

Critical Issues

7.39 The top level performance requirements will cover characteristics such as accuracy, effect, availability, capacity, reliability, responsiveness, usability, interoperability, safety, security, and survivability, which contribute to determining performance requirements or how well the capability must perform. These requirements are enunciated in the TCD by CIs representing either critical operational issues or critical technical parameters described as follows:

- a. **Critical Operational Issues (COI).** COI are questions examined through T&E to evaluate/assess the system's capability to perform its mission and form the framework for determining the operational effectiveness and suitability of a system under test, as derived from the OCD. The COIs or questions are decomposed by T&E specialists to provide a number of measures of effectiveness, suitability and performance that collectively provide data that enables the issues to be resolved.
- b. **Critical Technical Parameters (CTP).** CTP statements are examined through T&E to evaluate/assess the system's capability to meet critical specifications and form the framework for determining the fitness for purpose and suitability of a system under test, as derived from the FPS.

7.40 Resolution of critical issues provides proof that a new or upgraded capability system meets its baseline requirements, is safe, and fit for purpose. To be classified as a CI and warrant the expenditure of T&E funds, resources and time, an issue must first be examined against and meet the following three criteria:

- a. Relevance - the issue must address a specific characteristic of the capability system;
- b. Importance - failure to resolve the issue would significantly impact the capability system's effectiveness to such a degree that the capability solution may not be viable;
- c. Risk - there is a significantly high probability that the capability described in an issue may not be achieved.



Strategy Development

- 7.41 When developing a T&E strategy, the objective is to perform T&E where the capability risk demands and as early as the acquisition strategy allows. The following phases highlight the benefits of employing T&E as early as practicable across the capability system lifecycle:
- a. **Needs Phase.** Experimentation and simulation are tools that are commonly used in the Needs Phase to investigate the validity of concepts and improve the understanding of particular capabilities. The results from T&E can be used to validate the outcomes from experimentation and simulation, ensuring that the foundations for subsequent capability definition and assessment are sound;
 - b. **Requirements Phase.** By informing the First or Second Pass milestones in the Requirements Phase with the results of T&E, decisions on options to be pursued or discounted can be supported. T&E may also be applied to assist tender evaluation and cost benefit analyses, particularly for comparing COTS or MOTS systems against one another, or those with varied capabilities;
 - c. **Acquisition Phase.** In the Acquisition Phase, early T&E can avoid schedule and cost blow out where problems are identified by allowing early corrective action. T&E provides the necessary data for decisions at key contractual milestones including agreeing/endorsing the systems specification, design acceptance and system acceptance;
 - d. **In-service Phase.** Early in the In-Service Phase, OT&E supports the CMs decision at the release milestone of OR milestone. OT&E provides the CM with objective evidence of the suitability and effectiveness of the capability system prior to that system being employed in an operational role and assists in developing doctrine and procedures for its employment. The results of the same OT&E are used to inform business case closure where CDG compares the capability outcomes with the capability sought. This reconciliation provides an indication of the Government's return on investment and highlights any deviations from the endorsed capability or shortfalls against contemporary requirements. Early indications of significant deviations or shortfalls may form the basis for new proposals to realign the capability with the requirement. T&E conducted throughout the In-Service Phase provides the earliest indications of the capability systems ongoing suitability and effectiveness and the ability to employ that capability to meet contemporary and emerging requirements;
 - e. **Disposal Phase.** T&E in the Disposal Phase addresses decisions on withdrawing the capability system from service and any modifications required for its disposal. Early T&E to develop or confirm the suitability and effectiveness of disposal methods can provide data to support cost benefit analysis when developing business case options.

Funding Estimates

- 7.42 To gain project approval, costs associated with T&E throughout the life cycle of a capability system need to be identified. T&E planning provides an outline of funding estimates for this aspect, but does not ensure that funding is programmed within the context of the DMFP. The Project Authority (PA) compiles T&E funding estimates for programming expenditure within the relevant FY of the DMFP, until the capability reaches FOC. The relevant CM is then responsible for compiling funding estimates for programming expenditure in support of subsequent ongoing T&E.



Planning Outputs

- 7.43 **High-Level T&E Documents.** The high-level document outputs from the T&E planning process are the PTC and the TCD. The PTC is a precursor to the TCD and supports First Pass approval while the TCD supports Second Pass approval. Both documents are required by the DCC, when considering First and Second Pass approval. The PTC and TCD are the basis for assuring that appropriate strategies are planned for mitigating risk through results of T&E and that requisite resource and funding requirements have been identified. HCS has responsibility for the PTC and TCD development by an IPT, with CEO DMO and CM providing representation. This ensures the T&E strategy is well considered, and that appropriate estimates are included in the PTC and TCD to cover T&E funding and resource requirements that will fall within respective areas of responsibility. While the PTC and TCD differ in focus and detail to support different decision points in the two pass approval process, the PTC and TCD have the same objectives in that they both seek to:
- identify the critical issues that need to be resolved through results of T&E;
 - identify resource requirements including the T&E authorities and agencies likely to be involved;
 - identify the link between the results of T&E and key milestone decisions; and
 - secure a T&E budget within project funding.
- 7.44 **Preliminary Test Concept Document.** The PTC is submitted as part of the First Pass capability proposal and outlines the T&E strategy to be undertaken following Second Pass approval for each capability option to be considered. The strategy must be of sufficient detail to discriminate between options where applicable and inform the development of tender documents between First and Second Pass. Additionally, and only if applicable, the PTC identifies the strategy for T&E to be executed between First and Second Pass for each capability option and the associated funding and resource requirements.
- 7.45 **Test Concept Document.** The TCD evolves from the PTC and is developed as part of the CDD to refine the broad, post-Second Pass T&E strategy first outlined in the PTC. The TCD describes the strategy for applying T&E throughout the capability system's life cycle but in particular identifies the budgeted and resourced T&E strategy for informing key milestones throughout the critical AIS process. The TCD is submitted along with the OCD and FPS as part of the Second Pass capability proposal when seeking project approval and following project approval define the capability system baseline. The Defence CDD Guide Pt 3 - TCD will provide further guidance for the development of the PTC and TCD including document templates.
- 7.46 **Test & Evaluation Master Plan.** As the names of the PTC and TCD indicate, both are concept documents and not detailed plans of the T&E likely to be conducted in the life cycle of the capability system under consideration. Subsequent and more detailed T&E planning is reflected in the Test and Evaluation Master Plan (TEMP) which is developed from the top level system performance requirements and T&E strategy provided in the PTC and TCD through the detail available in the POCD/OCD and FPS. The TEMP provides the basis for the development of specific Test/trial plans that guide the conduct of specific tests or trials.

7.47 **Other Plans.** In order to achieve their purpose, the high level outputs provided in the PTCD and TCD must be reflected consistently across the scope of briefs that inform committees and stakeholder groups, and plans that direct the actions of organisations, team leaders and working groups. That purpose is to inform key decisions in the two pass approval process and subsequent acceptance into service process. Achieving coordinated T&E outcomes across these endeavors requires that plans and directives executing the T&E strategy use the common terminology and process provided in the DCDM and Defence CDD Guide. Key plans in addition to the TEMP and test/trial plans that require terminology and process consistency in the execution of the T&E strategy include the following:

- a. Project Management Plans;
- b. Service FIC Management Plans;
- c. Service OT&E Plans; and
- d. Major Exercise/Activity Plans.

SECTION 7-5

Acceptance into Service

Acceptance into Service Process

7.48 Acceptance into Service (AIS) is the process by which the fundamental elements of capability comprising a capability system are assembled and proven to meet sufficient contractual and user requirements such that in all aspects the capability is acceptable for operational service. AIS encompasses the scope of activities and associated processes concerned with transforming FIC to achieve endorsed project outcomes. There is ongoing work being conducted to refine the Defence AIS process which is intended to be promulgated as a DI(G) during 2006.

AIS Planning

7.49 The objective of planning within the AIS process is to support the transition of FIC by synchronising activities across Output, Support and Enabling executives in order to achieve the release milestones and capability states (within the constraints imposed by resources and schedule) leading to the endorsed capability outcomes. The scope of planning should include the interaction of the new or modified capability system with existing systems or the phasing out of existing systems where this impacts the incoming or modified system. To enable these objectives, the identification of necessary activity within the AIS process in order to support planning commences at First Pass. This early planning should be reflected in the Initial Business Cases and reach maturity by Second Pass approval.

AIS Process Framework

- 7.50 The AIS process framework provides a standard but flexible foundation upon which each project can build a coherent structure for planning and managing the transformation of FIC. The principle features of the AIS process framework are described below.
- 7.51 **Taxonomy.** AIS Taxonomy supports the Defence AIS process framework by classifying AIS events or milestones as either contract milestones, transition milestones, release milestones or capability states. The AIS taxonomy provides a standard context for the terms and definitions provided in the AIS lexicon and, where necessary, for any additions to the lexicon required to suit specific project requirements.
- 7.52 **Process scales.** The AIS process scales provide a flexible structure for the representation of AIS activities and milestones. Through distinct but interrelated views of activity, the process scales allow a clearer representation of critical activity periods that must be supported by thorough planning well before each period begins. The AIS scales are illustrated at Figure 7-3 and identified as follows:
- Program scale.** The program scale is the scale within which the AIS process associated with outputs from multiple projects can be mapped;
 - Project scale.** The project scale is the scale within which the interactions in the AIS process associated with outputs from the project subset scale can be mapped;
 - Project subset scale.** The project subset scale is the scale within which the most complex interactions that deliver outcomes to the project scale can be mapped. Complex or incremental realisation of capability through the delivery of capital equipment and the alignment with other FIC is managed in the project subset scale.

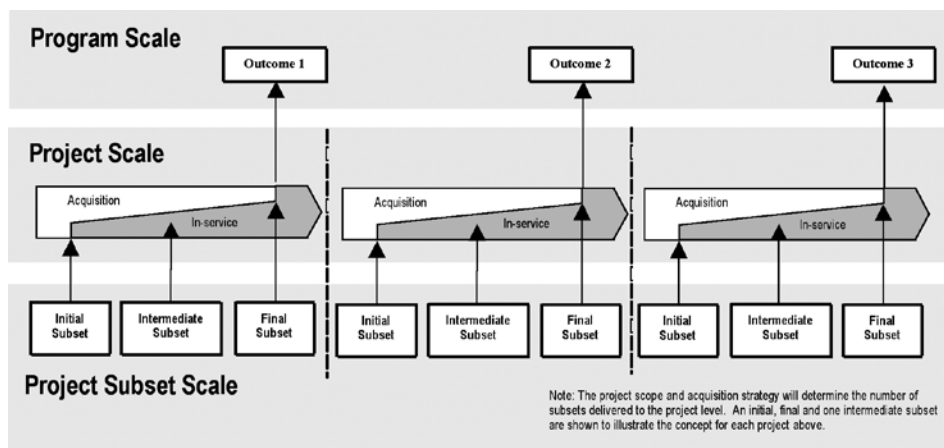


Figure 7-3: AIS Process Framework Scales

- 7.53 **AIS lexicon.** The AIS lexicon provides definitions for key events or milestones as follows:
- Capability states.** Capability states are the Government endorsed capability outcomes to be realised through the AIS process in the project scale. Definitions for the capability states of Initial Operational Capability (IOC) and the Final

Operational Capability (FOC) are provided below. Where a project requires additional intermediate capability states there are identified as Operational Capability 2, 3, etc (OC2, OC3).

Initial Operational Capability (IOC) - *the point in time at which the first subset of a capability system that can be operationally employed is realised. IOC is a capability state endorsed by Government at Second Pass and reported as having been reached by the capability manager.*

Final Operational Capability (FOC) - *the point in time at which the final subset of a capability system that can be operationally employed is realised. FOC is a capability state endorsed by Government at Second Pass and reported as having been reached by the capability manager.*

- b. **Release milestones.** Release milestones represent the consideration given by the Capability Manager or the nominated representative to the maturity of the FIC comprising the capability system within the project subset scale. Definitions for the release milestones of Initial Release (IR) and the Operational Release (OR) are provided below. One objective of AIS planning and execution with regard to the materiel system is to ensure that the Capability Manager's minimum materiel system requirements for release milestones are met at the respective contractual milestone of System Acceptance. These minimum requirements and the minimum requirements of other FIC are identified and endorsed by the Capability Manager in the capability proposal at Second Pass. Where a project requires intermediate release milestones within a project subset, they are identified as Release 2, Release 3, etc (R2, R3, etc).

Initial Release (IR) - *The milestone at which the CM is satisfied that the initial operational and material state of the capability system, including any deficiencies in the FIC, are such that it is safe to proceed into a period of OT&E leading to an endorsed capability state.*

Operational Release (OR) - *the acknowledgment by the relevant CM that a capability system or subset, has proven effective and suitable for the intended role and that in all respects is ready for operational service.*

- c. **Transition milestones.** Significant events in the AIS process such as changes in asset management arrangements, acquisition and sustainment arrangements or authority/control over a mission system can be identified in the AIS process framework as transition milestones. The focus of management activity relating to transition milestones is to seek alignment with release milestones. This provides a clear objective for the focus of planning and management across key stakeholders and seeks to minimise delays caused by the misalignment of FIC at the critical release milestone juncture. In-service Date (ISD) is a transition milestone that marks the beginning of the In-Service Phase from a whole of project perspective and should coincide closely with Initial Release of a capability system or the initial subset of a capability system. The definition for ISD is provided below while the relationship of ISD with Initial Release from a whole of project perspective is illustrated in figure-7-4.

In-service Date (ISD) - the point in time that symbolically marks the beginning of the transition of a capability system, in part or full, from the Acquisition Phase to the In-Service Phase. ISD coincides as closely as is practicable with Initial Release.

The general arrangement of AIS milestones are illustrated in Figure 7-4.

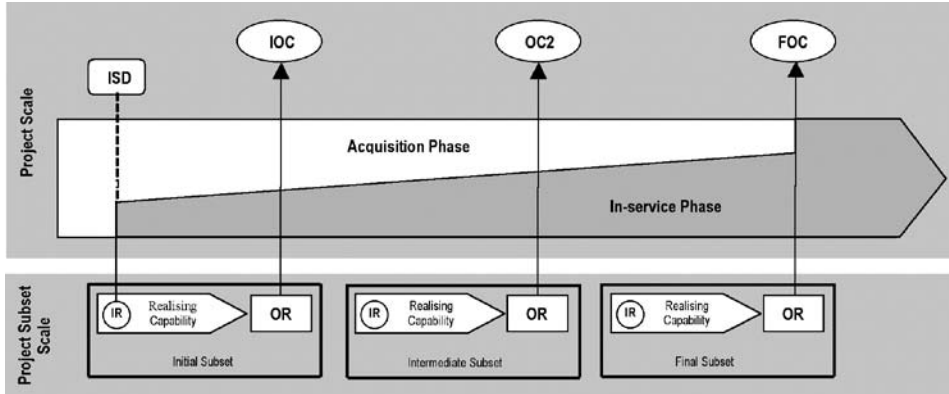


Figure 7-4: AIS Milestones General Arrangement

Section 7-6

Simulation in Capability Development

7.54 The application of modelling and simulation activities within the capability development life cycle will generally fall within one of two categories: the acquisition of new simulation tools to meet a capability requirement of the ADO or the use of simulation tools in developing and assessing capability options and investment proposals.

Policy and Guidance

7.55 The Defence Simulation Policy, DI(G) OPS 42-1, defines the ADO's vision for simulation and the management structure and strategies required to achieve it. This policy is supported by the Defence Simulation Manual (SIMMAN) that provides guidance on preparing an investment proposal for new simulation requirements, applying simulation in the capability development process and other guidance on simulation benefits, distributed simulations, simulation data, simulation accreditation, simulation security, simulation safety and simulation standards.

Benefits of Simulation

- 7.56 The use of simulation within the ADO offers benefits in terms of effectiveness and economy though the following means:
- a. **enhances capability** by improving personnel and equipment readiness and sustainability. Simulation augments force structure by releasing real equipment from training tasks to operations, and by providing practicable methods to achieve and maintain the required operational level of capability. Simulation also enables a number of the processes that determine the composition and effectiveness of the elements of Defence capability;
 - b. **saves resources** directly through savings in operating costs and indirectly by improving the quality of decision making; and
 - c. **reduces risk** by reducing exposure to hazardous situations and allowing the likely implications of decisions and changing circumstances to be assessed in advance.

Simulation within the Capability Development Process

- 7.57 Detailed guidance has been produced by ADSO on how to secure benefits from simulation. The guidance is there to help emerging projects from the outset during the Needs Phase and to prepare them for simulation support throughout the ensuing capability life-cycle. The CDG process map on the web offers a direct route for project staff to find out what they need from SIMMAN when they need it. As project staff work through the CDG process map they will reach pointers to key text and other sources of relevant advice designed to assist with the provision of simulation support.
- 7.58 Figures 7-2 and 7-3 show the target issues, application areas and key characteristics of simulations supporting the needs and Requirements Phases of the capability life cycle.

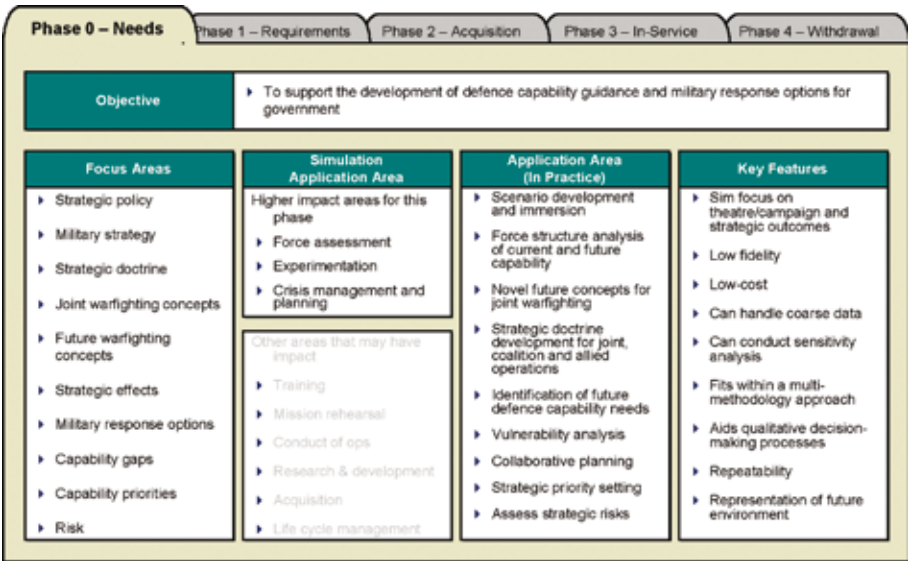


Figure 7-5: Simulation for Needs Phase

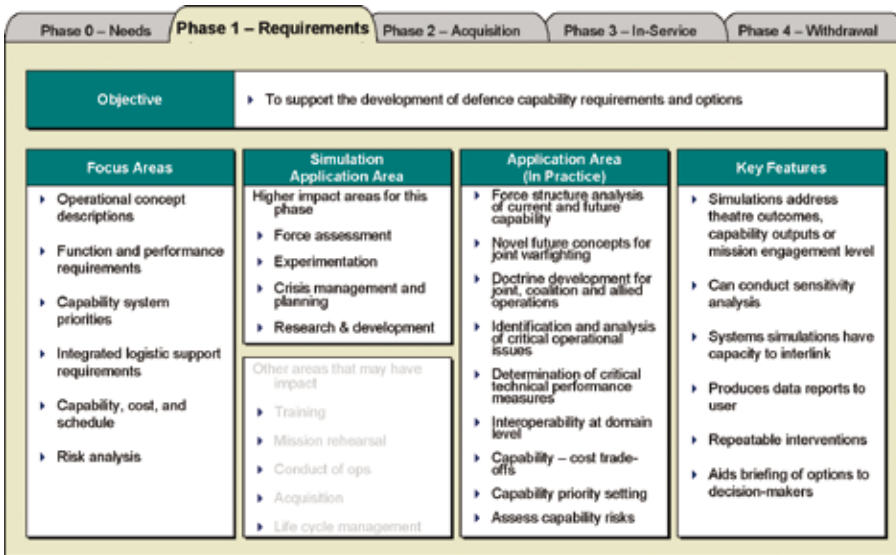


Figure 7-6: Simulation for Requirements Phase

Defence Simulation Mechanisms

- 7.59 **The Defence Simulation Environment (DSE).** The DSE is the aggregated entity that delivers the Defence simulation vision and its benefits. It consists of individual simulations, communications links between simulations or to other systems (be they computer networks or other information transfer mechanisms), and a consistent foundation of policy, procedures, data, standards, etc. The DSE is being continually developed and refined through the implementation of the Defence Simulation Plan.
- 7.60 **Defence Simulation Forum (DSF).** The DSF is the peak co-ordinating body for simulation in Defence and provides a senior, unifying component of the management structure. It addresses the strategic issues impacting upon the development and use of computer-based modelling and simulation across the Defence Organisation, with membership drawn at the one-star level from the principal stakeholder communities. Members guide Defence simulation policy direction, co-ordination and collaboration initiatives via the Director General Simulation (DGSIM) who chairs the forum and is responsible for implementing actions agreed by the DSF. DSF members are responsible for ensuring that DSF decisions are implemented within their respective Defence Groups.
- 7.61 All significant DSF activities and outcomes are reported to CCDG who may then inform higher Defence committees as appropriate.
- 7.62 **Simulation Coordination Group (SCG).** The simulation policy requires each Defence Group represented on the DSF to establish an SCG to guide the development of simulation activities within each Group. Each SCG is to be of a size, level, structure and composition appropriate to the Group's current and planned involvement in simulation activities.

Australian Defence Simulation Office

- 7.63 CCDG exercises his lead on the Governance of Defence simulation via the ADSO which is led by DGSIM and has prime responsibility for advancing the exploitation of simulation by Defence. ADSO is responsible for policy direction, collaboration and co-ordination of simulation activities across Defence, and for the implementation of the Defence Simulation Plan. Further information on ADSO and the application of simulation within Defence can be obtained from the CDG website.

SECTION 7-7

Defence Information Environment

Introduction

- 7.64 CIOG is the Capability Manager for the DIE and provides specific policy and advice on DIE aspects for major acquisition projects including strategic direction, architectures and standards, interoperability, frequency spectrum, feasibility, project implementation and scheduling. CIOG may also undertake some or all of the acquisition activities for specific projects.

CIOG, CDG and DIE

- 7.65 For those projects with DIE aspects, CIOG provides formal sign-off on the consideration of the possible implications for the DIE for new or upgraded capabilities. CS Div Desk Officers should seek to establish a principal point of contact within CIOG so that appropriate DIE inputs to, and consideration of, key products can be sought throughout the capability development process. The initial point of contact for advice on the interface between CDG and CIOG for major acquisition projects is the Director General Information Policy and Plans (DGIPP) within CIOG.

Needs Phase

- 7.66 **Defence Planning Guidance and Defence Capability Strategy.** The CIOG will participate in activities conducted by CDG, such as Force Options Testing, to help develop the DPG and the DCS and to identify DIE related capability gaps.
- 7.67 **Entry into the Defence Capability Plan.** The CIOG may propose new entries into the DCP to address capability gaps in the Defence Information Environment. The ICDS for proposed new entries would be provided to CDG from Head Information Capability Management Division, CIOG.

Requirements Phase

- 7.68 **First and Second Pass Approval.** The CIOG can provide advice on DIE related projects to the CS Div Desk Officer to facilitate development of First and Second Pass Capability Proposals and supporting documents. The participation of CIOG staff is to be coordinated

with the Director of Capability Management and Interoperability, CIOG . Such support may need to be formalised through development and submission of a DIE Project Mandate.

7.69 **Defence Information Environment Capability Management Committee**

Consideration. The DIECMC will consider the DIE aspects of projects as would a single service committee and provide CIOG endorsement of the DIE aspects of Capability Proposals before their presentation to the CDB. The CS Div Desk Officer should contact DGIPP to determine and agree the requirement for their specific project to be considered by the DIECMC.

Acquisition for Specific ICT projects

- 7.70 Specific ICT projects will be acquired by the Information Systems Division of CIOG. While the requirement for First and Second Pass documentation should not be different to those projects with DMO as the acquisition authority, responsibilities for activities will necessarily be different. For more information, contact CIOG (Project Management Office).

SECTION 7-8

Role of Network Centric Warfare Program Office

Introduction

- 7.71 In November 2003, the ADF endorsed the NCW Roadmap as the overarching guide for the transformation of the current force into a NCW capable force. Early in 2004, DGICD was tasked to provide a solution to a closely related but separate requirement of optimising cross project integration within the DCP. In July 2004, the DCIC agreed to the establishment of the NCW Program Office as a solution to cross project integration and the consequential (but partial) requirement of implementing NCW through the DCP. One of the NCWPO's mandates is to ensure that ADF's capability projects remain NCW compliant, from the time they are listed in the DCP until they enter service as realised capabilities and throughout life-of-type.

NCW Compliance Assessment

- 7.72 For the NCWPO to perform the NCW compliance assessment of DCP projects, they will need to rely on; firstly, the availability of key documents for each individual project, such as the OCD, FPS and TCD; and secondly, the completeness of the required architectural work contained in those documents - such architectural work is deemed critical in the NCW compliance assessment of DCP projects.



7.73 The NCWPO will assess NCW compliance of DCP projects using two processes effectively performing the NCW compliance assessment of DCP projects, two processes have been developed. The first process will enable the NCWPO to mentor the Project Desk Officers in the development of the required architectural work. The second process will enable the NCWPO to assess DCP projects for compliance against the required NCW compliance criteria.

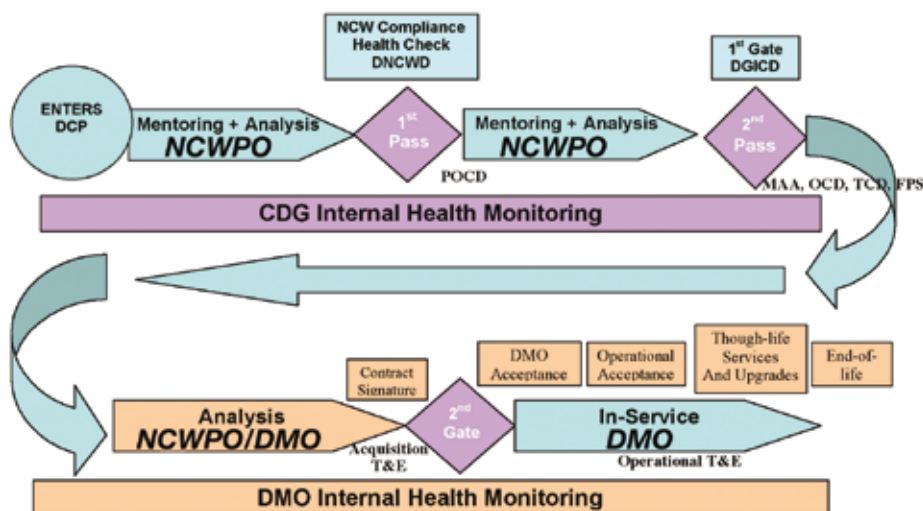


Figure 7-7: NCW Compliance Process

7.74 There are four areas of assessment part of the NCW Compliance process. These are:

- NCW Requirements Analysis** - targets the high level context for the capability and its appropriate NCW elements;
- NCW Force Analysis** - examines the system concepts for the capability and its appropriate NCW elements. It is focused on assessment of the project in the context of the capability system life cycle, and covers issues such as the how Defence capability will vary over the NCW Roadmap epochs;
- NCW Systems Analysis** - explores the requirements of the NCW force on the capability and/or the requirements of the capability on the force in being or future force. This dimension corresponds roughly to the *Network* dimension of the NCW Roadmap and is a prime focus of the NCWPO; and
- NCW FIC Analysis** - determines if there are any Fundamental Input to Capability (FIC) issues with the introduction of the capability and its appropriate NCW elements. This will include training to exploit new NCW elements and all process, doctrine etc that result. This dimension corresponds roughly to the *Human* and *Networking* dimensions of the NCW Roadmap.

7.75 Each compliance point will be focused on areas that are relevant to that part of the acquisition process. The assessments will flow through, informing each successive point.

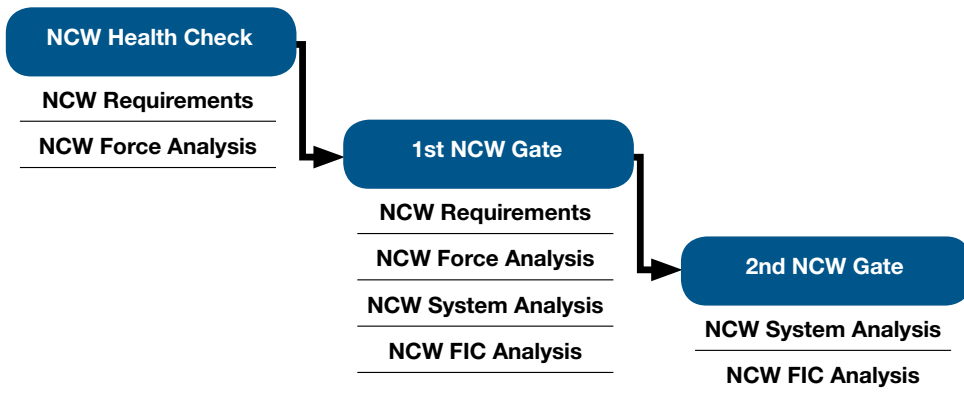


Figure 7-8: NCW Assessment Gates

NCW Integration Plan

7.76 The NCWPO are developing and maintaining the ADO's NCW Integration Plan. The NCW Integration Plan draws on higher level documents such as the NCW Roadmap, which document the ADO's NCW goals and aspirations, and maps out how these future goals can be achieved. NCW Integration Plan relies on existing documentation and processes where available and takes contribution from a wide range of areas with the ADO, as the realisation of NCW capabilities is an organisation-wide undertaking. The NCW Integration Plan is constantly kept up to date by the NCWPO and the contributing organisations.

Rapid Prototyping, Development and Evaluation Program (RPDE)

7.77 The primary means of industry engagement with the ADF's NCW objectives (outside the DCP) is through the RPDE program. The RPDE program is a collaborative venture between Defence and industry and its mission is to enhance ADF warfighting capacity through accelerated capability change in the NCW environment.

7.78 In order to meet this challenge, RPDE is establishing organisational competence in partnering and rapid task delivery. In effect, RPDE aims to rapidly bring together Defence and industry knowledge, experience and intellectual property in order to understand problems, identify potential solutions and finally provide valid evidence in support of decision support and change management recommendations.

7.79 To achieve this RPDE is creating a culture of collaboration, innovation and learning where new ideas are welcomed and the benefits of success shared across the partnership. The RPDE organisation has established unique governance and task management arrangements, using a Board, made up of Defence and Industry members, and a Defence steering group at the one star level to manage prioritisation and funding of RPDE tasks as shown in Figure 7-8 below.

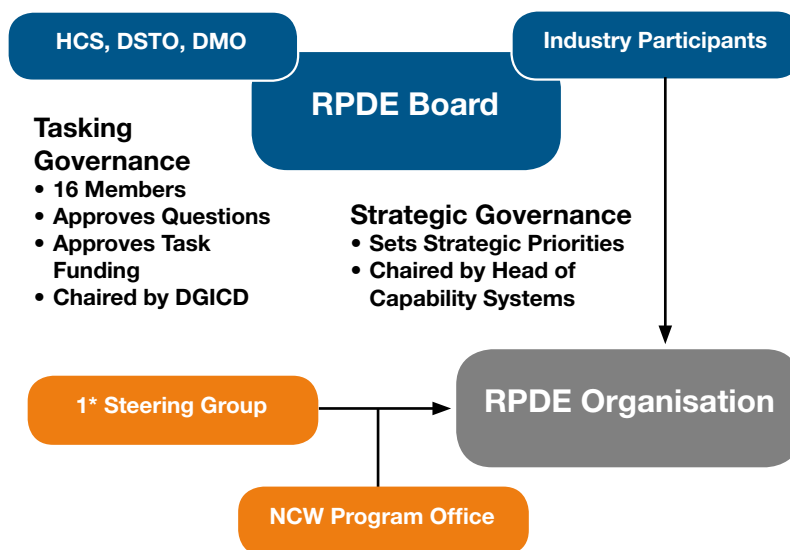


Figure 7-9: Rapid Prototyping, Development and Evaluation Governance Arrangements

7.80 The anchor into Defence for RPDE is the NCWPO, which is the initial point of contact for all tasks.

SECTION 7-9

Preparing Capability Roadmaps

Introduction

7.81 **Definition.** A capability roadmap analyses a particular capability area and articulates the agreed plan for developing that capability area.

7.82 Specifically, capability roadmaps should describe the capability needs within a defined capability area, the strategic context, specific capability goals, the actions required to achieve the desired end-state and any residual strategic or operational risk that is to be accepted. They will document endorsed judgements on the relative priority and tradeoffs between various capability options.

7.83 The capability areas can be a capability effect (eg strategic strike), a technology (eg UAVs) or some other capability input (eg linguists). A roadmap would not usually be prepared for a single project.

7.84 It is expected that capability roadmaps will take a comprehensive view of capability. While new MCE may be the focus of a particular roadmap, there will be implications across the rest of the FIC and legacy equipment, which will need to be addressed.

Taking a broader view of capability may identify possible improvements through changes to doctrine, organisation, etc, for relatively little cost. Capability roadmaps will have a whole of Defence perspective.

- 7.85 Roadmaps provide a level of analysis between the broad (whole of force) assessments contained in the DCS and the more focussed justifications for a project or new policy proposal. As such they iteratively inform, and are informed by, all steps in the planning process including other roadmaps and plans.
- 7.86 Capability roadmaps are developed as required. It is not intended that there will be roadmaps to comprehensively cover all permutations of Defence capabilities. Rather, they will be initiated in response to perceived capability shortfalls or a desire to more closely align initiatives within a capability area.

Purpose

- 7.87 The purpose of capability roadmaps is to:
- a. improve the quality of decision-making by providing:
 - (1) a more integrated view of capability, ensuring consideration of issues across project, organisational and FIC boundaries;
 - (2) a stronger analytical basis, ensuring capability decisions are better informed by the output of analytical studies and concept development and experimentation;
 - (3) better visibility of capability considerations to the relevant stakeholders to ensure all pertinent considerations are factored in;
 - (4) better packaged and more comprehensive information for decision makers, to better facilitate judgements about capability options and their merits; and
 - (5) a mechanism to explore the impact of changing threat, strategic priority, financial guidance and other risks and to identify mitigation strategies; and
 - b. improve implementation of capability decisions by providing better visibility of intentions to all stakeholders.

Development

- 7.88 Capability roadmaps should be based on:
- a. **The Defence Capability Strategy.** Capability roadmaps will provide a direct linkage between the DCS and specific projects;
 - b. **Warfighting concepts.** Conceptual development will ensure that each capability roadmap is predicated on future, rather than current, requirements, and will facilitate innovative approaches to capability development;
 - c. **Analytical studies including experimentation.** Capability roadmaps should build upon related studies, ensuring that the most appropriate options are identified; and
 - d. **Consultation with stakeholders.** There should be a sufficient level of consultation with major stakeholders to ensure that all relevant inputs are captured.



Coordination and Approval

- 7.89 Coordination and approval for capability roadmaps is to be managed in such a way that all stakeholders are afforded maximum visibility and input at all stages. This will be achieved in the following way:
- each roadmap will be sponsored by either the appropriate CM or CCDG;
 - each roadmap should have a stakeholder steering group (notionally at one-star level) to oversee its development; and
 - for CCDG sponsored roadmaps, DGCP will generally coordinate the development of these roadmaps during their initial phase to ensure continuity across all of them and to ensure that they properly consider Joint and supporting aspect. The Deputy Chair will normally be from the relevant sponsoring agency, who will be responsible for developing the detail and conducting the follow-on phases through to DCC/DCIC approval of the completed roadmap.
- 7.90 CCDG will generally approve the Terms of Reference of the Roadmap. The development of capability roadmaps will be monitored by DGCP, who will maintain a schedule of all approved and under development capability roadmaps.
- 7.91 The final product will be endorsed through either the DCC (CCDG) or DCIC (CDF).

Content

- 7.92 Capability roadmaps are written as a staff paper, but can incorporate those graphical elements that add clarity (eg a Gantt chart or systems engineering/architecture diagrams - OV-1, OV-2, etc).
- 7.93 Different capability areas may warrant different approaches. Without intending to be prescriptive, capability roadmaps should be broadly structured along the following lines:
- Executive Summary.** The key messages of the roadmap, expressed in a succinct and easy-to-understand form;
 - Definition of the Capability Area.** The capability area may be defined by asking questions similar to:
 - what capability effect / technologies are involved?
 - what enhancements are sought through the effect?
 - what related areas might affect, or be affected by, this roadmap?
 - Strategic Context.** The environmental circumstances that require a new or enhanced capability may be addressed as follows:
 - What new threats are emerging?
 - How does the threat vary across the strategic tasks in the White Paper or contingencies in the DPG?
 - Concepts.** How will emerging warfighting concepts impact on this capability area? Note that a roadmap may identify the need for new or changed concepts. Concept development may be undertaken in conjunction with the roadmap;
 - Capability Area Goals.** What are the goals for the capability area as derived from the DCS?

- f. **Current Plans.**
 - (1) What is the current plan for the capability area (as expressed through the DCP, FIC plans and other roadmaps)?
 - (2) What are the current and planned levels of financial and personnel resourcing?
- g. **Key Assumptions.** What key assumptions have been made in this plan (infrastructure access, allied support, etc)? Specific assumptions relating to those linked capabilities, development programs and related projects should be explicitly captured and stated. Related aspects include those that either rely on or in turn directly contribute to the programmed outcomes delivered through this particular roadmap;
- h. **Options.** What are the alternative means of achieving the capability area goals? This can include change to all FIC including concepts, research into new technologies and definition of technical standards. The options should not be limited to different technical solutions. They should explore the implications of different strategic priorities and resourcing levels;
- i. **Assessment of the Options.**
 - (1) What is the value of the option? (ie the extent to which it meets capability goals and reduces strategic risk);
 - (2) What is the ROM whole-of-life cost of the option?
 - (3) What is the feasibility of the option? (Technical risk, industry capacity, information support requirements etc);
 - (4) What is the sensitivity of the conclusions to strategic priorities and other assumptions?
 - (5) What are the risks that apply to each option, and what are the proposed mitigation strategies?
 - (6) Are there milestones up to which Defence can retain flexibility as to which course of action it follows?
 - (7) Are there specific costs involved in keeping additional options open?
- j. **Recommended Course of Action:** Which option(s) is (are) the most appropriate for Defence?
- k. **Further Development:** What further work is required with project documentation, costing, analytical studies or concept development and experimentation;
- l. **Implementation of the recommended course of action.**
 - (1) What are the key milestones and decision points, with particular respect to other capability areas / projects?
 - (2) What are the financial and non-financial resource needs through time across all of the FIC?



Acronyms and Abbreviations

ABC	Acquisition Business Case	CDS	Capability Definition Statement
ADDP	Australian Defence Doctrine Publication	CEO DMO	Chief Executive Officer, Defence Materiel Organisation
ADF	Australian Defence Force	CEP	Capital Equipment Program
ADO	Australian Defence Organisation	CFO	Chief Finance Officer
ADSO	Australian Defence Simulation Office	CIO	Chief Information Officer
AIPS	Australian Illustrative Planning Scenarios	CIOG	Chief Information Officer Group
AIS	Acceptance into Service	CIR Div	Capability Investment and Resources Division
AIU	Assets in Use	CJLOG	Commander Joint Logistics
AMROs	Aggregated Military Response Options	CM	Capability Manager
AMS	Australian Military Strategy	COI	Critical Operational Issues
AUC	Assets under Construction	COTS	Commercial Off The-Shelf
BCCR	Business Case Closure Report	CPD	CDF's Preparedness Directive
C&P	Capability and Plans Branch	CPFP	Capability Proposal (First Pass)
CBRND	Chemical Biological, Radiological and Nuclear Defence	CPSP	Capability Proposal (Second Pass)
CCDG	Chief Capability Development Group	DPG	Defence Planning Guidance
CDAF	Capability Development Advisory Forum	CPSP	Capability Proposal Second Pass
CDB	Capability Development Board	CS Div	Capability Systems Division
CDD	Capability Definition Documentation	CSIG	Corporate Services & Infrastructure Group
CDF	Chief of the Defence Force	CTD	Capability and Technology Demonstrator
CDG	Capability Development Group	DC	Defence Committee
		DCC	Defence Capability Committee

DCDM	Defence Capability Development Manual	DSTO	Defence Science & Technology Organisation
DCIC	Defence Capability and Investment Committee	DTRIALS	Directorate of Trials
DCOP	Directorate of Capability Operations and Planning	EPT	Emerging Project Team
DCP	Defence Capability Plan	EWG	Environmental Working Group
DCS	Defence Capability Strategy	FASCIR	First Assistant Secretary, Capability, Investment and Review Division
DCU	Defence Capability Update	FIC	Fundamental Inputs to Capability
DEPSEC S	Deputy Secretary Strategy	FJOC	Future Joint Operating Concept
DGCP	Director-General Capability and Plans	FOC	Final Operational Capability
DGSIM	Director General Simulation	FOT	Force Options Testing
DIE	Defence Information Environment	FPS	Functional and Performance Specification
DIECMC	Defence Information Environment Capability Management Committee	HCS	Head Capability Systems
DIO	Defence Intelligence Organisation	IBC	Initial Business Case
DISC	Defence Infrastructure Sub-Committee	ICDS	Initial Capability Definition Statement
DMFP	Defence Management and Financial Plan	IOC	Initial Operational Capability
DMO	Defence Materiel Organisation	IPT	Integrated Project Team
DOFA	Department of Finance and Administration	IR	Initial Release
DPE	Defence Personnel Executive	ISD	In-Service Date
DPG	Defence Planning Guidance	ITR	Invitation to Register Interest
DSA	Defence Security Authority	KDAR	Key Defence Assets Review
DSE	Defence Simulation Environment	LCC	Life Cycle Cost
DSF	Defence Simulation Forum	LOT	Life of Type
		LOTE	Life of Type Extension
		MAA	Material Acquisition Agreement

MCE	Major Capability Investment	RFP	Request for Proposal
MOTS	Military Off The Shelf	ROM	Rough Order of Magnitude
MRO	Military Response Options	RPDE	Rapid Prototyping Development and Experimentation
MSA	Materiel Support Agreement		
NCW	Network Centric Warfare	S&T	Science and Technology
NCWPO	Network Centric Warfare Program Office	SCGD	Security Classification Grading Document
NSC	National Security Committee of Cabinet	SME	Subject Matter Expert
NPOC	Net Personnel and Operating Costs	T&E	Test and Evaluation
OCD	Operational Concept Document	TCD	Test Concept Document
OH&S	Occupational Health and Safety	TEMP	Test Evaluation and Master Plan
OPR	JOC Operational Preparedness Requirements	WBS	Work Breakdown Structure
OR	Operational Release	YOD	Year of Decision
ORC	Options Review Committee		
OT&E	Operational Test and Evaluation		
OTS	Off-the-shelf		
PAR	Post Activity Report		
PDF	Project Development Fund		
PFPS	Preliminary Functional and Performance Specification		
PM&C	The Department of the Prime Minister and Cabinet		
PMP	Project Management Plan		
POC	Personnel and Operating Costs		
POCD	Preliminary Operational Concept Document		
PSP	Professional Service Provider		
PTCD	Preliminary Test Concept Document		
RFT	Request for Tender		

Glossary

Acquisition	Involves purchasing, leasing or other ways by which the DMO procures a materiel capability or system for use by the Australian Defence Force.
Acquisition Business Case	Part of the Second Pass approval documentation, the Acquisition Business Case (ABC) provides an overview and effects of the proposed option, describing the nature of the option, the capability effects; key advantages and a detailed time-line which includes costing and risk assessment. Information on proposed industry involvement over the life cycle is also included.
Acquisition Phase	This is the third of the five-phase Defence capability life cycle. The Acquisition Phase is the process of procuring an appropriate materiel system to meet the identified requirements while achieving the best value for money over the life of the system.
Australian Defence Force	Refers to the Royal Australian Navy, the Australian Army, and the Royal Australian Air Force.
Australian Defence Organisation	Consists of the Australian Defence Force and the Department of Defence.
Capability	The power to achieve a desired operational effect in a nominated environment within a specified time and to sustain that effect for a designated period. Capability is generated by Fundamental Inputs to Capability comprising organisation, personnel, collective training, major systems, supplies, facilities, support, command and management
Capability Analysis	The process of identifying current or prospective capability gaps, eg. changes in strategic circumstances or a major platform or combat system approaching the end of its Life of Type.
Capability Baseline	The materiel system requirements defined by the Capability Definition Documents.
Capability Definition Documents	A suite of documents comprised of: Operational Concept Document (OCD), Function and Performance Specification (FPS) and the Test Concept Document (TCD).
Capability Development	A broad term for those activities involved with defining requirements for future capability, principally during the Requirements phase of the capability systems life cycle.

Capability Development Advisory Forum	The aim of the CDAF is to make Australian industry an integral part of the capability development process ensuring that industry aspects are considered early, appropriately and consistently. It allows industry to put its views early in the capability development process, and enables Defence to test the strength of capability proposals. The CDAF is co-chaired by Head Capability Systems and CEO Defence Materiel Organisation.
Capability Development Board	The role of the CDB is to oversight the Capability Development business of the Capability Systems Division. It reviews and approves all project papers prior to their presentation to higher committees and is also responsible for the overall management of the Defence Capability Plan and the Capability Studies Fund. Chaired by Head Capability Systems Division, members include DG Maritime Development, DG Land Development, DG Aerospace Development, DG Information Capability Development, Director of Capability Operations and Plans, AS Investment Analysis, with invited representatives from DSTO, DTRIALS and DMO.
Capability Development Group	CDG has the responsibility for taking capability proposals from initial Government consideration and financial endorsement to final approval by Government. The CDG will have a close relationship with the Defence Materiel Organisation and oversight a number of the Defence Procurement Review recommendations.
Capability Gap	An outcome of analytical studies and joint military experiments which identify current and prospective capability needs that cannot be met within current force structures.
Capability Inputs	The eight Fundamental Inputs to Capability (FIC) which are the standardised elements required to deliver Capability, i.e. organisation, personnel, collective training, major systems, supplies, facilities, support and command and management.
Capability Investment and Resources Division, Capability Development Group	CIR Division provides independent analysis and review of capability issues, including: the overall balance of investment in capability (current and future), the future structure of the ADF, major investment proposals, preparedness, and priorities.
Capability Life Cycle	A capability's whole of life, from initial identification of a need through to its disposal. Within Defence, the capability life cycle has five phases, being Needs, Requirements, Acquisition, In-Service and Disposal.
Capability Manager	The role of a Capability Manager is to raise, train and sustain in-service capabilities through the coordination of Fundamental Inputs to Capability.

Capability Profile	A customised model for individual organisations that define the capability levels required to be attained to manage the technical risk to that organisation.
Capability Proposal (First Pass)	The capability proposal First Pass, prepared by CDG staff, is the key First Pass document presented to the Defence Capability Committee (DCC) on which later Cabinet Submission documentation is based. It incorporates and reviews Initial Business Cases (IBC) for each option approved in the Needs Phase and recommends preferred options.
Capability Proposal (Second Pass)	This proposal, developed by CDG for consideration by higher committees and Government at Second Pass approval, incorporates and reviews acquisition business cases for each option approved at First Pass, with a recommended preferred option.
Capability Support	The support needed to acquire, generate, manage and sustain capabilities through life, and to ensure that capabilities are prepared for deployment on operations.
Capability Systems	The combination of the eight Fundamental Inputs to Capability which are the standardised elements required to deliver Capability.
Chief Information Officer Group	CIOG provides specific policy and advice on the Defence Information Environment aspects for major acquisition projects. CIOG (Information Systems Division) may also be given responsibility in lieu of DMO for acquiring particular DIE related projects.
Concept for Operations	A concept for operations is a document that establishes methodology, procedures and priorities to accomplish tasks outlined in strategic concepts, and provides conceptual; guidance to develop an operational basis for action.
Corporate Services and Infrastructure Request (CSIR)	The document within the CSIG process to progress any CSIG service or infrastructure requirement to the capability project A CSIR Part 1 is developed by the sponsor of a project. CSIG develops a CSIR Part 2 which is the 'strategic screen' of the project prior to the Strategic Business Case (SBC) and Detailed Business Case (DBC) being developed.
Defence Capability and Investment Committee	A committee whose role is to ensure resourcing, including capital investment and operating costs, is consistent with Defence's strategic priorities and resourcing strategy.

Defence Capability Committee	Refers to a committee whose role is to consider and develop options for current and future capability, focussing on individual major capital equipment projects. It is a sub-committee of the Defence Capability and Investment Committee.
Defence Capability Plan	The Defence Capability Plan (DCP) outlines the Government's long term Defence capability plans. It is a detailed, costed, ten-year plan comprising the unapproved major capital equipment projects that aim to ensure that Defence has a balanced force that is able to achieve the capability goals identified in the 2000 White Paper and subsequent strategic updates.
Defence Capability Strategy	Based primarily on the Defence Planning Guidance (DPG), determines an appropriate balance of forces across the Force-in-Being (FIB), and between the FIB and future capability investment, within the context of strategic priorities and available resources.
Defence Information Environment (DIE)	The DIE is a capability consisting of information used by Defence and the means by which it is created, managed, manipulated, stored, protected and disseminated. All of Defence's information falls within one of two Information Domains: operations or management. Defence's Information Domains (DID) are supported by the Defence Information Infrastructure (DII) comprising software, hardware and supporting information communications technology. Together the DID and DII form the DIE. The DIE does not include the sensors, weapons systems or external systems that provide information to and utilise information from the DIE; it does, however, include the interfaces that allow the passage of data and information between the DIE, sensors, weapons systems and external systems.
Defence Infrastructure Sub-Committee (DISC)	The DISC is a sub-committee of the DCC that oversees Defence's enabling infrastructure and related services. This role includes the review of major facilities requirements analysed through CSIG, including those arising from DCP projects prior to DCC consideration of First and Second Pass documentation.
Defence Materiel Organisation	A prescribed agency, the DMO's purpose is to equip and sustain Australia's Defence Force. It is accountable directly to the Minister for Defence on matters under the Financial Management and Accountability Act 1997, while remaining accountable to the Secretary of Defence and Chief Defence Force for administration under the Public Service and Defence Acts.

Defence White Paper - Defence 2000: Our Future Defence Force	Outlines the Government's decisions about Australia's strategic policy for the next decade. It provides a plan for the development of Australia's armed forces, with a commitment to provide the funds required.
Directed Level of Capability	The agreed and funded level of capability to be maintained to meet preparedness, ongoing operations and known national task requirements, based on Government strategic and financial guidance.
Disposal Phase	The last of the five-phase Defence Capability Life Cycle, and occurs once the materiel system reaches the end of its life.
Environmental Impact Assessment (EIA)	The process that considers the likely environmental effects of adapting a particular course of action or use of equipment. EIA may be part of an internal Defence process (such as the Environmental Clearance Certificate), or external to Defence (such as approval under the Environment Protection and Biodiversity Conservation Act 1999).
Equipment	All materiel items except consumables. May be qualified by referring to items as major or minor capital equipment.
Evolutionary Acquisition	Enables capabilities to be upgraded in a planned way from the delivery of a specified initial capability to eventual achievement of a full capability.
Final Operational Capability	The point in time at which the final subset of a capability system that can be operationally employed is realised. FOC is a capability state endorsed by Government at Second Pass and reported as having been reached by the capability manager.
First Pass Approval	The process that gives Government the opportunity to narrow the alternatives being examined by Defence to meet an agreed capability gap. First Pass Approval allocates funds from the Capital Investment Program to enable the options endorsed by Government to be investigated in further detail, with an emphasis on detailed cost and risk analysis.
First Pass Documentation	The suite of documents required for First Pass submission to the Defence Capability Committee, prior to preparation of Cabinet Submission. The suite includes a Capability Proposal First Pass and Initial Business Case, with annexes for each option, including an outline Acquisition Strategy, a draft Project Management Plan and Capability Definition Documents (CDDs). These CDDs consist of a Preliminary Operational Concept Document, a Preliminary Function and Performance Specification and a Preliminary Test Concept Document) and costing information.

Force-in-Being	The current state of the planned force structure, which is represented by the Australian Defence Force (ADF) as it currently exists.
Fundamental Inputs to Capability	The standard list for consideration of what is required to generate 'capability', comprising organisation, personnel, collective training, major systems, supplies, facilities, support, command and management. It is to be used by Australian Defence Organisation agencies at all levels and is designed to ensure that all agencies manage and report capability, using a common set of management areas.
Future Capability	New or enhanced capability
Initial Business Case	Part of the First Pass approval documentation, the Initial Business Case provides detailed supporting information on each option put forward for consideration by higher Defence committees and by Government.
Initial Capability Definition Statement	A document which seeks to develop proposals detailing the suitability and operation of a capability system, for possible inclusion in the Defence Capability Plan.
Initial Operational Capability	The point in time at which the first subset of a capability system that can be operationally employed is realised. IOC is a capability state endorsed by Government at Second Pass and reported as having been reached by the capability manager.
Initial Release	The milestone at which the CM is satisfied that the initial operational and material state of the capability system, including any deficiencies in the FIC, are such that it is safe to proceed into a period of OT&E leading to an endorsed capability state.
In-Service Date	The point in time that symbolically marks the beginning of the transition of a capability system, in part or full, from the Acquisition Phase to the In-Service Phase. ISD coincides as closely as is practicable with Initial Release.
Integrated Project Team	A cross function group of people with project related skill sets, who are responsible for managing a capability proposal from First Pass approval to Second Pass project approval.
Interoperability	The ability of systems, units or forces to provide the services to, and accept services from, other systems, units or forces and to use the services so exchanged to enable them to operate effectively together.
Life Cycle	The whole life of a particular item/system/process, from identification of a capability need
Life of Type	The estimated time, for planning purposes, for which an item will be a current service requirement.

Major Capital Equipment	Equipment projects of \$20 million or more, or of less than \$20 million but with individual items of \$1 million or more, or equipment projects of less than \$20 with strategic significance.
Materiel	All items of military equipment and related spares, repair parts and support equipment, (excluding real property, installations and utilities), necessary to equip, operate, maintain and support military activities without distinction as to its application for administrative or combat purposes.
Materiel Acquisition Agreement	An agreement between CDG and DMO, which states in concise terms what services and products the DMO (as supplier) will deliver to CDG, for how much and when.
Military Capability	The combination of force structure and preparedness that enables the nation to exercise military power.
Military Response Options	Options identified to achieve the required strategic effects.
Military Strategic Effects	Identify the strategic effects needed to realise the outcomes identified in the Military Strategic Objectives.
Military Strategic Objectives	Define the outcomes necessary to achieve each strategic task.
Military Strategy	That component of national or multinational strategy, presenting the manner in which military power should be developed and applied to achieve national objectives or those of a group of nations.
Minimal Level of Capability	Is the lowest level of capability (task specific) from which a force element can achieve its Operational Level of Capability within Readiness Notice, encompassing the maintenance of core skills, safety and professional standards.
Needs Phase	That phase of a capability life cycle that commences when a capability gap is identified and a materiel solution is required. This may occur when a system needs to be introduced, improved or replaced.
Net Personnel and Operating Costs	NPOC is the difference between future and current mature operating costs associated with a capability, facility, system or specific item of equipment. It reflects the net difference between the cost estimates to operate a new, upgraded or replacement capability offset by the guidance (DMFP funding) available to operate the current capability, across all affected Groups.
Network Centric Warfare	A means of realising more effective warfighting ability, this concept involves the linkage of engagement systems to sensors through networks and the sharing of information between force elements. It has two closely related and mutually reinforcing dimensions: the human dimension and the network.

Off-the-Shelf	<p>A product that is available for purchase, and will have been delivered to another military or Government body or commercial enterprise in a similar form to that being purchased at the time of the approval being sought (First or Second Pass).</p> <p>An option put forward at First Pass that was not considered off-the-shelf at that time, but which meets the criteria at Second Pass, may be considered as an off-the-shelf option at Second Pass.</p>
Operational Release	The acknowledgment by the relevant CM that a capability system or subset, has proven effective and suitable for the intended role and that in all respects is ready for operational service.
Operational Concept Document	Is the primary reference for determining fitness-for-purpose of the desired capability to be developed, and is a complementary document to the Function and Performance Specification (FPS) and the Test Concept Document (TCD) which form the Capability Definition Documents (CDD) to define the capability system baseline.
Operational Concepts	Operational Concepts, including the Joint Warfighting Concept, are generalised constructs within a strategic context that describe how joint forces might perform strategic and operational tasks, the capabilities they need and the associated levels of performance.
Operational Level of Capability	Is the task-specific level of capability required by a force to execute its role in an operation at an acceptable level of risk.
Outcomes	Outcomes are the results, impacts or consequences of the Commonwealth on the Australian community.
Preliminary Operational Concept Documents	A cost analysis document presented as part of First Pass phase to provide a clear understanding of the cost-effective differences between the various options. The POCD varies between specific capability-based projects and effects-based projects.
Preliminary Test Concept Document	Articulates the proposed approach to test and evaluation of each option presented at First Pass.
Project Identification Document	A Project Identification Document provides DSA with an overview of the project, and highlights various aspects which may require consideration of security issues. The Project Identification Document is to be submitted to DSA upon establishment of the project.
Project Management	The activity of managing projects undertaken by and/or contracted out by Defence, to achieve stated objects through the application of planned strategies and processes within predefined constraints, including project scope, costs, time, quality and stakeholder satisfaction
Project Management Plan	Describes the plan that provides a summary of the project phase including what, how and when activities are to be done, who is responsible, the budget and risk associated with these activities. The PMP is a summary level document supported by detailed subordinate planning documents.

Request for Proposal	A formal invitation seeking industry interest, used to encourage the offer of innovative solutions and indicative costs to meet desired outcomes in a broadly-based project proposal.
Request for Quotation	A formal statement of a requirement confined to one or more suppliers (usually not publicly advertised) which is used to obtain offers from those suppliers.
Request for Tender	Used primarily to obtain tenders for clearly defined and specific requirements. It may be derived from an evaluation of earlier responses to Invitations to Register, Request for Proposals, and industry briefings. Request for Tenders may be from the public at large or confined to one or more suppliers.
Requirements Phase	The second of the five-phase Capability Life Cycle, and defines the requirements, including operational support concepts and specification.
Second Pass (Project) Approval	The final milestone in the Requirements Phase, at which point Government will endorse a specific capability solution and approve funding for the Acquisition Phase. The project cannot proceed to the Acquisition Phase until this approval is obtained from Government.
Security Classification Grading Document	Defence projects which involve material classified RESTRICTED or above are required to develop a Security Classification Grading Document (SCGD), which provides classification guidance to project staff, and also to any contractors involved with the project. The SCGD is generally included in request documentation passed to a contractor, and forms part of the eventual acquisition contract, to provide the necessary guidance to develop tender responses appropriately, and to handle information or equipment they access on behalf of Defence in accordance with Defence's security requirements.
Specific Capability Based Project	A major capital equipment project that seeks replacement of a distinct capability or a refurbishment of existing equipment, or that have a relatively narrow range of options to fulfil the capability requirement.
Stakeholders	Those people and organisations who may affect, be affected by, or perceive themselves to be affected by a decision or activity. Note: The term 'stakeholder' may also include interested parties as defined in ISO 14050:1998 and AS/NZS 14004:1996.
Strategy Group	Strategy Group develops military strategy and strategic policy to provide a framework for the development of future Defence capability and to support military deployments, operations, and exercises.
Support System	The organisation of hardware, software, materiel, facilities, personnel, data, processes and services required to enable the Mission System to be effectively operated and supported to meet its operational requirements.

Sustainability	A force's ability to continue to conduct operations, measured in terms of the personnel, equipment, facilities and consumables necessary for the force to complete its assigned operational tasks
System	An integrated composite of people, products and processes that provide a capability to satisfy a stated need or objective. A system is a combination or assembly of hardware, software, principles, doctrines, methods, ideas, procedures and personnel, or a combination of these, arranged or ordered towards a common objective.
Systems Engineering	An interdisciplinary approach that encompasses the entire technical effort, and evolves into and verifies an integrated and life cycle balanced set of system people, products, and process solutions that satisfy customer needs.
Test and Evaluation	A process to obtain information to support the objective assessment of a capability system with known confidence, and to confirm whether or not a risk is contained within acceptable boundaries across all facets of a system's life cycle.
Test and Evaluation Master Plan	Describes the plan for traceability between T&E activities and the endorsed critical issues, to further ensure that only the required testing is undertaken. Results of T&E planned in the TEMP are used to provide proof that new or upgraded capability meets its baseline, is safe and fit for purpose throughout its life-cycle.
Test Concept Document	Provides the basis for Defence Materiel Organisation's development of the Test and Evaluation Master Plan (TEMP), and is the highest level document that considers T&E requirements within the capability system's life-cycle management.
Through Life Costs	All the costs incurred once a capability, system or equipment has been introduced into service, including all the costs associated with ownership and disposal.
Through Life Support	A whole-of-life management methodology that takes an integrated approach to all aspects of supportability and readiness of a materiel capability or system.
Troika	A committee comprising CCDG, HCS and FASCIR, who determine the options a project will investigate before the First Pass documentation is presented to the Defence Capability Committee. Also known as the Options Review Committee.
Two-Pass Capability Process	The two-pass system requiring First Pass approval and Second Pass (Project) approval, is a rigorous system for new acquisitions with Government considerations dependent on comprehensive analyses of technology, cost (prime and whole-of-life) and schedule risks subjected to external verification. It ensures that Government is able to exert early influence over the Major Capital Investment Program.



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